International Council on Education for Teaching (ICET)

59th World Assembly
- Challenging disparities in education -

June 19 - 22, 2015
Naruto University of Education
Naruto, Tokushima, Japan

59th Yearbook of Teacher Education

Edited by Yumiko Ono

ICET

ICET 2015
NARUTO UNIVERSITY OF EDUCATION
TOKUSHIMA
JAPAN

Naruto University of Education
鳴門教育大学

CONTENTS

Refereed Papers

Subtheme:Pedagogy and Practice

Non-refeed Papers

Multiple Presenters Symposium

The International Council on Education for Teaching
History, Mission & Goals

Vision

The vision of ICET is that all learners will have access to a high quality education in which educators are appropriately qualified and recognized as motivated and committed professionals and practitioners.

Mission

The mission of ICET is to improve the educational experiences and outcomes of learners in all parts of the world by providing opportunities for those involved in their education to share knowledge, practice, resources, and expertise and establish active partnerships that are designed to enhance the quality of teaching and learning and improve life opportunities for young people.

History

The International Council on Education for Teaching (ICET) is an international association of policy and decision-makers in education, government and business dedicated to global development through education. ICET provides programs and services that give its members access to a worldwide resource base of organizations, programs, specialized consultative services and research and training opportunities at the university level. It is a Non-Governmental Organization (NGO) and participates in NGO meetings and other UNESCO-sponsored conferences around the world. ICET is a NGO in consultative status (Roster) with the Economic and Social Council.

Founded in 1953, ICET was part of a major cooperative effort by the world's education community to provide quality education for its citizens. Since then, ICET has continued to emphasize international cooperation in educational development to improve the quality of teacher education and to expand global educational opportunities. Scholars, administrator, practitioners from universities, colleges, departments and institutes of education as well as members of government ministries, the teaching profession and business leaders interested in educational development are invited to participate in ICET and share their ideas, research and experience with professionals from around the world.

ICET's Global Mission and Goals

- To foster international cooperation for improving the quality of preparation of teachers, administrators and other education specialists through the development of national, regional and international networks.
- To promote cooperation between higher education institutions, government and the private sector to develop a worldwide network of resources for innovative programs in international educational development.
- To provide an international forum for the exchange of information and the discussion of issues and trends in education and development.
- To assist educational personnel training institutions all over the world to respond to the need for improved facilities, diversified curricula and alternative and non-traditional educational methods.

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Board Meeting Agenda

Minutes of the ICET World Assembly Board Meeting

June 18th, 2015: 9:00-16:00

1. Welcome
2. Minutes of Previous Meeting
3. Conference Reports
4. World Assembly Report 2014
5. World Assembly Report 2015
6. Nominating Committee Report
7. President's Report
8. Report on ICET Anniversary Book
9. Report on the 2016 World Assembly.
10. 2017 World Assembly
11. General Business
12. Meeting Close

General Assembly Agenda

Naruto University of Education

Sunday, June 21st, 15:15-16:15

1. Welcome and introductions (David Mandzuk, Chair)
2. Mission and vision of ICET (James O'Meara – President)
3. Open forum – Questions about ICET from those assembled
4. Recommendations of the ICET Nominating Committee
5. Thank you to the ICET 2015 Conference committee – (Yumiko Ono and Naruto University of Education)
6. Looking ahead to next year – the 60th World Assembly in Kingston, Jamaica (Carol Hordatt Gentles, University of West Indies)
7. Why ICET? What about you?
8. Adjournment

Conference Program Overview

Conference Chair Professor Yumiko Ono
Naruto University of Education

Thursday, June 18, 2015

10:00-16:00	Board Meeting NUE

Friday, June 19, 2015

9:00-	Registration
9:00-11:30	Networking (Tea)
11:30-12:45	Lunch break
13:00-13:45	Opening ceremony with Welcome speeches (Auditorium) Dr. Yuzo Tanaka, President, Naruto University of Education Mr. Kihei Maekawa, Deputy Minister, Ministry of Education, Culture, Sports, Science and Technology Mr. Kamon Iizumi, Governor of Tokushima Prefecture Prof. James O'Meara, Chair of Board of Directors, ICET
13:45-14:45	Keynote Address Prof. Mark Bray
14:45-15:15	Tea
15:15-17:45	Major Forum :ESD

Saturday, June 20, 2015

8:00-	Registration begins
9:00-10:15	Keynote Address Prof. Ryoko Tsuneyoshi
10:15-10:45	Tea
10:45-12:15	Concurrent sessions Poster

12:15-13:30	Lunch break
13:30-15:00	Concurrent sessions Poster
15:00-15:30	Tea
15:30-18:00	Major Forum :Teacher Performance Assessment
18:30-20:00	Gala Dinner

Sunday, June 21, 2015

8:00-	Registration begins
9:00-10:15	Keynote Address Prof. J.M Rogan
10:15-10:45	Tea
10:45-12:15	Concurrent sessions Poster
12:15-13:30	Lunch break
13:30-15:00	Concurrent sessions Poster
15:15-16:00	General Assembly

Monday, June 22, 2015

8:30-	Conference Tour -Attached Elementary School -Yoshinogawa High School -Tokushima General Education Center
	Lunch

A breakdown of participants by country in the 59th World Assembly of ICET

Afghanistan	Angora	Argentine
Australia	Belgium	Burkina Faso
Cambodia	Canada	Chile
Czech Republic	Ethiopia	Fiji
Ghana	Great Britain	Hong Kong
Indonesia	Iraq	Israel
Jamaica	Japan	Kenya
Laos	Malawi	Marshall Islands
Micronesia	Myanmar	Namibia
Nauru	Nepal	Nigeria
Oman	Pakistan	Palau
Papua New Guinea	Philippines	Portugal
Russian Federation	Solomon Islands	South Africa
Sweden	Tanzania	Thailand
Timor Este	Tonga	Uganda
United States of America	United Kingdom	Zambia
Zimbabwe		

Message from the President of the Naruto University of Education

Dr. Tanaka Yuzo

Welcome to ICET 2015, The 59th World Assembly.

Ladies and gentlemen, participants and visitors from all over the world, welcome to the Naruto University of Education. My name is Yuzo Tanaka, the principal of this University.

For this year's International Council on Education for Teaching, I would like to express my deepest gratitude to Mr. Maekawa, Deputy Minister of Education, Culture, Sports, Science and Technology, Mr. Iizumi, Tokushima Prefectural Governor, Mr. Izumi, Mayor of Naruto City, and all other guest who came all the way to Naruto.

Currently, with the expansion of global society, internationalization of universities is strongly demanded in Japan and all over the world. Especially, development of global human resources as a function of university is an urgent issue. Without a viewpoint on internationalization, even our university established for teacher training in Japan would not have hope for further growth.

Amongst the current situation of educational reform, we are very delightful holding forums and lectures with distinguished professors, teachers and guests from all over the world. It is very important to discuss various issues about teacher training from global perspectives.

Our University states, "Education is the basis of the Nation" in our university charter. As in this charter, I believe that mission of educating children is the most important issue for any country and must be preceded other issues.

Mr. Thomas Piketty, a French economist, mentioned "the main force pushing toward reduction in inequality has always been the diffusion of knowledge and the diffusion of education". And Miss Malala Yousafzai (from Pakistan), who received Nobel Peace Prize last year, also sent a message to the world; "One child, one teacher, one book and open pen can change the world. Education is the only solution. Education first."

Every nation in the world should be responsible for educating children. The world has to consider education for children as a first priority and therefore should provide "high-quality education to all children". Education is the basis of the nation for any country. "There is no nation without education".

We hope the knowledge and information emerged from this meeting will be helpful to improve and enrich teacher training and education for it all over the world.

As a hosting University of 2015 ICET meeting, we would like to continue our contribution to our friendship with all nations world wide through Education, Sports and Culture.

At the end, I would like to acknowledge and express my deepest appreciation to everyone who supported and prepared for today's successful conference. Thank you very much.

Message from Deputy Minister of Education, Culture, Sports, Science and Technology

Mr. Maekawa Kihei

On behalf of the Ministry of Education, Culture, Sports, Science and Technology, I would like to extend our warm welcome to the delegates who have gathered here in Japan to participate in the 59th World Assembly of the International Council on Education for Teaching (ICET), for the first time in the history of ICET.

It is not an exaggeration to say that to prepare excellent teachers is to create the future of a country, and by extension the future of mankind. In Japan, the improvement of the quality and abilities of teachers has always been of priority. In order to develop children with social competencies to be global citizens and to nurture future Japanese adults in contributing to the global society as leaders, it is necessary to recruit and retain teachers who are capable of performing these tasks. To that end, a comprehensive perspective of teacher education encompassing preparation, recruiting and in-service professional development is essential. Teachers, throughout their teaching careers must develop and enhance their sense of mission, morality and practical teaching skills.

In 2014, MEXT consulted the Central Council for Education on how individual teachers and schools as a team should be responsible for future education. The Council are discussing "re-examination and re-construction of teacher education through the articulation of each stage of initial preparation, recruitment and in-service professional development", "the environment for teachers to best demonstrate their qualities and abilities", and "measures to enhance schools' abilities as a team". I believe it is a global concern to improve the effectiveness of initial teacher training and to support the life-long learning of in-service teachers. In this light, it is timely and meaningful that committed professionals in the education field have assembled here in Japan to share their knowledge and experience regarding issues concerning teachers and learners.

I am confident that the 59th World Assembly of ICET in Naruto will be rewarding to everyone and will have a positive impact on teacher education in your country as well as in Japan.

Message from the Governor of Tokushima Prefecture

Mr. Iizumi Kamon

On the occasion of the opening ceremony of the 59th World Assembly of the International Council on Education for Teaching (ICET), I wish to extend my heartiest welcome to all the distinguished participants gathered in Naruto, Tokushima today who have travelled here all the way from more than 40 countries and regions.

I learned that ICET was founded in 1953 to provide quality education for citizens no matter where they live. Since its inception, ICET has hosted annual meetings in more than thirty countries and has provided the platform for researchers, administrators and practitioners "to share knowledge, practice, resources, and expertise and establish active partnership" to enhance teacher competence.

I express my deepest respect to ICET in the fact that it has actively been involved in improving the quality of education and training of quality teachers. ICET has been vocal in local conferences organized by UNESCO regarding measures to train quality teachers. In 2014, in the Chicago Dialogue, Professor O'Meara, the president of ICET, successfully passed the "Chicago Declaration", which emphasizes the important role of teachers and teacher educators in the post 2015 EFA agenda.

Today, our society has become highly informed and globalized at a speed beyond our imaginings. The environment surrounding our children is also rapidly changing. Under such circumstances, it is crucial to review curriculum content and enhance the quality and abilities of educational personnel in order to equip our children with the skills and competence to function as global citizens.

Currently, Tokushima Prefecture is promoting reform initiatives to transform schools to be relevant to the changing needs of society as well as to enhance the quality of the initial training of teachers and to provide continued support for in-service teachers in collaboration with Naruto University of Education and Tokushima Board of Education.

In this context, it is of significance that this World Assembly is held this year in Tokushima with "Challenging the Disparities in Education" as its theme. I hope that the participants deepen the discussion, strengthen their collaborative professional community and disseminate its outcomes to the world.

I conclude with my sincere wishes for the success of the 59th World Assembly in Naruto, the further development of ICET, and prosperity of all the participants.

Message from the President of ICET

Professor James G. O'Meara

Welcome to the 59th World Assembly of the International Council on Education for Teaching (ICET)!

May I begin by thanking President Tanaka for agreeing to host the World Assembly at Naruto University of Education. On behalf of the Board, I wish to personally thank the leadership of Professor Yumiko Ono for making an ICET World Assembly a reality for our delegates who have travelled to Naruto, Japan. I would also like to take this opportunity to thank the local organizing committee for all their work with our presenters, the conference program and assisting our delegates with travel and accommodation arrangements. A special thank you also needs to be extended to our Key Note speakers and presenters who have travelled to this conference to share their wisdom and create opportunities for future collaboration.

The theme of *Challenging Disparities in Education* reinforces the global focus on *inclusion* and *equity* in education. Inclusion and equity were identified as cornerstones of a transformative *Education 2030* agenda, by leaders attending the recent World Education Forum in Incheon Korea. Developing sustainable approaches to addressing all forms of exclusion, marginalization, disparities and inequalities in access, participation and learning outcomes must be a priority if we are to achieve the ambitious targets of the Education 2030 agenda. Teachers will play a central role in ensuring inclusive and equitable quality education opportunities for all, including our youngest and oldest learners. Teachers also will need to work with the most disadvantaged, including those with disabilities and out of school youth, if we are to ensure that no learner is left behind.

While ICET members include senior policy and decision-makers in education, government and business, the future of ICET lies with our emerging leaders and youth. Currently members of ICETs' Emerging Leaders In Teacher Education (ELITE) are planning exciting initiatives to improve educational experiences and outcomes in their part of the world. I would also like to   acknowledge the Japan International Cooperation Agency (JICA) and the 60 trainees they supported to attend the World Assembly. These delegates represent emerging leaders from Afghanistan, Angola, Burkina Faso, Cambodia, Ethiopia, Fiji, Ghana, Iraq, Kenya, Laos, Malawi, Marshall Island, Micronesia, Myanmar, Namibia, Nauru, Nepal, Pakistan, Palau, Papua New Guinea, Rwanda, Solomon Islands, Tanzania, Timor-Leste, Tonga, Uganda, Zambia, Zimbabwe. The presence of the trainees at our World Assembly serves as a clear example of JICA's commitment to strengthening ties between the people of Japan and developing countries. I invite delegates to actively engage in sharing knowledge and experiences with the trainees to assist them in their efforts to build a more peaceful and prosperous world.

Finally, I encourage you to talk to our Board Members about the benefits of membership and review the process for applying for Board Membership. The recent election of ICET to UNESCO's International Taskforce on Teachers for EFA will require more new members, ICET ELITE and Regional Board members to help the Taskforce in its' efforts to ensure quality teachers for every learner. Please make sure you connect with me over the next few days if you would like to take a more active role in delivering on this promise.

Message from the Chair of Board of Directors of ICET

Dr. Maria Assunção Flores

On behalf of the Board of Directors of the International Council on Education for Teaching (ICET), I welcome you to our 59th World Assembly at Naruto University of Education, Tokushima, Japan. ICET's mission is to promote high quality education for all learners by educators who are appropriately qualified and recognized as motivated and committed professionals and practitioners.

The theme of the 2015 World Assembly, *Challenging disparities in Education* addresses a set of concerns that apply to our efforts to provide teachers and leaders for schools throughout the world. As the conference organizers state, the word "disparities" may differ according to our responsibilities and contexts. Our goal is to question and challenge disparities in education in order to fulfil ICET's mission: to improve educational experiences and outcomes of learners in all parts of the world by providing opportunities for those involved in their education to share knowledge, practice, resources, and expertise.

The 2015 World Assembly will provide opportunities for all participants from different parts of the world to share and discuss their ideas and enhance their knowledge in this field. Each of the following subtopics provides a basis for thoughtful consideration:

- Pedagogy and Practic
- Inclusion and Justice
- Online and Distance Education
- Politics and Policy
- Education for Sustainable Development
- Accountability, Evaluation and Accreditation

The plenary, concurrent and round table session papers as well as two major forums are prepared by a group of well-informed scholars who will share their insight on these important issues.

Naruto University of Education is the gracious host of our world assembly and we are indebted to them for their wonderful support. I also would like to express my gratitude to Professor Yumiko Ono, Chairperson of ICET WA 2015 Organising Committee and her team for their endless attention to the details of the conference.

Welcome to the WA 2015 and please enjoy your time with colleagues and friends.

International Council on Education for Teaching (ICET), 59th World Assembly,
"Challenging Disparities in Education", Naruto University of Education

Keynote Address, 29 June 2015

Exacerbating or Reducing Disparities?

The Global Expansion of Shadow Education and Implications for the Teaching Profession

Mark Bray
UNESCO Chair Professor in Comparative Education
The University of Hong Kong
mbray@hku.hk

Much has changed in education since ICET was founded in 1953. Some things have not changed, of course. Schools remain the dominant formal vehicle for delivering formal education for children and youth aged approximately six to 18; individuals designated as teachers remain the most visible people responsible for delivering instruction and promoting students' learning; and disparities in education remain a major concern, especially for policy-makers and managers of education systems and also for many people at school and classroom levels. Among the changes have been massive expansion of educational provision as populations have grown and enrolment rates have risen; new methods of teaching and learning facilitated by information technologies; and improved data availability on disparities and other domains as a result of expanded research and improved instruments for monitoring and evaluation. Other domains of change, of particular relevance to this paper, have included shifts in the balance between the roles of the state and the private sector, and expansion of forms of 'shadow education' which operate in parallel to regular school systems.

Concerning parallel provision of education, for a conference held in Japan a place to commence is with *juku* – a word that has entered the English language and that has been defined as "private, profit-making tutorial, enrichment, remedial and preparatory schools" (Wray 1999: 154). The nature of these private institutions in Japan has greatly evolved over the decades and centuries (see e.g. Mehl 2003; Sato 2012), but in contemporary times they are mainly bodies operating alongside schools to provide instruction in both academic and non-academic matters (see e.g. McLean 2009; Dierkes 2010; Watanabe 2013), among which the academic domain is of most interest to this paper. For readers able to read English but unable to read Japanese, Roesgaard (2006) provides helpful insights and classifications of types of *juku*, which have greatly increased in number during since the 1960s. According to the Ministry of Economy, Trade and Industry [METI] (2013, p.92), in 2009 the country had 51,726 *juku* with 332,541 employees; and in 2010 the market value of *juku* was 925.4 billion JPY (approximately US$8 billion).

Yet *juku* and their equivalents are not found only in Japan. They have become a global phenomenon, albeit with variations in different cultures and locations. Further, such institutions of supplementary education,

together with tutoring provided informally by university students, teachers and others, have become a substantial industry with backwash implications for regular schools. In some cases they may help to reduce disparities but, as noted by Tsuneyoshi's presentation for this Assembly (2015: 9-10) with reference to Japan and by many other researchers around the world, they are much more likely to exacerbate disparities.

To set the scene, this paper first explains the metaphor of the shadow and outlines features of the shadow education around the world. Then the paper considers ways in which shadow education may affect the lives and work of teachers. Taking two contrasting situations, the paper indicates some reactions of teachers in Hong Kong and Cambodia. The former is a prosperous society in which most shadow education takes place outside the schools with little direct involvement of regular teachers, while the latter is a low-income society in which much shadow education is provided by regular teachers as a way to supplement their salaries. Patterns may be interpreted through the lenses of ecology and of marketisation of education. The next section returns to issues of balance between public and private sectors in a changing world. Finally, the paper summarises some implications of the expansion of shadow education for ICET itself, for educational disparities, and for the work of teachers around the world.

The Scale and Nature of Shadow Education

Early users of the term shadow education to describe private supplementary tutoring included Marimuthu et al. (1991) referring to Malaysia, and Stevenson and Baker (1992) referring to Japan. The metaphor was given wider exposure in a global context by the present author (Bray 1999). The basic notion is that much of the parallel sector mimics regular schooling: as the curriculum in the schools change, so it changes in the shadow; and as the mainstream system grows, so does the shadow. The metaphor is not perfect, since some activities in the shadow sector complement and expand on those of schools rather than just copying. Also, while the implication of the shadow metaphor is that subjects are taught first in schools and then in the shadow, in reality the sequence may be reversed. Nevertheless, the metaphor is adequate for many purposes and is widely used in the literature.

A related component in many analyses, and certainly pertinent to this paper, is that shadow education is fee-charging. Thus the focus here excludes supplementary help given free of charge by relatives, community bodies, schools, or other individuals and organisations. Further the principal focus of this paper, in line with the dominant literature, is on academic subjects – i.e. excluding soccer, ballet, religious instruction and other subjects primarily learned for personal development rather than academic achievement. Shadow education may be found at all levels, from kindergarten to university. However, the chief focus of this paper is on the primary and secondary levels of education.

Table 1 presents some statistics on the shadow education around the world. The numbers should be interpreted with caution, especially when making comparisons, because they were collected on different types of samples and with varying degrees of methodological rigour. Nevertheless, they show that shadow education is a significant phenomenon not only in East Asia but also in parts of Africa, Australasia, the

Americas, South Asia and Western Europe. Moreover, the sample shows high rates in both rich countries such as Canada and Cyprus and poor countries such as Pakistan and Ghana.

Table 1: Cross-national Indicators of Shadow Education

Location	Patterns
Argentina	Cámara and Gertel (2014) surveyed 360 students who had gained admission to the University of Cordoba. The researchers chose different programmes to identify variations in the demand for tutoring to gain entrance. Rates were 17%, 31%, 39% and 92% respectively of admitted candidates in Law, Dentistry, Economics and Medicine.
Australia	Dillon (2011) reported that parents were spending up to Aus$6 billion a year on private tutoring, with the industry having grown by almost 40% over the previous five years.
Canada	Aurini and Davies (2013: 157) reported that 33% of parents had purchased supplementary education and that 21% of nine-year-old children had received some kind of private tutoring. Eckler (2015) described tutoring as the "new normal".
Cambodia	Dawson (2011: 18) surveyed eight primary schools in three locations, and found that about half of the students had received tutoring. Brehm & Silova (2012: 167) echoed with data from Grade 9 students in six schools.
China	The 2004 Urban Household Education and Employment Survey of 4,772 households indicated that 73.8% of primary students were receiving supplementary lessons, including in non-academic subjects. Proportions in lower and upper secondary were 65.6% and 53.5% (Xue & Ding 2009).
Cyprus	Data analysed by Lamprianou & Lamprianou (2013: 4) indicated that 80.5% of households with school-aged children were paying for private tutoring.
England & Wales	A 2014 survey of 2,700 young people asked whether they had ever received private or home tutoring. In London, 37% of respondents replied affirmatively, and 20% in the rest of the country did so (Sutton Trust 2014: 2).
Egypt	Household survey data reported by Sobhy (2012: 49) indicated that 81% had children who had received tutoring in the secondary stage, and that 50% had received tutoring at the primary stage.
Ghana	A 2008 survey of 1,020 households found that 48% were paying additional fees for tutoring in primary education (Antonowicz et al. 2010: 21).
Hong Kong	A 2011/12 survey of 1,646 students in 16 schools found that 53.8% of Grade 9 students and 71.8% of Grade 12 students were receiving tutoring (Bray 2013: 21).
India	Sen (2010: 315) stated that at the primary level in West Bengal, 57% of students were receiving private tutoring. Data from a nationwide rural survey showed rates among children aged 6-14 ranging from 2.8% in Chhattisgarh to 73.0% in West Bengal (Pratham 2013: 55).
Japan	A 2007 survey found that *juku* served 15.9% of Primary 1 children, that this proportion rose steadily in later grades, and that it reached 65.2% in Junior Secondary 3. In addition, 6.8% of Junior Secondary 3 pupils received tutoring at home, and 15.0% followed correspondence courses (MEXT 2008: 13).
Korea, Republic of	In 2014, 81.1% of elementary school pupils were estimated to be receiving private tutoring. In middle school the proportion was 69.1%; and in general high school it was 56.2% (KOSIS 2015).
Malta	Statistics cited by Buhagiar and Chetcuti (2013: 136-137) indicated that up to 51.9% of primary students and up to 82.9% of secondary students were receiving private tutoring.
Pakistan	A 2012 survey of six cities and 136 rural districts found that 34.0% of urban children and 11.3% of rural children attending school received private supplementary tutoring. In Karachi the proportion reached 60.2% (ASER-Pakistan 2013: 118, 143).
Sri Lanka	Pallegedara (2012: 380) examined 2006/07 survey data of 10,677 households with students aged 6 to 21. Among these households, 64.0% had spent money on private tutoring. This compared with just 23.3% in a comparable survey in 1995/96. Suraweera (2011: 20) reported that 92.4% of 2,578 students in a Grade 10 survey and 98.0% of 884 Grade 12 students were receiving tutoring.
Trinidad & Tobago	A sample of 801 children in primary schools found that 5.7% in Standard 1 received extra lessons. Proportions rose in subsequent grades to 7.4%, 25.4%, 68.4% and then 88.2% in Standard 5 (Barrow & Lochan 2012: 411).

Important differences arise between tutoring supplied by commercial companies and by other providers such as university students on an informal basis. Even among the companies are wide differences. At one end are multinational enterprises such as Kumon which operate on a franchise basis, and at the other end are small companies serving only their immediate neighbourhoods (Bray & Kwo 2014: 21-24). Some companies operate large classes in lecture theatres, while others serve individuals and/or small groups. Informal providers are more likely to provide tutoring in the homes of either the tutors or the students, and again usually focus on individuals and/or small groups (see e.g. Oller 2011; Viel 2012).

In some countries, teachers are another important group of shadow education providers. Teachers may work part-time for tutorial companies (see e.g. Zhang 2014: 447), or they may work independently. In the latter case, they may provide tutoring in their own homes, in the homes of students, or in other locations (see e.g. Mariya 2012; Hartmann 2013). In some countries, teachers commonly provide private supplementary tutoring on school premises.

These observations on scale and nature lead easily to observations about disparities. Private supplementary tutoring could reduce disparities, e.g. by encouraging slow learners to catch up with their peers. However, if left to market forces it is much more likely to increase disparities because richer families can afford more and better tutoring than middle-income and poor families. In many countries shadow education has become so widespread that families consider it a necessity for investment; but those who really cannot afford it are then left behind. Amartya Sen devoted part of his Nobel Prize resources to the Pratichi Trust working in low-income parts of West Bengal, India. The Trust surveyed primary education in 2001/02 and again seven years later. Sen highlighted (2009: 13)

> a real regression, as opposed to progress, on the dependence on private tuition [tutoring]. The proportion of children relying on private tuition has gone up quite a bit (64 per cent from 57 per cent for the students of standard primary schools…). Underlying this rise is not only some increase in incomes and the affordability of having private tuition, but also an intensification of the general conviction among the parents that private tuition is "unavoidable" if it can be at all afforded (78 per cent of the parents now believe it is indeed "unavoidable" – up from 62 per cent). For those who do not have arrangements for private tuition, 54 per cent indicate that they do not go for it mainly – or only – because they cannot afford the costs.

Sen noted that most of the content in the private tutorial classes could and should have been taught in the regular classes of the primary schools, and added that private tutoring divided the student population into haves and have-nots. Of even more pertinence to this paper, Sen observed (pp.14-15) that shadow education "makes teachers less responsible and … diminishes their central role in education".

Two Case Studies

To elaborate on such matters, and particularly to identify the impact of shadow education on the attitudes and work of teachers, this section takes a pair of case studies. The first is of Hong Kong, a prosperous society in which shadow education is mainly supplied by companies and informal providers, and in which teachers do not commonly provide fee-based supplementary tutoring. The second is of Cambodia, a low-income country in which the commercial sector is less developed and most tutoring is provided by teachers, often to their own regular students.

Hong Kong

Forty years ago, private supplementary tutoring was almost unheard of in Hong Kong. Twenty years ago it was known about but limited in scale; and now it seems ubiquitous. As recorded in Table 1, a 2011/12 survey found that 53.8% of Grade 9 students and 71.8% of Grade 12 students were receiving tutoring (Bray 2013: 21). Proportions are also high at the primary level. For example, a 2009 telephone survey of 521 students reported that 72.5% of upper primary students received tutoring (Ngai & Cheung 2010).

The commercial marketplace for tutoring in Hong Kong is diverse. At one extreme are large companies, one of which is quoted on the stock exchange (Hong Kong Education [Intl] Investments Limited 2014). These large companies target senior secondary students, and particularly offer drilling and tips for external public examinations. Several companies advertise their tutors as "kings and queens", with advertisements in newspapers, on streets, and on the exterior of double-decker buses (Kwo & Bray 2011). Their tutors dress fashionably and attract clients with teenage vocabulary of a sort that would be frowned upon in schools. The companies also advertise their tutees' examination results, selling "the educational dream of success in Hong-Kong's exam-oriented culture" (Koh 2014: 817). By government regulation, classrooms have maximum capacity of 45 students, but some have glass walls with internal TV monitors so that over 100 students can simultaneously learn from one tutor (Lee 2010; Yung 2011). As an alternative to live classes, students can join video-recorded lessons at a slightly lower cost.

Alongside are smaller companies which particularly serve primary and lower secondary students and are localised in their immediate neighbourhoods. In November 2013, the website of the government's government' Education Bureau listed 1,185 registered academic-oriented tutorial centres, including the very large ones with multiple branches but mostly comprising small operations. By comparison, Hong Kong had 1,083 secondary and primary schools (Education Bureau 2014, p.7).

The 2011/12 survey mentioned above (Bray 2013) had quantitative and qualitative components and solicited the views of teachers as well as students. In their attitudes towards shadow education, and particularly the roles of the commercial sector, three main groups of teachers were identified. Some teachers had not thought much about the matter, evidently considering the shadow sector beyond their remit. A second group was offended by the shadow sector, seeing it as unnecessary and even parasitic. Teachers in this group felt that their own provision was adequate, and that the activities of the shadow sector were to some extent

intrusive and damaging. Teachers in the third group welcomed the shadow sector, encouraging students to learn from all sources, both in-school and out-of-school.

Elaborating on the last of these, the positive teachers recognised the constraints faced by the students. In the words of one teacher:

> Public exams are important. Teachers hope students perform well. We really don't mind them asking other ways for improvement. But of course the best way is that teachers can spend more time on teaching and helping more students.

Some teachers noted the dimensions which the students found attractive in the parallel sector and sought to improve their own lessons. For example, some teachers borrowed notes from the commercial sector to improve their classes.

By contrast, one complaint of the teachers who were antagonistic to the shadow sector concerned students' attitudes. Students had little or no choice of teachers within their schools, and perhaps did not value services which were free and compulsory. They did, however, have choices in the marketplace and gave tutors particular attention because they were paying fees. Some tutorial companies encouraged the students to view their teachers as inadequate so that the students would remain clients. Tutoring commonly took place in the evenings, with the result that students were tired during the day. One teacher expressed her complaint sharply. The students, she said:

> think that schoolteachers are useless…. They take out the tutoring materials in your lessons. They don't care what you are teaching. They are so disrespectful. In some extreme cases, students no longer complete homework we assign to them…. Tutoring used to be a supplement to learning, not a major learning place. But now school becomes a place to play and sleep. I think some students have reversed the order.

Other complaints were about the content of the tutoring, much of which focused on drilling rather than on what the teachers considered to be real education. Also, some teachers felt that the tutors upset the sequencing of school lessons by covering materials in advance or with different pedagogic approaches.

In these examples, using the analogy of ecosystems the tutoring sector could be viewed as an invasive species which had upset previous balances and to some extent competed with the authority that the teachers had previously enjoyed (Bray & Kobakhidze 2015). While the teachers in the antagonistic group were most obviously concerned about that, even the work of the neutral teachers had changed. When an average of 71.8% of students are receiving supplementary help – and higher proportions in some schools – then teachers tend to assume that their students have access to such help and therefore that less effort is needed by the schools. This pattern echoes that in West Bengal observed by Sen. In such circumstances, the ecological balances have shifted not only for the students who do receive shadow education but also for the ones who do not.

Cambodia

Cambodia contrasts with Hong Kong not only in being a low-income society that is much less commercialised but also in being mostly rural. Whereas in Hong Kong almost all students can gain physical access to providers of shadow education through excellent private transport, rural students in Cambodia cannot do so. However, teachers are available throughout Cambodia. Where there are schools, there are also teachers; and many Cambodian teachers offer private lessons in addition to their public ones.

Table 1 recorded Dawson's (2011: 18) observation that about half of the primary school students that he surveyed were receiving private tutoring, and that similar proportions were found by Brehm and Silova (2014: 167) among Grade 9 students. Their samples were small, but were consistent with other studies (e.g. Bray & Bunly 2005: 40-42; UNDP 2014: 5). The issues associated with this form of shadow education, particularly the impact on social disparities, have been highlighted at least since the mid-1990s (see e.g. Asian Development Bank 1996: 107), but have proven intractable.

One part of the context for shadow education in Cambodia is that teachers' salaries are low; and increases have been rapidly eroded by inflation (Benveniste et al. 2008: 52; Tandon & Fukao 2015: 24). Many teachers therefore supplement their incomes through extra lessons. Commonly these lessons are for the same students that the teachers have taught have during regular lessons, and in the same classrooms.

Another part of the context for shadow education relates to a perceived mismatch between the official curriculum and the available time for delivery. Tensions are particularly significant in double-shift schools, i.e. ones in which one group attends in the mornings and another group attends in the afternoons. Coverage of the curriculum with attention to the needs of individual students may be especially challenging in large classes. As noted by Brehm and Silova (2014: 164):

> many parents and teachers believe that there is simply not enough time in the school day to cover the entire curriculum. The perceived lack of time leads to a perceived need for more instructional time simply to provide requisite coverage of the national curriculum.

However, inadequacies in available time can also be ensured. Dawson (2009) referred to "the tricks of the teacher", including withholding content important for examinations in order to persuade students to pay for supplementary classes. This has also been noted by the UNDP (2014: 6):

> The field study … detected apparent abuses of power: students were pressured to attend tutoring sessions, and private tutoring was used as a conduit for teachers to leak examination questions in advance.

In addition to the obvious questions about lack of access for children who were too poor to pay the tutoring fees, the UNDP highlighted "an additional concern about the ethos of children learning at an early age to bribe educators in exchange for access".

The phenomenon, it must be recognised, has many complexities and nuances. Variations arise according to the subjects and grades, the genders of the teachers, the communities served by specific schools,

and the policies of individual principals and local governments. Much also depends on the attitudes and decisions of individual teachers, students and families. Brehm and Silova "routinely heard that students who cannot pay the fees for tutoring are sometimes allowed to attend for free" (2014: 170), but also noted that children in high-income families were much more likely to attend tutoring classes than their low-income counterparts.

Brehm and Silova (2014) also made instructive comparisons between the structure and content of public and private lessons. In many respects, they reported, the government classes and private-tutoring lessons were similar, and the lines between public and private provision were often blurred. However, regular lessons and private tutoring had some differences even when the two to some extent had the same actors in the same locations (p.168):

> Not only were there fewer students in the private-tutoring classes and teachers were able to offer examples outside the national curriculum, but teachers were also able to employ pedagogies tailored to individual students. In private-tutoring classes, we often observed teachers circling the room to help students complete individual practice examples, whereas in mainstream school students often worked on problems in groups.

The opportunities to offer private classes also shaped teachers' decision-making on postings, subjects and grades to be taught. Urban areas may have higher living costs than rural ones, but they also have more opportunities to solicit tutoring. Teachers also choose the subjects for which demand is high, such as languages and mathematics, leading to neglect of other subjects such as history and geography; and teachers compete to teach the upper classes in which the examination pressures are stronger, thereby leading to neglect of lower classes.

Patterns in Cambodia would not easily be interpreted through an ecological metaphor along the lines of the Hong Kong commentary. The Cambodian ecosystem, except perhaps in parts of the large towns, has not experienced the arrival of a new actor in the form of commercialised tutorial centres. Therefore a more productive lens might be literature on marketisation in which teachers in the public sector are nevertheless able to offer their services in private arrangements (see e.g. Silova et al. 2006; Burch 2009; Felouzis & Fouquet-Chauprade 2011; Macpherson et al. 2014). The Cambodian example shows ways in which public and private may be intertwined within the same institutions and persons.

Changing Visions for Changing Times

Among major shifts in the education sector during recent times have been perceptions about the balance of government and private-sector roles. During the initial decades following the Second World War, a dominant view, enshrined for example in the Universal Declaration of Human Rights (United Nations 1948, Article 26), was that education was a human right and should be provided free of charge and provided by governments. This view is still held strongly by some people (e.g. Singh 2015). However, others have become more tolerant

of the possibility of the private sector as an alternative to the public sector and/or of cost-sharing and public-private partnerships (see e.g. Draxler 2008; LaRocque 2011; Robertson et al. 2012).

Most of the discourse has focused on schooling, with private institutions operating alongside public ones, but parts could also apply to shadow education. UNESCO (2015: 72) has pointed out that:

> In re-visioning education in a new global context, we need to reconsider not only the purposes of education, but also how learning is *organized*. In light of the diversification of partnerships and the blurring of boundaries between public and private, we need to rethink the principles that guide educational governance and, in particular, the *normative* principle of education as a public good and how this should be understood in the changing context of society, state and market.

The report noted the privatisation trend at all levels of education across the world, including the expansion of private tutoring (p.74):

> Often a symptom of badly functioning school systems, private tutoring, much like other manifestations of private education, can have both positive and negative effects for learners and their teachers. On one hand, teaching can be tailored to the needs of slower learners and teachers can supplement their salaries. On the other hand, fees for private tutoring may represent a sizeable share of household income, particularly among the poor, and can therefore create inequalities in learning opportunities.

Yet although private tutoring is "often a symptom of badly functioning school systems", this cannot be the only characterisation. Hong Kong's education system has been judged very positively, at least by inference, in rankings of the Programme for International Student Assessment (PISA) (OECD 2014) and the Trends in International Mathematics and Science Study (TIMSS) (e.g. Mullis et al. 2012); and similar remarks may be made about Japan, the Republic of Korea and other countries in which much shadow education exists. Thus, a more nuanced interpretation would take account of the forces of competition that indeed are exacerbated by PISA and TIMSS rankings among other factors. Parents see education as a powerful instrument for advancement in a world that has become increasingly competitive because of the forces of globalisation. Education is a positional good (Hollis 1982), in which families and students see the need to secure and maintain an edge over their competitors. Whether in Hong Kong or in Canada, Egypt or India, first elite, then middle-class, and finally even significant numbers of low-income families see a need to supplement to provision of schooling in the competitive environment. Governments may provide the basics, but the real sorting of high-status occupations and lifestyles comes through the extras of out-of-school education. This pattern is likely to become increasingly intense rather than to diminish.

Conclusions

The vision of ICET, as declared on its website (www.icet4u.org), is:

that all learners will have *access to a high quality education* in which educators are *appropriately qualified* and recognized as *motivated and committed* professionals and practitioners. (emphasis added)

The authors of that statement probably had in mind educational processes within the boundaries of formal schooling rather than a wider vision that encompassed private supplementary tutoring. In terms of *access* (or non-access, and therefore disparities), it is obvious that some families have much greater possibilities to receive high quality tutoring than others. Much depends not only on income levels but also on locations. Concerning *qualifications*, while governments and teacher-training institutions insist that teachers should be trained, many families are very willing to employ untrained tutors, some of whom are company employees and others of whom are just university students or others in the informal economy. Concerning *motivation*, it is possible that tutors whose incomes depend on performance in a marketplace pay more attention to client perspectives; but whether they can all be described as "committed professionals and practitioners" may be open to doubt.

Beyond the vision statement, the ICET website has a mission statement:

to improve the educational experiences and outcomes of learners in all parts of the world by providing opportunities for those involved in their education to share knowledge, practice, resources, and expertise and establish active *partnerships* that are designed to enhance the quality of teaching and learning and improve life opportunities for young people. (emphasis added)

The statement about active partnerships raises a question about how school-based educators and the tutoring industry view each other. Vocabulary about public-private partnerships may sound positive, but in practice may hide multiple forms of competition and dissonance. Taking the Hong Kong case, interview data indicate that some schools and tutors do view each other as partners, or at least as performers of complementary roles. However, another perspective is that parts of the tutoring industry undermine the schools and upset the ecosystem balances. In Cambodia, partnership does not seem to be applicable vocabulary since the public actors are also the private actors, i.e. publicly-employed teachers who provide private tutoring after school hours.

Lest the Hong Kong situation be seen as unusual, it must be repeated that tutorial centres of various kinds have mushroomed around the world. They have become highly visible not just in Asia but also in Western Europe (Bray 2011; Koinzer 2013), North America (Burch 2009; Aurini & Davies 2013), Australasia (Dhall 2014), and elsewhere. Compared with schools, these centres are in most cases loosely regulated. Their quality may not be assured even when their prices are high, and thus major issues of disparity exist among and within the tutorial centres. Further, when tutoring becomes very widespread, teachers may be inclined to assume that students have external support and thus to reduce the efforts that they might otherwise have devoted to their work.

And lest the Cambodian situation be seen as unusual, it must be noted that teachers provide tutoring in contexts ranging from China (Zhang 2014) to Georgia (Kobakhidze 2014) and Rwanda (Williams et al. 2015). In all these settings, issues arise not only about disparities but also about ethics and corruption. Jayachandran

(2014) has pointedly highlighted the "incentives to teach badly" when teachers are tempted to neglect their regular classes in order to devote energies to their private lessons.

Thus, finally, this paper has three major exhortations for ICET and its members:

1. *Recognise the scale and impact of the shadow education sector.* It has been widely ignored by Ministries of Education and by university Faculties of Education which see their missions as serving mainstream education systems. Organisations and individuals that view education for school-aged children and youths only within the boundaries of regular schooling are missing a major component of the picture. The shadow sector has now grown to a huge scale. While it used to be seen as particularly an East Asian phenomenon, it is now global.

2. *Consider the impact on disparities*. This matter is the core of the 2015 Assembly. The shadow education sector has its own internal disparities; and if left to market forces, it generally increases the disparities in schools and the wider society. These disparities, indeed, may be regional and partly explain why East Asian countries have performed well in PISA and TIMSS. But even strong performance on these assessments may be brought into question by the pressures that shadow education brings to young people. And at the level of specific companies and informal providers of tutoring major queries should be raised about the quality of provision. Some shadow education providers achieve outcomes that cannot be achieved by schools, but others are weak or even damaging without adequate monitoring and evaluation by parents and external bodies.

3. *Consider the roles of teachers*. ICET may wish to look more closely at the ways that teachers interact with and are part of the shadow education sector. Some teachers are themselves tutors. Supplementary work should not necessarily be prohibited, but it should at least be assessed and monitored. Other teachers are respondents rather than protagonists in the rise of shadow education in changing ecosystems. They respond in diverse ways, which again should be assessed and monitored.

As ICET and its members address these matters, they will find many complexities and undercurrents. Modes of operation and relationships between actors vary widely within and across families, schools, districts, provinces, countries, and regions. The research literature on this theme is still in its infancy, and ICET can help by expanding the evidence base and then facilitating discussions with policy makers and practitioners.

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Note on the Author: Mark Bray is UNESCO Chair Professor in Comparative Education at the University of Hong Kong. He began his career as a secondary school teacher in Kenya and then Nigeria, before taking posts at the Universities of Edinburgh, Papua New Guinea and London. He moved to Hong Kong in1986, but from 2006 to 2010 took leave to work in Paris as Director of UNESCO's International Institute for Educational Planning. He has written several books on shadow education, including The Shadow Education System:

Private Tutoring and its Implications for Planners (1999), Confronting the Shadow Educaton System: What Government Policies for What Private Tutoring? (2009), and, with Chad Lykins, Shadow Education: Private Supplementary Tutoring and its Implications for Policy Makers in Asia (2012).

Address: Comparative Education Research Centre, Faculty of Education, The University of Hong Kong, Pokfulam Road, Hong Kong, China. mbray@hku.hk.

Confronting Inequity in Japanese School Education

Ryoko Tsuneyoshi

Graduate School of Education, The University of Tokyo

Introduction

It was not so long ago that Japanese were said to think of themselves as uniformly middle class, or at least uniformly around the "middle" of the society (1). From the 1970s to the 1980s, the discourse of Japanese society being a "uniformly middle class society" was quite popular in the mass media and in the public mind.

Yet, since the 2000s, there has been a wave of a reverse discourse--that of social disparities (*shakai kakusa*) in Japanese society. With the end of the bubble economy came Japan's lost decade. Neoliberal policies are accused of widening the gap between the have and have-nots, as are the burst of the bubble economy, and globalization (Kariya, 2001; Sato, 2000; Shirahase, 2009).

Concerns about an increase in social disparity is by no means a uniquely Japanese characteristic. According to the OECD (2014a), the "gap between rich and poor is at its highest level in most OECD countries in 30 years" (p. 1). Naturally, this has implications for education. The relationship between social class and educational attainment has been observed in many societies; as social disparity grows, less fortunate members of the society are less able to invest in education. Social disparity is now a world concern.

Belatedly, it is also a concern in Japan. OECD data ranking Japan as one of the highest countries in terms of relative poverty rates (ratio of the numbers of persons below half the median equivalised household disposable income) has been sensationalized in the Japanese media (2). Publications, media, and the Internet suddenly abound with sensational reports of poverty and social disparity. According to a cross-cultural study of social disparity, however, Japan is not that different from countries like Germany and Sweden in terms of poverty indicators in reality, but what is different, is that "Japanese overestimate social disparities" due to its recent "discovery", and that they are not used to discussing the topic (Shirahase 2009, p. 251).

Indeed, there is an awkwardness in the way social disparity, or social differences at the basis of disparity, are discussed in Japanese society. On the one hand, there are sensationalized public images of certain districts having a lot of "serebu" (celebrities), or "yankees" (delinquents). Yet, media coverage of events which are obviously linked to social exclusion and minority status are not discussed as such (3).

In education as well, as the national government and localities turned to testing (see below), it has become possible to link indicators of regional wealth with test scores, and such rankings are reported everywhere, including the Internet, often using sensational language. It seems that there is a kind of fascination in "discovering" poverty, and in realizing that it is linked to educational outcomes--something that in other industrialized countries, would be commonsense, and reported in more careful (politically correct) language.

As visible poverty (e.g., joblessness) of the immediate postwar period declined and Japan was perceived to have become an (uniformly) affluent society in the mid 1960s onward, indicators of poverty were seen as becoming irrelevant enough to be dropped from official surveys (4). After a long silence, with the rise in concern over social disparity, the Ministry of Health, Labor and Welfare reported relative poverty rates (a different indicator from the pre-1960s period) for the first time in 2009, and the computation method was matched with the OECD (total rate 15.7%, children's poverty rate 14.2%, and single parent households with children householder 18-65 of age, 54.3%) (Koseirodosho 2010). Earlier data was also computed, so that it became possible to look at the trends longitudinally.

In order for society to address social disparity, its existence has to be recognized. This paper examines this theme in the Japanese educational context. As a scholar who has focused on issues of educational diversity, here, I will discuss what seems to be a major Japanese challenge, namely, the invisibility of the populations at-risk, and the implications.

The Individualization of Social Disparity

Educational achievement intertwines with many factors. Among such factors, the powerful relationship between race/ethnicity, social class, and educational achievement is almost commonsense in multi-ethnic societies. Social class intertwines with ethnicity and race, urban-suburban-rural regional differences, and other structural factors which disadvantage minorities and there are discussions about which is influencing what (Ogbu, 1978; Jencks, 1992).

On the other hand, difference, and therefore disparities due to difference, tend to be latent in present day Japan. Those dealing with at-risk populations have noted that poverty is often hard to see in Japanese society, and that until quite recently, people often did not think it existed in Japan, including, sometimes, those on welfare themselves (Aoki, 2010, p. 15). Child poverty was "discovered" by the media, writers, etc. around 2008 (Abe 2014, p. i). If poverty is not understood to be structural, this easily links to the individualized discourse that those in poverty are responsible for their own plight (Yuasa, 2008, p.87).

Aoki (2010, p.37) notes that the present discovery of poverty is the third wave, with the rise of awareness of poverty after the first wave during the Great Showa Depression (around the 1930s), and the second wave during the serious poverty and food shortage after WWII in the late 1940s (p. 37).

I would like to point out that in every period, poverty became visible. However, since in all the cases, visible poverty is linked to a certain state of society (e.g., depression, war), it seems that as soon as that social situation is seen as ending, so ends the awareness of poverty.

Indeed, social disparities in general, not just poverty, are hard to identify in Japanese society. Unlike the prewar period, social class markers (e.g., accent, inherited lifestyles) are not that visible, with perhaps the exception of the consumption of money. At-risk populations are often not visibly in clusters, and even when they are, they tend not to stand-out. The residents of these areas tend to look "Japanese", even if they are not, and they are not segregated from other areas by, for example, large differences in the numbers of violent crime (Civitas, 2010). This latency of social difference as it relates to social disparity, is possibly what helped sustain the illusion of middle class uniformity.

As a scholar studying cultural diversity issues in education, it seems that one of the factors contributing to this situation is possibly that there are very few visible minorities. If poverty is linked to catastrophic social events such as post-war social turmoil which do not continue, as soon as the initial crisis disappears, so does the consciousness of poverty. If social disparities are linked to traits that are less likely to change, such as racial differences, or social class in societies where social class is visible, it is harder to dismiss them as soon as one does not see street children (an example of visible poverty) on one's street.

Visible minorities, especially large visible ethnic/racial minorities are often at the core of equity issues in education in multi-ethnic societies. Ethnicity and race intertwine with social class, residential areas, lifestyles and life conditions (e.g., religion, food, occupation, etc.), cuts across other categories such as age and gender, and is associated with structural issues of discrimination, social exclusion, and national unity.

Since the case of ethnic/racial minorities highlights the challenges involved with the invisibility of difference in Japan, I will use it as an example. In the Japanese case, scholars looking for very basic data on ethnic/racial origin, like how many ethnic Japanese there are, face a huge obstacle, since the census and other public surveys typically do not ask for ethnic origin (Tsuneyoshi, Okano, and Boocock, 2011). There is no conception of a hyphenated Japanese in the public surveys; one is a Chinese national, Korean national, then, when he/she acquires a Japanese citizenship, in the surveys, one becomes "Japanese". If there are Japanese characteristics in how social difference is viewed, the lack of awareness for ethnic/racial minorities is certainly one of them. Even the books focusing on poverty rarely mention ethnicity/race.

The unawareness of ethnicity/race surfaces in many educational contexts. If one opens any elementary school social studies textbook, there will be almost an equal number of illustrations of girls and boys. Obviously, someone is counting
the number of illustrations by gender--a sign of awareness of this difference. Yet, the same girls and boys will all be black-haired, dressed similarly, and speaking fluent Japanese. There is no awareness of ethnic difference here.

In a content analysis of social studies textbooks, Tsuneyoshi (2007) showed how the social studies textbooks portrayed the "foreigners" as people who came from the outside, and then left, with the exception of the Koreans in Japan who were treated as a human rights issue in history, together with other discriminated-against populations. In general, there is very little reference to ethnic/racial differences.

At the same time, it is necessary to add that it is not that difference itself is ignored. In the textbooks, there are differences which are widely noticed. Occupation (e.g., working in the store, farm, in the office) and region (including climate) are definitely at the core of the message of difference in Japan. To a certain extent, gender, age, and being physically challenged are recognized in the pictures. However, the main manner in which different regions and occupations are displayed is clearly relativist. There are different regions, but, the message is that each region in their own way has used their different environment in creative ways and are equally valuable (Tsuneyoshi, 2007).

Unlike in western countries which colonized countries in which the population was visibly and culturally different from their original population, in the Japanese case, the countries it invaded were racially and culturally similar to the majority Japanese. Chinese and Koreans, Japan's largest foreign population, are very similar to Japanese physically, and share many cultural aspects as well. The Koreans in Japan, who reside as a result of Japan's colonial policies, most often use Japanese names, and their everyday language is Japanese. Registered foreigners total to less than 2 % (Homusho, 2014). Those that are not registered are often not measured, and are hard to find. In other words, the foreign or ethnic minority groups in Japan are often not visible.

The author has conducted fieldwork on foreign children in Japan, notably the new foreigners who have come into Japan since the late 1980s as foreign laborers, spouse of Japanese, etc. Characteristically, classroom teachers would have only one to several foreign children in their class, and thus every child would look like an individual rather than a pattern. According to a governmental survey in 2012, more than 44 % of schools which had students requiring assistance in Japanese language instruction had only one student—hardly a pattern (Monbukagakusho, 2012).

Teachers interviewed often unquestioningly applied middle class Japanese expectations of childrearing to foreign (e.g., Chinese) parents. For example, there is a middle class expectation that a caring mother would make hand-made lunches (*obento*) for her child (Peak, 1993; Allison, 1991). In schools visited, there were Asian parents who would buy packed lunches at the convenience store, and the teachers would see this as uncaring parental behavior of that particular parent (individual trait) rather than as different cultural expectations or different job conditions (structural or cultural traits). There would always be a foreign parent who would follow Japanese customs, so teachers could individualize the situation. In other words, from their eyes, there would be "caring" families and those that were less "caring", "just like with Japanese families".

Similarly, the teachers would use individualized reasons such as lack of motivation, poor parenting, etc. to explain the poor achievement of foreign children (Tsuneyoshi, 1995).

There is a problem here, however. Tracing the roots of poor achievement of minority children to individual factors can very well lead to blaming the victim. In societies which have long noticed differences in social class, there are many classic studies that show how working class children and their families are "structurally" disadvantaged in schools that support middle class norms and behavior (Bernstein, 2003; Lareau, 2003). The relation of ethnic or racial minorities to schools which adhere to the majority Japanese norm could be said to be very similar. However, in a society in which social class difference is suddenly being "discovered", and ethnic/racial difference is largely unnoticed, there is the danger of blaming the victim as a social consequence of imagined homogeneity.

The Invisibility of Difference

In the proceeding pages, I have argued that the lack of the recognition of difference, together with the heightening of the awareness of certain kinds of social disparities, has led to a patchwork discourse about social disparity in Japan. Certain sensational equity topics, such as low test scores in working class regions, may be discussed, but not other themes which in other countries would be discussed in relation to social disparity. Much of the problems the disadvantaged face, are discussed as individualized problems rather than as structural problems such as social exclusion and discrimination.

I would argue further, that not all the mechanisms that keep social difference latent in the educational context are unconscious. The abundance of matched belongings in schools hide social class differences, the emphasis on classroom community highlights what children have in common, or what experiences children can share, rather than what divides. Ability grouping (as in the American sense) is not practiced in Japanese elementary schools. Japanese schools are also whole person-oriented, and there are periods for not only academics but also nonacademic activities such as daily meetings, school events, and lunch instruction in the curriculum (5). The goal of such school practices is to build a caring community, but as a latent function, it also restricts the display of differences which divide, such as the child's socioeconomic status. Thus, the latency of difference may be positive depending on the circumstances. Identifying social disparities without a clear equity framework can very well lead to stigmatization.

Test scores are visible displays of differences, and if they are administered on a local or national scale, they can reveal patterns of inequality. As testing and evaluating became popular in Japan, conscious efforts at market-oriented reform began to be promoted in the government (the national test, Zenkoku gakuryoku/gakushu jyokyo chosa, started from 2007 to elementary and junior high) and in different localities. Some localities, including Tokyo, started to administer their own tests (Jido/seito no gakuryoku kojyo o

hakarutame no chosa, from the 2003 school year, 2004 for elementary schools). In the beginning, Tokyo released the scores for the localities, which led to widespread, and quite sensational coverage of the lowest ranking districts. The Japanese public via such sensational media coverage, suddenly seemed to be discovering "objective" evidence that educational attainment is linked to poverty--a fact that has long been common knowledge in other more visibly diverse societies.

In the results of the Tokyo-wide tests (2004), the lowest ranking Adachi ward, became a sensationalized media target. Adachi ward is a working class area, and as the test scores came out, so did indicators of poverty. The other Tokyo areas with similar social class compositions also ranked lower, and the more uniformly higher social class areas ranked higher. The latter are also the areas with famous private and national kindergartens and elementary and junior high schools within commuting distance (see argument below).

Adachi ward, in its attempt to bring up test scores, started its own test (Adachiku gakuryoku koujyou ni kansuru sougou chosa) and disclosed the names of schools and changed the budget according to the test scores. A notorious case (2006) in which the teachers signaled to the pupils when they got the answer wrong, and some students were excluded from the results, became a turning point for Adachi and direct data on school rankings were no longer released.

There has also been similar discussions about whether or not to make the results of the above-stated national test open. The national test began in 2007 under the Abe cabinet. The initial Ministry of Education guidelines asked boards of education not to identify individual school names. In the 2014 national test, it has become possible for localities to release individual school names, but those that do still remain a small minority (6). In its homepage reporting the results of the 2014 national tests, the above-stated Adachi ward says, "on releasing the results, we are cautious so that it doesn't lead to ranking while maintaining accountability (7).

The same pattern is repeated in regards to youth. As the income gap widens, the youth and the poor are said to be hit the hardest (OECD 2014b, p.1). However, in Japan's case, youth poverty tends to be hidden, since Japanese youth in economically unstable positions are more likely to live with their parents and receive financial assistance within the confines of the family; thus Miyamoto (2015, p. 5) argues that the issue tends to be discussed not as social exclusion as in the west, but as an individual psychological or motivational problem of the youth in question. As mentioned previously, this pattern of a structural problem discussed as an individual issue (e.g., character, lack of motivation, the way the parents brought the child up, etc.), is one that seems to be repeated. It has also been maintained that the wider function of the Japanese family makes it more difficult to see elderly at-risk as well.

The Irony of Ranking in the Unofficial Sphere

There is a certain irony about the reluctance to disclose differences and rankings in Japanese public education. For a country whose public system so carefully hides differences which may lead to stigmatization and ranking, the world outside --especially the education industry and the mass media--thrive on it.

Despite the resistance of ranking in the public system, the private education industry, notably the *juku/yobiko*, have long ranked schools, from kindergarten to college, by the standardized scores of students who are predicted to pass the entrance examination of a certain private/national school. During entrance examination season, popular magazines post the numbers of students who passed the entrance examination for brand universities by high school--information which is valuable for schools in attracting potential students. Private junior-senior high schools which have a single curriculum covering the contents of the 6 year period, have used their competitive edge to better prepare their students for the entrance examinations of universities (e.g., accelerated curriculum). These types of secondary schools dominate the top positions in those students passing the University of Tokyo--a popular criteria to rank schools. In the 2015 entrance examination results, no public school ranked within the top 10 (two national schools, Tsukubadai and Gakugeidai were included). Kaisei, a boy's private school in central Tokyo, has ranked first place for over 30 years.

Possibly, the most privatized competition situation occurs at the elementary to junior high school level in these urban centers. This only affects a very limited number of children, even in the mega-city areas, since the percentage of 6th graders in the larger Tokyo area (*shutoken*) taking the junior high school exam on the morning of Feb. 1st (the main exam day for private junior highs) was 10-15% in 2014 (Sapix, 2014). However, it is a symbolic case in educational social disparity, and attests to the fact that, thanks to the education industry, educational ranking at the top is highly visible.

There were 771 private junior high schools in Japan in the year 2013, but 24% (188) were clustered in Tokyo alone, and nearly 40% were cluster in the larger Tokyo area (Tokyo, Kanagawa, Saitama, Chiba), thus revealing a gap between larger urban Tokyo (and urban Kansai area like Osaka and Kyoto) and the rest of Japan (Monbukagakusho, 2014; Tokyo Metropolitan Government, 2014). There is a disparity within Tokyo as well. Of the total number of schools at the junior high school level by type (public, national, private), only 23% were private (188), with the remaining 76.3% being public (0.7% national) in 2014 (Tokyo Met. Gov., 2015, p. 4). However, of these 188, 142 are in the central Tokyo area (ku area), and of these, more than half are in just four affluent areas (Chiyoda, Minato, Bunkyo, Setagaya ward) (Tokyo, 2015). On the other hand, only 2 were in Adachi ward above (Tokyo, 2015).

Competitive private junior high school entrance examinations are known to test content that are extremely advanced and very different from what public schools teach, thus necessitating a high reliance on private *juku*. In so-called privileged districts, private school competition has negatively affected the public system, which leaves less public options (Tsuneyoshi, 2013; Hida, 1993).

Of course, disclosure of differences which lead to ranking is largely in the private sphere. However, one only has to look at the Internet to see an abundance of information on school rankings as marked by the number of students who passed a competitive entrance examination, prices of land, and even the average income. Education-minded parents may therefore rent a condominium in a district with a private school with a good reputation. This kind of ranking is actually de facto.

Another type of ranking which has caught the public eye in recent decades is the international rankings of countries in school education, in international tests such as the PISA(OECD), and TIMSS (IEA). University rankings have also taken hold. These tests have been discussed in terms of the race to the top.

The national and local tests are in the public sphere of education, and leads one to focus on not only those most competitive schools, as in the rankings of private schools, but also on the bottom. In a recent analysis of the national tests by the Ministry of Education, a strong relationship between the child's socioeconomic status and the scores were confirmed. According to Mimizuka (2014, p. 13), the head of the study, it was the first Ministry effort to analyze the relationship of family status with achievement nationwide. The study suggested that there were severe limitations in trying to overcome lower socioeconomic status with "effort" (Ochanomizu Daigaku, 2014).

Thus, we seem to be witnessing a somewhat contradictory situation. In the public school system, the disclosure of differences which can lead to ranking is carefully contained. Though recent years have seen the rise of testing in the nation and in certain localities, its disclosure is controversial. Yet, outside of the public system in the private sphere, an education-minded parent actively looking for information on which districts are expensive, have high achievement, on the top, can obtain it easily through the Internet. What seems to be more difficult to obtain are reliable measures of "the different." Since those that are different are not perceived as a group, the structural factors leading to these students failing as a whole becomes obscure. Reasons are individualized, and the dangers of blaming the victim are deemphasized.

Conclusion

Today, the myth that Japanese are all middle class has given way to a discourse on "social disparities" (*kakusa*). However, the discourse is in its initial stages compared to countries in which social class, poverty, and academic achievement have long been recognized and discussed in the context of equity and discrimination. The discussions can become individualized (like in the case of the new foreigners), or it can become sensationalized (as in the case of Adachi ward). In either case, we seem to be witnessing a society which is struggling to voice newly "discovered" social disparities and the differences (especially those which are hierarchical) which lie behind them.

The voices, however, seem inconsistent. In the public sphere, differences are carefully contained in fear

that identifying certain differences may lead to stigmatization. Being equal seems to imply, treating everyone the same, regardless of background. In the private exam industry, or in the global arena of competition, and the world of the Internet, "the winners" (and "losers") are identified.

The issue is complex, however. The suppression of difference which may lead to ranking of students may assist togetherness. At the same time, the invisibility of difference, is probably also related to individualizing the discourse. When this individualizing occurs in the context of discriminated-against populations, it can lead to blaming the victim. Problems which have structural roots may seem like individual problems of motivation, effort, or parenting. When understood as such, the major responsibility is likely to be seen to lie in the hands of the parents and child. If they are understood as structural traits such as systematic social exclusion of lower class children, and their social conditions, the society will be held responsible for the failure of these children.

Notes

(1) In the Cabinet Office's (Naikakufu) yearly survey on the life of citizens (*Kokumin seikatsu ni kansuru yoron chosa*), from the 1970s, 90% answered that they were in the "middle". The mass media and others referred to Japan as a uniformly middle society (*ichioku so churyu*).

(2) Definition: "equivalised household disposable income", "i.e. the total income received by the households less the current taxes and transfers they pay, adjusted for household size with an equivalence scale." OECD.Statextracts, Organisation for Economic Co-Operation and Development. Retrieved May 12, 2015 from http://stats.oecd.org/Indexaspx?DataSetCode=IDD.

(3) For example, in a recent fire in a housing area for day laborers, TV reports seemed to hide faces of residents, identify the hotel by city, rather than the area, focusing on the source of the fire, etc. possibly trying to avoid "stigmatization" (2015, May 17th). However, information that many were on welfare, that this was a lodging for day laborers, and that this was a district in which ethnic minorities were overrepresented, were up on the Internet immediately.

(4) In the section of "Nihon no hinkon", Hinkon Tokei Homepage, by Aya Abe, who participated in the research of the governmental committee on national minimum (Nashonaru Minimamu Kenkyukai) under the Democratic Party of Japan. Retrieved May 12, 2015 from http://www.hinkonstat.net/. Mid-term report was issued in 2010 (National Minimum Kenkyukai, 2010).

(5) Author's homepage on the special activity period in the Japanese curriculum.
http://www.p.u-tokyo.ac.jp/~tsunelab/tokkatsu/.

(6) Sankei news, 2014.12.19, gakko betsu heikin seitoritsu, 'kohyo' wa 2% no 32 kushichoson kyoi. Retrieved May 13, 2015 from http://www.sankei.com/life/news/141209/lif1412090025/n1.html).

(7) Adachi City homepage. Retrieved May 20, 2015 from http://www.city.adachi.tokyo.jp/kyoikushido/k-kyoiku/kyoiku/g-zenkoku26-kekka.html.

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Unfinished Business: From policy to implementation

J.M.Rogan
University of KwaZuluNatal, South Africa

Abstract
Well intentioned policies to alleviate disparities in education often fall short of their goals during the implementation phase. This paper advocates a well-conceived policy on implementation itself, which is under-girded by relevant and credible theories. The Zone of Feasible Innovation (ZFI) is introduced as one such policy. The ZFI is described, an example of its application provided, and finally the theoretical constructs on which it is based explored.

Introduction
The theme of the conference provides the departure point for this paper: Challenging disparities in education. All too often, when change or renewal in education is undertaken, the focus is on policy to the detriment of implementation. It is not that policy is not important – indeed it is the essential first step as it provides the vision and the goal. But to the extent that implementation takes a back seat, the policy itself contains the seeds of its own demise. The policy should not only take into account when and where it should be implemented, but more importantly should itself be informed and shaped by realistic implementation considerations. For example, a careful consideration of implementation issues might lead to a reappraisal of the goals of the original policy so as to make it more realistic and achievable.

The central argument of the paper will be illustrated by the policy making and implementation in education in post-1994 South Africa. The purpose is not to be critical of events during the monumental 20 years that followed the advent of democracy, but rather to make concrete what might otherwise be theoretical and obtuse notions. These theories are not intended to be confined to South Africa, but rather might be seen as having universal application, especially when considering how to overcome disparities in education. Central to this paper is the admonition to beware what I have come to call the Mikado Effect[1]. The gist of this "effect" is the belief that if policy, such as a curriculum document, decrees that a certain action will take place it is already as good as implemented. Beware those who believe in the power of policy alone to bring about change.

Brief History of Educational Change in Post-Apartheid South Africa
 Of all the ways black South Africans were discriminated against under apartheid, education was probably one of the most resented. One of the most visible of the events that in time lead to democracy were the demonstrations in 1976 led by school children protesting Bantu Education. Hence very soon after the first post-apartheid government took office in 1994, it needed to be seen to address the inequalities and deficiencies in education. The result was the creation and introduction of Curriculum 2005 intended to overcome the existing disparities.

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1 The Effect takes its name from Gilbert and Sullivan's operetta "The Mikado". In the plot, Nanki-Poo volunteers to be executed. However Ko-Ko, the Lord High Executioner, finds himself unable to undertake the task. Despite the fact that no execution has taken place Ko-Ko and his conspirators describe Nanki-Poo's demise in graphic detail to the Mikado. When it turns out that Nanki-Poo is the Mikado's son, he has to be brought back to life, and Ko-Ko has to explain why they claimed an execution had taken place, when in fact it had not. "When your Majesty says, 'Let a thing be done,' it is as good as done – practically it is done because your Majesty's will is law. Your Majesty says, 'Kill a gentleman,' and … consequently that gentleman is as good as dead – and   if he is dead, why not say so."

Curriculum 2005 was a product of its time. For the years prior to 1994, not only was the peaceful attainment of democracy seen as an impossible dream, but civil war as inevitable. If miracles could be achieved in the political realm, why not the educational one as well - all things seemed possible. Curriculum 2005, introduced in 1997, was to be fully implemented by 2005. It is a highly idealistic policy document incorporating Outcomes Based Education and learner-centered learning. The National Department of Education published a White paper, which was designed to guide its policies for the coming years. It heralds its intentions with the bold assertion, "It is time to declare that a new era has dawned. In publishing this document, the Ministry of Education opens not just a new chapter but an entirely new volume in the country's educational development" (Department of Education, 1995.) Not only was the education system of the past seen to advocate divisions, but also to be flawed in other fundamental ways: the emphasis on the rote memorisation of content, culminating in the matriculation examination, produced passive, non-thinking citizens; teachers were seen to be technicians rather than professionals, required to teach to a prescribed syllabus and subject to inspections to ensure that they complied.

C2005 nailed its colours to the mast in its opening section: "The curriculum is at the heart of the education process. In the past it has perpetuated race, class, gender and ethnic divisions and has emphasized separateness, rather than common citizenship and nationhood. It was therefore imperative that the curriculum be restructured to reflect the values and principles of our new democratic society."

The solution proposed in Curriculum 2005 (C2005) was to adopt outcomes-based education. "The move towards an outcomes-based approach is due to the growing concern around the effectiveness of traditional methods of teaching and training which were content-based. An outcomes-based approach to teaching and learning, however, differs quite drastically and presents a paradigm shift." (Department of Education, 1997)   At its core were seven general or so-called critical outcomes, which were expected to be achieved in all subjects, now called learning areas:
1.   Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made.
2.   Work effectively with others as a member of a team, group, organisation, community.
3. Organise and manage oneself and one's activities responsibly and effectively
4. Collect, analyse, organise and critically evaluate information
5. Communicate effectively using visual, mathematical and/or language skills in the modes of oral and/or written presentation
6. Use science and technology effectively and critically, showing responsibility towards the environment and health of others
7. Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.

Each learning area had its own specific outcomes. In science there were nine:
1. Use process skills to investigate phenomena related to the Natural Sciences.
2. Demonstrate an understanding of concepts and principles in the Natural Sciences.
3. Apply scientific knowledge and skills to problems in innovative ways.
4. Demonstrate an understanding of how scientific knowledge and skills contribute to the management, development and utilisation of natural and other resources.
5. Use scientific knowledge and skills to support responsible decision-making.
6. Demonstrate knowledge and understanding of relationship between science and culture.
7. Demonstrate an understanding of the changing and contested nature of the Natural Sciences.
8. Demonstrate knowledge and understanding of ethical issues, bias and inequities related to the Natural Sciences.
9. Demonstrate an understanding of the interaction between the Natural Sciences, technology and socio-economic development.

Notably absent in the document was any specification of what content should be taught at what grade level. The prevailing belief was that teachers should select that content which best allowed them to achieve the critical and specific outcomes.

It did not take long for the euphoria for the "education for the future" turn to confusion. As some critics noted, even education systems in the most advanced countries would not have been able to fully implement C2005. (See for example Jansen, 1998) Hence in a country where most of the schools lacked basic facilities and few teachers were fully qualified, there was little to no chance of the new curriculum being implemented. Had implementation issues been taken into account during the policy making process, C2005 might well have been modified to a more realistic document.

As the problems with the implementation mounted, a new version was produced (Department of Education, 2002). In science, the nine specific outcomes were reduced to three:
1. The learner is able to confidently explore and investigate phenomena relevant to the sciences by using inquiry, problem solving, critical thinking and other skills.
2. The learner is able to access, interpret, construct and use science concepts to explain phenomena.
3. The learner is able to demonstrate an understanding of the nature of science, the influence of ethics and biases in the science, and the interrelationship of science, technology.

Finally this revised version was replaced by the Curriculum and Assessment Policy Statement (CAPS). The first phase of the CAPS implementation started in 2012 while the last phase was implemented in 2014. CAPS, while not abandoning outcomes, is specific in what content will be taught when and how. In this respect it is not that different from the syllabus that was abandoned in 1994.

Policy and Implementation
Despite the enormous problems associated with C2005 and its successors, this paper does not advocate the avoidance of innovative curricula. Rather it stresses that policy and implementation should be developed in tandem, and that each should inform the other. Again taking the case of C2005, implementation was not ignored entirely. The policy did stipulate, for example, that implementation would begin in Grade 1 in 1998, in Grade 2 in 1999, and so on. What is envisaged and advocated in this paper is a well-conceived policy on implementation itself, and which is under-girded by relevant and credible theories.

In the remainder of the paper I will introduce one such an implementation policy, illustrate it by means of an example, and explore some of its theoretical underpinnings.

Zone of Feasible innovation (ZFI)[2]
Describing the ZFI
The ZFI may be defined as comprising those new teaching strategies (or strategies to implement a policy in general) that go beyond current practice, but nevertheless are realistic in terms of the current context (Rogan, 2007). It comprises steps towards the ideal, the realization of which may not be immediately possible. It suggests strategies that are innovative in terms of current practice, but not so radically different that their implementation will likely result in frustration.

Below the ZFI are teaching strategies that are already used routinely and with confidence. The ZFI comprises new teaching strategies which can be accomplished with immediate effect with the current level of resources and expertise, and with some possible encouragement and help from outside sources. Above the ZFI are teaching strategies that are desirable, but whose implementation is best left to some future date.

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2 Much of what follows is based closely on Rogan (2007). However, in the original paper the theoretical underpinning was provided before details of the ZFI. For ease of presentation, the ZFI will be described before the theory.
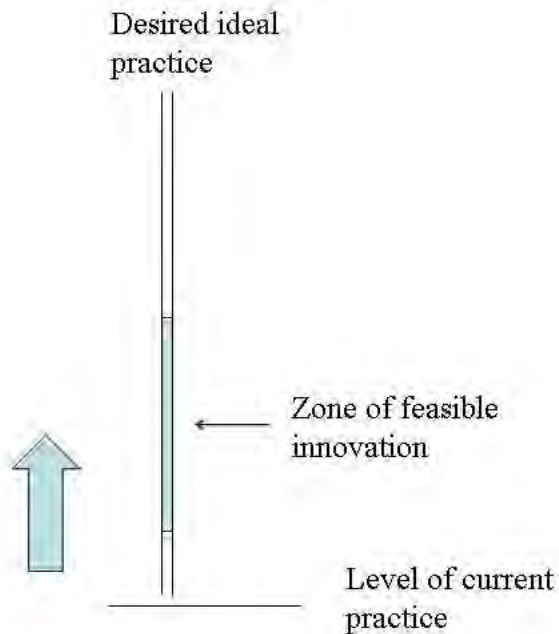
Figure 1: The location of a ZFI on a continuum

The ZFI suggests practices beyond the current level, but not beyond what is feasible at a given point in time. The upper boundary is neither static nor impermeable. Over time, as new practices become routine, the boundary is likely to shift upwards. However, the upper boundary will also depend on the amount of support that is available. With a high level of such support, it is possible to push the boundary further and faster. However, pushing the boundary too far results in a situation of diminishing returns - more support effort with less to show for it. A second consequence of pushing the upper boundary too far is that when the support mechanisms are removed or diminished, practices are likely to regress to a lower level where implementation is more congruent with the capacity to support it.

The question of capacity received particular attention in the Rogan and Grayson (2003) article in which the concept of a ZFI was first mooted. In short, capacity to innovate was described by four dimensions; teacher factors, learner factors, physical factors and school management/ethos factors. It is likely that there is a relationship between the width of the ZFI and the capacity of teachers and schools to innovate, as shown in Figure 2. In the hypothesized relationship, it is suggested that the ZFI will widen as capacity increases. In a school where capacity is limited for whatever reasons, the amount of innovation that might be attempted by teachers is likely to be small. However, a school with higher capacity, say in the form of good physical resources, well qualified teachers and a supportive administration, is likely to succeed with more ambitious changes. The figure also suggests that teachers in schools with a high capacity do not necessarily take advantage of their environment.
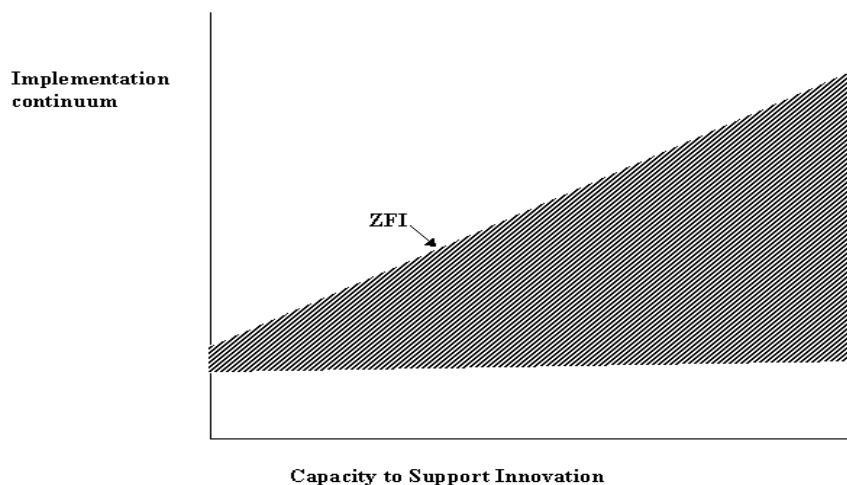
Figure 2: Possible relationship between the ZFI and Capacity to Support Innovation

Implementing a Zone of Feasible Innovation
In this section, a series of proposed procedures will be suggested as one possible way of determining and implementing a ZFI. While they are presented here as linear steps, in reality their implementation will be much more "messy", spiral, and idiosyncratic in nature. For example, step one might be revisited again after consideration of step three. Indeed, it is possible to envisage the entire undertaking as a whole by blurring all divisions between the steps. The undertakings described in this section might best be achieved by a community of practice – a group of teachers within a school or a cluster of neighboring schools – and constitute one powerful form of professional development. In Japan this practice is embodied in what is known as "lesson study". However, it should be realized that no single ZFI can be appropriate for all teachers even in the same school. While a generic school-level ZFI could be constructed, it would have to be modified and adapted by each individual teacher to suit his or her own unique circumstances.

Step One – Construction of a Continuum
A first step might be to identify the elements of possible practices which lead to the implementation of the policy and to construct an initial continuum. A number of considerations will need to be taken into account during such an undertaking. The first is to identify and accommodate all the forces, both internal and external, that are likely to shape the continuum. In many countries, and South Africa is no exception here, the continuum will be strongly shaped by national curriculum policies. For example, in South Africa the kind of practical work that should be attempted is spelled out in a number of grade specific national assessment standards. In other countries, curriculum policies may be set at the state or district level.

Other forces that need to be considered are what the community will accept, and what the school can deliver. For example, members of some population groups in South Africa are uncomfortable if asked to do individual work. Also, when considering the incorporation of societal issues, decisions will need to be made on how to deal with indigenous knowledge and culturally based beliefs. Likewise, current practice and capacity of individual schools need to be taken into account. The continuum needs to be rooted in reality – its beginning point should be consistent with current classroom practice and the capacity of the school.

Step Two – Create a Coherent Sequence within the Continuum
A second step might be to interpret the continuum by means of concrete classroom strategies – "digestible pieces" to use Dalin's (1998) terminology - and then to sequence these strategies using the content of the subject matter as a guide so as to facilitate implementation within the local context. It is at this point that Hargreaves and Hopkins (1991) dictum comes into consideration: Is there a sequence which will ease implementation? The sequences will be determined by feasibility; what is manageable now, and what should be postponed until a later stage. Account will need to be taken of what resources are immediately available, and the level of outside scaffolding and support that can be expected.

Taking the practical work continuum (See Outcome One of the revised version of C2005) as an example, current practice by the science teachers at a particular school may consist of no more than very elementary group work – perhaps using a comb to pick up small pieces of paper, thus illustrating static electric attraction. National assessment standards, on the other hand, might call for the collection and interpretation of data and for the planning of experiments, but the school in question has no science equipment whatsoever and the teachers are at a loss as what to do. An outside consultant may be aware of possible strategies that are feasible in such a situation, and which might constitute components of an envisaged ZFI appropriate for such situations. For example, a possible solution to the lack of science equipment might be the doing of "thought experiments[3]" and/or using the natural surroundings of the school as a source of data collection and experimentation. The role of the facilitator is to introduce multiple strategies consistent with the eventual goal of a particular continuum identified in step one, while that of the school-based personnel is to select strategies and to sequence them into those that are immediately viable and those which might be attempted later.

The first two stages of the process might best be facilitated by persons both inside and outside the school. Outsiders need to bring to the process an understanding of the potential of the continuum – what the possibilities are and where the journey is leading. The school-based participants, on the other hand, will have a far better grasp of what is feasible – what is manageable in the immediate future in the light of their own and the school's capacity.

Step Three – Decide on a ZFI: The Degree of Innovation that can be Accomplished
The sequences of step two become operationalized in step three, with the process strongly driven by school-based curriculum managers. This step focuses on the Hargreaves and Hopkins (1991) dictum: How much can we realistically hope to achieve? Consultations at the school level need to occur, possibly facilitated by outside advisers, to determine where along the continuum current practice can be located, and what specific innovations will be attempted by whom in the immediate future. In other words, those most responsible for the implementation decide on the current boundaries of the ZFI for themselves, even if these differ from teacher to teacher within the same school. A balance needs to be found between what is feasible and what is meaningful.

The deliberations that accompany this step may also be used in the initial creation of communities of practice. Many schools are likely to have teachers who exhibit differing levels of experience in the implementation of innovation. Those with experience of some level of innovative practice could be part of the support system for others in the school or district. In other words, they become the "senior" members of a nascent community of practice.

One way in which the innovations may be operationalized is through the selection or creation of curriculum materials, which are often powerful vehicles for the definition and conceptualization of the intended curriculum. Such materials are most effective when they stimulate teachers to a more elaborate and realiitc "internal dialogue"

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       In a thought experiment, students design an experiment in response to a question, but do not actually carry it out in practice.

about the what, when, how, and why of their own teaching role, and provide them with clear advice about the implications of these matters for classroom practice (van den Akker, 1994).

Crucial to the deliberations of this step will be an understating of the extent and nature of outside support (scaffolding) that is likely to be available during the initial phase of the implementation. The more support available, the more that can be attempted.

Step Four – Implementation within the ZFI
School-based curriculum managers continue to play a major role as implementation strategies are put into action. Optimal use of available outside resources needs to be made. However, outside service-providers must be aware that their role is to support the teachers in realizing the goals set by the teachers themselves, rather than their determining the nature and extent of the innovation.

Particular attention needs to be paid to Vygotsky's contention that learning is a social process and is context situated (Lave and Wenger, 1991). Learning and innovation are both more readily achieved with the support of peers than by individuals working in isolation. Structures could be developed, or supported if already underway, whereby teachers across different schools experiment with innovation together thus forming communities of practice, and in so doing support and encourage one another. In fact the development of such peer-support groups has a fairly long history in South Africa (See for example Macdonald, 1993; Rogan and Macdonald, 1985) and elsewhere in the world, and is currently being encouraged as a matter of official policy in a number of countries.

For effective implementation to occur, teachers need to be professionally motivated. As Bruner (1985) suggests, the quality of the scaffolding provided is likely to be a major factor that draws teachers into the ZFI initially. A well-designed and executed professional development program is vital. Enough has been written on factors that promote effective professional development (See for example De Feiter et al., 1995; Guskey, 1986; Loucks-Horsley et al., 1998) not to dwell on the topic here. Strategies need to be considered to sustain the motivation to continue with the innovation and expand the boundaries of the ZFI over time. Possibilities here include: linking the implementation of innovation to the acquisition of additional qualifications, and hence salary increases and promotions; providing platforms where innovative programs can be shared and publicly recognized; and granting official recognition and rewards for outstanding teachers and programs.

An Example of creating a ZFI
Any ZFI is by its nature specific to a particular context at a given point in time. The example below comes from a project where I was working with some high school biology teachers from one province in South Africa. The table below was developed as part of steps one and two described above. The language used in the strategies and examples is drawn from the curriculum document. Table One shows the end product of steps one and two – elements of a sequence were identified and sequenced as a ZFI was created.

Table One: A continuum and sequence of possible strategies to achieve outcome one of the life science curriculum.
* Use this column to designate the strategy to one of three options:
  1. Already a routine practice.
  2. Would like it to be in the ZFI for the coming year.
  3. Beyond the ZFI – might consider in the future.

Zone*	Teaching strategy	Example
3	Learners design their own "open" investigation. They reflect on the quality of the design and of the collected data, and are able to modify and improve the quality of the design and data	A typical science fair project.

Zone*	Teaching strategy	Example
3	Learners write a scientific report based on the above project that justifies their conclusions in terms of the data collected	A typical science fair project report. Learners: display the experimental design and results in a report; plot data in tables and on graphs; write up conclusions including limitations.
3	Learners interpret data in support of competing theories or explanations	Given appropriate data, learners analyze and evaluate theories on changes in different species over time and determine which theory the data support.
3	Learners perform practical work in groups using apparatus. They are given a problem or question and they then design their own experiment and ensure that their data are accurate. Learners demonstrate the ability to control extraneous variables.	Learners design and conduct an investigation to test the influence of substrate type on fungal growth (e.g. spread a tablespoon each of fish paste, peanut butter, marmite and syrup on a slice of white bread and to use a slice of bread with no spread as a control)
2	Faced with a phenomenon, learners generate at least two testable hypotheses.	Fungi failed to grow as expected on fish paste. Learners generate at least two testable hypotheses.
2	Learners design a questionnaire in order to conduct a survey	Learners plan ways of collecting information about the number of people infected with HIV (e.g. survey, or information from the local clinic). Learners design a survey to find the correlation between smokers/non-smokers and respiratory problems.
2	Learners perform practical work in groups using apparatus. They are provided with worksheets that explain what they need to do and questions they need to answer	Learners follow instructions on a worksheet; • set up an experiment in which five pot plants are given magnesium sulphate in solution and five pot plants are given water only; • control all other variables (e.g. to use plants of the same type and size, to provide all plants with the same amount of sunlight and water, and to keep them at the same temperature); • measure the height of each plant every three days; • record results in a table; • calculate the average height of the five plants with or without magnesium every three days and plots the result on a line graph.
2	Learners use data from teacher	Learners:

Zone*	Teaching strategy	Example
	demonstrations to construct their own graphs and tables. Available data from biology textbook may be as follows; -Biochemical data: Enzyme reaction: Substrate-reaction rate relationship Decrease in substrate or increase in product with time -Physiological data: Decrease in the amount of oxygen with time by respiration -Ecological or demographic data: Change in the population of world, South African or community people population	• draw graphs using the data collected from teacher demonstration. • design and complete tables. * draw appropriate conclusions from data.
2	Teachers performs demonstrations, but with learner participation, and these demonstrations promote inquiry (thinking) rather than just illustrate concepts. In this case, the learners' participation is limited to summarize the result of teacher's demonstration.	Teacher asks learners how to test for sugars (for example, glucose, lactose and sucrose). With learner participation several sugars are tested and learners then write results in a table of their own design
1	Teacher uses classroom demonstrations to illustrate what content is being taught	Teacher uses a model of a heart to explain its structure and function

Having created a ZFI for this particular context, the next step was to map the five chosen ZFI strategies onto the grade 12 life sciences curriculum, which consists of four strands. These five strategies were all new to the teachers attending the workshop, but were seen as feasible for the coming school year. Opportunities were sought to find areas of the curriculum where each of the five could be applied.

Table Two: Matrix of the chosen ZFI strategies and grade 12 life science curriculum

ZFI strategies	Population and community population	Life Processes	Cells and tissues	Genetics and diversity
Demonstrations with learner participation. Promote inquiry		Bring a rotting log to the classroom. Observe reaction of wood lice to changing light and heat conditions		
Hands on guided discovery. Procedure but not answers provided in a worksheet	Sample species in an ecosystem using the quadrat method	*Investigate reflexes and measure reaction time *Design a plant adapted to a particular environment *Design an animal adapted to a particular	Extract DNA	*Investigate natural selection with coloured toothpicks *Hominid distribution using the fossil record

| | | environment
*Dissect a cow's eye
*Plant response to light
*Plant response to gravity
*Pupil response to light
*Collect flowers by pollination type, and dissect to identify the reproductive parts | | |
|---|---|---|---|---|
| Generate hypotheses and predictions | *Generate hypotheses to explain a population trend
*Predict changes in the prey population based on changes in the predator population | | | |
| Design a questionnaire. Conduct survey | *Survey prevalence of alien plants
*Survey water borne diseases | | | Survey attitudes to an inherited disease in the local area |
| Interpret information from texts, graphs and tables | *Provide graphical data on the population trend of a species
*Provide data in a table on prey-predator population trends
*Ecological succession | Interpret information on neurons in text and diagrams | | |

It is interesting to note that two of the four strands, Population and Life Processes, provided most of the opportunity to implement the ZFI strategies. The remainder of the workshop was devoted to creating or adapting curriculum materials to facilitate the implementation of the chosen strategies at appropriate sections of the curriculum.

Theoretical Underpinning for the ZFI

As claimed at the outset, what is needed is a well-conceived policy on implementation itself, and which is under-girded by relevant and credible theories. The policy has already been described – what follows are some of its theoretical underpinnings.

School development

The literature on school development proved to be useful in building a theoretical base for the concept of a ZFI. As Hopkins (1998, p. 1049) puts it, "Most initiatives are poorly conceptualized in the precise ways in which they might impact upon the learning or classroom level, …".   There is still a need, it seems, to find realistic ways of determining which innovative classroom practices are appropriate at a given time and in a given situation. An important point of departure is the need to recognize that schools, even in the same country, differ remarkably in their capacity to innovate.

In asking what innovation is appropriate, it seems sensible to recognise the diversity of schools and to plan accordingly.   Writing about schools in the UK, Hopkins and MacGilchrist (1998) opt for a differentiated approach to implementation and professional development. In essence, they suggest a three-tier approach. Their so-called Type One strategies are aimed at helping low-performing schools achieve some measure of success, in that they are put on the road to becoming functional. The goals that these schools set are within their reach, and achieving them instills a feeling of confidence. The Type Two strategies are designed for moderately successful schools, and concentrate on helping schools improve in areas where they are already competent. Finally, the Type Three strategies are for schools that have already achieved some level of excellence, and are aimed at helping them to introduce sophisticated teaching and learning methods. In developing countries, most schools are likely to benefit from Type One strategies. Even if this were not the case, where resources are in short supply it would seem appropriate to channel what is available towards the most disadvantaged, that is Type One schools.

One implication for this differentiated type approach is the need to come to grips with the question of how much structure to provide as the innovations are being implemented. While freedom from curricular constraints might be viable as part of the Type Three strategies to help good schools become even better, Type One strategies may well be more structured. As Beeby (1966, p. 74) observes:

> It would seem that the obvious thing to do ... would be to give the maximum amount of freedom to all the teachers to teach in the way best suited to their ability, so that the best of them could sweep forward into stage IV [Type Three in Hopkins and MacGilchrist terms], leaving the others to do a competent job (in the lower stages). Unfortunately, complete freedom is just what the teachers at these lower levels neither need, nor, in general, want.

Any attempt to define the appropriate extent of curriculum innovation needs to be done collectively by all concerned, and specifically include those who will be implementing the changes. Curriculum planners at the school level should be allowed to take into account the context and capacity of their school, and be encouraged to select a route in working towards a meaningful implementation of the desired changes, phased in, if needs be, over a number of years.   Thus the implementation of an innovation will become a long term, ongoing process in which teachers and other members of a school are given a say in where they begin and how fast they feel they are able to go.   This approach is in line with the concept of "development planning" (Hargreaves and Hopkins, 1991), in which the various members of the school community participate in drawing up a plan to implement change in a way that is appropriate and feasible for that school's context and culture.   As stated by Hargreaves and Hopkins (p. 8):

> … developmental planning increases the school's control over the content and pace of change. It provides a rationale either for saying 'no' to certain demands, since not everything can be put into a single year's development plan, or for saying 'not yet', since some changes are sensibly placed in the second, third, or even later years of the plan.   In other words, a strategic approach to planning is adopted and the school ceases to be a target of demands for instant change.

Developmental planning implies making priorities. Hargreaves and Hopkins (1991) have suggested two criteria to assist in this process:

1. Manageability: How much can we realistically hope to achieve?

2. Coherence: Is there a sequence which will ease implementation?
Dalin (1998) stresses the first point with his advice to, "Keep the project as a holistic concept, but break it down in digestible pieces to avoid overload of single actors and of the organization" (p. 1069).

West (1998) adds a third.
Consonance: Do the priorities coincide with external pressures for reform?
West's point is echoed in the systemic reform literature, where researchers such as Smith and O'Day (1991) stress the importance of policy alignment – where changes to the curriculum at the classroom level are aligned with policy such as national standards.

Vygotsky's Developmental Psychology

When first proposed by Rogan and Grayson (2003) the idea of a ZFI was based to some extent on Vygotsky's Zone of Proximal Development (ZPD), defined by him as the

> distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (Vygotsky, 1978, p. 86).

Wertsch and Stone (1985, p. 165) point out that Vygotsky developed the ZPD keeping in mind two "practical issues in educational psychology: the assessment of children's cognitive abilities and the evaluation of instructional practices." It is the latter that is of relevance to this article. He goes on to claim (quoted in Wertsch and Stone 1985, p. 165) that "instruction is good only when it proceeds ahead of development, when it awakens and rouses to life those functions that are in the process of maturing or in the zone of proximal development."

The introduction of a new curriculum involves, amongst other factors, a certain degree of learning. As van den Akker (1994) observes, "Implementation implies a process of learning new roles (and often unlearning old ones) for teachers" (p. 1492). Hence possible overlaps between Vygotsky's ZPD and the ZFI will be explored. Others have already made this connection. For example van den Akker et al. (1994) write, "Therefore, the combination of curriculum materials development and in-service education seems to be a potentially effective strategy for assisting teachers develop their teaching repertoire, thereby expanding their 'zone of proximal development' " (p. 5).

There are, of course, fundamental differences between these two zones. The ZPD is concerned with the appropriateness of learning strategies for the student. The ZFI, on the other hand, is concerned with the appropriateness of the innovation taking into account the context as a whole, including, but not limited to, the teacher. It is quite possible, for example, that a teacher might have no difficulty in implementing the expected innovation in one context (a well resourced and functional school), but not in another.

Vygotsky's Social Interaction and Communities of Practice

Although the ZPD has certainly caught the imagination of educationalists around the world, it is by no means Vygotsky's only contribution to educational psychology. In fact he wrote surprisingly little about the ZPD, and in the ultimate analysis does not offer very much guidance on how do determine the content of this zone. On the other hand, a thread that runs through all of Vygotsky's (1978, 1997, 1998) writings is the role of the social environment in the learning process. He continually stresses, from his earliest to his most recent work, that learning occurs in a social setting. He "believed that higher psychological phenomena are stimulated and constituted by social relations" (Rather, 1998, p. xii). For example, he views the development of logical thinking in children as a process both initiated and mediated by group dynamics.

> Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first, between people (inter-psychological) and then inside the child (intra-psychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relationships between individuals (Vygotsky, 1978, p. 57).

If group dynamics are indeed factors that contribute to the nature of the ZFI, then we need to delve further into the players and their roles in the group. Vygotsky emphasizes potential learning being influenced by adults or more capable peers. As Cole (1985, p. 158) observes, "In the main, particularly where children are concerned, these activities are peopled by others, adults in particular." He goes on to describe the desirable characteristics of these adults. Cole also reminds us of the interplay between cognition and culture. The ZPD is strongly influenced by the context in which it operates. Individual differences determine the amount of scaffolding and support needed.

The issue of motivation is a pertinent one, both for the ZPD and the ZFI. Why does one move into the learning or experimental phase (operating in the ZPD or ZFI) and then to the internalization of the concept or practice? Motivation to experiment with a change to one's teaching practice, and to consolidate the appropriate changes into one's teaching repertoire will need to feature as part of the elaboration of any potential ZFI. It is likely that such motivation will comprise a combination of internal factors, such as professional satisfaction and adventure, and external ones, such as outside pressure to implement new policy. However, as Clune (1998, 13) observes, incentives for undertaking innovation are often not adequately considered at the outset and are, as he puts it, often "late bloomers".

Vygotsky's theories on the importance of social interaction as a vital component of learning have been extended by Lave and Wenger (1991) in their theory of situated learning. They argue that learning is a function of three factors; the activity, context and culture in which it occurs (i.e. it is situated). Situated learning is in contrast to traditional classroom learning in which knowledge is often presented in an abstract form and out of context. Instead learning occurs, often incidentally rather than deliberately, as participants become part of a "community of practice". Wenger (1998) defines a community of practice as, "Members of a community informally bound by what they do together … and by what they have learned through their mutual engagement in these activities." They develop around issues or practices that are of mutual interest to a group of practitioners. According to Wenger (1998), a community of practice defines itself along three dimensions:

- **What it is about** – its *joint enterprise* as understood and continually renegotiated by its members
- **How it functions -** mutual engagement that bind members together into a social entity
- **What capability it has produced** – the *shared repertoire* of communal resources (routines, sensibilities, artifacts, vocabulary, styles, etc.) that members have developed over time.

Experience suggests that teachers who are grappling with innovation are likely to do so more successfully if they are part of a community of practice (See for example, Borko, 2002; Borko, 2004; Kahle, 1997). In his analysis of the NSF funded systemic initiatives, Clune (1998, p. 1) points out, "Inservice professional development was seen as depending on active networks of teachers organized from the grassroots." In their book on designing professional development for science teachers, Loucks-Horsley et al. (1998) continually stress the benefit of learning as part of a community. In an interesting case study of professional development, Jones et al. (1998) document how science teachers experienced growth within a ZPD, where more experienced colleagues were able to act as mentors to their younger colleagues. The implication is that the ZFI becomes less threatening and better defined for those participating in a community of practice.

Zone of Tolerance
While Vygotsky's ZPD provided the initial inspiration for conceiving a ZFI, other zones can also contribute to its development. One such zone, the so-called "zone of tolerance (ZT)", bears more resemblance to the ZFI than to the ZPD.   This zone was first mooted by McGivney and Moynihan (1972) and defined as "the latitude or maneuverability granted (or yielded) to the leadership of the schools by the local community" (p. 221). Like the ZFI, this zone describes the extent of change that is feasible. However it is concerned with the amount of change that the community of which the school is a component will accept or tolerate, and as such is based on external (sociological) factors rather than internal (capacity) ones. If the school leadership proposes or undertakes policy changes outside of this zone, the community will object, and the degree of opposition is likely to be in proportion

to how far outside this zone the proposed change lies. Oakes et al. (1998) build on this "zone of tolerance" to propose a "zone of mediation", which essentially describes the space accorded to mediating institutions involved in reconciling the conflicting viewpoints of stakeholders in the change process.   Three salient features of this zone are:

1. Its boundaries are "shaped by forces originating at the societal and global levels as well as forces originating in the community."
2. Its "boundaries are not simply set by outside forces – they are largely created by people mediating among themselves and between themselves and those outside forces."
3. Its boundaries depend "on each person's perception or standpoint … the zone changes with time and with identity and place." (Oakes et al., 1998, p. 959)

Oakes et al. (1998) go on to illustrate these features by considering the attempts to detrack high school courses in ten selected schools. One clear implication for the ZFI is that its boundaries will be determined by both internal and external forces, and not just the content of the subject.

Discussion

If curriculum innovation is the goal, it is not enough to merely publish a new curriculum or assessment standards, particularly in the context of a developing country. This observation is particularly true of South Africa where a highly sophisticated curriculum was introduced into an educational system already under considerable stress (Rogan, 2006). Detailed attention needs to be given to how the curriculum ideals will be realized in practice. In most instances, particularly in developing countries, these ideas will not be realized overnight, no matter what policy pronouncements may dictate. The best chance of improvement lies with the definition of small, manageable steps determined at the school level, accompanied by the kind of outside support needed to make progress according to these steps. The ZFI is a way to facilitate the conceptualization and realization of these steps.

Returning to the theme of the conference, challenging disparities in education, the intent is clear and laudible. Nevertheless, there is frequently a gap between what is indended in the policy statements and what is actually achieved in practice. The ZFI is a direct challenge to the practice of mandating implementation policy at the macro-level - a practice that is particularly prevalent in developing countries and typified by C2005. This practice, which bypasses teacher decision-making, results in policy implementation becoming an act of political symbolism rather than as something that actually can be achieved (Jansen, 2002), and where most of the players subscribe to a pact of pretence. The ZFI provides one way of developing capacity at the micro-level for making realistic decisions about how to go about the implementation phase of an innovation. It does require, however, that macro-level policy makers be prepared to cede this function to schools or other types of local playes, and also to find ways of developing this local capacity. Ceding authority might well result in implementing the innovation taking much longer than hoped for by the central authority. But in the long run, it is better that the intended policy be implemented at some more distant point in time, than to engage in the pretence that implementation has been achieved within a time frame prescribed from above.

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Education for Sustainable Development (ESD) and Teacher Education

Coordinators:
Dr. Carol Gentles (University of West Indies, Jamaica)
Prof. Kensuke Chikamori (Naruto University of Education, Japan)

The three speakers shared their experiences with infusing ESD through teacher training and education, teaching and learning in very different contexts and in different ways. Yet there was much similarity in terms of their commitment and passion and their convictions that ESD is really important in schools and for ensuring a sustainable future. A common theme was that they are all keenly searching for and thinking about, finding, refining and articulating spaces within which to work for a sustainable future by using ESD to help teachers become models and leaders for a sustainable future.

Approach to integrating ESD in teacher training program
by Dr. Lorna Down (University of West Indies, Jamaica)

Dr. Lorna Down began by introducing the notion that there are different approaches to integrating ESD at the micro and macro level. She helped the audience understand the content of and pedagogy of ESD. She explained that the content focuses on values, knowledge and ideas and that it is important to understand that ESD is more than talking. It is a preparation for students to live and work for sustainability. She shared that her methodology focuses on helping learners appreciate sustainability through their engagement with community. In this way thinking and living sustainably becomes a way of being.

IK and ESD: Working with knowledge and system thinking with a "third space"
by Prof. Rob O'Donoghue (Rhodes University, South Africa)

Professor O'Donoghue shared his experiences in the African context, and asked the audience to think about valuing the concept of a "Third space" where fusion of indigenous knowledge and modern knowledge can be brought together and valued in the classroom to produce meaningful learning and practices. He suggested that this approach can energize ESD for sustainability for the future. Prof. O'Donoghue left the audience with a very interesting concept that grounds indigenous knowledge This resonated with Japanese indigenous knowledge practices and the ESD concept of 'future ability' developed in Japan..

From "ESD?" to "ESD!" Creation and continuation of ESD activities collaborated by NPO and
teachers in Ehime, Japan by Ms. Yoshiko Takeuchi (Ehime Global Network, Japan)

Ms. Takeuchi gave an inspiring presentation that spoke to the importance and value of establishing and strengthening cross - cultural spaces to energize ESD. She shared her very impressive work through the Ehime Globe Network, NGO which she started in 1998. She showed how collaborative cross cultural places can be used in teaching and learning principles and practices of ESD. She helped the audience to see how ESD works in non-formal spaces in dynamic ways through a cycle of learning and action, and how this can be transferred to formal space to help continue advocating for social change.

Teacher performance assessment

Chair: Prof. Geert Devos (Ghent University, Belgium)
Discussant: Associate Prof. Ora Kwo (University of Hong Kong)

The forum considers the assessment of teacher performance assessment in different cultural contexts. Advantages and drawbacks are analyzed and guidelines for improvement are suggested.

Purposes and effects of teacher performance appraisal
by Associate Prof. Maria Flores (University of Minho, Portugal)

First, the purposes and effects of teacher performance appraisal (TPA) are summed up, drawing on international research literature but also on empirical work carried out in Portugal. Especially, formative and summative purposes of TPA taking into account its different stakeholders are discussed. Then the tensions and key mediating factors in implementing TPA from the Portuguese data are discussed. Possible solutions and elements to be taken into account are considered if TPA is to be effective and conducive to teacher and school improvement.

Teacher performance assessment and culturally relevant pedagogy
by Associate Prof. Maria Hyler (University of Maryland, USA)

This presentation describes the edTPA, a nationally available performance assessment of teaching readiness in multicultural or diverse settings. This assessment, designed to engage teacher candidates in demonstrating their understanding of teaching and student learning in authentic ways, has the potential to be a better predictor of teacher success than traditional measures and can also gauge a pre-service teachers' readiness to enter the teaching field. This paper shares the results of a study that explores the extent to which the 15 Secondary Mathematics edTPA rubrics assess for elements of culturally relevant pedagogy.

Benefits and complexities derived from nationally conducted teacher performance assessments:
the case of Chile
by Dr. Beatrice Avalos (University of Chile)

The current Chilean teacher performance assessment is resented by teachers. The central core of the discussions are related to its role as an accountability instrument linked to student results or a formative instrument geared to improvement of professional capacities (teaching, management, collaboration etc.). The accountability focus is in turn colored by technical discussions on the extent to which the measurement of teacher value-added to student learning can be achieved, especially in the Chilean context

of great socio-economic school segregation.

The presentation spells out the need to regain teachers' confidence in performance assessment on the basis of improved conditions of service, especially non-teaching time versus teaching obligations, opportunity for collegial collaboration in the improvement of teaching and attractive career stages.

Teacher performance assessment:
teacher education and assessment at Naruto University of Education
by Prof. Makoto Nagashima (Naruto University of Education, Japan)

Since 2002, the Naruto University of Education has been engaged in the development of a core curriculum with the aim to achieve proper teacher education. The goal has been to create a model general-purpose curriculum. Under this core curriculum system, a core course is determined in which a plan is created and implemented to link the teacher's qualification and skill acquisition to the student's specialized inner knowledge and skill development. In this paper, an overview is provided of classes spanning core courses to the actual Practical Teaching seminar-which is the final class-as well as the assessment tools developed in the process. The aim of the new mandatory course of the practical teaching seminar is "compilation of the learning trajectory," i.e., to allow every student to reflect on the whole picture of the capacities and abilities required as a teacher that have been fostered in university life.

Beyond academic success: Exploring attitudes towards schooling in Kenya

Asayo Ohba

Osaka University

The global initiative for Education for All (EFA) made many Sub-Saharan Africa (SSA) governments commit to schooling for all children. The Government of Kenya also introduced free primary education in 2003 and tuition-free secondary education in 2008 in order to accelerate EFA targets. While many studies have shown the impact of the two policies on schools (e.g. shortages of financial and human resources), little has been investigated in relation to learners' attitudes on schooling beyond academic success. What motivates learners to continue their education? Why are there still some children who discontinue schooling? What impact does schooling have on those who leave the education system? The objective of the symposium is to explore consequences for schooling among Kenyan boys and girls. In particular, it looks at the way in which Kenyan boys and girls regard schooling beyond academic success. The first presenter focuses on learners' motivations for secondary education. Using a case study of a secondary school in Busia county, the study explores perspectives of learners' motivations in secondary schooling. The second presenter, in contrast, examines processes and reasons for leaving primary school among children in the slums of Nairobi. The last presenter presents the impact of primary school experiences on the lives of Maasai Women. In-depth interviews with them clarify positive influences they received from schooling. The symposium will address learners' attitudes towards schooling and will discuss the shortcomings of the current discourse on global initiatives in terms of policy initiatives and research.

1. What motivates secondary schooling in Kenya? : A case study in Busia county

Miku Ogawa (Osaka University)

The demand for secondary education has been increasing along with the expansion of primary education in sub-Saharan Africa. In Kenya, Free Secondary Education Policy, which was introduced in 2008, accelerated such demand. However, even after the abolition of secondary school tuition fees, students still need to pay other direct costs as well as opportunity costs. Economic constraint is often said to be a major obstacle to access secondary education. Nevertheless the gross enrollment ratio in secondary education doubled within ten years, from 28.0% in 2004 to 56.2% in 2013. This may suggest that more students who come from different background, even from low economic status, are in secondary schools. Although previous studies focused on the external factors of preventing access to school, it is necessary to examine what are the aspects of students' internal motivation that makes them stay in the education system.

The objective of this study is to explore students' internal motivation to stay in secondary education. More specifically, the study will: (i) investigate why students decide to enter secondary schools, and (ii) examine how students' socio-economic background and their academic ability influence their decision. Field research

was conducted in a public secondary school and its neighboring community in Busia for three weeks from 25th August to 11th September 2014. The secondary students are day-scholars with the lowest household financial burdens. Mainly, the school accepts students with lower marks in their primary school leaving examination. The families of students, who mostly regard themselves as poor, have to struggle to pay the necessary educational expenses. The study employed semi-structured interviews and participant observation. Interviewees were secondary students (16), their teachers (4) and selected parents (5).

This study revealed that, for most students, it was not their first choice to enroll in the secondary school; thus, initially, they were not motivated. The reasons why they selected the school were due to their lack of money or/and insufficient exam scores. However, it was interesting to note that their internal motivation towards school eventually became better as they attended school. All student informants answered that a school day was better than a holiday, during which they had to help their parents and, in particular, extra-curricular activities at school were a lot of fun for them. In addition, they thought that education was the only solution and tool to improve their poor situation because a secondary school certificate is necessary to secure a job for them.

There are two aspects to the discussions. (i) It is argued that poverty remains a primary reason for students' motivation to be enrolled in school. They consider secondary schooling as necessary to get a decent job and improve their predicament. (ii) It is also pointed out that students can justify themselves as to why they go to school. They feel insecure in their home without a job or not attending school. However, going to school can show that they are preparing to get a job. This is the hidden role such schools play by accepting such students.

2. Dropping out of primary school in the slums of Nairobi in Kenya: Exploring the processes and the reasons

Asayo Ohba　(Osaka University)

The introduction of Free Primary Education (FPE) in Kenya made it possible for most primary school age children to gain access to schools. However, there are some children who enroll in low-cost private schools in the slums of Nairobi, Kenya who drop out of school before completing the primary school cycle. Despite the fact that primary education is free, why are there some children who fail to complete the cycle? What are the processes that lead to dropping out of primary school? Furthermore, what are the attitudes towards schooling among the dropouts? While much research has focused on the push and pull factors for dropping out of primary school, little has been understood regarding the processes. How do these factors influence and reinforce each other and eventually affect attitudes towards schooling?

The purpose of the study is to explore the processes that lead to dropping out of primary school for children living in the slums of Nairobi and to investigate the extent of the influence on attitudes towards schooling. In particular, the study examines multiple causes in the family, school, and community and how these causes influence and reinforce each other. The study adopts a small case study approach with questionnaires and interviews. The initial study was conducted in Mathare, Nairobi, in 2013 and identified 56 cases of children (aged 7 to 18) in 53 households who enrolled in various types of primary school in the slum but later

discontinued their schooling. The initial findings revealed that the most frequent cause for dropout was poverty in that their families could not simultaneously finance siblings and send them to school. Thus, in many cases, the respondents' siblings were also schooling. Respondents also replied that personal issues such as early pregnancy and sickness caused them to drop out of school. The high rate of early pregnancy among young girls seems to be one of the critical issues in the area. Other than personal and family issues, the findings also discovered that poor performance and severe punishment in school discouraged them from attending school. Furthermore, peer pressures in school as well as in the community gradually contributed to their withdrawal from schooling. These findings revealed multiple causes that simultaneously affected the children. A follow-up study in 2015 conducted in-depth interviews with some of them and their parents/guardians in order to further explore the inter-related causes in-depth.

The study will present the findings in relation to the intricate processes that cause dropping out and the extent of the influence on their attitudes towards schooling. The study will discuss the issues and conclude with policy implications as well as outlining areas of further research.

3.   The Long-term Impact of Primary Schooling on the Lives of Maasai Women in Kenya
Nobuhide Sawamura (Osaka University)

The current discourse on 'Universal Primary Education (UPE)' has a tendency of placing an emphasis on subject knowledge and the completion of a primary school education. Thus, quality of education is often measured in terms of test scores. This study examines the effect of primary school education on Maasai women, who did not proceed to further education due to traditional practices, early marriage and pregnancy. All of them were unsuccessful in proceeding to secondary education, but have six to eight years of learning experience. This study also aims to identify whether their learning experience at school has made a difference in their lives. It further seeks to discuss the long-term impact of schooling beyond subject knowledge. In-depth interviews were conducted among five Maasai women, in Narok, who completed eight years of full primary education, and three who dropped out of school at Grade 7. To generate additional perspectives on the impact of schooling, fourteen teachers were also interviewed.

The study identifies six aspects which enabled Maasai women to improve their daily lives because of schooling: (1) establishing more equal relations with their husbands; (2) observing healthy practices by their awareness of proper nutrition and hygiene; (3) formulating friendships and expanding their social networks; (4) learning official languages, Kiswahili and English; (5) acquiring soft skills of planning and management; and, (6) acquiring basic entrepreneurial and livelihood skills. These aspects may be attributed to the quality of education the women received in their schooling. It is also essential to note, that beyond merely attending school, gaining subject knowledge during their attendance equipped them to better their lives. Primary schooling enhanced their capability of handling their own family's welfare, social network and livelihood –

ensuring a better quality of life in their traditional community. Being in primary school, receiving quality education, allows children to build assets and social capital which are useful throughout their entire lives.

In the era of UPE, for those who dropped out of school, learning at primary school could be considered as wasteful. This is partly because previous attention has focused on the expansion of and access to primary education. What is the role of primary schooling? It is necessary to take more interest not only in the 'quantitative expansion of education for the nation' but also in the 'qualitative growth of individuals for the community.' There is a need to reconsider the importance and value of primary schooling in the local contexts, rather than national or global ones. Those who experienced primary schooling, regardless of completing or dropping out, could be a driving force in changing communities and improving peoples' lives. Effectively, they can be regarded as change agents in the rural community.

Education of Vulnerable Children in the Developing World

This symposium places an emphasis on education of vulnerable children in the developing world. This is particularly important in the context of Education for All and also in line with achieving universal primary education. Although the number of out-of-school children has been decreasing, there are still 58 million children (as of 2012) who miss the opportunities of attending primary schools. In this regard, it is considered that the vast majority of these children are vulnerable ones including disabled children, street and working children, children from nomadic populations, refugees, orphans, and children from other disadvantaged groups or areas.

There are three presenters in the symposium. They deal with the cases from Africa, Middle East and Asia respectively. The first presenter takes a look at orphans in Malawi and examines how they manage to go to secondary schools under difficult financial conditions. The second presenter pays attention to the particular roles of schooling for Syrian refugees in Turkey and examines how they mitigate their vulnerabilities. The last presenter explores successful families who manage to get out of poverty and analyzes how schooling can contribute to it by utilizing longitudinal data over ten years.

We are attempting to investigate individual cases of vulnerable children by employing a qualitative approach and to find out the reasons why some of them managed to go to school, and how they achieved and benefited from schooling. In discussing these aspects we make reference to their social background, their own efforts and external assistance, as well as the obstacles hindering them from schooling.

Schooling of Orphans and Their Lives in Malawi: A Case of Secondary Education

Hikaru KUSAKABE

Graduate School of Human Sciences, Osaka University

Many studies so far conducted for schooling of orphans in Sub-Saharan Africa have focused on the impact of HIV/AIDS epidemics and poverty on the dropout rates of orphans in both primary and secondary education (Ainsworth & Filmer 2002, 2006; Kürzinger et al. 2008; Campbell et al. 2010). However, it is also important to explore how the orphans dropping out of school are affected by the capacities and skills of orphans and their households to cope with the challenges arising from the HIV/AIDS epidemic and poverty.

The present study was conducted in Malawi, which is one of the poorest countries in the world and has high HIV/AIDS prevalence rates. There are as many as 1,300,000 orphans across the country (UNICEF 2014). The attendance rate of orphans at school is 11% and 19% in primary and secondary education, respectively (MOEST 2013). Although secondary education is not free unlike primary education, many orphans manage to attend secondary schools after the completion of primary education. On the other hand, some of the previous studies have revealed that both orphan boys and girls often have to drop out of secondary school primarily due to difficulties in paying school fee for economic reasons (Kadzamira et al. 2001; Bannell 2005).

The purpose of this study was to investigate how orphans in secondary schools, especially those in the low-income class in society, manage to continue their education. The study focuses on two aspects: (1) coping skills to prevent dropout of orphans at the individual level (i.e. the level of the orphans themselves) and the household level; and (2) practical efforts to support orphans at the school level.

1

The fieldwork conducted for this study uncovered a number of findings. In relation to the first aspect, it was found that many orphans involve themselves in various income-generating activities during school holidays. These activities help relieve their families' or relatives' burdens of costs for schooling and contribute to orphans' education. Concerning the practical efforts to support orphans at the secondary school level, it was found out that such support to needy families is granted by head teacher's discretion, for example, by postponing the payment of school fees, allowing payment in installments, half remission and even exemption. Generally this kind of arrangement is set up by negotiation between the school administration and orphans or their relatives.

These findings have clearly demonstrated that firstly, the coping skills to prevent dropping out, such as income-generating activities, are beneficial only to remain orphans in school and do not contribute to their learning outcomes nor academic achievements, because time-consuming labor, just like income-generating activities, can be a hindrance to their finding out time for studies. Secondly, through various practices implemented by teachers and school administration to support orphans, it can be suggested that flexible school administration is beneficial for orphans' schooling. However, such "flexibility" is based on the generosity and consideration for needy orphans so that we should not expect too much from it.

Conflict-affected Children and the Roles of Schooling:
A Case Study of Syrian-managed Schools in Turkey

Kaoru YAMAMOTO
Graduate School of Human Sciences, Osaka University

Refugee children remain under serious threat to their usual lives even after they flee to safe area. It is partly caused by the absence of education, which might contribute to peace building and post-conflict reconciliation. Although there are many studies on refugee education, the vast majority have been focused on their particular aspects to be passive. This study focuses on Syrian refugees, who are the current majority of refugee population (4 million as of 2015). More than 162 thousand of them seek asylum in Turkey. The high primary school net enrollment ratio in Syria (93% as of 2010) implies that it was common for many Syrian children to participate in school. Over 75% of Syrian refugees in Turkey are living in urban settings. They remain active players in establishing and running schools independently. Their keen interest in schooling appears to be associated with their attempt to minimize their children's vulnerabilities.

This study clarifies the particular vulnerabilities those refugee children hold, and further explores how these schools can contribute to mitigating such vulnerabilities. Two of the Syrian-managed schools located close to Syrian border in Turkey were examined. The fieldwork was carried out twice for the total period of five weeks in 2013. There were a total of 1,735 students in both the primary and secondary levels and 70 teachers. To collect data, semi-structured and narrative interviews were mainly applied, with students and parents as well as teachers as respondents.

There are two aspects of vulnerabilities for the refugee children. (1) The instability of status as refugees casts negative impact on children. A student said "we don't know about our own future so I want to fight for Syria." Some children remain participating in war battles, crossing the border to Syria. This means the instability of their status and the anxiety towards the future may lead refugee children to participate in the conflict. (2) The loss of their human network, which resulted from the deprivation of their original community, causes children's isolation. A teacher mentioned "media is promoting children to participate in the war, but no one tries to help them." The absence of human network with direct linkages prevents refugee children from being identified as individuals.

The study reveals that there are two sorts of roles the schools can play. (1) The schools' ability to give internationally

2

recognized diploma due to the assistance they receive from the Libyan government and UNICEF enabled their children to proceed to higher education. Syrian people need substitution after the loss of normal education even under conflict. That is why refugee-managed schools try to obtain a "typical role" of school to provide certificates, and to mitigate children's sense of instability. (2) The schools have a function to rebuild human networks with face-to-face relationships and to recognize children individually. While refugee children are socially and psychologically isolated, the schools supply the sense of security and belonging to children inside their community. Even children also contribute to the community as the leading movers in the future of Syrian society.

Poverty and Education in Rural Bangladesh

Tatsuya KUSAKABE
Hiroshima University

The institutionalization of school education, according to Education for All (EFA) principles, has become standardized in the modern-day Bangladesh. The educational policy efforts by the government, NGOs, ODAs and religious groups, have helped to increase the gross enrollment rate of primary level from 67.5% (1990) to 107% (2009) [BANBEIS, 2010]. Similarly, in the secondary level, the gross enrollment rate has increased from 17% (1989) [BANBEIS, 1992] to 53.9% (2009) [BANBEIS, 2010]. These phenomena imply that the movement has involved even the remote rural people and the most poverty-stricken people. However, the most impoverished people, disabled people, disaster victims and other deprived people are held back from the benefits of educational development. Some researchers call it "the last 10% problem". The deprived have commonality of fragilities in life sustainability. For example, even if the most poverty-stricken people could be surviving their poor economic condition, they still have to face many other risks such as disease, disaster or public safety declination. Moreover, when they fall into these stern situations, their children automatically drop out from school.

The data of this research has been collected from 1999 to 2013, from four villages in Bangladesh. In this discussion, I targeted sample survey results of lower class households in those villages. The villages could be categorized as remote areas (Karamdi village [researched 1999 and 2009], Saedabad village [researched in 2003 and 2013]) and suburban rural settings (Gohira village [researched 2001 and 2010], Khatarbaria village [researched 2002 and 2012]). According to the general discussions, Bangladesh has an accelerated economic growth and achieved remarkable annual GDP growth of 6%. If two concepts of education growth and economic growth in Bangladesh are put into a consideration, it can be easily assumed that there is some significant improvement of life condition in the target groups particularly in the suburban setting.

The two purposes of this research are: (1) to find out some households which successfully up-graded from the lower class to the middle class during the decade in the target villages, and find some reasons of those success, and (2) to analyze whether the educational development contributed to those successful households or not.

One of the findings is that, the poverty-stricken households' cash income has increased due to the economic growth; while ironically; economic growth constrains the income of the poor people. Thus, these targeted groups are pushing themselves to send their children to schools in order to avoid falling into poverty again. Owing to the phenomena, while some of the poor people can access the expanded education, most poor households still cannot have access to education and become the prey of naked capitalism.

3

Approaches to "Inclusive Education" in Developing Countries
Case Studies: Lao PDR, India and Malawi

Miki Inui (University of Hyogo), Yuki Ohara (The University of Tokyo),

Jun Kawaguchi (Osaka University) and Kazuo Kuroda (Waseda University)

In recent years, inclusive education, rather than special or integrated education, is international trends for pupils with specific socio-economic status such as girls in rural areas, ethnic minorities, pupils with disabilities and pupils in lower caste. Especially since the Salamanca Statement in 1994, inclusive education has been introduced in developing countries as well as developed countries and is presently regarded as an approach to deliver access and quality of education to the "Last 5 or 10%" of children out of school and attain Education for All (EFA).

In Salamanca Statement, it is mentioned that inclusive education is able to contribute to not only expand the access but also improve quality of education, in order to build society without discrimination. Inclusive education is also regarded as the most cost effective education setting to be implemented. However, although the key factor for successful implementation of inclusive education is to provide sufficient condition and support such as trained teachers, teaching materials and various kinds of supports, the supply side of education tends to fail in providing sufficiently. Implementation of inclusive education without sufficient condition and support delivery is just "squashing" pupils who need different types of condition and support in the class. There are many cases that teachers and parents engaged in school activity have been attempting but struggling in various approaches such as introducing dual education settings, low fee school, non-formal school and other counter actions in developing countries.

This session explores several approaches and practices of inclusive education in developing countries based on the field research through the case studies; the education for minorities in Lao PDR, education for economic minorities in India and education for pupils with disabilities in Malawi.

Educational Disparity in Lao PDR
Miki Inui
(University of Hyogo)

In Lao PDR, there are significant improvements in student enrollment rate in accordance with an increase in the number of schools. More specifically, the NER of primary education has improved 77.3% (2007), 91.6% (2008) and 95.9% (2012), respectively. The quantitative expansion seems successful; however, there remain significant disparities within the country. These disparities pertain to the background of "region" and "ethnicity". The majority of out-of- school children are from poor families, rural areas and ethnic minority villages. Various kinds of educational indexes show the lowest outcomes in the poorest districts.

The latest Lao census (2005) listed the names of 49 different ethnic groups. This list can be roughly divided

into two groups. First the majority group, the Laoi-Tai (66.2%), who traditionally engaged in the politics and culture of Laos. The second minority group, the non Lao-Tai, who maintain their languages and cultures in mountainside areas.

The enrollment in primary level education (2010) indicates a significantly higher enrollment rate in Lao-Tai boys from non-poverty families compared to non Lao-Tai girls from poverty families. Considering girls education, Lao-Tai girls from urban areas shows a 92% enrollment rate, however, non Lao-Tai girls from rural areas remains at 52.0%. Disparity is also found in the dropout rate in different provinces. The national average rate of first grade enrollment (2010) is 12.1%; however, in provinces with high minority populations, such as Udomxai, the rate goes up to 21.2%. One of the major causes of this disparity is the language gap between the Lao language, the language of instruction, and minority language.

There are also considerable disparities in from a qualitative aspect. For example, according to the result of ASLO (Assessment of Student Learning Outcome) 2012, which measured the achievement of "Lao language" and "mathematics", students with high achievements are heavily concentrated in Vientiane province. Less concentration has been measured in Luag Namtha and Bokeo provinces which are considered the most remote and poorest provinces. Additionally, when examined by ethnicity, non Lao-Tai students show lower achievements comparing to Lao-Tai students. A huge disparity was seen in the score of "Lao language" between the two groups.

In order to diminish these disparities, strategies for poverty reduction, teacher training and quality assurance have been implemented by the national government with the help of international aid/assistance. Furthermore, it is essential to promote collaboration between the local authorities such as DESB (District of Education and Sports Bureaus), VEDEC (Village Education Development Committee) and schools in terms of offering working opportunities, conveying the importance of education to local people and offering school curriculum that matches with local needs.

Policy and Practice of Private Schools in India
—The Impact of the Right to Education Act (2009) on Educational Disparities—

Yuki Ohara

(The University of Tokyo)

India has the largest elementary school system with over 200 million students. Indian schools are so diverse and inter-school disparity, leading to educational disparity is enormous. This study examines the newly implemented Right to Education Act (2009) and its impact on the educational disparities among those underprivileged studying at government schools and those studying at formal private schools with particular focus on the government's regulatory approach to private schools and the stakeholders' responses to it.

Since 1990's, a number of schemes have been implemented under Sarva Shiksha Abhiyan (Education for All Policy in India) and the enrolment rate has increased accordingly. However, these schemes have led to undesirable result of severe quality deterioration, particularly in government schools where free education is

provided.

There were not enough teachers to meet the rapid increase of school-going children, and many contract-based teachers without proper training were hired at low salaries. Moreover, high teachers' absenteeism at schools became problematic. Thus, in India, those who are capable of paying school fees generally send their children to better-quality fee-charging private schools.

These private schools not only include those for the middle class children, but also those for the underprivileged. The latter is a new types of private school called "low-fee private school". Research to date shows that many of these schools do not meet the government recognition criteria due to financial reasons, and operate as "unrecognized schools", yet, satisfy the need of the low-income families who seek better-quality and affordable schools (Tooley & Dixon, 2003; Ohara, 2012; Srivastava, 2013). Furthermore, research shows that these schools outperformed government schools in terms of students' academic achievement (Tooley & Dixon, 2007).

However, the Government of India envisages that right to access to quality education would be assured only within formal education system, and mandates in the RTE Act (2009) that no schools should operate unless the government's prescribed recognition criteria is met. The Act also stipulates that formal private schools, that are mostly for the middle class children, should reserve 25% of their seats for the economically weaker section (EWS) of the society and provide free education for them (the cost will be covered by the government), while clarifying that the government has the responsibility to provide free and compulsory education to children aged 6 to 14. These statements will directly impact the underprivileged children studying at low-fee unrecognized private schools as well as educational disparities among those underprivileged studying at government schools and those studying at formal private schools.

Based on the analysis of the RTE Act and the stakeholders' responses to it, this study examines the government's regulatory approach to private schools and its impact on educational disparities.

The Conformity of an International Education Policy Agenda at the Local Level: A Case Study of Inclusive Education Policy in Malawi

Jun Kawaguchi (Osaka University) & Kazuo Kuroda (Waseda University)

This research considers the implementation of inclusive education by focusing on the conformity of inclusive education at the policy level and the local level, by taking up the primary school in Malawi as a sample. Malawi is located in the South-Eastern part of Africa. The Malawi government is one of the countries in the African region that has been promoting inclusive education policy since 2000, as can be seen in several policy papers such as The National Policy on Special Needs Education, published in 2007. The number of pupils with disabilities enrolled in school has more than doubled during the 2004 to 2009 period, but there are no data concerning the children with disabilities left out of school.

There is a confused situation in Malawi due to the introduction of the free primary education policy taken in 1994, which led to an explosion of pupils entering school and the degradation of the quality of education. For

example, the average of the teacher-pupil ratio is high compared to the other African countries, with figures in local areas exceeding 1:120. Facing a difficult financial situation, the Malawi government has been struggling to develop effective support for education, which is leading to the continuous reliance on support from international organizations. Even though Malawi is under financial constraints, the government is continues to promote inclusive education. This presentation attempts to reveal the gap between policies at the national level and the reality at the local level. On the basis of the context of Malawi, this research evaluates the conformity between the inclusive education policy at the national level and the local school level, based on fieldwork using above four approaches. Fieldwork was conducted three times, using classroom observation, questionnaire and interview. The questionnaire contains the evaluation of inclusive and special classes using the educational, functional, human rights and economic approaches. The successful fieldwork led to the collection of 137 questionnaires and seven class observations.

As a result of fieldwork conducted at the school level, it became clear that teachers who have been trained support the principles of inclusive education and consider that inclusive education should be at the core of the policy and system of education for the pupils with disabilities. Of the four approaches mentioned above, all except the educational approach was highly supported for inclusive education. This was particularly the case for teachers who have received professional training and are working in the field of special education. Teachers were apprehensive about the negative effects of a rapid transformation to the inclusive education system. The main reasons for this include a lack of trained teachers, inadequate educational materials and insufficient facilities.

In conclusion, the principle of inclusive education is shared and promoted at the international and national levels as an approach to build an inclusive society and promote mutual understanding. The principle is also an effective one to promote comprehensive learning by pupils with and without disability; at the local level, however, it is not always considered in this light.

Teacher Education Research, Politics and Politics - from Japanese Perspective

IWATA, Yasuyuki (Tokyo Gakugei University)

YOSHIOKA, Masaki (Kyoto Prefectural University)

Abstract

This presentation aims to consider on politics and policies of teacher education from Japanese experience, especially focused on teachers' competencies and professional development.

In Japan, we have experienced three major changes about teachers and teacher education in recent 10 years – deregulation, new type of professional graduate school for teacher education and license renewal system. Though these new policies have been introduced as solutions for enhancement of teachers' quality, actually they have some disadvantages – 'deregulation' has caused more 'over-production' of license holders (especially for primary school teachers) than before, 'Professional Graduate School of Education' are quite limited and the graduates have no specialized license nor priorities at employment, and there are no nation-wide standard to pass exams for license renewal. In brief words, there are no effective ways of quality assurances for prospective teachers in Japan.

Facing to these policy confusions, two opposite solutions are now considered: 'regulation' and 'de-regulation'. In my opinion, this challenge in Japan has quite a long historical background. As Ruth Hayhoe has pointed, 'university' and 'normal colleges' for teacher education have been in conflict from the beginning of modern society. In addition, teachers' images in East Asian areas have different meaning from those of Western area and they are required also as 'life models' for younger people. Moreover, since Japan has set up university system with European model, the gap between academics and requirement for teacher education is more severe than other East Asian area with Normal Universities of *'Shuyuan'* model.

Concerning on teachers' qualification in Japan, there are no nation-wide quantity/quality control for universities with TE programme. So each university with teacher education programme has responsible for quality assurances of prospective teachers, but actually most of them are paid less respect from outside. In this context, local governments (Local Boards of Education = LBEs) in Japan have actual power for teachers such as screening, employment, personnel matter, and even for pre-service teacher education programme. However, since most of LBEs emphasize on 'practical abilities' or 'humanities' as crucial factors for new teachers, academic-based competencies have become less cherished.

These kinds of ironical phenomena – policies for enhance teachers quality have been causing negative effects on teachers and teacher education - are also seen in other East Asian areas. As a chance to discuss about competencies for prospective teachers, some points of arguments concerning on teacher education curricula will be shown at the closing.

A Study on the self-regulation of Juku in Japan

Megumi HAYASAKA

Tokyo Gakugei University

Juku is a supplementary education service that has the economic and social status as an industry. The cost of private tutoring is paid by each family. On the other hand, public schools (prefectural, municipal schools) are free as they are operated by tax revenues. Comparing jukus to schools, jukus have much more inequality than schools. However jukus have outnumbered schools recently in Japan. The spread of supplementary education outside school means widening disparities in education.

Juku was like a "shadow" but they organized an association and started to cooperate with each other in the 1960s. "The All Japan Juku Association" expressed their position, as "a third type of education" which is different from school and home education. After the birth of the association, some associations have appeared. As the number of juku had risen, the consumer troubles had also increased in the 1980s. The quality of juku education seemed to be problematic at that time.

As a result, some associations made a self-regulation in accordance with an indication of the Ministry of Economy, Trade and Industry. The regulation provided the prohibition of excessive advertisement and high fee and the considering students being in safe and healthy.

The self-regulation was meaningful in terms of the development of the juku as a service industry. After the setting up the regulation, some vice jukus went bankrupt. The regulation has worked as a self-cleaning in the marketplace.

The regulation is not included the learning contents and methods at juku. There is only one article about learning, which says that "efforts" for instruction are needed. Therefore, the learning contents and methods are protected only based on "efforts" by the juku teachers.

Juku succeeded to be a supplementary education service industry owing to the self-regulation. People trust the quality of jukus without deep consideration because jukus share its industry's original standard. However jukus do not pay attention to educational disparities caused by itself. They should start to consider how to contribute to the whole society in education area, help schools and cooperate with school teachers. Jukus are needed some new type of regulation and challenges which control of freedom of running juku and making profit so as to realize equality of education as "a true third type of education".

Research and policy: a study on Intercultural experience of Japanese overseas volunteer teachers

MAEDA Mitsuko[1], ONO Yumiko[2] & NAKAMURA Satoshi[3]

1)Osaka Jogakuin University, 2)Naruto University of Education, 3)Hokkaido University

Research is informed by policy and vice versa. This is illustrated in a study on Intercultural experience of Japanese overseas volunteer teachers.

This study examines the process of accepting cultural differences in Japanese teachers. Overseas Volunteer Program for Incumbent Teachers was established in 2000 by Ministry of Education, Culture, Sports and Technology (MEXT) in cooperation with Ministry of Foreign Affairs, Japan International Cooperation Agency (JICA) and prefectural boards of education. Under this program, participating teachers are able to engage themselves in education development work for 2 years without resigning teaching job. Previous research suggests overseas experiences often trigger transformation of intercultural perspectives (Bennett, 1993; Taylor, 1994). Majority of the returned teachers are positive about the program and did answer that their perspective had changed (Sato, 2010), but their comments or descriptions on transformation remain fragmental and anecdotal. In order to fill such research gap, this study focuses on a process of change.

This research relies on case study methodology and is guided by Developmental Model of Intercultural Sensitivity (DMIS) by Bennett (1993). The participants consisted of 16 teacher volunteers. During two year period, they answered 6 survey questionnaires and site-visits and interviews were conducted to three teachers (2 male teachers in southern Africa and 1 female teacher in Asia) who had agreed for in-depth case study. Both written and audio data was computerized, then divided by a unit of meaning for coding. Researchers analyzed the coding against DMIS to determine their stages at different points of time.

The research found some factors that influenced the development of intercultural sensitivity: competence of host language, willingness to communicate in host language, availability of cultural mediator, difference of role expectations, difference in school type/level in home country, readiness for cultural differences. It also found that development of cultural sensitivity was not linear, and participants showed attitudes and behaviors that stretch across the continuum at one time.

It is argued that these research findings would be useful for teacher training policies and aid policies.

ID:15-449

Teaching gap between children's understanding and scientific concepts that teachers want to teach in science lessons

Session Organizer: Sachiko Tosa
Presenters: Kyoko Ishii, Koshiro Wada, Sachiko Tosa

Abstract

This symposium focuses on the teaching gap between students and teacher in science lessons. Each presenter discusses how the gap is made and what might be a possible solution for filling the gap. The main mode of research methods is qualitative. Presenters chose their own way of investigating the problem. Ishii compares researchers' observational notes with teachers' lesson plans to see when and where the gap happens in research lessons. Wada uses TIMSS Science Video Lessons to compare different questioning techniques that teachers use to help student construct scientific concepts. Tosa also uses lesson transcripts of TIMSS Science Video Lessons to analyze how the gap between teacher and students widens or narrows depending on teacher's questions. Through the presentations of concrete examples from multiple perspectives, it is expected that we would be able to gain an insight on this traditional issue of the teaching gap between students and teachers.

ID:15-451

What should science pre-service teachers learn in college?

Session Organizer: Sachiko Tosa

Presenters: Yukio Terashima (Naruto University of Education), Kyoko Ishii (Tamagawa University),

Sachiko Tosa (Niigata University)

Abstract

This symposia presents ideas and examples of practice that help pre-service science teachers become effective teachers through college education. Three of the presentations cover the areas of teacher content knowledge, pedagogical knowledge, pedagogical content knowledge, and learning styles. By discussing the issues from multiple perspectives, it is expected that we would be able to gain an insight on the issue of science teacher education in college.

Overall Summary:

Education Department in college is a place to train future teachers. Pre-service teachers typically learn educational theories as well as discipline-specific content in courses they take at college. They also acquire practical knowledge about teaching through student teaching. However, the depth of knowledge that students acquire is very much constrained because of the limited number of courses they complete in four years before graduation. On top of all of these, students who want to be a science teacher also need to learn how to teach a science lesson that includes hands-on experiments and observations as student activities. Are pre-service teachers ready for teaching a science lesson at the graduation of college? It is often reported that especially pre-service teachers in elementary education have difficulties in designing science lessons. One of the reasons is the lack of content knowledge in science. Many of the students did not take advanced science courses in high school. They also have very limited exposure to science content in college.

Terashima at Naruto University of Education presents the result of a survey in science content knowledge for pre-service science teachers at a teacher training college. He reports their common characteristics that he found through the survey results. He will show that such an analysis is useful for understanding problems in teacher training.

Ishii at Tamagawa University presents the results of her five year project that focuses on lesson designing processes in science methods classes. She observed that through the group work, students could learn how to design inquiry-based science lessons. She will show her research findings that are obtained through the analysis of survey responses and student description of the processes in the term paper. The use of mock lessons is discussed as an effective strategy for helping pre-service teachers learn what they need to learn in science teaching.

Tosa's presentation focuses on how she reformed science methods class in an active-learning style. She shows how the use of clickers and white boards in an active-learning style helps pre-service teachers change their beliefs about science teaching. She uses student reflection written at the end of each lesson as the data source."

ID:15-453

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Higher Education Faculty Development Centers:

Challenging disparities in the quality of classroom practice
</p>

Symposium Organizer and Chair: Otherine Neisler, Sultan Qaboos University, Oman

Confirmed Participants:
Otherine Neisler, Sultan Qaboos University, Oman
James O'Meara, National-Louis University, USA
Kevin Kelly, San Francisco State University, USA
Mervin E. Chisholm and Mairette Newman, University of the West Indies, Jamaica
Martha M. Prata-Linhares, D.Ed., Federal University of Triangulo Mineiro- UFTM - Brazil
Sarah Younie, University of Bedforshire, England
Roman Svaricek, Masaryk University, Czech Republic
Participation via video or videoconferencing:
Thomas Fox McManus, University of Saint Joseph, USA
Jake Glover, IDEA, USA
Unconfirmed Participant:
Ednita Wright, Onondaga Community College, USA

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Purpose of the Symposium and Introduction
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The purpose of this symposium is to begin an ICET collective conversation about the mission and role of faculty development centers at our own institutions with the intention of fostering a collaborative research agenda focused on documenting the 3-way impact of such centers: 1.) effectiveness of the center; 2.) effectiveness of teaching; and 3.) enhancement of student learning.

As universities around the world prepare for the increasing demand for data driven instructional decision-making coupled with proof of student learning against outcome-based learning objectives, the role of the faculty development centers (FDCs) on our campuses becomes more prominent. Many ICET institutions have such centers under various names with different structures, missions, and programs.

In the 21st century, higher education faculties are perhaps the most critical factor in developing educational programs that support global socioeconomic sustainability. Not only do instructors have to fight to engage students but their programs must prepare graduates who can think critically, have the skills of lifelong learners who can adapt to rapid change, and, at the same time, be ready for the ever changing workplace, Higher education institutions face pressure from the consumer, the workplace, policy makers, and the media to prove that graduates have acquired the education required for society to maintain or improve its level of economic security. The recession of 2008 heightened the tensions. (Partnership Toward 21st Century Skills, 2007; Dolence and Norris, 1995).

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Individual Presentations
</p>

James O'Mera, Director Deepening Practice and President of International Council on Education for Teaching, National Louis University
Jake Glover, Senior Education Officer, IDEA,
Kevin Kelly, San Francisco State University; Higher Education Consultant

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Title: High Impact Faculty Development Centers
</p>

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Derived from experiences with 400+ higher education institutions across all Carnegie Classifications and global UNESCO initiatives the presentation covers key faculty development needs and trends transferable to any FDC context. Participants will be introduced to examples of FDC best practice in the areas of operational effectiveness and teaching effectiveness within the context of improving the quality of student learning outcomes for all.

Mervin E. Chisholm, Center for Excellence in Teaching and Learning, University of the West Indies
Mairette Newman, School of Education, University of the West Indies

Title: From embryonic unit to mature centre: Mission, mandate and successes of the Centre for Excellence in Teaching and Learning at the University of the West Indies, Jamaica

The Centre for Excellence in Teaching and Learning at the Mona Campus of the University of the West Indies (UWI) Jamaica, has its genesis in a small Staff Development Unit established in 1992 in response to concerns about the need for faculty to improve their teaching skills. Recognising that faculty needed to become more learner-centred in their pedagogical approaches, the university mandated the Staff Development Unit to create learning opportunities for lecturers to improve their pedagogical skills. The Staff Development Unit eventually evolved into the Instructional Development Unit which continued to provide faculty with tools and training to effectively teach university students. Over the years, the centre has extended its reach, increased its programme offerings and services and further defined its mandate. An important part of that mandate includes a concentration on developing faculty who enable learners to go beyond merely consuming or using knowledge to creating. The changes in name - from Staff Development Unit to Instuctional Development Unit to the most recent Centre for Excellence in Teaching and Learning (CETL) in 2013 - reflects this changing and expanding role.

This paper outlines the context that gave rise to CETL's formation; describes the conceptual framework that undergirds its work; and explains the design and strategies that support its programmes. In particular, the paper examines the shifts in purpose, focus and curriculum, as well as the expanding components and variety of initiatives that have evolved over time in response to the changing higher education landscape. In addition, the paper demonstrates how various challenges within the teaching and learning domain of the campus have caused the centre to rethink, refocus and at times reinvent itself while remaining relevant and true to its mission and mandate. Finally, it shows, using available data, that in spite of local and institutional challenges, the CETL has been and continues to be successful in preparing Faculty for, and sustaining them in, the often under-valued but demanding field of teaching in the context of a research-based university.

Otherine Neisler, Center for Excellence in Teaching and Learning, Sultan Qaboos University, Oman

Title: Comparison of the ICET Institution Centers

During this presentation we will compare the various missions, learning outcomes, instructional strategies, activities and results of the represented FDCs. The comparison of the characteristics of the Faculty Development Centers at various ICET institutions will provide the foundation for understanding the variety of purposes, structures, budgets, facilities and activities of a range of FDCs. See Table 1 for the list of institutions and the factors that are being compared.

2

Table 1
Faculty Development Centers at ICET Institutions: Comparison of Characteristics
Compiled by Otherine Neisler, Sultan Qaboos University

Center Name/Location #Faculty/#Students	Reporting structure	Mission/Goal /raison d'etre	Staffing	Budget as % of Faculty Salaries	Facilities	Activities	Impact	Challenges to meet faculty needs	Research
Australian Catholic University: Learning and Teaching Center http://www.acu.edu.au/staff/our_university/directorates,_offices_and_their_units/learning_and_teaching_centre									
University of Bedforshire, England: Centre for Learning Excellence http://www.beds.ac.uk/learning/cle2									
University of Maryland: The Teaching and Learning Transformation Center http://tltc.umd.edu/									
University of Saint Joseph, Teaching and Learning Center http://www.usj.edu/academics/academic-services/teaching-learning-center/									

3

Sultan Qaboos University: Center for Excellence in Teaching and Learning Newly founded 14,000/									
University of Glasgow: Learning and TeachingCentre http://www.gla.ac.uk/services/learningteaching/									
University of Hong Kong, China: Centre for the Enhancement of Teaching and learning http://www.cetl.hku.hk/									
University of Tasmania: The Tasmanian Institute of Learning and Teaching http://www.utas.edu.au/tilt/									
University of the West Indies, Mona Campus in Jamaica: Center for Excellence in Teaching and Learning http://www.mona.uwi.edu/cetl/									

4

Thomas Fox McManus, Teaching and Learning Center (TLC), University of Saint Joseph, USA

Title: TLC Metrics

Currently the TLC has been keeping both utilization and faculty satisfaction statistics. For instance, in the 2013-14AY we served almost 600 different customers, more than 250 of whom are repeat. These customers are from all five USJ schools. These are faculty and staff that use TLC services or attend TLC events regularly, averaging almost 50 different customers each month. In our end of year satisfaction survey we had 83.5% of respondents state they are either satisfied or very satisfied with the TLC's services. Similar satisfaction rates were received on the event surveys for our workshops and presentations.

We realize that usage and satisfaction metrics are insufficient for effective program assessment. The TLC is looking at better ways to measure our effectiveness over time. Some methods will be informal, others formal. The creation of a faculty advisory board gives the faculty formalized representation and a channel for feedback and suggestions to shape the TLC's services and programs. This is an example of an informal measure. A more formalized effectiveness measure will be the TLC Faculty Reviewers. In the 2014-15AY we will have three selected faculty who will offer assessments of both the TLC programs and the impact of those programs. The three Reviewers will be paid a stipend to take part in our workshops, individual consultations, and other services and maintain journals afterwards to record implementation of pedagogical techniques learned in the workshops and consults within their classes, their effects on students, and their plans for future use of the knowledge. This is a first effort to evaluate the impact of our efforts on faculty teaching.

 We are also looking at working with our Institutional Research department to build longitudinal data for student achievement and faculty teaching assessments both for USJ as a whole, and for faculty who are regular users of TLC services and programs as a way of assessing trends that may correlate with long term TLC impact. These might include-

- Student surveys of faculty teaching – Change over time for active TLC participants v. non-participants across the faculty as a whole (including adjuncts).
- Student/course grades averages – Change over time for active TLC participants v. non-participants across the faculty as a whole (including adjuncts).
- Number of online course offerings – are more courses and programs offered at USJ over time? How many of the faculty running the courses are regular customers of the TLC? How many of the courses is the TLC producing media for?

- Quality of USJ online offerings – as assessed by Quality Matters or other external assessment
- Accreditation reports – How does assessment of USJ teaching, learning, and technology integration by accrediting agencies change over time? How does this vary with TLC involvement?

As of now we have only begun our efforts to measure our impact on student learning. How feasible or effective our efforts will be is yet to be seen. But we must make the effort, despite the difficulties as our end goal is this positive push towards student success.

5

Ednita M. Wright, LCSW, CASAC:
Martha M. Prata-Linhares, Graduate Programme in Education, Federal University of Triangulo Mineiro- UFTM - Brazil

Title: Faculty management, response and participation

 The roles that faculty members play in FDCs differ by design. The Teaching Center at Onondaga Community College was designed in response to faculty needs and concerns over the quality of learning as well as teaching support and evaluation strategies. Yet, administrative support at the highest levels is critical to the success of the types of changes that are required. This presentation discusses the roles of the faculty as director of the FDC both on campus and as a cross-center collaborator: In this particular with other coordinators across New York State.

While FDCs are important, support of administration is critical. Such support is required for funding, commitment to new classroom technology, willingness to support faculty through change, creation of course and teaching evaluations that are aligned with new teaching practices and willingness to work through the stress on all segments of the university when major changes are implemented.

Lastly, even when faculty members embrace change, this very change creates its own problems. Students who are taken outside their comfort zone (e.g. she made us think) reflects both positively and negatively on teacher and course evaluations. Instructors are also outside of their comfort zones. The tendency, when new methods do not work smoothly is to revert to old standbys. Our solutions focused on the changes in student learning that we were seeking.

Sarah Younie, University of Bedfordshire, England

Title: UK Professional Standards Framework

There are many FDCs across the United Kingdom all operating in alignment with the UK Professional Standards Framework (UKPSF). This presentation discusses the related responsibilities and activities of the University of Bedforshire Center for Learning Excellence.

"The UK Professional Standards Framework (UKPSF) (2011) is a comprehensive set of professional standards and guidelines for HE providers and leaders. A nationally-recognised framework for benchmarking success within HE teaching and learning support, it can be applied to personal development programmes at individual or institutional level to improve quality and recognise excellence.

The UKPSF clearly outlines the Dimensions of Professional Practice within HE teaching and learning support as:

- areas of activity undertaken by teachers and support staff
- core knowledge needed to carry out those activities at the appropriate level
- professional values that individuals performing these activities should exemplify" (Centre for Learning Excellence, 2015).

Roman Svaricek, Masaryk University, Czech Republic

Title: Building a new teaching and learning development center for teachers at Masaryk University

6

Masaryk University (40.000 students) is responding to the global trend
in recognizing the importance of excellent teaching at universities. The
aim of the new center is to provide systematic support for teachers and
academics at different faculties in educational issues. It is expected
to develop primarily two programmes:
• Mentoring program for beginning university teachers
• Consultations in the educational, didactic and technological issues of
teaching and learning

Dilemmas
•   How to measure effectiveness of teaching? What are the quality
indicators?
•   How to enhance student learning?
•   Voluntary/compulsory participation?
•   For beginners/all?

Audience participation

After the last presentation, the audience conversation will focus on audience questions and
discussion of suggestions for Masaryk University FDC design. Attendees could also share
additional information about centers at their institutions.

The session attendees will receive the following documents:

- Comparison chart
- Summary of the FDC for each presenter's institution
- Bibliography of FDC related research

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7

ID:15-624

**Each challenge and solution for the Educational Disparities of teacher education
in the world**

Presenter: Atsushi MATACHI, Japan International Cooperation Agency (JICA)

Panelists: Atsushi MATACHI, DADAVANA Colette Modagai (Papua New Guinea),

Banchai MALAVONG (Laos) & Win Theingi Kyaw (Myanmar)

Discussant: Yumiko ONO, Naruto University of Education

The purpose of the session is to discuss each challenge and solution of each country's effort to solve educational disparities. Through the session, the participants are expected to take wide and deep point of view and to understand the challenges and solutions each of the countries has had, which can be applied to solve similar challenges faced by other participants.

The session consists of the following components:

1. Aim of the session (5 minutes)

Mr. Atsushi MATACHI, Japan International Cooperation Agency (JICA) will give the introduction of the session.

2. Keynote presentation (25 minutes)

Mr. Atsushi MATACHI will describe the contexts of JICA-supported projects relevant to Panel discussion in JICA's partner countries, in particular, focusing on why those countries and JICA have chosen the means of continuous professional development (CPD).

3. Panel discussion (45 minutes)

Panel: Representatives from Laos, Myanmar and Papua New Guinea

To begin with, short presentations will be made by the three countries (Laos, Myanmar and Papua New Guinea) focusing on the backgrounds and outcomes of and each challenge in conducting teacher education. Then, the three countries will discuss those issues in depth, chaired by Mr. MATACHI.

4. Comment from discussant (10 minutes)

Prof. Yumiko ONO, Naruto University of Education, will make comments on the discussion above.

5. Questions and Answers (5 minutes)

RESEARCHES FOR INNOVATION: PRACTICES AND CHALLENGES IN NIGERIAN UNIVERSITIES

Uchenna .E. Ajake
Institute of Education
University of Calabar, Nigeria
Email: Ucheajake@gmail.com

Abang. J. Isangedighi
Faculty of Education
University of Calabar
Calabar, Nigeria
Email: abangisangedighi@ymail.com

Emmanuel .E. Ekuri
Faulty of Education
University of Calabar, Nigeria
Email: dr.ekuri@gmail.com

Abstract: *Survey data collected from 669 university lecturers in south-south zone of Nigeria were analysed to determine the extent of innovative research practices and the challenges encountered. The subjects, 394 males and 275 females were selected using the stratified random sampling technique. Three research questions were answered using descriptive statistics. The findings revealed that a high percentage of university lecturers have poor research orientation as their research efforts and publications were more for promotion purposes and lies for solution of immediate existing problems. The study also revealed that although most of the lecturers had several publications, their efforts at publication are limited by challenges such as poorly equipped libraries, inadequate power supply, lack of functional internet connectivity and inadequate access to research funding. It was recommended among others, that any effort to facilitate innovative research among university academics in south-south zone of Nigeria, should be directed at their proper re-orientation, provision of adequate library resources, constant power supply, functional internet connectivity and adequate funding.*

INTRODUCTION

Teaching and research for publication are core job requirements of university lecturers. To improve on these requirements, they attend seminars and conferences both locally and internationally. Through research, lecturers acquire knowledge and disseminate same to students and peers. When they do these, they help enhance their universities' competitive advantage. All said, research plays a pivotal role in the systematic development of new knowledge, and is central to the effective operation of higher education, (Njuguna and Itegi 2013). Through research, higher education contributes to innovative exploitation and utilization of the nations' resources.

In Nigeria as it is in other African countries, universities are targeting their research to better serve the society. Efforts made include the development of research policies and research funds, the creation of offices or departments for cooperative research, the development of strategic plans for research, incentive mechanism for faculties, training of faculty and administrators in proposal writing, resource mobilization, and partnership development and management. Notwithstanding these initiatives, and the fact that lecturers are evaluated for

promotion very largely based on the number of research publications, most lecturers hardly spend adequate time to do quality/innovative research. Innovative research are those type of research that result in the creation of new knowledge, or the use of existing knowledge in a new and creative way so as to generate new concept, methodologies and better understanding. It involves the effort to carry out the research process with radical novelty and engaging collaborative, transitional and transformational ideas with break through potentials. This research ingredients of involvement in innovative research are considered as including citation of one's articles in other journals, engagement in institutional research projects, attraction of funds for research, ability to win prizes or recognition for research, attendance of conferences and publication of empirical papers

In a typical Nigerian university, an academic staff is employed and left alone to blaze the trail. There is neither orientation for the newly recruited to help the nurturance of needed academic culture among which innovative research practices thrive. All fresh entrants knows is that, he/she has to publish or perish. That is the case, although one cannot make a good publication without quality research. And if universities in Nigeria cannot carry out quality research, they cannot help the country meet the challenges of the 21st century. The question then is: are our research practices innovative enough to allow for quality journal article publication? This question is relevant given current challenges posed by strong pull of forces of rapid changes, the predominance of ICT and pervasive socio-economic uncertainties. In the world in which the attraction of competitive advantage has replaced that of comparative advantage, university lecturers cannot but embrace innovative research practices. The thrust of this study is to find out if researches carried out by lecturers are innovative enough. University lecturers have the obligation to take a leading role in seeing that our research practices are truly innovative. This study was therefore aimed at determining the extent to which lecturers in the south-south zone of Nigeria embark on innovative research, and the kinds of challenges they encounter in their research efforts. The research objectives included the determination of:

1. The level of research orientation among university lecturers.
2. The extent of innovative research practices embark upon by university lecturers.
3. The challenges faced by lecturers in the effort to carry out innovative research.

Theoretical framework
This research is based on diffusion theory of Rogers (1995) which postulate that diffusion is a social process through which subjective evaluations of an innovation spread from earlier to later adapter. Rogers (1995) see innovations as the process by which an innovation is communicated through certain channels over time among members of a social system. In this light is very much a communication based model. The elements of diffusion theory includes:
(i)   Innovation: an idea practice or object, perceived as new by individuals or a group of adapters.
(ii) Communication channels: the means by which innovation move from individual or group to group.
(iii) Time: the non-spatial interval through which a diffusion events occurs.
(iv) A social system: a set of interrelated unit that are engaged in joint problem solving activities to accomplish a goal or goals.

The five steps in this process are regarded as:
(i)   Knowledge (awareness)
(ii) Persuasion
(iii) Decision (evaluation)
(iv) Implementation (trial)
(v)   Confirmation (adoption)

Rogers diffusion model could help a researcher identify the basic forces which affects both adoption rates, and the factors which may lead to rejection or acceptance of an innovation.

RESEARCH QUESTIONS

In the study, the following three research questions were answered:

1. What is the level of research orientation among university lecturers?
2. To what extent do university lecturers practice innovative research?
3. What are the challenges impending innovative researches?.

LITERATURE REVIEW

The word innovation is ambiguous and lacks a single definition or meaning (Adams, Bessant and Phelps 2006). Innovations are radical technological scientific and social novelties characterized by social acceptance or collective attributing of the label "novelty" and therefore are able to create success for the system that emerged the novelty (Ajake 2014)

Nigeria like any other country globally is experimenting on the on-line education delivery. This covers online registration of students, examination processing and display of examination results. On-line education delivery is one of the few innovations that come with the incursion of ICTs into the Nigerian education system (Okebukola, 2002). This seeming achievement notwithstanding, not much has been observed to have been done in employing the internet to facilitate teaching and research in Nigeria. According to Okebukola (2002), this has negatively impact on the quality of graduates and quality of research especially when compared with ones from developed countries with functional e-learning tradition. The inability of Nigerian university lecturers to use the internet for teaching and research makes them ignorant of innovative research practices elsewhere (Jagboro, 2003; Yusuf,2005 and Okorie, Agabi and Uche 2005).

Igbineweka and Ahmed (2014) examined the usability rate of internet for teaching and research among Nigerian universities lecturers. Four research questions were raised to guide the investigation. A total of 63 lecturers were used for the study. Data analysis was done with descriptive statistics and the result revealed that 1 out of 54 lecturers (1.85%) Nigerian university lecturers use the internet for teaching and research.

An evaluation of lecturers perception towards research orientation was conducted by Izah and Nor (2009) in Malaysia. The finding clearly showed that involvement in research activities among lecturers was still unsatisfactory. Many academic lecturers placed little emphasis on research activities as this did not promise any reward in terms of promotion or salary increase. The study also revealed that the main motivation for lecturers to do research are getting promoted and for salary increment.

Izah and Nor (2009) revealed that a vast majority of the respondents (80.7%) mentioned that they were motivated to do research if it can enhance their promotion and improve their salary. Furthermore 78.9% of the lecturers strongly agreed that the reward in terms of salary increment influences them to engage in research. About 56.1% of lecturers indicated that if they are not promoted, they would spend less time on research activities.

An examination of the challenges in innovative research according to Izah and Nor (2009) revealed that poor statistical/econometric techniques (75.4%), heavy teaching load (73.7%), poor writing skill resulting from poor mentoring (70.2%) and lack of funding exist (61.4%).

A total of 59.7% of lecturers mentioned poor reward while 57.9% indicated too many committee / administrative assignment.

Murrey, Joe and Robert (1994) explored the risk and insurance of faculty attitudes toward research and publishing in 36 universities. One hundred and thirty two respondents were involved in the study where 48% were professor, 21% assistant professor, 21% associate professors, 6% instructors and 4% making up others. The study found that majority of the respondents were actively involved in research and publication. Only 18% of the respondents had no refereed journal article published during the last 5 years and only 12% had not presented research papers at conferences during the period in question. Also, 91% of the faculty members believed that research publication was necessary to enhance career advancement. However, the most important reason for research engagement was to make scholarly contribution to the body of knowledge.

Stemer (1999) conducted a research on the faculty attitudes towards involvement in grant-related activities in institutions. The study revealed that teaching loads were generally low and academic staffs engaged in research and other scholarly activities to receive tenure and promotion. The study also revealed that academic lecturers placed high priority on teaching than in innovative research. The major aim of engaging in research was for promotion and professional development.

Also, Thomas and Harris, (2000) conducted a research on teaching quality and staff research of a metropolitan university. Their study concluded that research among academics enhances job , reward, enthusiasm and also improve educational experience of students.

Looking at the challenges of innovative research practices, Ajake, Oba and Ekpo (2014) observed that many countries especially the western world have caught the fire of innovative research practices. Yet the potential of university education system in Nigeria to fulfil this responsibility is frequently thwarted by long standing problem of funding, poor infrastructural facilities, disconnection from the outside world (web knowledge) resulting from constant power failure and lack of internet connectivity.

According to Mugenda, (2008), the use of IT in research is hampered by lack of resources in many African countries including Nigeria. High cost has kept computer technology beyond the reach of many lecturers. Worse still is the issue of lack of supportive infrastructure like electricity, poor maintenance and replacement of hardware and computer skills among users. It is sad that in some universities, some lecturers are still ill equipped in computer technology, lack of modern ICT infrastructure and skill in our university system is a painful embarrassment in innovative research development. Dogara, Ahmadu and Lawal (2003; and Gambari and Okoli 2007) identified other problems as bureaucracy, lack of well equipped ICT labs, lacks of qualified personnel to maintain ICT materials, poor internet connectivity etc.

Arcadia (2011) investigated the access to research in East and Southern African universities. The paper explored the three fold challenge of availability, access and use of online journals and considers the interrelated issues of technology, awareness, skill and campus relationship. On the average, 79% of the top-ranked international journals were available online, free at the point of use, at the four case study universities. Access schemes have helped to dramatically increase the availability of academic journals across the region and many of the universities have established consortia to coordinate subscriptions. However, the affordability of subscription models still remains a challenge. Technology constrains pose significant problem, but access to computers and broadband connectivity is steadily improving. Researches awareness of the resources available to them is often low and many lecturers are unfamiliar with key publications in their field, search and discovery skills are often under-developed and links between libraries and academics are often weak.

The international development research centre (IDRC) 2010, initiated a process to better understand the governance of university research. Six universities in five countries in West and Central Africa were used. The instrument for data collection was questionnaire and interviews with administrators, professors and students. The investigations includes organisation of the research system, institutional steering of research and management of structures. Regarding the organization of research, it was observed that universities lack documented and clear guidelines for organizing the research system. The same applies to the criteria for accreditation of research units. The findings revealed that universities have no mechanism for setting research priorities. However, researchers have been carrying out their research, whether individually or collectively, primarily to meet their own interest and secondly to meet the requirements of external partners with their own respective research agendas.

On the operational management of the University research according to Camara and Toure (2010), all surveyed universities have administrative and accounting procedures and manuals that are followed relatively closely. However, the existing tools do not generally address the specificities of research. This weakens the system and may lead to all kinds of uncontrollable deviations. Also, the application of research results remains one of the major weaknesses identified of applied research processes in the surveyed universities. This is due to lack of regard for national development priorities and social demand.

Njuguma and Itegi (2013), reported that research productivity in terms of articles in journals in the rest of the world is increasing fast, the relative position of Africa as knowledge producer is decreasing gradually, Sub-Saharan African contributes 0.7% of world scientific output. Except for South Africa, lack of incentive to publish was also a problem due to poor funding from the government.

However, most researches conducted in Africa continue to gather dust in some rooms in many universities while many researchers are forced to seek publication to foreign journals publishing in these journals is often slow and frustrating experiences and even when such materials is accepted for publications, the information is not readily accessible to local researchers, professionals or communities who need it most. This has resulted to lack of locally published books in research and other professional areas. Kobia (2006) noted that Africa as a continent continue to experience a book famine" as locally published books and journals are very few in various disciplines.

A study by centre for Higher Education Transformation (CHET, 2011), concludes that the knowledge production output of the academics scores at flagship African universities is not strong enough to enable universities to make a sustainable contribution to development. The study revealed that each academic was likely to publish on average only one article every ten or more years. Other challenges of innovative research practices includes the culture of secrecy and the fear of unknown in most African societies. The greatest concern is ethnic chauvinism necessitating the need to keep tribal secrets and keep away intruder. This have continued to impact on research negatively.

Njuguma and Itegi (2013) in their study found that severe shortage of local funding for research has resulted to competition for limited international funds for short term research. Training in research methodology has also been deficient. For example in Tanzania and Malawi, inadequate skill base among researchers has resulted poor quality research. (Stephenson and Monique, 2008).

Methodology

*Subject*s:

A total of 669 university lecturers ranging from assistant lecturers to professors were used for the study. The subjects (394 males and 275 females) were selected from six university in south-south zone of Nigeria using the stratified random sampling procedure. The lecturers ranged in age from about 30 to over 65 years. They included those in the faculties of Arts, Education, Law, Medicine, Science and Social Science.

Instrumentation:

A survey instrument captioned lecturers Opinion Questionnaire (LOQ) was used for data collection. The research instrument had four sections. Section A elicited from the respondents' demographic information such as sex, university, faulty, age, academic qualification and years of experience Section B was a five item multiple choice scale that elicited from each respondent, their opinion on:

1. What gives him or her drives for researches?
2. Number of publications abstracted and indexed.
3. Sources of funds used for research
4. Inclusion of current trends in courses taught
5. Allowing one's research effort to be guided by knowledge of current research trend in own area of specialization.

Section C was a 13 item, six point Likert-type scale that measured the level of innovation in respondent's research. Section D was a four point Likert-scale that measured the challenges faced by the respondents in effort to carry out research. Copies of the instrument were submitted for face and content validity. The data generated were analysed using simple percentages and bar charts.

Data Analysis

The data were analysed by using descriptive statistics in answering each research question.

Results
The results of the data analysis are here presented per research question.

Research Question 1:
What is the level of research orientation among university lecturers?
The results of data analysis as presented in Table 1 show that 41.1% of the respondents reported that what most give them impetus for research is the desire to gain on the job promotion. A higher percentage (42.3%) reported that they carry out research mostly to contribute to knowledge. A relatively lower percentage (16.5%) reported that their research orientation is most tilted towards solving current problems.

Further examination of the table shows how the respondents had published research papers in journals; locally, within and outside Africa. For local journals, 0.4% of the respondents had above 50 publications. About 4.0 % of the respondents had 21-50 publications, while 63.3% has 1-20 publications and 31.8% had none. For African based journal, only 0.4 has above 50 publications, and also 0.4 had 21-50 publications. A high proportion (49.7%) had 1-20 publications whereas 49.3% had none. When it comes to publishing in foreign journal outside Africa, a few (0.4 %) had above 50 publications, while 3.1% had 21-50 publications. A high proportion (62.7%) had 1-20 publications while 33.6% had no foreign publications outside Africa. Additional indices of level innovative research are shown in table 1.

Research Question 2
To what extent do university lecturers practice innovative research?

The extent to which the subjects practiced innovative research was in the study measured by for example the number of times their articles had been cited in other journals to the number of times they had checked if their study will contribute to knowledge before embarking on it. As shown in Table 2, as much as 26.9% of the subjects reported that their published articles had never been cited in other publications. A high proportion of the subjects (42.6%) reported that their articles have been cited up to 4 times while 38.1% reported that their articles have been cited more than 4 times in other publications.

About 8.1% of the subjects have never completed their own individual research project, while 38.5% have had 1 to 4 times completed research projects and 43.5% reported that they have carried out and completed studies

Table 1. Frequency and simple percentage showing the research orientation among University lecturers. (N=699).

S/N	Research orientation		Frequency	Percentage
1.	What really gives you the greatest drive for the research you have carried out so far.	Promotion	275	41.1
		Solving current problem	111	16.5
		Contribute to knowledge	283	42.3
2.	Like how many of your publication are abstracted and indexed	Almost All	174	26.0
		Most	129	19.3
		Some	216	32.3
		None	150	22.4
3.	What is the source of funds you most often rely on.	External sponsor	75	11.2
		Your University	25	3.7
		Self	569	85.0
4.	Utilization of research findings for teaching and learning	70% and above	306	45.7
		60-69%	201	30.0
		50-59%	96	14.3
		40-49%	24	3.6
		40% below	42	6.3
5.	Number of articles published in local journals	Above 50	3	0.4
		21-50	27	4.0
		1-20	426	63.6
		None	213	31.8
6.	Number of articles published in african based journal	Above 50	3	0.4
		21-50	3	0.4
		1-20	333	49.7
		None	330	49.3
7.	Number of articles published in foreign journal outside Africa	Above 50	225	33.6
		21-50	420	62.7
		1-20	21	3.1
		None	3	0.4

more 4 times. With regards to institutional research, only 10.8% had been involved more than 4 times, 44.8% have been involved 1to 4 times while as much as 44.3% of the subjects have never been involved in institutional research project.

When it comes to the publication of position papers, only 20.2% had done that more than 4 times, 42.9% have done it 1to 4 times while 36.8% of the respondents have never. In respect to publishing empirical research reports, 32.3% have done so 1 to 4 times while 31.9% have never. Concerning attraction of funds for research, only 24.2% and 4.9% respectively have done so 1 to 4 times and over 4 times. A high proportion (70.9%) have never attracted funds for their studies.

In response to the number of times the subjects have won prizes or recognition for their research endeavours, only 12.6% reported that they had won prizes or recognition more than four times. About 22.9% had done so 1to 4 times; while a high proportion (64.5%) have never. On accessing PDF files, 55.2% indicated that they have done that more than four times; 23.3% have accessed the files 1to 4 times, while 21.5% have never.

When asked the number of times they have ever submitted research proposal to relevant university committees for appraisal before embarking on their studies, only 13% had done so more than four times, 44.9% reported that they had done that 1to 4 times. A high proportion (42.2%) have never done so.

As regards if they presented their articles to faculty departmental seminar before submitting for publication, about 17.9% have done so more than four times, 41.3% have done so 1 to 4 times, while 40.8% have never done so.

Table 2. Extent of Innovative Research among lecturers

S/N	Really, how many times have you:	Not at all	1-4 Times	More Than 4 Times
1.	Attracted funds for research	70.9%	24.2%	4.9%
2.	Won prizes/recognition for research	64.5%	22.9%	12.6%
3.	Submitted research proposal to relevant university Committee before carrying research	42.2%	44.9%	13.0%
4.	Engaged in institutional research project	44.3%	44.8%	10.8%
5.	Published position papers	36.8%	42.9%	20.2%
6.	Presented articles before faculty departmental Seminar before submitting for publication	40.8%	41.3%	17.9%
7.	Published empirical papers	31.9%	35.8%	32.3%
8.	Had your articles been cited in other journals?	26.9%	42.6%	38.1%
9.	Accessed PDF files	21.5%	23.3%	55.2%
10.	Attended conference	18.4%	40.4%	41.3%
11.	Checked if proposed research	15.3%	43.0%	41.7%

is in line with Current trends in
the area before embarking

Checked if your study will make contribution to knowledge before embarking on it.	11.2%	37.7%	50.7%
12. Completed individual research project.	8.1%	38.5%	43.5%
13.			

On the issue of checking if proposed research is in line with current trends in the area before embarking on it, about 41.7% checked for this more than four times, 43% checked for this 1 to 4 times, and 15.3% never checked. When asked if they check to further ensure that their study will make contribution to knowledge before embarking on it, a high proportion of 50.7% have done this for more than four times, 37.7% did this for 1-4 times and only 11.2% never did this.

This is further illustrated using the bar chart in figure 1.
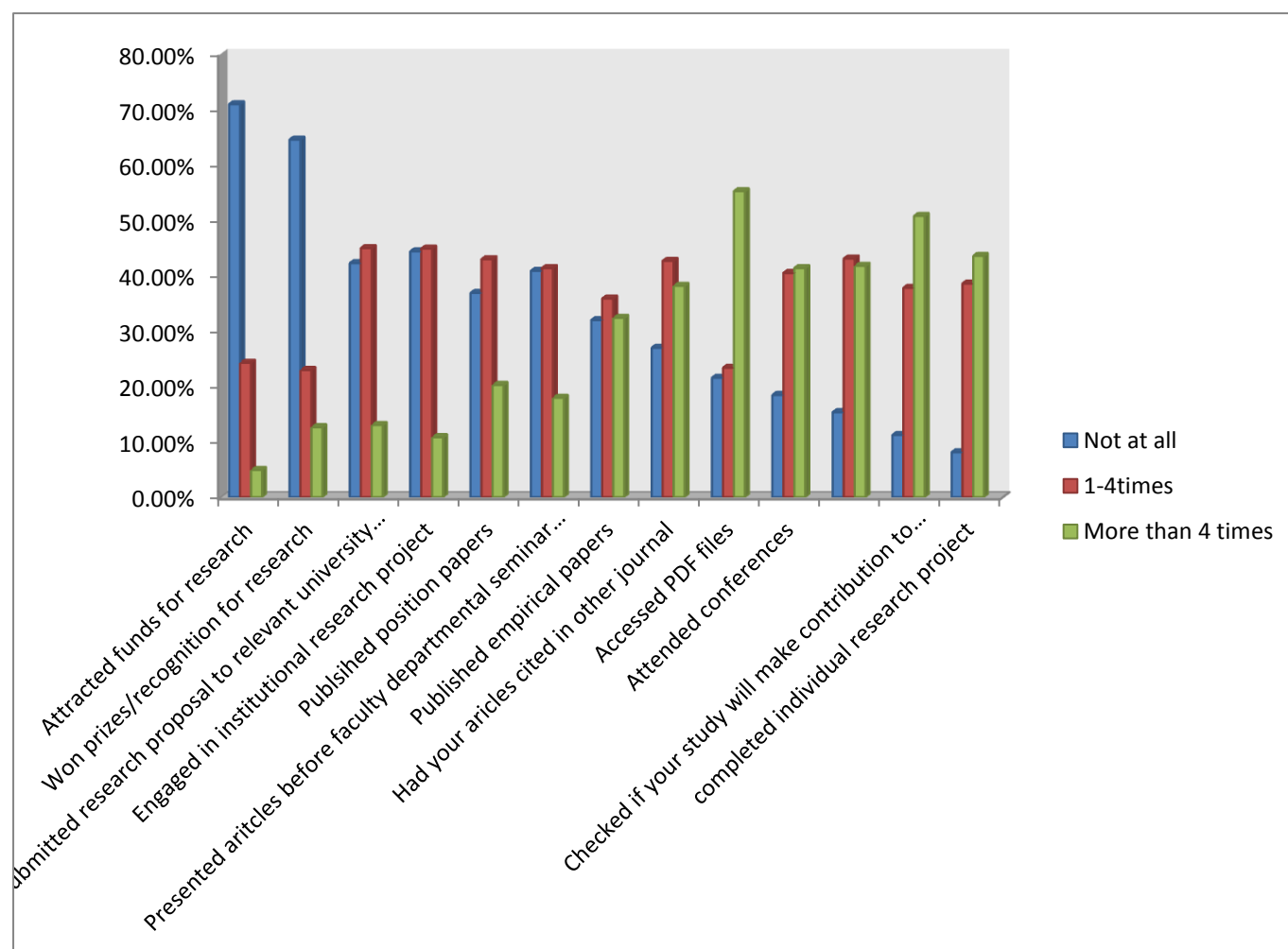
Fig. 1. Bar chart of innovative research among lecturers

Research question 3
What are the challenges impeding innovative researches?

In being asked to identify factors that serve to impede their ability to carry out innovative research, the challenge most frequently mentioned was access to research funds and lack of or poor functioning internet connectivity. As shown in Table 3, funding research by one self was mentioned by 85%, poor internet connectivity was mentioned by 70.4% of the respondents. The next frequently mentioned challenge was poor or inadequately equipped university library, this was mentioned by 65.9% of the subjects. Other challenges were poor departmental library, inadequate power supply and poor faculty libraries mention respectively by 64.4%, 63.2%and 52% of the subjects. Figure 2 illustrates the relative weighting of the seriousness of the challenges based on the percentages of the respondents who mentioned them.

Table 3. Challenges to Innovative Research

S/N	Items	Percentage
1.	Personal funds in research	569 (85.0%)
2.	Lack of functional Internet connection.	471 (70.4%)
3.	Poor University Library	441 (65.9%)
4.	Poor Departmental Library	357 (64.4%)
5.	Inadequate power supply	417 (62.3%)
6.	Poor Faculty Library	348 (52.0%)
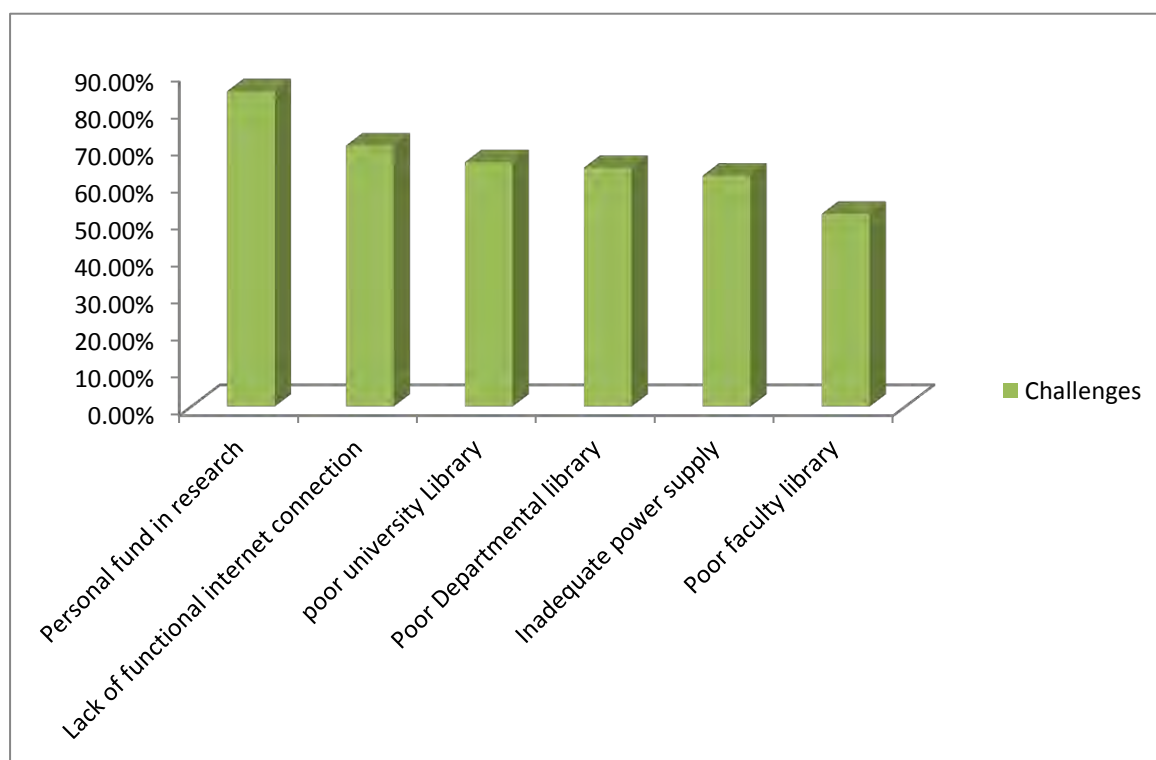
Fig 2. Bar chart of the challenges towards innovative researches

DISCUSSION OF FINDINGS

The study revealed that university lecturers research orientation was towards obtaining promotion and contribution to knowledge and very low in terms of targeting research at problem solving current problems. The emphasis of research and publication for promotion is because of the slogan "publish or perish'' frequently used over Nigerian universities. Research based publications are key criteria for promotion hence every university lecturer is compelled to give them to top priority. This corresponds with the findings of Ajake, Isangedighi and Oba (2014), Izah & Nor (2009) and Murray et.al (1994). These various findings revealed that most university lecturers had no institutional guidance in terms of clarity of roles, and research orientation. There is neither research orientation for the lecturers hence; the major reason for publication was to enhance their state of readiness for promotion.

Looking at the extent to which university lecturers practice innovative research, the result showed low indices of innovative research. The low level of innovation was recorded in the area of completion of individual research, engagement in institutional research, publication of position and empirical papers, submission of research proposal for approval by relevant university committees to check if such proposed research was in line with current trend, winning awards/recognition or even attracting external funds. However, in the area of accessing PDF files and attending conferences, the results showed high frequency of file assessment and conference attendance. The high level in area of conference attendance could be so because conference attendance is also a strong criteria for promotion in all Nigerians universities. Accessing PDF files could also enhance university lecturers in literature review hence the high indices. The poor level of innovative research in areas such as attraction of funds and winning prizes is in line with the findings of Ajake et.al, (2014);, Izah & Nor, (2009) and Stemer (1999) who reported that involvement of lecturers in innovative research activities in their studies was unsatisfactory.

In the area of challenges impeding innovative research, the findings revealed that poorly equipped libraries, inadequate power supply, lack of functional internet connectivity and poor access to funding were challenges impeding innovative research. The findings corroborate previous findings by Okebukola 2002, Njuguma & Itegi 2013 and Igbineweka & Ahmed 2014 who reported that research productivity in Africa as knowledge producer is decreasing due to poor funding and lack of functional internet connectivity. Also, Kobia (2006) revealed that Africa as a continent has continued to experience ''book famine'' as locally published books and journals are very few in various disciplines. Severe shortage of local funding for research has resulted in competition for limited international funds for short term research. Training in research methodology has also resulted to poor quality research. In addition, Ajake et.al (2014) revealed that innovative research practices in Nigeria has been frequently thwarted by poor funding, poor infrastructural facilities, constant power failure and lack of internet connectivity.

CONCLUSION

The purpose of this study was three fold; first it was to ascertain the level of research orientation of lecturers in south –south Nigeria. Second was to find out the extent of innovative research practices and to determine the challenges impeding innovative researches among university lecturers in South – South Nigeria. The findings revealed that a high percentage of the university lecturers had poor research orientation; publication was for promotion and not necessarily to solve existing problems and low indices in innovative research practices

Therefore, in order to facilitate quality/innovative research among university academics in south-south zone of Nigeria, there is need for proper re-orientation, provision of adequate library resources, constant power supply and adequate funding should be made available to enable Nigerian University lecturers overcome the challenging disparities in research.

Based on these findings, it could be concluded that research orientation, especially towards innovative research is generally poor.

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Can a MOOC be a tool for improving Teacher Effectiveness?

Tony Townsend,
School of Education, University of Tasmania and Professor, Griffith University
2 Alexander Parade, McCrae, Victoria, 3938, Australia
Tony.townsend@utas.edu.au

John MacBeath,
University of Cambridge
184 Hills Road, Cambridge, CB2 8PQ, UK.
jecm2@cam.ac.uk

Abstract: *A massive open online course (MOOC; /muːk/) is an online course aimed at unlimited participation and open access via the web. MOOCs are a recent development which began to emerge in 2012 (Wikipedia). In the United States, the 'big three' MOOCs are Udacity, Coursera, and edX. In April 2013, the authors were asked by the Commonwealth Education Trust to serve on a steering committee to establish an online program offered by Coursera for people who were teachers but who may have had limited or no training as a teacher. The 8 course program commenced in August 2013 and the first run of the program was completed in February 2015. This paper provides details of how this was accomplished, what the perceived value was and tips for others who may consider offering, if not a program, a single course, for a MOOC, as a means of improving teacher education.*

Can a MOOC be a tool for improving Teacher Effectiveness?

A massive open online course (MOOC; /muːk/) is an online course aimed at unlimited participation and open access via the web. MOOCs are a recent development in distance education which began to emerge in 2012 (Wikipedia)

What is a MOOC?

The term *MOOC* was coined in 2008 by Dave Cormier of the University of Prince Edward Island in response to a course called *Connectivism and Connected Knowledge* (Wikipedia). In the United States, the 'big three' MOOCs are Udacity, Coursera, and edX. MOOCs can also be found in Europe, Japan, Australia and Latin America.

Whereas traditional online courses at universities charge tuition fees, carry credit towards a qualification and have enrolments usually less than a couple of hundred, the MOOC is usually free, carries no credit and has enrolments in the thousands if not tens of thousands. These online educational services have grown so quickly that Andrew Ng from Stanford University (Coursera) suggested it was growing 'faster than facebook' (Pappano, 2012) and the New York Times suggested that 2012 was the 'year of the MOOC' (Pappano, 2012).

To give an example, Coursera (www.coursera.org) now offers 900 courses, with just over 600 in English, but with courses also being offered in Chinese, Spanish, French, Russian and Portuguese. Most of the courses being offered fall within the categories of Humanities, Social Sciences and Health & Society, but there are nearly a hundred courses in each of Biology and Life Sciences, Business and Management, Economics & Finance and Education. The Coursera website identifies 100 partners from around the world, mostly universities or Technical Institutes, but also organisations like the Museum of Modern Art (MOMA) in New York, the National Geographic Society, the World Bank and the Commonwealth Education Trust.

Now it is possible to earn a specialization certificate by completing a program of courses and then a capstone project to demonstrate consistent application to studies in a field.

What are the elements of a MOOC?

In addition to traditional course materials such as videos, readings, and problem sets, MOOCs provide interactive user forums that help build a community for students, professors, and teaching assistants (TAs). But the key to a MOOC is the level of pre-preparation by the professor. 95% of the work of the professor is completed prior to the course starting. This will involve completing and loading videotaped lectures, reading materials, activities and discussion topics and planning computer assessed quizzes and student assessed assignments. The students themselves take responsibility for the actual assessment as it would not be possible for the professor (or even TAs) to assess thousands of students.

So the main benefit of the MOOC is that it virtually runs itself once everything has been loaded and the timings set.

What does the Research say about MOOCs?

Hollands and Tirthali (2014) have undertaken a comprehensive analysis of MOOCs and have identified a series of issues associated with the development of them, including why institutions are bothering with the development of MOOCs in the first place, the resource implications involved in developing MOOCs and how MOOCs might impact on higher education in the future. Their sample of 29 institutions offering MOOCs provided the results that MOOCs were expensive to develop from scratch - up to US$4,300 per hour for high quality video production and up to US$325,000 for an 8 week course (p. 11-12), but that institutions hope to extend their reach, build their brand, lower their overall delivery costs and improve the educational outcomes for both MOOC and on-campus students in doing so. They were also interested in innovatory teaching and learning and researching this as well. They conclude that "Whether MOOCs as they currently stand persist into the future is certainly debatable, but there is no doubt that online and hybrid learning is here to stay and that MOOCs have catalyzed a shift in stance by some of the most strongly branded institutions in the United States and abroad" (Hollands and Tirthali, 2014, p. 13).

But it is also clear from the research that MOOCs are not yet seen as wholly acceptable to the academic community. In *The Maturing of the MOOC* (DBIS, 2013), the executive summary identifies a series of issues that have still not been resolved, including:

- Conflicting opinions of the value of MOOCs from universities
- Conflicting opinions of the value of MOOCs from learning practitioners
- Analyses suggest that MOOCs may be both disrupting and potentially threatening to the current models of Higher Education

However, they also identify that learner experiences of MOOCs is generally positive and that institutions are starting to develop more mature approaches to developing business models and working through accreditation issues.

The Editorial in *Distance Education,* Volume 35, number 2 starts with the statement "Few phenomena in recent memory have rocked the boat of higher education generally, and the field of distance education in particular, more than the advent of massive open online courses (MOOCs)" (Jona & Naidu: 141) and the issue goes on to consider a series of questions that focus on the pedagogical, technological and systemic innovations, and the definition of efficacy (how do we judge success?) Fischer (2014, p. 157) characterizes MOOCs as one contribution to a "rich landscape of learning" but also identifies a number of issues that he associates with "learning science", such as whether or not MOOCs will continue to be free, what supports are provided to students beyond the learning resources, which he identifies as "necessary – but they are not sufficient in themselves" (p151) and what to do with information and participation overload. Baggaley (2014, p. 160) compares MOOCs to the supersizing of meals in the fast food industry where the administrators of courses deliver "supersized courses" to their customers with little regard to the negative effects such as "knowledge indigestion caused by massive amounts of updated MOOC course materials". Marshall (2014) considers some of the ethical concerns that are associated with academics doing research involving MOOCs and therefore the students in them and Bates (2014, p.146) sums up by suggesting that MOOCs raise some fundamental concerns about learning in a digital environment, especially about the types of support that learners might need and how this might be given to them.

In summary, it seems that MOOCs are here to stay, although they may have to change from their current structures in the future, that students seem to like the flexibility and range of options available through MOOCs, but perhaps are getting "watered-down" learning because of the nature of the delivery and that the overall acceptance of MOOCs is still something hotly contested by academics who see this as diminishing the opportunities for students to learn in the collaborative, supportive environment that can be delivered by classroom teaching.

The background to this paper
In April 2013, John MacBeath from the University of Cambridge and Tony Townsend then from the University of Glasgow (now working at both Griffith University and the University of Tasmania, in Australia) were asked by the Commonwealth Education Trust to serve on a steering committee to establish an online program for people who were teachers but who may have had limited or no training as a teacher. This program was to be offered by Coursera. From membership of a steering committee John MacBeath and Tony Townsend soon found themselves with responsibility for running the whole program. The 8 course program commenced in August 2013 and the first run of the eight courses was completed in December 2014. Those completing all eight courses as a certified students were invited to be part of a four week capstone program that commenced in February 2015. A second run of the program started in January 2014 and a third started in September 2014. A fourth run started in March 2015

To understand the background to this paper, we need to highlight the work of two organisations, the International Task Force on Teachers for Education for All and the Commonwealth Education Trust.

The International Task Force on Teacher for Education for All (http://www.teachersforefa.unesco.org/)
The International Task Force on Teachers for EFA was an outcome of The Oslo Declaration - an outcome of the Eighth Meeting of the High Level Group on Education for All (EFA) held in Oslo (Norway) in December 2008. The Task Force is a voluntary global alliance and the only international platform of EFA partners working together to address the 'teacher gap', that is, the acute shortage of qualified teachers required to achieve Universal Primary Education (UPE) by 2015, as well as quality education for all.

A sufficient number of a qualified teaching force is one of the key factors needed to ensure the success of these international education-related initiatives. However, there is a dire shortage of teachers in the world today. The UNESCO Institute for Statistics (UIS) estimates that between 2010 and 2015, 114 countries will need to create a total of at least 1.7 million new teacher posts to ensure quality primary education for all children. Almost six out of every ten additional teachers are needed in sub-Saharan Africa (993,000). Overall, 6.8 million teachers would have to be recruited by 2015 in order to supply the current needed workforce to replace those who are retiring or leaving classrooms.

The Commonwealth Education Trust (CET) (http://www.commonwealth.org.uk/)
The Commonwealth Education Trust (CET) is a charitable trust founded in 1886 by Edward, Prince of Wales, to undertake research, education and related activities which would promote the prosperity and development of the people of the British Empire. The British Empire later became the British Commonwealth and currently includes 53 member countries (about one-quarter of the world's countries).

The Trust is built on the premise that education is the foundation for development. The purpose of the Trust is to advance primary and secondary education across the Commonwealth with a strong focus on teacher professional development. Since many of the countries that are referred to by the International Task Force coincide with the list of the members of the Commonwealth, it is clear that there are many Commonwealth countries in which there is a severe shortage of teachers. It is also clear that there are many people who are currently teaching who have little or no training in what is required to become a good teacher.

To address this issue of a lack of training, or little training, for many teachers in Commonwealth countries, the Commonwealth Education Trust elected to sponsor a program that might be able to address this issue. They called a meeting of senior education specialists from Commonwealth countries around the world to a meeting in Malaysia in April 2013 and the result became the Foundations of Teaching for Learning Program.

The Foundations of Teaching for Learning Program
The Foundations of Teaching for Learning is an introductory programme that considers the three domains of being a teacher: Professional Knowledge and Understanding; Professional Practice; and Professional Values, Relationships and Engagement. During the course students learn:
- The professional roles and responsibilities of a teacher and how to become more effective
- What research tells us about how students think and behave, and how we can apply this understanding in our approach to teaching
- How to design instruction, activities and assessments around learning goals and define teacher and student success

The programme contains an introductory course which helps participants to navigate their way through seven other courses. These provide:
- Knowledge and activities to develop understanding
- Opportunities to practice and develop skills
- Ways in which improvement can be demonstrated in the area being studied through the development of a portfolio of evidence gathered along the way

The eight courses of the programme are:
    Course 1: Introduction to Teaching for Learning
Domain I: Professional Knowledge and Understanding
    Course 2: Being a Teacher
    Course 3: Learners and Learning
    Course 4: Curriculum
Domain II: Professional Practice
    Course 5: Planning for Teaching and Learning
    Course 6: Introduction to Student Assessment
Domain III: Professional Values, Relationships and Engagement
    Course 7: Being a Professional
    Course 8: Developing Relationships

Capstone program: The Reflective Practitioner
The introductory course and the capstone courses take four weeks each. The other seven courses take six weeks each to complete. Those who have completed all eight courses are invited to take part in a Capstone project of four weeks duration. Each week is expected to take 3-4 hours of work to complete and each contains a series of topics where, for each topic, there are three types of activity: content knowledge, developing your practice, and extended learning. The content knowledge section considers specific issues related to topics that a good teacher should know. This is presented through video-lectures, readings and other activities to help participants learn, consider, and then test their knowledge. Associated with each topic is one, or more, practical activities that participants might use with their students to demonstrate what they have learned. It is suggested that a portfolio of materials to demonstrate their knowledge and abilities as a teacher should be developed. There are also additional readings and other resources that may be used to extend knowledge further in the topic area.

Can a MOOC improve Teacher Effectiveness?
It is perhaps axiomatic that teacher effectiveness is critical to school improvement but, nonetheless it is a premise confirmed by a substantive body of research. We have, in fact, known for quite some time that if we really want to improve student learning, the closer we get to an understanding of the student and his/her learning, the greater the effect (see, for instance, Hattie, 2007; Hill, 1998; Wang, Haertel and Walberg, 1993/94). But as Hill and Crevola (1997, p. 2) point out:

    Improving the quality of teaching and learning in schools is not an easy matter. There
    have been many attempts to raise standards by one means of another, but reformers have
    invariably found that it is difficult to improve learning in a sustained way across more
    than a handful of schools at any one time.

As is mentioned above around 7 million new teachers need to be recruited by 2015 in order to serve the number of students that will be seeking to attend school. However, quantity and quality are two different issues and it might be argued that having an untrained or under trained teacher in front of students may not be much better than having no teacher at all.

To address this concern, the Commonwealth Education Trust proposed a program that is primarily aimed at people who are currently teaching but have had little or no formal teacher education. The intention was to improve the quality of teaching and in that sense improve the quality of student learning.

Analysis

On the surface, it appears that the Foundations for Teaching for Learning may have a substantial impact on teacher effectiveness, especially in countries where teachers may be untrained or undertrained.

The first run of the Introductory Course in August 2013 saw 31871 enrolments and the second run in January 2014 saw 31615 enrolments. By the time this paper is delivered, the first run of the eight courses and the capstone will have been completed, the second run will be nearly finished, the third run will be almost half way over and the fourth run will have just started. Clearly the Commonwealth Education Trust has made a substantial commitment to the program.

At the beginning of the course 189 countries were represented and by the eighth course there were still 183. There can be few institutions which can offer such a breadth of global participation or the very wide range of age and prior qualification. A breakdown by course members' background reveals a broad range from highly qualified participants to those who may have only completed high school. Many of the participants are already working but there were also those unemployed and looking for work. These ratios remain fairly consistent for all eight courses.

Table 1: Background of Coursera students*

	Currently a Student FT	Currently a Student PT	Have a Masters/PhD	Have a Bachelors	Only completed High school	Currently Employed FT	Currently Employed PT	Currently Self employed	Currently Unemployed looking for work
Course 1	18	16	43	36	6	46	15	12	13
Course 2	19	16	42	37	6	45	16	12	15
Course 3	18	17	42	37	5	47	16	10	15
Course 4	19	18	43	36	6	47	16	11	14
Course 5	19	18	43	36	6	47	16	12	15
Course 6	19	18	47	34	5	48	15	11	14
Course 7	20	18	43	36	6	47	16	12	15
Course 8	20	19	43	36	5	47	16	12	15

* Note: these figures are indicative only as they are based on only those students that completed the survey

Breakdown by gender and by age reveal a predominantly female uptake with a large majority of course members in the 25-44 range.

Table 2: Breakdown by age and gender*

	male	female	Under 25	25-44	Over 44
Course 1	41	59	12	66	21
Course 2	39	61	13	67	18
Course 3	39	61	13	68	19
Course 4	38	61	13	69	18
Course 5	39	61	14	67	19
Course 6	40	59	13	66	20
Course 7	39	61	13	68	19
Course 8	39	61	13	67	20

* Note: these figures are indicative only as they are based on only those students that completed the survey

The Issue of Drop-out Rates

It is clear from table 3 below that one of the major issues associated with MOOCs is the likelihood that those that complete the course will only be a small proportion of those that expressed an interest in the course. As table 3 shows, although many thousands of people express an interest in each of the courses only a very small proportion of them actually participate in some way. The cause of this is likely to be that all it takes to register an interest in a course that might be some months away from starting is to press a button. There is no further work required, so no commitment is generated. But then we can also see that the drop-off rate from watching the at least one lecture of a course to actually completing the course is also quite substantial. People might watch the first lecture (or two) but not even complete watching the lectures for the first week (we will have a look and see if this course interests me and if not, I will stop); then there may be a drop off when they perhaps find they can't answer the quizzes without doing the lectures (I can't actually pass this course without work, so I don't want to do it); and others might watch all the lectures and even do some of the other activities, but have no intention of doing the assessment at all. So what we find is that some people are interested in certification, some people are interested in the content and other might be interested in signing up but never get around to doing the course when it starts, for a potential host of personal, professional or time reasons. However, what the figures from the first run of the course do show is that the percentage of people who commence the course are approximately 20% of those that enrolled to do the course and the percentage of those that actually complete the course is between 15% and 25% of those that actually watched at least one lecture.

Table 3: Program Completions

Course name	Total Learners Enrolled	From Emerging Countries	Watched at least 1 Lecture	Completed course	Percentage Completed
Course 1	31871	12052	14488	1313	9.06%
Course 2	18795	7557	3610	932	25.82%
Course 3	14882	6114	3829	704	18.39%
Course 4	14663	5983	3143	565	17.98%
Course 5	14680	6157	2720	456	16.76%
Course 6	15025	6245	2481	412	16.61%
Course 7	14535	6390	1885	394	20.90%
Course 8	15642	6658	2156	468	21.71%
Capstone	102	33	69	64	92.7%

It might be argued that the reason that this consistent diminishment over time comes about for different reasons, such as the course/program is not what the potential students thought it would be/doesn't suit their need, or they wanted to complete the course or program but other things took priority, or the level of commitment required was more than they wanted or were able to give. Since the program (except for signature track) was free of charge and since the courses would be repeated at a later stage, then it is easy to

make a decision not to continue and the data suggests that this decision is made at any point in the course or in fact the program.

However, the data also show that on average more than 200 people were prepared to make a commitment to the course through the signature track method and in all cases more than 400 people completed all the requirements of the course. The difference between the 200 signature track people and the others is that they were invited (if they have completed all 8 courses in this way) to complete a capstone course that will then also provide them with a Program Completion Certificate in addition to the 8 course certificates that they collected. The number of people able to enrol in the capstone program was diminished because not everyone had the chance to complete all 8 programs previously. The people who completed the capstone program had a commitment to the entire program rather than just individual sections of it. Of those that actually commenced the course 92.7% completed it. Almost half of these were from emerging countries, which was one major objective of the program in the first place.

The online discussion forums
Lectures of eight to ten minutes, although well received and very positively evaluated, were essentially a stimulus to further inquiry and elaboration through on-line discussions, practical activities, video excerpts and short stimulating readings. An observation or self-evaluation protocol would often be posted for others to share and comment on. This virtual critical friendship across continents served both to broaden cultural understanding and to strengthen professional commitment.

As the above breakdown of age, experience and qualifications shows, those with little or no educational background interacted with, and profited from, the counsel of their peers, translating and explaining terminology, suggesting readings and resources, offering guidance both in terms of the academic content and also in relation to pedagogy and classroom practice. One teacher who detailed his problems and frustrations with discipline received more than sixty suggestions as to sources of the problem and possible strategies. While these 'posts' came from more than a dozen different countries there was evidence of insight and sensitivity to contextual factors and cultural differences.

There are many examples of words and concepts that have proved difficult when met for the first time by non-native English, words such as 'agency' and 'instruction', and subtle nuances among key terms such as 'assessment' and 'evaluation' which, even in English speaking countries carry different meanings and connotations, in Britain, the U.S. or Australia, for example. These differences of reference often need careful elaboration and a deepening understanding of ways in which language creates (and inhibits) thinking, especially in relation to political globalization in which there is growing hegemony of targets, measures, 'value added', accountability, terms which are often adopted without translation because there is no cultural equivalent. While these at first could present an obstacle they could also lead to a more informed debate and deeper understanding, as in the case of an extended forum discussion on the term 'instruction'. Although divided by language, geography and culture, as the following comments reveal, it has proved empowering for challenges and solutions to be aired and shared.

Sharing of problems
One thing I found amazing was how similar all our experiences are, as well as the challenges we face within education. Very comforting.
It is a joy to open my inbox and see people with a desire to be a part of the solution and not the problem. I would also like to convey my heartfelt gratitude to the entire Coursera Team for the very wonderful learning experience. This time, I started to apply the things that I have learned from this course to my actual teaching. Thanks also to my colleagues who share their brilliant ideas in the discussion forums. Kudos and more power!

Informing teaching

I have learned a lot about my teaching, and how I can improve and think differently about my role and my students' abilities. I am already seeing good results from changes this course has inspired me to make in my teaching.

One of the skills I've learned about during these four weeks is reflective teaching. I learnt that teachers can learn a great deal about the reasons behind their teaching and practices by examining their experience and asking and answering questions about them, which I did not pay much attention to before. Now I see reflective practice as a fundamental part of continuing professional development, as it provides me with opportunities to analyse and ask questions about my objectives as well as to examine how I plan and what I teach. I will try this strategy in my class in the near future.

Evaluation of the courses

On a range of evaluation questions as to course content, lectures, course materials, relevance and intellectual stimulation there was overall a consistent rating of around 80% that suggested the courses were either extremely or very "helpful", "stimulating" , "valuable", "improved their understanding of the topics covered" and that would "recommend this course to a colleague or friend". 70% felt that completing the course would be helpful in "advancing their career". Comments such as those below were typical:

I can't begin to tell you how much I have learned and benefitted from the resources and the knowledge that you and your colleagues have shared.

The courses have been most helpful, insightful, and beneficial even if my 'classroom' is not for children but for adults in non-traditional settings.

I had great opportunities to learn new methods and get ideas to apply in my teaching.

I've also enjoyed the last 7 courses and have learned so much.

I found these four a week lectures quite interesting and inspiring and a lot of great ideas could be applied in my school as well.

Thanks a lot! For me the courses are over at this time and I am a little sad now but also I know that I will continue learning and practice. Looking for opportunities these will show up!

It was such a GREAT experience for me to take up your course. I am extremely picky about the courses I take on Coursera and honestly, this is the first Coursera course that I have read from cover to cover and watched all the offered videos. A very well-thought, wise, well-formulated, heartfelt and invaluable course for teachers. I wish my colleagues had known English to complete all the course requirements. I could see that you've put your heart and soul into the contents of the course to make it full and comprehensive for pre- and inservice teachers.

The most challenging issue proved to be the peer assessments. Essays were assessed by three students undertaking the same course and at times there were complaints as to inconsistencies and perceived injustices. There were also some complaints of plagiarism and cheating, often heated in nature given the trust system observed apparently by the large majority. These came to light in the on-line discussion forums in which participants were able to express grievances and concerns as well as mutual support and advice. It was, however, the supportive and self-help nature of the forums that emerged as one of the greatest strengths of the programme, running across all eight courses.

The Peer Effect

While the peer, or compositional, effect among students has been a constant in effectiveness research, there have been fewer attempts to measure the professional peer effect, although there is a substantive literature on the nature, context and impact of professional development. This is, of course, of particular significance in relation to MOOCs as the on-line forums offer a forum for the lateral exchange of thinking among teachers and across local and national borders, as well as beyond short term political strictures.

The issue as to how teachers learn, where and with whom has, over last few decades, become increasingly politicised. Universities and colleges of education have been criticised for their addiction to 'theory', the nature of teaching cast as an apprenticeship, with experienced and long serving teachers performing an induction function. The word 'delivery' has become a commonplace description for what teachers do, an intermediary between the child (or more typically children) and the curriculum, an increasingly standardised diet nationally and internationally. A common core of 'subjects' and a common age-related progression of grades allow international comparison, with numeracy and literacy the most accessible forms of data for comparative measurement and 'value added'.

It is not surprising then to find a common complaint from teachers that there is less and less 'wiggle room', fewer opportunities for creative initiative and for critical professional discourse. This has raised a range of concerns among academics, unions and policy advisers as to the standardisation and narrowing of curriculum and assessment. At a recent Cambridge University attended by international delegates from the policy world, from professional bodies and educational agencies, there was a broad consensus as to the inimical effects of policy 'cherry picking' and the tendency to opt for the easily accessible, easy to measure 'low hanging fruit'. Among over two hundred 'posts' during the conference the following are representative of the challenge to PISA and the politicisation of pedagogy.

> *Does the short-termism of electoral democracy i.e. thinking only as far as the next election, privilege policies that prioritise low hanging fruit rather than policies that address deeper structural, more-long term, concerns?*

> *In face of adverse political influence, a priority is to hold on to the powerful gains we have made in pedagogy. How then should we move from a low collaboration system with less autonomy to a high collaboration system with more autonomy, exploiting the power of local initiative to drive reform? Where is the leverage for radical change? If politicians ask for improvement they must give room for professional collaboration within and across schools, creating room and initiative for professional development.*

It is in this respect, creating room and initiative for professional development, that Coursera has demonstrated the power of the collective when stimulated by inputs from leading international educators. How thinking and learning travel in the world of MOOCs is not from the apex of the pyramid to the lower levels but horizontally, person to person and through convivial networks. It is the kind of educational world that Ivan Illich envisaged when he wrote about de-institutionalisation of learning and 'tools for conviviality'.

Breaking up the monopoly
At a Coursera conference in Philadelphia in April 2014 MOOCS were compared to the traditional 'hallowed halls of learning', the latter described as 'erecting barriers which deny access to the least privileged and disempowered'. MOOCs, it was said, 'restored the oral tradition' in which people converse in the colloquial register, in the language of collegiality, unscripted and unpractised, spontaneous and uninhibited by scholastic convention. A physical site on a desktop or a mobile phone was described as a 'window' to another world, a window of opportunity, looking out to colleagues across the globe. Extending the metaphor it is the transparency that is the greatest virtue of Coursera, the view it offers to a world, perhaps previously unseen, a landscape of potential learning.

In countries such as Vietnam, for example, with only 2.5 per cent of the population enrolled in colleges and universities, MOOCS are opening up new forms of access to higher education. In Morocco, Tunisia, Kenya, Zimbabwe, Mongolia, India, Rwanda, Senegal, MOOCs were described as providing a lifeline for disenfranchised members of the community, previously unable to gain access to higher education, unable to pursue traditional routes due to qualification protocols or geographical factors.

At the same time, concern was expressed about widely varying access across countries dependent on accessibility of infrastructure, resource capacity, language of instruction, relevance of content, and cultural perceptions of online learning. It will be through examining needs in different settings and a deeper and wider

understanding of the opportunities and constraints that the impact of open online courses has in the developing world. Even though challenges regarding sustainability and demand for ICT support posed potential barriers, there was growing evidence of ICT communities of practice being set up in remote areas so as to address these issues and promote successful development of MOOCs.

Open to critique

Despite its global growth, or perhaps by virtue of it, MOOCs have been open to criticism. They suffer from high drop-out rates. Grading is performed by fellow students without the more rigorous quality control of faculty staff. The ubiquity of powerpoint presentation, for example, has been criticised as perpetuating a transmission model rather than a dialectic as might be found in a face-to-face lecture or seminar. Where, it may be asked, is the challenge to the lecturer? Face-to-face membership of a 'real', rather than a virtual, community allows a form of ongoing discourse not available to the individual alone in a room with a PC. 'More importantly, local professors can offer their students the kind of personalized education that no massive course ever can' writes Jonathan Reese (2013) who also worries about terms and conditions of our employment as MOOCs offer education 'on the cheap'.

While there is some substance to these critiques it does depend to a significant extent on the nature of the course being offered. For example, Reese's (2013) statement 'What you can do over the Internet this way is deliver information, but that's not education' is belied by the often constructive, critical nature of the interchanges on the forums, by questions raised to presenters as well as challenges and disagreements. In many of the powerpoint presentations course members are asked to pause the presentation, to use protocols such as *connect-extend-challenge*, *think-pair-share*, perhaps to replay the presentation, or to take notes. The creation of learning circles face-to-face as well as on line provide a source of enrichment. While there are obvious advantages to the stimulus of campus life, and access to outstanding professors, this is not everyone's college experience and, more importantly for thousands and even hundreds of thousands of adults in the most remote and disadvantaged parts of the world it is not a simple opposition of a university experience or a MOOC. In addition, the evidence suggests that for many the stimulation of a Coursera experience provides an incentive to attend a 'real' university or to gain the necessary qualifications to do so.

Two of the concerns expressed by critics, on the one hand, that MOOCs are a passing fad and will soon disappear and, on the other, that their continued growth is a threat to traditional universities, are not given substance by the Coursera experience. Two years on, it has opened a whole new learning chapter for thousands of teachers and would be teachers as well as a proving a professional development opportunity for the presenters and associates who offer support through the forums. They also open a new chapter for effectiveness research in which traditional institutional and value added measures will require some lateral thinking.

So can a MOOC improve teacher effectiveness? What can be said is that up to 400 people, with perhaps half of this number from less developed parts of the world, have had access to courses that hopefully, have challenged their thinking. The conversations they have had with other teachers in other parts of the world have enriched their thinking about their own practices. Some of the materials will have been new to many, others will have helped people to review what they have already known, but the process of interaction will have asked people to think again about their practice and the seven different areas that we think teachers need to address. For around 200 of the people involved, the signature track has enabled them to complete a capstone project that will lead certificate of completion of the whole program. These people might use this as a means for trying to get credit towards entering a pre-service teacher education program, or perhaps a graduate program, perhaps not in those countries that are most developed, but maybe in countries that are crying out for teachers. This has to improve the quality of teaching, at least for the students of these classrooms that currently have teachers with no idea of what they are doing except to remember what their own teachers did before them.

Does this make a difference? Perhaps we could leave the last word to one person who has used this program as a means of moving forward.

> I am very very new to Coursera and I must admit that I was, at first, reluctant to delve into it. I was
> teaching for many years now with no teaching certificate nor formal teacher training. Through all those

years, it appeared like I just winged it. Now, after a few weeks of being in Coursera, I can dare say that I have learned a great lot. I am slowly seeing myself as a "real" teacher. I can and will definitely apply all that I have learned (and will still be learning) from Coursera. For all of these - SALAMAT THANK YOU

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Technical Cooperation Project in Education in an In-country Program: A Case of In-service Teacher Education Program in Zambia

Benson BANDA
Ministry of Education, Science, Vocational Training and Early Education, Zambia

John Chileshe, Kazuhishi Nakai, Yoshie Hama,
Japan International Cooperation Agency, Zambia

Abstract: *Zambia has benefited substantially from official development assistance (ODA) since independence in 1964. In the field of teacher education at the Ministry of Education, Science, Vocational Training and Early Education (MESVTEE), it has received ODA from different cooperating partners. This paper discusses the dual process of changes on the cooperating partner – Japan International Cooperation Agency (JICA) - towards technical cooperation on one hand and the recipient ODA country – Zambia - focusing on functionality of the project approach in an in-country teacher profession development program. It also discusses salient insights of transition over a period of time and what emerges from such dynamics. The project in Zambia shows prospects of being a model of continuing professional development (CPD) in developing countries showing the balance of effective ODA dynamics. This Zambian experience presents a novel view of how both the project and program can work side by side to enhance quality education.*

Introduction

Since the Universal Declaration of Human Rights in 1948, education has been considered as a basic right of all people and as a co-requisite for a peaceful, healthy and stable world. Among the benefits of education are the development of an individual's total personality as well as social, economic, cultural prosperity and international mutual understanding and tolerance, therefore being an effective tool to poverty reduction in countries worldwide (IFIC, 2002). International trends show that Education for All (EFA) Goals (1990) and the Millennium Development Goals (MDGs, 2000) have had a major impact on the direction towards ownership and sustainability of education activities for both donors and recipient countries. Among the players in the ODA for developing countries, Zambia in particular, is Japan. Arising from the desire to effectively contribute to the EFA Goals and MDGs, Japan realigned itself by developing among others the ODA Charter (1992), Fifth Mid-term Target of ODA (1993), Mid-term Policy on ODA (1999), Tokyo International Conference on African Development (TICAD, 1993, 1998, 2003, 2008, 2013), Initiative for African Development (1996) and Committee for International Cooperation in Education (2000).

Among the recommendations of the Japan Aid Study Committee on development and education was to understand the educational development of recipient countries considering the balance between basic education, vocational education and higher education. This was to be followed by step-by-step assistance to the most needed areas (IFIC, 2002). In the area of education quality, the Japan International Cooperation Agency (JICA) perspective is at four levels of input, process, output and outcomes. Concerns observed in the area of education management among others are lack of capacity in education. These capabilities are necessary if people have to get themselves out of the trap of poverty and hunger, yet poverty and hunger at the same time undermine people's capabilities (UNDP, 2003).

From the Zambian perspective, according to GRZ (2006), the Zambia *Vision 2030* reflects the collective understanding, aspirations and determination of the Zambian people to be *a prosperous middle-income nation by 2030*. The document sets out the goals and targets to be achieved in the various spheres of socio-economic life over the next generation. The Vision 2030 is founded on seven key basic principles: (i) sustainable development; (ii) upholding democratic principles; (iii) respect for human rights; (iv) fostering family values; (v) a positive attitude to work; (vi) peaceful coexistence; and (vii) upholding good traditional values.

To this effect, education is valued as one pillar to be used to attain the prosperous middle-income status. Accordingly, medium term plans have been developed and currently the Revised Sixth National Development Plan, 2013-2016 (R-SNDP) is being used. In order to attain the MDGs and EFA goals, Zambia committed itself to making basic education compulsory, free and available to all. The R-SNDP period is therefore, an opportune time to scale up the interventions to meet the global aspirations in education and skills development.

Among the key players in the effort to attain EFA goals and MDGs as well as the prosperous middle-income status in Zambia is the role played by the teacher. Being mindful that Zambia has received ODA in teacher education from different cooperating partners, this paper discusses the dual process of changes on the cooperating partner (Japan) towards technical cooperation on one hand and the recipient ODA country (Zambia) focusing on functionality of the project approach in an in-country teacher professional development program. It further discusses salient insights of transition over a period of time and what emerges from such dynamics. Further, this paper is supported by concerns raised by Yoshida (2009) that in the context of providing aid through projects, Japan needs to step up efforts to present an evidence-based validation amongst the aid community as to how such complementarity works effectively.

Global Debate on Aid and Effectiveness in the Education Sector

According to the Organization for Economic Cooperation and Development (OECD), international development cooperation surged in the early 1960s amidst post-war optimism and enthusiasm. It has since continued to evolve and is recognised as one of the key factors in advancing global development. However, success has not always been evident: lack of co-ordination, overly ambitious targets, unrealistic time and budget constraints and political self-interest have too often prevented aid from being as effective as desired. The need to attain EFA goals and MDGs necessitated the debates on aid effectiveness on the international scene. There have been periodic meetings to improve the delivery of aid, marked by four notable events: the High Level Fora on Aid Effectiveness in Rome, Paris, Accra and Busan in 2003, 2005, 2008 and 2011 respectively.

The First High Level Forum (Rome, 2003) marked the first occasion at which the principles for aid effectiveness were outlined in a concrete declaration namely: that development assistance is delivered based on the priorities and timing of the countries receiving it. That good practice be encouraged and monitored, backed by analytical work to help strengthen the leadership that recipient countries can take in determining their own development path. OECD (2003) advocated for expanding or mainstreaming country-led efforts (whether begun in particular sectors, thematic areas, or individual projects) to streamline donor procedures and practices, including enhancing demand-driven technical cooperation. The Second High Level Forum (Paris, 2005) marked the first time that donors and recipients both agreed to commitments and to hold each other accountable to aid Ownership, Alignment, Harmonisation, Results, and Mutual accountability. At the Third High Level Forum (Accra, 2008), the need to deepen implementation towards the goals set in Paris

(2005) was identified, along with a set of priority areas for improvement. The focus was ownership, donor alignment, in-country harmonisation, managing for development results and mutual accountability. At the Fourth High Level Forum (Busan, 2011) five principles were agreed: promotion of local ownership, alignment of development programmes around a country's development strategy, harmonisation of practices to reduce transaction costs, avoidance of fragmented efforts and the development of results frameworks.

The World Bank (2011) indicates that in the current decade budget allocations for education have been at an all-time high in the developing world. However, despite these huge funding gains, progress toward development targets has been uneven. Such observed disconnect between spending and outcomes partly reflects the failure of human development spending to reach poor people.

Historical Perspective of Education in Zambia

At independence in 1964, there were only 109 Africans with university degrees in Zambia, while only 1,200 Africans had secondary certificates (Todorff, 1974). One of the challenges of the country after achieving political independence was to secure human resource by heavy investment in education, which necessitated the construction and rehabilitation of educational infrastructure and training of the required teachers. The education sector went through three main education policy reforms; *Education Reform* (1977), *Focus on Learning* (1992) and *Educating our Future* (1996). The first in 1977 focussed on reforming the content of the curriculum by removing the colonial aspects and promoting the philosophy of Humanism based on promotion of the individual's dignity (MOE, 1977). The second reforms in 1992 were aimed at identifying strategies for developing education in the country. The third and current national education policy, *Educating Our Future* addresses the entire education system, paying particular attention to democratisation, decentralisation, curriculum relevance and diversification, efficient and cost-effective management, capacity building and cost sharing. In the policy, the Government recognises the basic right of every Zambian to education, hence emphasis is placed on key factors of educational provision, such as access, quality and equity at all delivery points in the system. Provision of adequate public resources for education is prioritised, while recognising the need for partnerships with various non-government institutions and foreign donors.

Contrary to expectations, the quality of education in Zambia had been compromised by factors such as economic decline and rapid growth in population. This was due to reduced government expenditure on education, especially in the 1980s during the Structural Adjustment Programme when the government withdrew many social sector subsidies. The infrastructure dilapidated and there was a shortage of teaching resource materials which would have helped enhance the quality of education. The teachers' poor salaries that served as a source of demotivation and demoralisation further worsened the situation during this period.

Education Aid Issues in Zambia

In the education sector and in particular teacher education, different players have provided ODA in Zambia, both bilateral and multilateral. Among the players in the teacher education sub-sector linked to professional development are USAID, DFID, JICA and VVOB. This type of ODA was provided in form of technical assistance as projects. On the other hand as noted by UNDP (2003) Sector-Wide Approaches (SWAps) have also been used in Zambia as promising tools for financing and managing development initiatives in education. This is driven by the understanding that compared to projects; SWAps provide a more holistic aid platform. However, both projects and SWAps are important for enhancing educational attainment.

On the other hand, UNDP (2005) observed that while all donors stressed the virtues of "country ownership," and giving recipients more control over how aid is spent, most of them linked aid to stringent conditions. Country ownership is seen as a requirement for efficient use of aid, while conditionality is seen as a mechanism for leveraging policy change. However, country ownership and conditionality often acted in opposite directions, creating dynamics in the aid equation where ownership ended up suffering. Within the education sector, Zambia has experienced its share of challenges in the area of aid and donor coordination against its own country programs. As noted by UNDP, by 2004 Zambia had at least 20 donors supporting education hence, it ended up advocating for support to be channelled through pooled funds in the overall education budget. On the other hand, some funds are allocated as funds designated for purposes specified by donors, while others are allocated for specific projects. Senior ministry officials continue to cite the length and frequency of reporting as a problem. While the new joint missions are reducing transaction costs for donors, for developing countries the missions still occupy senor staff for two to three weeks at a time, diverting energy from effective management (UNDP, 2005). For example in 2003 Zambia hosted 120 donor missions, excluding those of the World Bank and the IMF. Of these, just 12 – and none involving European Union or the United Nations - were joint missions.

Although it is an agreed fact that aid is most effective when it is channelled through country budgets and expenditure frameworks, this approach is undermined by donors by directing aid towards individual projects - an approach that reduces efficiency, increases transaction costs and erodes capacity. The fear here as stated by UNDP is the belief that working through projects can circumvent failures in national governance systems. Ironically, project aid has a track record of intensifying problems in all these areas. Lessons can be learnt from strong opponents of this; for instance in countries such as Botswana, Tanzania and Uganda where all technical assistance (bilateral aid) programmes are designed to ensure that local staff are trained, resulting in greater skills transfer than more traditional arrangements. For major aid recipient countries, the government of Japan prepares Country Assistance Programs with the aim of efficient and effective implementation of ODA with integrity and coherence. In the case of Zambia, the Country Assistance Program was initially developed in 2002. It is widely viewed in Japan that the project-type assistance is effective in addressing specific development issues, producing results on the ground and having visibility of Japan's cooperation (Yoshida, 2009).

Historical Development of Japan Technical Cooperation
Japan's history in ODA stretches over a period of 50 years. According to JICA (2008), Japan was reintegrated into the international community through the conclusion of the San Francisco Peace Treaty in 1951. Arising from this, in October 1954 Japan's government-based technical cooperation programs began when Japan joined the Colombo Plan of 1950 which aimed at promoting economic and social development in the countries of South Asia, Southeast Asia and the Pacific region. Aid was implemented through bilateral arrangements between member countries. Later, the target area for cooperation expanded beyond the initial scope of the Colombo Plan to the Middle East and Africa (fiscal 1957), Latin American (fiscal 1958), and then to other developing regions. In 1974, the Japan International Cooperation Agency (JICA) was established and in October 2003, it became an independent administrative institution.

According to the *2008 JICA Report*, Japan ODA support is considered on three levels namely bilateral grants, bilateral government loans, and contribution to international organisations. The types of technical cooperation include acceptance of technical training participants, dispatch of technical cooperation experts, provision of

equipment, technical cooperation projects, development studies, dispatch of Japan Overseas Co-operation Volunteers and disaster relief, among others.

Approach of JICA ODA to Capacity Development in Developing Countries

Currently, there is a growing trend in the field of international aid to encourage more effective utilization of finite development resources to meet the increasingly diversified, complicated and globalised needs of developing countries (IFIC, 2002). Japan has an impressive history as a leading international donor. The philosophy behind Japanese development cooperation is rooted in the country's own history of rapid economic development after the Second World War. From the late 1940s Japan's national policy focused on domestic economic growth and recovery and peaceful international engagement. These historical roots and development experiences are reflected in Japan's current policies for international development cooperation. Its revised Official Development Assistance Charter (GoJ, 2003) explains that the "basic policies" of all Japan's official development assistance (ODA) include supporting the "self-help efforts" of developing countries and the use of Japan's experience and expertise. To this effect, strategies such as Poverty Reduction Strategy Paper (PRSP) and Sector Programs have been utilised for ODA. However, being a member of the Development Assistance Committee (DAC), Japan's ODA is faced with economic stagnation hence effective and efficient available cooperation activities become imperative in this case. In an attempt to attain effective use of these limited resources, JICA adopted among others the promotion of country-specific and issue-specific approaches. As stated in the OECD (2010), Japan endorsed the 2008 OECD Declaration on Policy Coherence for Development.

In acknowledging the challenges faced by JICA, IFIC (2002) stated that logical drafting of JICA country programs based on systematic understanding of issues was crucial for efficient and effective implementation and evaluation. The approach taken by JICA in administering bilateral technical cooperation ODA has been mostly through projects. The driving force for this has been the belief Japan holds as researched by International Development Centre (IDC, 2003) which agrees with the observation made by UNDP that a major problem of the traditional approach to capacity development was that it was based on an assumption that developing countries lacked important skills and abilities, and that outsiders could fill these gaps with quick injections of know-how. However, JICA's approach has been based on its experience. In the process of modernization, Japan did not replace existing capability with that produced elsewhere, but instead modified Western knowledge and systems to fit Japanese society.

The gap-filling approach was rejected by the new technical cooperation paradigm proposed by UNDP (2002). With this new paradigm, it is considered that knowledge cannot be simply transferred from donor to recipient countries, but that the recipients should willingly acquire this knowledge. It is also required that donor programs have a deeper understanding of local knowledge and practice, because the most useful knowledge for development would exist locally, possibly in a tacit form (IDC, 2003). To this effect, OECD (2010) states that Japan has a strong preference for bilateral aid. Japan uses three main channels or "schemes" for its bilateral development assistance namely: loans, grants and technical cooperation. JICA has frequently used the Project Design Matrix (PDM) approach taken in formulating technical cooperation projects with any country. In doing so the PDMs are as much as possible aligned with country-specific development objectives.

Capacity development is central to Japan's development cooperation philosophy which advocates for supporting partner countries' efforts to become self-reliant. In approaching technical cooperation Japan uses

experts not as a way of filling the gap but enhancing capacities of the local recipient countries. However, OECD (2010) noted that in practice – like many other DAC members – Japan still has some way to go to address broader and systemic capacity-related challenges comprehensively. In an attempt to assist in the development of quality of education, Japan has used one of its strong standpoints, which is Science and Mathematics cooperation in developing countries IFIC (2002). Comprehensive assistance addressed included: teacher training; developing of teaching methods and course materials; training for evaluators; and review of syllabus/curriculum. These are evidenced in the technical cooperation projects in Philippines in 1994, Kenya and Indonesia in 1998, Ghana in 1999, Cambodia in 2000 and Zambia in 2005, among others.

Although there is stability in Japan's philosophy and approach to development cooperation there have also been significant changes. These changes have been driven by *"gaiatsu"* (external pressures), but more notably by *"naiatsu"* (internal pressures), many of which relate to the economic downturn in Japan which began in the 1990s (Lancaster, 2010). JICA now not only manages most technical cooperation, but also most grants and loans, making it the biggest bilateral aid agency in the world. However, Japan has not been active enough in keeping up with the changing aid modality such as a sector-wide approach, using a pooling of funds or ear-marked budget support, or general budget support, although there are some cases where JICA's technical cooperation is fully incorporated into the framework of sector-wide approach, as found in Bangladesh, Niger, Uganda, and Zambia (Yoshida, 2009).

JICA SMASTE School Based CPD through Lesson Study in Zambia

The JICA SMASTE[1] School Based Continuing Professional Development (CPD) through Lesson Study project in Zambia started in 2005 in the period when JICA favoured implementing comprehensive, crosscutting aid on a country-specific basis, with a view toward carrying out effective and efficient aid. It is during this period that the implementation structure was gradually developed to promote a country-by-country approach (JICA, 2008). During the same period, within Zambia, the *Educating Our Future* policy was being implemented with ownership and sustained in-service training (INSET) benefiting many teachers as priorities in teacher education. At the same time, JICA started to develop a project cycle management (PCM) method for the planning, operation, and management of projects, using the methods of other aid organizations as a reference. These processes were happening simultaneously both in Japan and Zambia. The concept of capacity building attached importance on the overall development of abilities in organizations and society rather than the transfer of technology to individuals hence creating a direction for technical cooperation. Considering how well this concept was interpreted in subsequent projects becomes imperative in this case, to ascertain the effects of such approaches of conducting ODA. This is supported by JICA (2008) that a different scale to that used in Japan is needed for measuring the effects of assistance; as well as taking into account the partner country's self-help efforts; it is important to share the perspective of the partner country in order to consider the results that the partner desires most.

The approach taken by JICA on the Zambian SMASTE project differed with that proposed by the UNDP's new model in the way knowledge should effectively be acquired. The elements of Japanese process-oriented approaches on how to acquire knowledge included; 1. Identification of local needs by both expatriate experts and their counterparts; 2. Interaction of foreign and local knowledge; 3. Use of expatriate experts to identify and mobilize local knowledge; 4. Learning by doing approach; 5. Long-term commitment with institutional back up support by donor sides; 6. Promoting mutual respect between experts and their counterparts; 6. Non-

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[1] SMASTE = Strengthening of Mathematics, Science and Technology Education

commercial technical cooperation to mobilize knowledge in public sectors (IDC, 2003). On the other hand, the SMASTE technical cooperation project in Zambia was operating because of the TICAD frame, in which Japan emphasized the importance of African ownership in development and of partnership with the international community.

SPRINT System in Zambia

Educating Our Future (1996), presents strategic approaches for in-service teacher education as: programs which are demand driven, responding to identified needs; programs which focus on school needs and are based in schools or resource centres; cost-effective programs which enable large numbers of teachers to have opportunities for learning; and programs which include not only studies on subject content but also methodologies, and use of materials or way of management in classrooms. Based on strategic approaches stipulated in the policy document, 'School Program of In-service for the Term (SPRINT)' was inaugurated by the Ministry of Education as a framework for lifelong learning of teachers both in basic and high schools in 2000. However, not all the schools have implemented stable and effective meetings for teachers (Banda, 2007; Ishihara, 2010).

Both Hambokoma *et. al* (2002) and Banda (2007) recognise availability of the SPRINT system and weaknesses in its implementation. Weaknesses such as being donor driven, upgrading of schools, inadequate and unskilled teachers, lack of ownership and teachers being forced to attend were highlighted. This necessitated the Government to authorize the School-Based Continuing Professional Development (SBCPD) activities as a way of developing a guide on how a sustainable CPD could be managed through a system known as SPRINT (Ministry of Education, 1996).

Rationale for SMASTE SBCPD

As stated by Ishihara (2010), the objective of the SMASTE School Based CPD project was to improve teaching and learning in the classroom. The focus was to align the project with the CPD policy advocating for sustainable INSET, helping it make INSET cost-effective. At the same time, it was to make INSET benefit more teachers because it was initiated and implemented locally. It also favoured this approach because Lesson Study promotes team spirit among teachers.

Synopsis of the SMASTE SBCPD

Tables 1, 2 and 3 show the framework of implementation and inputs from Japan and Zambia respectively.

Discussion

The SMASTE School Based CPD project shows prospects of being a model of CPD in developing countries, presenting a balance of effective ODA dynamics. Among the lessons learnt, JICA acknowledges that although the project supporter considers this intervention as a project, in their evaluation report acknowledged that they had learnt to conduct a project within a program framework in Zambia. At the same time, flexibility of implementation from both sides is observed as both groups focused on the evolving practice and identified interventions during implementation instead of sticking to rigid PDM agreements. This approach allowed for divergent experiences and ownership by Zambians.

Figure 1 shows that no new structures were created; the project used the existing framework hence reducing costs; at the same time budget planning was within the programs of MOE. The framework is designed mainly to sustain CPD from national to school level with Teacher Group Meetings (TGM) at the core.

Table 1: Framework of Implementation

Starting year	Project Title	Focus of the Project	Target Area	Target Levels	Target Subjects
2005	SMASTE School-based Continuing Professional Development Project, Phase 1	Implementation of teacher training (Introduction of Lesson Study)	Central Province	Upper Basic and High Schools	Science and Maths
2007	SMASTE School-based Continuing Professional Development Project, Phase 2	Implementation of school based training	Central, Copperbelt and North-Western Provinces	1.Central (Basic and High Schools) 2.Copperbelt and North-Western Provinces (Upper Basic and High Schools)	1. All Subjects 2.Science and Maths
2011	Phase 3 – STEPS Project	Roll out of the project	Whole country	Primary and Secondary Schools countrywide	Maths and Science

Source: Developed by authors based on project reports

Table 2: Project Inputs – Japan and Zambia

Starting year	Project Title	Project Inputs	
		Inputs From JICA	Inputs from Zambia
2005	SMASTE School-based Continuing Professional Development Project, Phase 1	1. Long-term expert: One (1) Technical Advisor 2. Training for education managers/teachers overseas (Japan: 5, Kenya: 83) 3. Budget for local activities: 4.6 million Yen 4. Equipment and materials: 4.5 million Yen	1. Counterpart personnel: 14 2. Budget in total: approximately 19 million Yen
2007	SMASTE School-based Continuing Professional Development Project, Phase 2	1. Experts • Two long-term experts on Lesson Study and INSET Management and Coordination and Monitoring • Four short-term experts from Kenya SMASE 2. Training for education managers/teachers overseas: total 41 persons (Japan: 11, Kenya: 17, Malaysia: 6, Technical Exchange Program with Uganda: 7) 3. . Equipment and materials: 4.5 million Yen 4. Budget for local activities 16 million Yen (23%)	1.Counterpart personnel: 115 - National level: 7 - Provincial level: 33 (3 provinces) - District level: 69 (23 districts) - College of Education: 6 2.Budget for local activities 54.3 million Yen (77%) proportion by levels: National 7%, Province 8% District, Zone and School 85%
2011 (Mid-term Project Evaluation Data by 2013)	Phase 3 – STEPS Project	1. Experts • Four long-term experts on Lesson Study and INSET Management and Coordination and Monitoring • Two short-term experts from Kenya SMASE 2. Training for education managers/teachers overseas: total 135 persons (Japan: 56, Kenya: 7, Malaysia: 72) 3. . Equipment and materials: 2 million ZMW Budget for local Activities 1,967,300 ZMW Total 3,967,300 ZMW10% input	1. Counterpart personnel: 115 - National level: 31 - Provincial level: 70 (10 provinces) - District level: not defined - College of Education: 6 2. Budget for local activities 34,418,000 ZMW (615,901,053 Yen) 90% input

Source: Developed by authors based on project reports
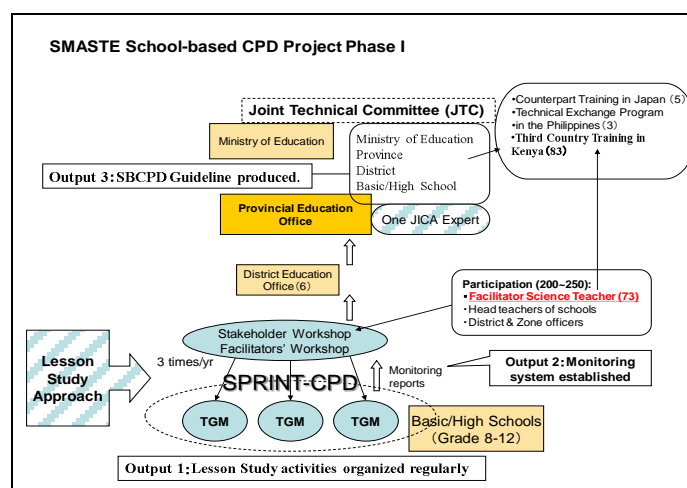
Figure 1: Phase I Project - Program Implementation Structure (SMASTE School-based CPD Project Phase II)
Source: Ishihara 2010

Characteristics of the School Based CPD through Lesson Study approach since 2005

Lesson Study was introduced in 2005 to functionalise SPRINT and is imbedded in the MOE policy framework and budgets. It uses a combination of top-down approaches such as Stakeholders Workshops (SHW), Facilitators Workshops (FW) and bottom-up approaches in which topics or what teachers would like to learn comes from the grassroots needs. It is school based and implemented through Teacher Group Meetings (TGM) during the term. It also strengthens the role of the resource centres as it uses its structures to deliver INSET. Further, it is cluster based since it operates within the structure of Zone resource centres.

Policy shift in FNDP and SNPD

Zambia's Fifth National Development Plan, 2006-2010 (FNDP) mentioned the need to address issues of teacher professional growth; however, there was no clear political commitment. Through the Phase I and Phase II SMASTE project experiences by various stakeholders, the levels of awareness and need to invest in teacher professional growth was increased. To that effect when time came to design the Sixth National Development Plan, 2011-2015 (SNDP), the policy was streamlined. This now strengthens the way teacher development activities are conducted and carries with it political will and financial resource allocation within the country.

Ownership

One form of ownership is in the policy shift between the FNDP to SNPD because of involvement of ministry management on program design and implementation hence prioritising it in the SNDP. During SMASTE project implementation, within country interactions at various levels and various technical exchange of Zambian personnel increased the level of understanding of the need for teacher professional growth. In addition, the Zambian personnel developed a master plan for CPD, which goes up to the year 2023. Responsibility and ownership of players in teacher professional growth has increased. From the activities and actions, there was little visibility of technical staff in the projects as seen in Table 2. This placed the Zambian team in the forefront to spearhead the implementation of the program. There is not much consideration that this was a project; the focus of the stakeholders has been on improving teaching practices. This improvement shows a shift on the findings by Banda (2007) who noted that before Phase I, even though INSET trainings

targeted teachers, they had little connection with CPD for teachers, as they were recipe type in design with limited access of teachers to join in-service training. As indicated earlier, most CPD in the past had been either centralized or long term. This made it difficult for many teachers to participate. Nonetheless, most head teachers would not allow many teachers to leave the school at the same time because this would disrupt classes. Ownership was lacking on both the part of the teachers and the administrators. The design did not allow free interaction among the players in education. Even though the activities were meant as INSET for teachers, the available data shows that they were focussed more on external knowledge acquisition than internal development of a teacher.

This development in the Zambian case agrees with World Bank (2011) that improving the likelihood of more countries attaining the MDGs depended not just on more resources but also, and quite critically, on improving the quality of service provision through better policies and stronger institutions. Table 2 indicates that Zambians took a greater share of total budget in all the phases of the project period. The Zambian Government's allocation constituted over 80% of the project requirements. This shows more ownership compared to other similar JICA projects where the contribution by the recipient country is on the lower side.

Sustainability

Most projects in the African context have suffered from a continuity gap after the project period. Zambia has had such challenges before. However, given the current global economic environment, citizens in developed and developing countries alike are demanding more value for their money. This requires closer attention to the causal chain linking spending to outcomes and actions to isolate and strengthen the weak links in this chain (World Bank 2011). In the Zambian case, the structures to support implementation are available and there are early signs of sustainability although not yet perfect. According to Baba and Nakai (2010), actors in school based CPD projects are trying out things their own way, which means implementing the idea to find how best to develop their teachers.

In addition, the impact of the project, based on pupil performance, shows that results in the pilot provinces had improved by 2010 (MOE 2010). This project therefore takes into account the concerns raised by World Bank (2011) that mostly the outcomes have been disappointing, partly because the spending focus has been narrowly trained on input provision, ignoring other parts of the causal chain that links public spending to better outcomes. Inputs continue to be important, but alone they are not sufficient for attaining the goals in many developing countries. One striking feature about the Zambian approach is that after the end of Phase 2 of the SMASTE project in February 2011, the grass root continued conducting their activities as usual with no technical experts in Zambia. This showed early signs of sustainability being enhanced in an ODA recipient country. Phase 3, i.e. the STEPS project, commenced in November 2011 and will end in December 2015.

In evaluating the School Based CPD (SBCPD) through Lesson Study, MOE-Zambia and JICA (2010) observed that utilization of the existing [SPRINT] system was effective when introducing a new approach. The evaluation also noted that Lesson Study was successfully introduced to schools and had taken root. Since Lesson Study was introduced by using the existing system of In-service Training (SPRINT) as its vehicle, it eased the tension among teachers and school administrators against a new approach. Utilizing an existing mechanism to introduce new ideas or approaches helps disseminate new ideas or approaches faster and at much lower cost while avoiding unnecessary uneasiness or opposition. In order for Lesson Study to take root in schools, both strong commitments by education administration and teachers' motivation are necessary. In

addition, as indicated earlier, using an existing system also strengthens the prospects for sustainability of the new approach.

Challenges

The major challenges identified on the international front are that too much effort has been devoted to increasing inputs, and not enough to ensuring that institutions provide services efficiently and responsively - and that consumers have the ability and incentive to use services efficiently and hold service providers accountable for quality (World Bank 2011). In the Zambian case, the challenge would be to sustain the changes, as change is a gradual process. Challenges are on two levels: one at system level and others at implementation levels. The two need to be balanced in the process of implementation. Countries that have used school based CPD acknowledge that it requires practical wisdom (Baba and Nakai, 2010) and that it is a long-term approach which calls for patience. This therefore tends to be in conflict with both the provider of ODA and recipients as they both are in constant and urgent demand for visible returns on the investments. This is so because for quality facilitation and coordination to take place, there is need for sustained attitude change. At the same time, in the countries receiving ODA there are competing approaches with the sector wide as well as other multilateral and bilateral approaches. To this effect more capacity is required to be developed at Ministry of Education level to act as a strong filter of all activities before they are offloaded to the implementation level. All these require patience and long term planning which at times are against the project approach.

Conclusion

The project in a program approach agrees with IDC (2003) that, from this experience, many Japanese involved in technical cooperation share the idea that knowledge cannot be simply transferred by the donors, but should be actively acquired by the recipients. They also believe that foreign knowledge should be applied based on the local specifics in order to be internalized by the society of the recipient countries. Therefore, JICA's approach recognizes the importance of the local values and knowledge, and thus is not based on an assumption that it is possible to replace existing capabilities in partner countries with knowledge and systems produced in Japan. These are evident in the policy shift, ownership and sustainability of the program. The role of knowledge has been frequently emphasized as an important agenda for development. Phase 1 of the SMASTE project was designed with less Zambians involved but Phases 2 and 3 were collaboratively designed. The IDC (2003) report points out that knowledge and skills cannot be simply transferred from developed to developing countries, but should be willingly acquired by the recipients. Furthermore, due to the recent development of information and communication technology (ICT), partner countries have wide access to external knowledge useful for development. Partner countries can also purchase a variety of knowledge from the market, using financial resources in the pooled technical cooperation funds, which are supplied by donors. The new motto is: "Scan globally, reinvent locally" (IDC, 2003).

Learning from both the Zambian and Japanese experience of importing, absorbing and internalizing Western knowledge as part of its modernizing process, knowledge acquisition is a difficult and time-consuming process in which knowledge cannot be simply transferred by the donors. Tacit knowledge in particular cannot be acquired from the internet since the acquisition of tacit knowledge requires direct contact. Therefore, the acquisition of such kinds of knowledge can be facilitated by external support that emphasizes the process of acquiring new knowledge (IDC, 2003). The Zambian experience provides a novel view of how both the project and program approaches can be combined in the enhancement of the quality education.

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Does Self-Behavioral Assessment Help Nurse Anesthetist Students
To Achieve Procedural Skill?

Nuchanat Sakulpacharoen,

nuchanats@gmail.com

Department of Anesthesiology, Faculty of Medicine Siriraj Hospital,

Mahidol University, THAILAND

Pramote Euasobhon,

pramoteo@hotmail.com

Department of Anesthesiology, Faculty of Medicine Siriraj Hospital,

Mahidol University, THAILAND

Phongthara Vichitvejpaisal,

phongthara@gmail.com

Department of Anesthesiology, Faculty of Medicine Siriraj Hospital,

Mahidol University, THAILAND

Tachawan Jirativanont,

tachy_pang@hotmail.com

Department of Anesthesiology, Faculty of Medicine Siriraj Hospital,

Mahidol University, THAILAND

Abstract: *To develop a self- behavioral assessment test. Employing the Delphi Method and a questionnaire, this study developed a self-assessment form for nurse anesthetist students working in obstetrics, and investigated its effect. The development of the form was a consensus on behavior criterion agreement of obstetric anesthesia experts. The content validity was investigated by obstetrics or educational measurement experts. Finally, the internal reliability of the self-assessment test was systematically verified. All students achieved marked improvement. The self-behavioral assessment test was found to be effective in both validity*

and reliability. The self-behavioral assessment test can help students to improve their procedural skills. A key factor is that students having prerequisite competencies in order to use self-assessment tools for self-directed learning.

Keywords: research and development; self- assessment test.

Background and Significance

In the United States, anesthesia-related malpractice lawsuits were common between 1999 and 2005. Saiontz & Kirk (2013) reported that anesthetic mistakes during surgery included inadequate drug dosing, poor monitoring, failure to refill the anesthetic machine's vaporizers, insufficient training, lack of familiarity with techniques used, machine misuse or malfunctions, and could lead to deaths.

Many people in health care today are interested in defining "quality improvement". Beginning January 1, 2013, the American Board of Radiology (ABR) provided self-assessment modules (SAMs) to merge into Maintenance of Certificate (MOC) requirement activities at a ratio of 25:75. Self-assessment and lifelong learning are intended not only to enhance a physician's knowledge and skills, but also to provide continuous opportunities for quality improvement. In addition, self-assessment helps learners reflect on their practice. If health care is going to produce improvement, Batalden and Davidoff (2007) suggest that health care professionals should include the following characteristics of knowledge systems in improvement: (1) generalizable scientific evidence, (2) particular context awareness, (3) performance measurement, (4) plans for change, and (5) execution of planned changes.

According to Evans et al. (2002), doctors were moving, or being moved, to a position where they must set themselves targets and goals and regularly assess their own performance. Under adult learning principles, learners should play an active role in their education. Teachers only guide the learning process by employing various teaching styles to suit the learner's needs. As a rule, adults learn differently from children; for adults' learning, andragogy is a better term for the process than pedagogy. In other words, the key difference is said that adults are motivated differently. As cited in the adult learning principles described by Knowles (1980), they learners differ from child learners in six respects: (1) the need to know (why do I need to know this?) (2) the learner's self-concept (I am responsible for my own decisions) (3) the role of the learner's experiences (I have experiences which I value, and you should respect), (4) readiness to learn (I need to learn because my circumstances are changing), (5) orientation to learning (learning will help me deal with the situation in which I find myself) and (6) motivation (I learn because I want to). These six assumptions dovetail with the thoughts and theories of others. As cited in adult learning principles, Merriam and Caffarella (1999) pointed out that one of three keys to transformational learning was reflection. Self-assessment was a tool for such reflection on personal performance for improvement. As cited in their assessment of learners (2008), Black and Wiliam (1998) said that self-assessment by students was in fact an essential component of formative assessment. The implementation of student self-assessment in the classroom does not, however, ignore the

role of the teacher. The teacher's crucial roles involve (1) sharing with students the success criteria for each assessment activity, (2) ensuring that students understand such criteria, (3) explicitly teaching students how to apply those criteria to their own work, (4) providing students with feedback to help them improve and helping students to set learning targets to achieve that improvement. In medicine, Evans et al. (2002), after conducting a literature review, found that according to Antonelli (1997) "self-assessment of knowledge and accuracy of skill performance is essential to the practice of medicine and self-directed life-long learning". And they said that Boud (1995) defined self-assessment as "the act of judging ourselves and making decisions about the next step and can be conducted only against benchmarks or criteria". And for higher education, the most radical self-assessment programs allow students to generate their own criteria for marking self-selected tasks. When trainees or students are allowed to participate in standard-setting, they gain a better comprehension of the standards and are more likely to be motivated to adhere to them. Bryan et al. (2005) said that assessment may instead be applied as training to help students learn to realistically appraise their own practice. According to a Royal College of Nursing in the UK, a nursing tool kit had a system of notifying students when their actions have been taken to improve practice placements. And the Central Council of Nursing Clinical Audit in the UK was assisting the coordination of quality improvement initiatives, such as clinical audit. In anesthesia, the National Institute for Clinical Excellence (2004) developed a guideline to help ensure consistent quality care and patient safety for practitioners. Evans et al. (2002), after conducting literature review, found joint agreement. This agreement had commended self-assessment as a fundamental skill to be introduced into both undergraduate and postgraduate education.

For the past decades, Teaching and Learning of Siriraj nurse anesthetist students Training program had been relying on a time-honored apprenticeship model of "See One, Do One, Teach One". However, the use of general anesthesia has plummeted for the past few decades, according to the statistics of the US and the UK; general anesthesia now accounts for only about 5% of cesarean deliveries, as reported by Grant et al. (2013). Management of anesthesia in pregnant patients and airway management of pregnant patients are discussed separately. Glennan & Mustafa (2013) said that complication in general anesthesia for cesarean section was encountered 10 times more often than for obstetric population. After a post-training course, nurse anesthetist students can perform only general anesthesia. The most common cases were pregnant women on duty and on call time. Nurse anesthetists should possess knowledge (a cognitive factor) and expert competence in technical skills (a technical element). Some such students could help pregnant women for cesarean section by giving general anesthesia. During training, some students performed general anesthesia in cesarean section, but others were not familiar with the practice. Siriraj nurse anesthetist students Training program were reminded to undertake self-behavioral assessment to make changes for self-directed learning that will lead to better patient outcomes and professional development. As a rule, nurse anesthetist students' postgraduate education last one year, involving adult learning. They perform, manage, and demonstrate the supervision of nurse anesthetist staff or residents. To perform better, Siriraj nurse anesthetist students Training program emphasized the task of general anesthesia in cesarean section patients with specific technical skills. To achieve its clinical and educational goals, this study sought to improve the performance of nurse anesthetist

students for self-directed learning using the self-assessment tool. So self-behavioral assessment in technical skills helped the students achieve the National Institute for Clinical Excellence (NICE) and the joint agreement.

The purpose of this study was then to develop a self-assessment test of general anesthesia in cesarean section for nurse anesthetist students, and to investigate the effect of such self-assessment on these students.

Ethical approval

The study was approved by the Siriraj Review Board (Certificate of Approval No. Si320/2011) Faculty of Medicine Siriraj Hospital, Protocol number 711/2555(EC4). Anonymity was guaranteed, and participation was voluntary.

Method

Development of self-assessment form

After ethics board approval, a self-assessment test was developed. This part of our study aimed to seek consensus agreement on technical skills in cesarean section. This study employed the powerful qualitative research methodology known as the Delphi method. (Wikipedia, definition Delphi method was a structural survey and interactive forecasting method which relied on information of the participant) and a three-round questionnaire of all eight expert persons. These expert persons, widely recognized by professional colleagues to command specific experience and expertise in cesarean section instruction, each with at least 10 years of teaching experience, made a commitment to participate in this Delphi project in three rounds. The experts reached a consensus on the working assumption that the concept of cesarean section, especially the important parts, could be assessed in content validity. The second and third questionnaires determine experts' consensus on required items on a five-step rating scale (from 1 to 5) and on a three-step first questionnaire (from -1 to 1).

The evaluation of efficacy of self- assessment test

As for the content validity of the self-assessment test, our study aimed to seek consensus agreement from three raters who was experts in cesarean section instruction or educational measurement. For the part of internal reliability, volunteer year 2013 nurse anesthetist students (n = 18, total 36) at the Department of Anesthesia, Siriraj Hospital, Mahidol University, were invited to participate during their third semester. Project information was provided to, and a written consent was obtained from, all participants. The students performed a pre-test and a post-test of general anesthesia in cesarean section in the operating room under the supervision of anesthetist staff and anesthesiologists and were informed to manage patients to the best of their ability for student achievement investigation. After that, they duly assessed themselves in pre-test and post-test, as well as an internal consistency inter-rater reliability test by two staff, to obtain the mean score of the post- test for their achievement scores. Self-assessment of general anesthesia in cesarean section was reviewed by the students during daily practice work for a month, a month after which the post-test of this

study was performed. Two inter-rater reliability self-assessment test by anesthetist staff and the anesthesiologist were evaluated by the students independently of one another.

Statistical analysis

The self-assessment test was designed by using the Delphi Method. The first-round questionnaire was analyzed by using the Index of Item Objective of Congruence (IOC), which assesses agreement beyond the expected median of 0.6. The second and third rounds were analyzed by using median and interquartile ranges, which assess agreement beyond the expected median of 3.5 and the interquartile range of less than 1.5.

Content validity was analyzed by using the Index of Item Objective of Congruence (IOC) beyond the expected median of 0.6

Variations in pre-test and post-test scores were determined by using the mean, standard deviation, and coefficient of variation.

The section of inter-rater reliability of self-assessment was analyzed by using intra-class correlation.

Students' achievement scores were analyzed by using the growth score formula proposed by Kanjanawasee (1989)

$$s = \frac{100(Y - X)}{F - X}\%$$

Where: S = percentage growth of knowledge

F = full test score

X = pre-test score

Y = post-test score.

Statistical analysis was performed with SPSS version 11.5 (SPSS Inc., Chicago, IL, USA).

Data collection

Development of self-assessment test

The development of the self-assessment test for general anesthesia in cesarean section was a consensus on behavior criterion agreement of eight experts in obstetric anesthesia: associate professors (37.5%), assistant professors (37.5%), and staff (25%). The behavior criterion agreement was preoperative preparation, anesthetic machine and equipment preparation, drug preparation for general anesthesia, monitoring skills and fluidic management skills, anesthetic management, intraoperative management, emergence and postoperative management. The resulting behavior criterion agreement of self-assessment test amounted to 37 points. The

Index of Item Objective of Congruence (IOC) of each behavior criterion equaled 0.62 – 1.00 (p > 0.6). The median and interquartile ranges were 4-5 (p > 3.5) and less than 1.5.

The content validity was investigated by three experts in obstetric or education measurement, and the validity was found to be 0.66 –1.00 (p > 0.6).

The internal reliability of the self-assessment test was agreed by two assessors with an ICC of 95% Confidence Interval of 0.9286 (P-value 0.01), thus giving perfect agreement (Viera, 2005).

The reliability of behavior criterion items by two assessors found the number of observed agreements was 47.22% -100.00%, thus giving poor agreement on three behaviors: 1.You explained the processes of general anesthesia to the patient, 2. Medications for increasing uterine muscle tone were available for use: oxytocin (2-5 units) or methylergometrine (0.2 mg unit) (relatively contra-indicated if blood pressure > 130/90 mmHg), oxytocin (10-20 units) in crystalloid (1,000 ml intravenous infusion) or nalador (500μg in Normal Saline 250cc for the hypotonic uteri case), 3.Supplementary drugs including midazolam, metroclopramide, ondansetron, ephedrine, norepinephrine, and reversal agents of muscle relaxant were available for use general anesthesia to the patient(seeTable 1).

Table 1. Internal reliability of behavior criterion item

Behavior criterion	Percentage of agreement
Preoperative preparation: You are certain that	
1. You evaluated the NPO time and,	94.44%
if applicable, informed the patient about the risks of general anesthesia.	
2. You asked for the indication of cesarean section and recorded	94.12%
the fetal heart rate.	
3. You were aware of the patient's co-morbidities and their severity,	94.44%
if applicable,and informed the patient of the risks of general anesthesia.	
4. You took medical history and performed	83.33%
physical examination (that is, evaluating the airway, level of	
consciousness, respiratory and cardiovascular systems).	
If applicable, you informed the patient of the risks of general anesthesia.	

5. You were aware of the hematocrit level of the patient undergoing   100.00%

   general anesthesia and informed high-risk patients of the surgery's risks.

6. You prepared blood typing and screening on patients who may   100.00%

   need a transfusion of blood products, or prepared blood typing

   and cross-matching of PRC (1-2 units) for patients suspected of

   extensive bleeding.

7. You explained the risks of general anesthesia and obtained   94.44%

   a written informed consent from the patient.

8. The patient took 0.3 Molar sodium citrate 30 ml oral   88.89%

   30 minutes or received ranitidine 50 mg IV 1-2 hours preoperatively.

9. You explained the processes of general anesthesia to the patient.   47.22%

Anesthetic machine and equipment preparation: You are certain that

10. The anesthetic machine worked properly.

   Equipment, standard anesthetic and resuscitation drugs   100.00%

   were available and ready to use.

11. You prepared appropriate types and sizes of endotracheal   100.00%

   tubes for the patient (ETT's size was 0.5 mm smaller than usual).

   You tested the ETT's cuff and placed a stylet ready for use.

12. You prepared and checked a laryngoscope   100.00%

   (with a short handle if available).

13. You prepared an appropriate size of oral airway for the patient.   100.00%

14. You prepared two sizes of suction tubes   94.44%

 (No. 14 for oral secretion and No.16 for gastric content) and a suction machine ready for use.

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15. You prepared equipment for the difficult intubation situation   94.44%

namely 1. McCoy's Blade

2. Asking for help from experienced medical staff

and provided ventilatory support by a face mask or

a laryngeal mask airway (LMA) under cricoid pressure

until the patient resumes spontaneous ventilation.

Drug preparation for general anesthesia: You are certain that

16. Thiopental and succinylcholine were prepared promptly.	100.00%
17. A muscle relaxant (for maintenance) and narcotics	90.00%

in an appropriate dose were prepared, based on ideal body weight.

18. Medications for increasing uterine muscle tone were available   50.00%

for use: oxytocin (2-5 units) or methylergometrine (0.2 mg unit)

(relatively contra-indicated if BP > 130/90 mmHg),

oxytocin (10-20 units) in crystalloid 1,000 ml intravenous infusion

or nalador (500μg in NSS 250cc) for the hypotonic uteri case.

19. Supplementary drugs including midazolam, ondansetron,   50.00%

metoclopramide, ephedrine, norepinephrine, and reversal agents

of muscle relaxant were available for use.

Monitoring skills and fluid management: You are certain that

20. EKG, the pulse oximeter, BP, and Et CO2 were monitored.   100.00%

21. Intravenous access was established with at least   83.33%

20G venous catheter, ready for use.

Anesthetic management: You are certain that

22. The patient was in the left uterine displacement   100.00%

position (this is, a pillow is inserted at the right hip at 15 degrees).

23. Suction and suction tubes were ready for use.   100.00%

24. You provided pre-oxygenation with 100% O2   100.00%

     for 3-5 minutes or 4-6 breathes of full vital capacity.

25. The patient was in the sniffing position   83.33%

     (that is, obtained by placing a 7-10 cm cushion

     under the patient's occiput) and a cushion was placed

     under the neck to support cricoid pressure technique.

26. A newborn care team was on standby,   100.00%

     and standard resuscitation equipment was ready for use.

27. You administered thiopental (4-5 mg/kg),   100.00%

     (a high dose to prevent awareness) and succinyl choline (1.5 mg/kg)

     intravenous rapidly and did not assist ventilation

     (Rapid Sequence Induction) after the surgeon sterilely draped

     the surgical field, and surgical equipment was ready for incision.

28. Cricoid pressure technique was performed by   100.00%

     another person, starting immediately after the injection of

     anesthetic drugs and just before the patient was unconscious,

     by fixing the cricoid cartilage with the thumb, index, and middle finger,

     and then gradually pressing backwards with a force of 45 N.

     The cricoid pressure was performed until the intubation was completed,

     as confirmed by evaluating the breath sound or capnography.

29. You delivered N2O:O2 (at 1:1) (or 100 %O2 in a patient with   77.78%

     fetal distress) and an inhalational agent ($\leq$ 1 MAC) to the patient.

30. You administered a muscle relaxant for maintenance   88.89%

     and then informed the surgeon to start the operation.

Intraoperative management: You are certain that

31. You administered narcotics (fentanyl 1-2μg/kg), oxytocin (2-5 units)   50.00%

and added 10-40 units of oxytocin in crystalloid 1000 cc IV infusion in 8 hrs.

You administered supplementary drugs, including midazolam, metroclopramide,

and ondansetron after delivery.

32. You could maintain the depth of the anesthesia   88.89%

(by observing symptoms and the following signs: the patient had no tears and

no response to the surgery, stable vital signs; within ± 20% of baseline).

You were aware of the theoretical knowledge and applied it to the case.

33. You could prevent and control cardiovascular   100.00%

complications by keeping hematocrit levels at > 27%,vital signs within

± 20% of baseline, urine output 0.5 -2 cc/kg. You were aware of the

theoretical knowledge and applied it to the case.

34. You could prevent and control respiratory   100.00%

complications by maintaining SpO_2 at > 95%, Et CO_2 at 30-35 mmHg,

airway pressure at 20-30 cm H_2O. You were aware of the

theoretical knowledge and applied it to the case.

Emergence and postoperative management: You are certain that

35. You administered the reversal agents of muscle relaxants   100.00%

(0.02 mg/kg atropine and 0.05 mg/kg prostigmine intravenously) in due time.

36. Conditions of the patient were suitable for extubation   100.00%

by assessing the conscious level, swallowing and cough reflexes,

testing muscle tones by grasping, opening the mouth and the tongue,

heading up for 5 seconds, breathing with a tidal volume of >5cc/kg

and respiratory rate 12-20 breathes/min.

37. Extubation and breathing under 100% oxygen mask   100.00%

for 5 minutes were performed before transferring the patient to PACU.

You informed the patient of the possible complications after extubation.

Intervention of self-assessment form by student

Before participating in this study, the nurse anesthetist students had, on average, participated in 0-4 cases of general anesthesia for cesarean section. After participating in the study, they performed on average 2-8 cases. The mean, standard deviation, and coefficient of variation of pretest scores were 90.00, 19.00 and 0.21. Students' pre-test scores was low (90/160) and unevenly distributed. Their performance in general anesthesia for cesarean section varied. Both post-test scores indicated the mean, standard deviation, and coefficient of variation were 153.00, 6.06, and 0.006. In short, the students' post-test scores were high (153/160). After using the self-assessment form, their performance in general anesthesia for cesarean section was homogeneous and nearly standard. Their achievement scores ranged from 74.44% to 100.00%, which means they improved by more than 70.00% – 79.00 % (2 persons) and 80.00% – 100 % (16 persons) (see Table 2).

Discussion

This study verifies the validity measurement of a self-assessment test of general anesthesia in cesarean section. This study relied on a Delphi procedure to develop self-assessment test according to Michels et al. (2012), who had studied the application of the Delphi procedure to develop a competence inventory based on the Can MEDS roles. The main strength of this study is that it studied a homogenous group of subjects, all of whom underwent major obstetric anesthesia and hence could reliably be expected to possess a standard technical skill of general anesthesia. The Delphi method encouraged expression of open opinions in a safe, anonymous environment without peer pressure to allow the determination of consensus opinions on essential steps to be included in a tool designed to measure technical competence in general anesthesia for cesarean section. Firstly, this Delphi study reinforces investigation into the behavior criteria of general anesthesia in cesarean section. The second and the third rounds showed how valuable the behavior criteria are to measure technical competence in general anesthesia in cesarean section. This developed self-assessment test of general anesthesia in caesarean section has key performance in 37 behavior criteria to measure technical competence. The self-assessment test serves as a procedure-specific checklist. The content validity of the self-assessment test, examined by three experts, equaled 0.66 –1.00. Finally, the internalconsistency of two observers was 0.9286, thus giving perfect agreement. But it was performed in the target group that it was weakness in this study. Because it hardly to allocate patients having cesarean section under general anesthesia.

Table 2. Pre-test, post-test, and growth score of nurse anesthetist students in the performance of general anesthesia for cesarean section

Nurse anesthetist student	Pre-test score	Post-test score	Growth score
1	88	155	93.05%
2	95	155	92.30%
3	73	157	96.55%
4	88	160	100.00%
5	79	158	97.53%
6	70	137	74.44%
7	122	157	92.10%
8	81	159	98.73%
9	104	147	76.78%
10	47	151	92.03%
11	107	156	92.45%
12	103	158	96.49%
13	82	152	89.74%
14	81	158	97.46%
15	114	152	82.60%
16	79	149	86.41%
17	119	158	95.12%
18	88	144	77.77%

The department's anesthetic procedures were performed and taught using the time-honored "See One, Do One, Teach One" apprenticeship model. However, for patients' , the current choice of anesthesia for cesarean section, according to Hepner& Doucetle, K. (2013), is regional anesthesia. In other words, in practice, general anesthesia in cesarean section is now rare. In this study, therefore, the student participants who had no experience of general anesthesia in cesarean section had not experienced such a model. The

intervention in this study used the self-assessment test for self-directed learning that was a procedure-specific checklist with 37 behavior criteria as key performance for proving achievement. It was found that the post-test scores exceeded pre-test scores, with growth in scores of more than 80%, that is, about 88.89%. According to Susani et al. (2013), the study indicated that in the learning process, students who received self-assessment spent time more efficiently and more economically. Asadoorian (2005) studied the model of effective self-assessment and identified four key categories to effective and valid self-assessment: prerequisite competencies, process, applications, and tools occurring under a supportive environment. Ross (2006) indicated that self-assessment embodied three processes: student-produced self-assessment deliberately focusing on specific aspects of their performance related to their subjective standard of success; student-made self-judgment under which they determine how well their general and specific goals are met; and students' self-reaction (interpretation) of the degree of goal achievement, which expresses how satisfied students are with the results of their actions. John A Ross (2006) conducted many studies using a rubric for self-assessment of students' improved performance. For this study, participating nurse anesthetist students had prerequisite competencies, but not all of them were participating in this study. So, they commanded prerequisite competencies to effective self-assessment, which was compatible to Asadoorian (2005) and Ross (2006). The self-assessment test used in this study represented Objective Structured Assessment of Procedural Skills (OSATS), under which more performance details from the expert consensus confirmed that students achieved goals. Other studies indicated that self–assessment by using the Objective Structured Assessment of Procedural Skills could facilitate acquisition of procedural skills. Touchie, Humphrey-Murto, & Varpio, 2013) studied teaching and assessed procedural skills by focus groups and said internal medicine residents clearly expressed a need for more directed learning opportunities, feedback, and structured assessments for step-wise acquisition of procedural skills to be able to demonstrate proficiency. And Kneebone (2009) found one in three distinct phases (such as the Direct Observation of Procedural Skills (DOPS)) could be used to ease acquisition of procedural skills. This study was performed during the third trimester of curriculum. The students could self-direct learning by using the self-assessment tool to identify their strengths and weaknesses and provide guidelines for learning. Thus the students' performance improved about 100% based on the self-assessment test, according to MDA National Support and Promotion, which had provided a practice self-assessment checklist in anesthesia. The aim of MDA National Support and Promotion is to help health professionals recognize areas of anesthesia practice that are known sources of adverse patient outcomes and medico-legal risks. The checklist will enable anesthesia practitioners to identify where they are managing risks well, as well as areas for improvement in their own practices. It could be said that all participating nurse anesthetist students of this study met or exceeded the mastery standard, and self-assessment indeed helped Thai nurse anesthetist students accomplish the goals under this study.

Educational importance of this study

In medical education, institutes usually use simulation-based medical education to acquire procedural skills, whereas other institutes do not, but can likewise benefit from using self-assessment test for detailed general-anesthesia activities. In other words, structured self-assessment tools consisting of clear detailed

performance guidelines can help students achieve the mastery standard. An important factor is that students should have prerequisite competencies process in order to use self-assessment tools for self-directed learning.

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Teachers' Professional Development: The Finding from a Governance Study in Tanzania

Makoye J.N Wangeleja
Tanzania Institute of Education,
P.O. Box 35094, Dar-es-salaam, Tanzania
wangeleja@yahoo.co.uk

Iddi Makombe
Institute of Development Studies, Mzumbe University,
P.O. Box 83, Mzumbe Tanzania
iamakombe@mzumbe.ac.tz

Florence Glanfield
Department of Secondary Education, University of Alberta,
347 Education South, Edmonton, Alberta, Canada T6G 2G5,
florence.glanfield@ualberta.ca

Elaine Simmt
Department of Secondary Education, University of Alberta,
347 Education South, Edmonton, Alberta, Canada T6G 2G5. esimmt@ualberta.ca.

Joyce Mgombelo,
Faculty of Education, Brock University,
500 Glenridge Avenue, St. Catharines, ONL2S 3A1. jmgombelo@brocku.ca

Abstract:_This study investigated existing policies and governance structures in mathematics teachers' development in rural areas. The design was qualitative with interview as a tool targeting policy makers and teacher educators for primary school education. The study revealed volatility on existing teacher education polices, which have lead to differences between the policy and practices in the areas of teacher preparations, teacher recruitment, coordination, financing and deployment. The inadequacy of teacher houses and poor working conditions for teachers has greatly affected the life of teachers in the rural areas and therefore the motive behind their rural-urban migration. This has accelerated the shortage of primary school teachers for mathematics in the rural areas. The study finally recommended that among others, the existing policy on teacher development be comprehensively reviewed and implemented to enhance the teachers' professional development practices alongside teacher deployment and teachers' retention scheme to minimize rural-urban movement._

Introduction

This study took place in the context of a wider project called **Partnership Development to Research Possibilities for Mathematics Teacher Development in Rural and Remote Communities.**[1] The purpose of this project was to use the Tanzanian case to study how cross-sector and inter-disciplinary partners can work with local communities, regional and national institutions, and international organizations to enhance mathematics teacher education in rural and remote settings. The governance case is one of the five case studies conducted at the onset of the project. The cases were the District Leadership; the successful School; University Programming; the Multi-lingual issues in Teacher Colleges and Governance cases.

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[1] Funded by the Social Sciences and Humanities Research Council of Canada

This report is organised in sections namely introduction; that includes the background information to the study, rationale and objectives. The methodology for the study is also discussed followed by the presentation of the findings and discussion before drawing conclusion and recommendations based on the empirical evidences.

The Background

Tanzania has done commendable efforts in terms of enrolment expansions for both primary and secondary education. This achievement has been widely acknowledged by the global community (Wangeleja 2004, 2007). However, unlike the quantitative goals, the achievement of quality education for all as part of the Millennium Development Goals is still low (Hattori & Wangeleja, 2007). The performance in mathematics for learners at both primary and secondary education levels is not satisfactory yet (Wangeleja 2004, 2007).

The recent improvement in mathematics performance at primary school level as per NECTA examination results may be a signal to improvement (NECTA 2008, 2009, 2010, 2011). However, a big regional disparity is observed in terms of rural-urban variations. The regional disparity in performance is also revealed by the results for the Primary School Leaving Examination (PSLE) (NECTA, 2008, 2009, 2010, 2011). The results below indicate overall performances in four consecutive years from 2008-2011.

Table 1: PSLE National Percentage Pass Rates (A-C Grades) in Mathematics

Sex	Percentage Pass Rate			
	Year			
	2008	2009	2010	2011
M	22.86	25.22	28.89	43.91
F	13.18	16.72	20.75	35.25
Total	**18.07**	**20.95**	**24.7**	**39.36**

Source: NECTA Examination Results BOOKS, 2008, 2009, 2010, 2011

The national average performance for Primary School Leaving Examination (PSLE) in Mathematics is below 40% and boys perform better than girls yearly. Moreover, regional disparity is evident with rural urban inequalities. Rural schools perform poorly compared to urban schools (NECTA 2008, 2009, 2010, 2011).

Unlike the PSLE, the performance trend for the Certificate of Secondary Education Examination (CSEE) is deteriorating with a percentage failure rate of 75, 82, 83, and 85 for 2008, 2009, 2010, 2011 respectively (NECTA 2008, 2009, 2010, 2011). It is a logical contradiction that while performance at primary school is steadily improving, the mathematics performance at secondary education is dropping indicating a negative correlation. There must be a reason to explain this state of affairs.

The national average pass rate for A-D grades was below 19% and below 8% for the grades A-C. This shows that most of secondary school graduates get F and D grades in mathematics. Similarly, boys outsmart girls, as it is the case with primary schools.

Studies such as Kitta (2004), Wangeleja (2004, 2007) and Osaki (2007) have revealed a number of reasons for the persistent high failures in mathematics examinations; shortage of mathematics teachers, low morale among mathematics teachers, poor qualifications among mathematics teachers, shortage of teaching materials, an examination oriented curriculum implementation; teaching methods which encourage pupils to learn by rote, negative attitude towards the subject among pupils (and teachers), lack of motivation mechanisms among teachers, ineffective teaching methods, pupils absenteeism, lack of practice of imparted mathematics knowledge (Osaki, 2007; Hattori & Wangeleja, 2007; Seka, 2008; Eskola, 2009). Also of concern are issues of equity where living conditions, language, gender and child labour all contribute to the disadvantage of learners in rural and remote communities. Like their learners, teachers who work in rural and remote environments also experience great disadvantage. Not only do they lack basic resources common in urban areas, for example, housing, transportation, electricity and water.

They have poor access to teaching resources such as teaching aids and technology driven resources (online and web-based) and few opportunities for professional development.

Table 4: National Percentage Pass Rates for CSEE in Mathematics from 2008-2011

YEAR	SEX	% PASS(A-C)	% PASS (A-D)	% PASS FOR ALL GRADES				
				A	B	C	D	F (FAIL)
2008	M	12.48	30.99	0.98	3.22	8.28	18.5	69.01
	F	5.11	16.1	0.35	1.2	3.55	10.99	83.9
	T	9.19	24.33	0.7	2.32	6.17	15.15	75.67
2009	M	11.79	23.94	0.87	3.14	7.79	12.15	76.06
	F	4.14	10.6	0.21	0.93	2.99	6.46	88.99
	T	8.26	17.78	0.56	2.12	5.58	9.52	82.22
2010	M	9.31	20.97	0.9	2.55	5.85	11.66	79.03
	F	3.47	10.33	0.22	0.78	2.46	6.86	89.67
	T	6.63	16.09	0.59	1.72	4.3	9.46	83.91
2011	M	7.93	18.28	0.47	1.77	5.7	10.31	81.72
	F	3.23	9.61	0.12	0.65	2.45	6.38	90.39
	T	5.91	14.55	0.32	1.29	4.3	8.64	85.45

Source: NECTA 2008, 2009, 2010, 2011)

Rationale for the Study

The acute failure in mathematics has become a systemic issue linked with initial teacher education, (Wangeleja 2004, 2007). The colleges for initial teacher education programmes for primary schools teachers in the country draw their entrants from Ordinary Secondary Education graduates, of whom the majority are failures in Mathematics.

Furthermore, it is difficult for the districts to post and retain qualified mathematics teachers in remote and rural areas. These teachers are highly needed in cities with private schools, which are capable of offering higher salaries. In this context, the rural and remote based learners suffer most. Therefore in such a mixed context problem, it was important to study the system of governance in relation to teacher development so that an effective and sustainable intervention could be developed.

1.3 Objectives of the study

The objectives of the study were to;
  i.   explore supportive policies for mathematics education particularly for primary schools;
  ii. determine the role and practice of in-service teacher development programmes in mathematics teacher education.
  iii. Investigate on the on how teachers are managed and supervised,

Conceptual Framework

Wangeleja (2004) adapted model was used to guide this study. It explains various issues at input, context and process levels, which trigger pupils' performance.
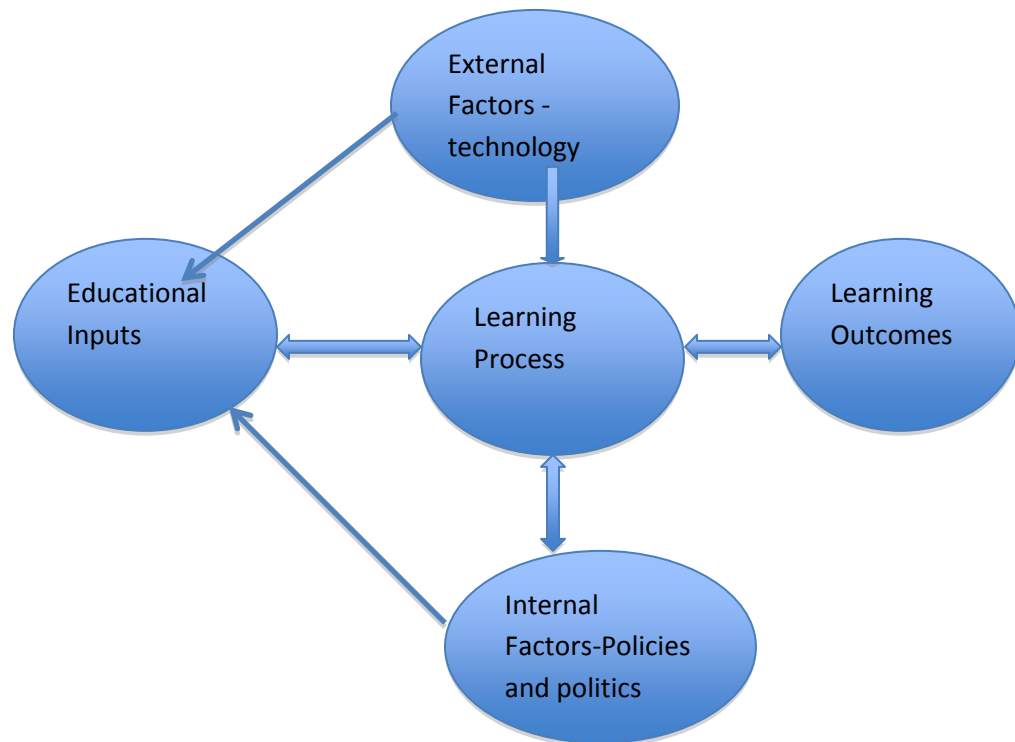
The developed model for the study based on Van Akker (1998), Omari (1995) and Stuflebeam (1971) ideas.

The model looked at holistic interactions of inputs, process and outcomes in a complexity as they are affected by both internal and external factors. This model provided light to the design of the governance study whose focus was based on the learning process and the internal factors. The learning process factors include pedagogy, teacher knowledge and skills, teacher's attitudes and motivations which all affect the learning outcomes. The internal factors referred to for this study include policies and politics of education and the community attitudes which have the impact on teacher development, motivation and deployment issues. The inputs such as infrastructure, availability of teachers and teacher management were crucial in this study. These inputs affect not only the learning process but also the teacher development policies and therefore teacher's characteristics.

Teacher's characteristics are valuable inputs that have major impact at process level and finally affect the learning outcomes. The teacher's characteristics we are referring to here are the knowledge and skills of teachers at entry to the profession and whose growth is a function of a continuous professional development process (Wangeleja, 2004). In this regard, attitudes and motivation are considered as the pre-requisite for effective continuous professional growth for primary mathematics teachers.

The teaching and learning as a process is influenced by a number of factors such as change in science and technology, shift in methodologies and other changes that require systematic planning and retraining of teachers. The need for an intensive in-service training at the process level is inevitable.

Van den Akker as copied in Ottevanger (2001:35) developed a framework for conceptualisation of curriculum implementation. The framework shows how curriculum intentions are affected by the context. These include school policies, external support, and teacher characteristics, which affect the curriculum implementations and may lead to undesirable teaching and learning outcomes.

He also argued that the lack of learning materials, qualified teachers, the teachers' attitudes and school policies are among the contextual factors. These factors vary significantly from school to school, (Akker, 1998 and Ottevanger, 2001).

In general, curriculum implementation in an education system is affected by both internal and external factors. These two factors affect the quality of inputs and hence the teaching and learning process in various ways. For instance when there is acute shortage of teaching and learning materials, the teacher's knowledge and skills are limited and therefore the delivery of instruction may not be as fruitful as expected at full material disposal level. It is therefore evident that at process level, teacher's characteristics can be affected by lack of appropriate inputs, and support from within as well as outside the school. These have great impact on teaching and learning processes.

External factors refer to as school issues imposed as a consequence of global pressure. On the other hand, internal factors refer to those generated within the country and the school as well. These include policy issues, social related factors as well as management and administrative issues in education system. All these factors have implications to teacher preparations, attitudes and motivations as the essential variables for this study and hence affect the teaching and learning process particularly in rural and remote communities. The model was useful in analysing policy related factors that affect mathematics education in rural and remote communities.

In this model teachers' pedagogical and academic skills are considered to be important components for effective teaching and learning process of primary mathematics. This is in line with fostering development of the growing demand of reversing the role of teachers as bankers of knowledge to facilitators of learning. For this purpose, teachers' competencies need to be developed, strengthened and sustained through guided instructional materials and continuous professional development programme (Wangeleja, 2004).

The model saved as a guide in answering the following questions: What is lacking in terms of teachers' skills and what level of government input is needed to improve these competence levels? Does the professional development programme available in the country contribute to teachers' competence improvement? In addition, what kind of school, and government support that teacher has to be provided at the process level for good delivery of instruction? If intervention is needed, what kind of intervention and how should it look like? Finally, if both external and internal factors such as poor policy framework and poor procedures of adopting innovations (no retraining of teachers) are the major issues, how can these be addressed?

Methodology of the Study

The governance study targeted policy makers at the level of ministries. These included education officers in the departments of Primary and Teacher Education in the Ministry of Education and Vocational Training, School Inspectors, as well as Curriculum Developers. Interviewees also included were the high ranked decision makers at the Ministry of Education and Vocational Training who were purposively selected in the study. These include the Commissioner for Education, Chief Inspector of Schools, Director Teacher Education and Director Primary Education. The sample also included the Deputy Permanent Secretary (Education) PMORALG and the Director of Education Coordination for the same ministry making 15 as the sample size.

The design was qualitative focusing on interviews and documentary review as the main data collection tools. The interview guide was open ended in design allowing free conversation and probing questions. Direct notes taking and audio recording were the techniques used to capture data. The audio data were later transcribed to allow easy interpretations and analysis.

The Findings and Discussion

The results and findings are presented and discussed according to the emerged themes alongside study objectives. The emerged themes were teacher development policies and practices, teacher development and institutional arrangements, teaching as a profession as well as teacher deployment issues.

Government Supportive Policies for Mathematics Education

The teacher development policies directly affect teacher education practices. The study investigated on how policies affect practices of teacher development in Tanzania. The policy gaps are also identified as

hindrances to the delivery of effective teacher development programmes including financing and deployment issues.

Policies and Practices
The Teacher Education Department (TED) of the MoEVT has the responsibility to formulate policies to guide teacher development to meet the demand that exist in Tanzania due to the expansion of the basic education. According to the Education and Training Policy (1995), the pre-service teacher education programmes are meant to supply well-trained teachers for the entire education system. Access to primary school teacher education is currently open to all secondary school leavers depending on the level they want to train, and provided they are qualified for the programme they want to join. However, teachers' recruitment practices have never gone hand in hand with policies. Recruitment based on crash programmes that absorb unqualified teachers in the system has been one of the noted malpractices in teacher education and development. The 2008 direct recruitment of form six graduates to teach in secondary schools popularly known as *vodafasta*[2] is one of the many examples. This study has revealed such a loose policy practice in teacher development that allows violation of the stipulated recruitment criteria. The teacher development policy does not address mathematics education but it is just holistic in approach. The interviewees could not identify any policy statement regarding mathematics education and teacher development in mathematics. Uncoordinated practices in terms of funded projects in teacher education and training have been noted to exist adding more confusion to teachers and the system.

Contradictions Between Policy and Practice
According to The ETP 1995, quality and professional competence are vital for the efficiency of the primary school education. It was recommended that in order to improve the quality and competence of primary school teachers. It is necessary for the government to raise the entry qualifications of the prospective teachers. Interviews with MoEVT officials revealed that, one of the constraints in training of teachers in Tanzania is the inconsistency in the entry qualifications. The ETP, 1995 recommended the minimum entry qualification of pre-service students for certificate course in education to be division III [3] obtained in the certificate of secondary education Examination (CSEE). However, the practice indicates that the entry qualifications applicable to-date is division four with a cutoff point of 27 points for the year 2012/13. This shows that students who are enrolled in the pre-service teacher education programmes have poor academic background and as the statistics indicated in section 1.1, they are the failures in mathematics.

Another contradiction, which was pointed out between policy and practice of pre-service teachers education is financing. According to the Teachers Education Master Plan (URT, 2001a) teacher education is one of the lowest financed subsector compared to other sub-sectors in MoEVT. Besides, the majority of teacher training colleges are in poor condition with infrastructure lacking regular maintenance. They are also poorly furnished with furniture, textbooks and library facilities. Moreover, mathematics teaching and learning is not looked at as a separate subject rather it is included in science teaching and learning. The depth of the problem of mathematics teaching and learning needs isolation of the problem and provision of specific policy guidelines and strategic solutions.

Yet another contradiction identified was lack of specialization of mathematics teachers at pre-service certificate teacher education programme. There are neither strategies in place to motivate mathematics tutors, nor retraining programmes of tutors to ensure future improvement of pre-service teacher education programmes for mathematics teachers. This contradiction shows that the existing policy on teacher development does not adequately address the current issue of mathematics teaching and learning. Instead, it shows the existence of poor pre-service teacher education strategies. These findings are also consistent

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[2] Vodafasta are the directly recruited secondary school teachers without undergoing pedagogical training. They were given a teaching license after completion of an advanced secondary education with a three weeks orientation to teaching.

[3] Division **III** is the third level pass below divisions **II** and **I** and above **IV** and **fail** as previously used by the National Examination Council of Tanzania.

with that by Kitta (2004) who pointed out that pre-service education programmes do not adequately build strong teaching foundation among mathematics teachers in Tanzania.

Role and Practice of In-service Teacher Development Programmes

Teachers' In-service education is crucial for the growth of their academic and professional development and improvement. It promotes teachers innovation and improvisation in methods of teaching, preparations of teacher made instructional materials and aids and facilitate the exchange of professional ideas and experiences (MoEC, 1995).

Teachers Development and Institutional Arrangements in Tanzania

According to the Tanzania Education and Training Policy 1995, various ministries are responsible for the education and training in Tanzania. The Ministry of Education regulates teacher education and training and Vocational Training through institutions charged for such tasks. The institutions mentioned include, the Tanzania Institute of Education, Agency of Development for Educational Managers (ADEM), The Institute of Adult Education, Universities, Teacher Training colleges, NGOs and other institutions through Private- Public partnership strategy.

The interviewees mentioned institutions apart from the fore mentioned institutions as Institute of Adult Education, the Open University of Tanzania especially in provision of distance learning programmes. The Aga Khan University, Tanzania Teachers Union and NGOs were also mentioned. The mutual relationship between the institutions and the Ministry of Education and Vocational Training was also observed. However, these institutions work in isolation, making the sharing of the experience gained impossible.

The study also revealed some duplication of efforts and lack of common concepts on the country's education reforms and curriculum direction. This situation led to misconceptions among teachers particularly during in-service education programmes. Moreover, the Ministry departments were observed involved with the implementation of teacher training programmes instead of regulating and utilizing the capacities of the mandated institutions. This poses a threat in terms of institutional mandates, in terms of who should do what regarding teachers' in-service education and curriculum development tasks. The new role of the MoEVT after devolution of power to PMORALG and the institutional position of TIE, ADEM and others related to in-service training is unclear and needs a lot to be desired.

Role of the School Inspectors

The purpose of the school inspection is to monitor the delivery of education and the adherence to the stipulated curriculum and standards in order to safeguard quality in education. The purpose of inspection is also to oversee the efficient and effective delivery of education and supervise the schools. In addition, inspectorate also provides feedback to the curriculum developers, education agencies, managers and administrators.

The interviews revealed that inspectors perform both roles of reporting on how the system is doing and also of supporting teachers in the implementation of their roles. However, they are faced with many challenges such as shortage of staff and funds to implement their plans. It was revealed from the interviews that the Inspectorate is the lowest funded directorate in the MoEVT regardless of the important roles and functions vested on it.

Planning and Financing

Financing of INSET is inadequate because of low budget allocated to the Ministry. Also TIE does not currently have an INSET provision in the national budget. The Ministry has been receiving support from development partners such as UNICEF, UNESCO and Non-Government Organizations to run in -service training. The financing of INSET is neither adequate nor clearly covered in the government budget. The plans are uncoordinated and donor driven. Institutions such as TIE, ADEM and universities plan in isolation with MoEVT without interdepartmental harmonisation. This situation results in not only duplication of efforts and resources but also systemic confusion on what should be delivered to teachers.

Teacher Education and Management

The need to have qualified and competent tutors has been well stipulated in the ETP 1995 and in some studies like Kitta (2004) and Wangeleja (2004, 2007). According to the ETP 1995 the minimum

qualification for tutors at certificate and diploma levels teachers' course is a possession of a university degree, with necessary relevant professional qualifications and specialization of which education is mandatory. This is one of the policy strategies to enhance the quality of teachers through strengthened pre-service teacher education programmes.

Teacher education curriculum for all certificate and diploma level courses are designed, developed, monitored and evaluated by the Tanzania Institute of Education (URT, 1995).

The National Examination Council of Tanzania does the final assessment of the programmes.

It is understood from theories and practices of educational reforms that, any innovation to be successful must be lead by a specific lead institution. Results from the interviews highlighted clearly that there is confusion in execution of these roles. It was further revealed that sometimes MoEVT departments conduct curricular related training to teachers and college tutors without involving the curriculum designers. Consequently, there is a reckoned confusion between what the MoEVT officials are saying in terms of certain concepts contradict with what curriculum experts believe with regard to the same curriculum concepts. Such mishaps have left a gap in the common conceptualization of the Competence based Curriculum. The link between MoEVT, TIE, teacher education colleges and universities in terms of teacher training is weak.

It was revealed that unlike the previous teacher education curriculum, which allowed specialization for primary school teachers, the current curriculum does not have such options. The previous teacher education curriculum allowed specialization in Sciences (including mathematics), social studies combined with other key subjects named as core such as Kiswahili and English. The specialised programme was abolished in 2009 so as to meet the increased demand for primary school teachers due to tremendous enrolment expansion.

Teaching as a Professional
Qualification of teachers and their ability to perform well in the classroom is the key factor in improving the quality of education and mathematics subject in particular.
According to the ETP (1995), the Ministry of Education and Vocational Training is an organ to establish profession qualification of teachers. However, MoEVT has failed to stand by its policies by periodically lowering recruitment standards.

Interviews with MoEVT officials revealed that there is an ongoing move to establish A Tanzania Teachers Professional Board (TPB) that will act as an organ to oversee teacher qualifications among others. The board is expected to determine qualifications of teachers at various levels, formulate and enforce a comprehensive code of professional conduct of teachers. Also it is expected that the TPB will recommend teachers training needs to the Ministry responsible for education, particularly the professional development needs of serving teachers in schools and colleges.

The development of the Teacher Competency Framework by MoEVT is one of the remarkable attempts to revamp the teaching profession. The implementation of INSET strategy for primary school teachers does not seem to improve teacher competency due to uncoordinated plans. While Teacher Education Department is implementing the plan, TIE is not fully involved posing a threat for sustainability. A common planning of INSET programmes is required to standardize the content and therefore, the competences.

Poor Mathematics Teachers Deployment Effects
Initiatives have been attempted by the government to overcome the shortage of teachers in general and in rural areas in particular. The government has continuously been hiring teachers consecutively for the past 3 years. While the shortage is still high as accelerated by teachers' retirement, there is a serious inequity in terms of deployment based on urban-rural settings. A high rural-urban movement of teachers has been observed particularly with female teachers most of whom are in cities and municipalities. Urban-rural movement is unlikely. Generally, only beginning teachers are posted to rural areas. The tendency has been for the competent teachers to move to urban areas. Competent mathematics teachers are rather few in rural areas. Primary school teachers are usually generalists, teaching all subjects in primary schools (Wangeleja, 2004). Taking into account the mathematics failure rate for the Certificate in Secondary Education Examination, entrants for the certificate course in teacher education are either too weak or

failures in mathematics at their ordinary level secondary education. This vicious circle makes it difficult to improve mathematics education unless deliberate strategies to improve mathematics education are planned and systematically implemented.

Interviewees recommended that the budget for teachers training should be increased to allow implementation of in-service teacher education in a more systematic and context oriented. It is believed that ways of improving mathematics learning through learner centred approaches depend largely on improved teacher competences.

It was recommended that the best strategy to improve mathematics education in rural schools is to train teachers who are willing to stay and work with rural schools.

Posting of Teachers
Posting of teachers usually is based on available teachers' and students' statistics. The students-teacher ratio is used to determine teachers' workloads and therefore teachers 'deployment. A large students-teacher ratio implies shortage of teachers where teachers can be transferred to and a small ratio means excess where teachers can be transferred out. The nation indicative ratio is 1:45 meaning one teacher serves 45 students. However, this indicator does not reveal the surplus or deficit in-terms of subjects such as mathematics.

While MoEVT undertakes hiring of teachers, teachers' deployment is the responsibility of PMORLAG. Many "competent" teachers reject their post in rural areas where infrastructure and social services are significantly poor. The government has no differential treatment for rural and urban teachers. It was observed that, teachers feel that, being transferred to rural areas is like a punishment. Incidences of quitting jobs due to being posted in rural areas have been frequently reported. Teachers leave government schools in rural areas to join private schools in the comparatively advantaged areas, mostly in cities and big towns.

Retention scheme
The inadequacy of teacher houses and poor working conditions for teachers has greatly affected the life of teachers in the rural areas. It is not clear whether a retention scheme exists or not as there are no signals of such initiatives. However, the recent increase of teachers' salary for those with postgraduate qualifications has been perceived as one of the retention strategies for attracting teachers with such qualifications to stay in their posts. There is lack of a comprehensive retention strategy for overcoming the shortage of mathematics teachers in primary schools particularly in rural schools.

Conclusion and Recommendations

It was evident from the study that volatile policies on teacher development and recruitment have affected the quality of current working force. It is therefore recommended that the existing policy on teacher development be comprehensively reviewed and implemented to enhance the teachers' professional development practices.

The study also revealed that unclear criteria for posting new teachers, the rural-urban transfers and inadequate retention scheme for teachers contribute to the escalating deployment issue particularly in rural areas.

It is recommended that a comprehensive teacher deployment policy be developed alongside retention scheme to minimize rural-urban movement of teachers. Moreover, more initiatives should be directed to the training of teachers who are willing to stay and work in rural schools.

Finally, institutional linkages in terms of teacher training appeared to be weak and do not adequately contribute to the teacher development initiatives to date. There is a need to strengthen these linkages for a systematic and holistic implementation of the teacher development programmes.

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Social justice approaches to higher education practice in Africa:
Understanding the limits of a capability approach.

Joseph Jinja Divala
Department of Education and Curriculum Studies,
University of Johannesburg
P.O. Box 524, Auckland Park, 2006
SOUTH AFRICA
Email: jdivala@uj.ac.za

Abstract: *Over the years, social and political theorists as well as philosophers have debated the question of (social) justice at length. These debates have taken various angles, from understanding the roots of justice in society to debates on what a justice system of life would constitute and many more. Some of the more recent debates have moved from a focus on simply understanding justice in terms of entitlement to an understanding that what is really at stake is the (equal) distribution of social goods, primary or otherwise. Despite advancements in understanding social justice, the widening gap between those who have and those who do not have has not been sufficiently resolved. Some modern critics, as well as contributors to the theory and approaches to social justice, in search of more viable options, have suggested that it is not so much about the systems we put in place but the kinds of capabilities we develop in people. In this regard, the development of human capabilities has squarely been placed at the doorsteps of what a just modern education system should be and what it should promote. In view of these debates, this paper begins to retrace the assumed notion that higher education's mandate on the African continent is in part to help the continent to develop the required forms of human capability. The paper understands and links the mandate from a social justice angle and also tries to link this with what is implied when universities begin to profess their missions as those of becoming socially responsive spaces for the development of Africa. By applying these ideas to a picture of Africa's sparse and differentiated developmental patterns, the paper interrogates whether the capabilities approach as recently espoused by Sen (1999, 2009) is sufficient for the task or on whether this conception has inherent weaknesses when applied to the African context. The paper will do this by engaging into this debate ideas on what is assumed in the idea of 'socially responsive university' and what this may mean for many universities on the continent in view of the capabilities approach. The paper uses philosophical analysis with strong traces of interpretive and critical perspectives.*

Keywords: (Social) Justice; (Higher) Education; Human Capability; Africa.

Introduction

Questions on what social justice is and how public institutions ought to implement mechanisms aimed at promoting a socially just order are age old questions in society. This pre-occupation on social justice has virtually permeated other crucial sectors of society whose nature and activities are seen as contributing to the social order as we experience it today. The university is one such sector of society whose identity, nature and functions have shaped the discourse on social justice. In many ways the university is also perceived as a critical agent in the promotion of social justice in society. In this paper, I reconsider the role of the university in creating a socially just world by, amongst other things, employing a capabilities approach to social justice as espoused by Sen (1999, 2009) amongst others. In attempting to do this, the paper will first recap the debates on the nature of the university and the functions of the university on the African continent. Second the paper will review approaches to social justice and how these approaches have kept on improving through the natural process of critique. Towards the end

of this debate I will also attempt to locate the place and relevance of a capabilities approach as one of the proposed better versions of understanding and applying social justice today. In doing this, the paper will interrogate whether, despite the merits associated with the capabilities approach, the same approach would produce disastrous results if narrowly applied to the developing and in many respects fractured system of higher education on the African continent.

In challenging the wholesale application of the capability approach, my main standpoint is that the approach does not fully resonate with the circumstances abundant in the African higher education system, although others could be of the view that the majority of the malaise associated with the continent at large are not a reality at the university. I have worked at some of South Africa's universities and my experiences in these universities come with vivid memories of students who sleep in computer labs because they cannot afford rooms anywhere – homeless university students; students who go hungry because eating daily has become a luxury; and in worst cases student give themselves up to prostitution because that is the only way of surviving. Despite the strides that most African governments have made in bringing about infrastructural development, most Africans (urban and rural) still face challenges such that the question of exercising substantive freedoms for them simply becomes a non-starter in reality. Is the capability approach itself capable of bringing about meaningful change that can thwart the incentives brought about by the dominant neoliberal human capital interpretations of education, which turn education into a venture merely for economic productivity and employment, as Walker (2006, 164) seems to intimate?

On the nature and functions of the university in Africa

While universities are world-wide establishment for nations, universities on the African continent have unique origins which in part affect the nature and functions ascribed to them. Ajayi et al. (1996) and Assie-Lumumba (2006) trace the origins of university life on the African continent to the ancient centers of civilization in Africa, such as Egypt, Mali and others. From the point of those writing on Africa, what is now referred to as the university could also be found in what was originally labelled "indigenous higher education" which produced and transmitted new knowledge necessary for understanding the world, the nature of man (sic), society, God and various divinities, as well as the promotion of Agriculture and health, literature and philosophy" (Assie-Lumumba, 2006, 25, quoting Ajayi et al., 1996, 5). In this regard higher forms of knowing were acknowledged and entertained because they assisted in grappling with issues surrounding human existence.

Despite the lack of technological advancement, African societies developed forms of knowledge that superseded what an ordinary person needed to know in order to be and survive as a member of a particular society. This is why Ajayi, et al. (1996, 4) reckon that the system of higher education remained "predominantly oral, eclectic and

even esoteric" while the forms of knowledge could range from metaphysical to epistemological to social. What was distinctive in the traditional forms of higher knowledge is that these forms were valued in the community for what they offered. Higher forms of knowledge provided an exceptional source of solutions for problems facing societies and for the advancement of these societies. Although at times philosophic sagacity is considered as esoteric, sagacious forms of knowledge are valued not just for their own sake but for the development of the community as a whole. The developmental character that was attached to sophisticated traditional forms of knowledge resonates with ideals of a 'developmental university' in today's formal higher education and training.

Consequently from the above, one can argue that what is known as the university today was developed way before the partition of Africa took shape in the colonization of the continent. While pre-colonial centers of higher education were mostly influenced by religious structures, such as Islam, Christianity and African traditions – organized around the quest for knowledge, autonomy and piety, the contemporary form of the university starting from the first independent states took the form of national development centers. The need for higher education to assist in national development was championed by organizations such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) (UNESCO, 1962: 17–19). In this case, the role of higher education in the post-independence era was considered as one of assisting in the development and nurturing of unity by promoting the development of appropriate skills in the independent states, which are commensurate with world civilization, necessary to manage and control the national systems put in place after independence. Although not directly couched within the capabilities framework, the approach to establishing the higher education system in which they sought to "encourage and support elucidation of and appreciation of African culture and heritage, thereby liberating the African mind socially and culturally" (UNESCO, 1962: 18) was essentially a capabilities issue.

A re-conceptualized role of the university in contemporary periods

It is indicated above that the inception of the university in the post-independence period in Africa saw the university being established not only for the need to establish institutions that would merely train African people to work as interpreters of the colonizers and evangelists of the different religious institutions that were being established but also as institutions that would create "an African elite who could work side by side" with the Europeans (Ajayi et al., 1996: 30). In many respects, the connection that was perceived to be there between university education and national development gained momentum alongside the growth of nationalist movements in different African states. In contemporary times, access to higher education and the attainment of a higher educational qualification continues to be perceived as the linchpin for citizens in different countries to gain the required skills and eventually locate themselves in the economy. Although African universities have championed national development in the post-independence era, such development can be considered as narrowly focused

economic development. This is evidenced by the over emphasis on science and technology over and above the humanities and the human values that ought to be developed. Jansen (2006) seems to be answering this dilemma by arguing that assumed mission of the university has not been an easy one either given the conditions within which a majority of African universities operate in, where most of them do not autonomously set their agenda as is assumed to be the case in the developed world, for instance.

In the 21st century, management regimes have brought in other imperatives whereby the universities are expected to fulfill a number of performativity indicators, mostly borrowed from the global market economy, without which they are considered to be nonviable institutions. Within this logic of performativity, universities are expected to be socially responsive as much as they are also expected to be competitively excellent in research and scholarship at a global level (see Altbach, 2004; 2007). In addition, there is a growing performativity logic, modelled after the dynamics of the neo-liberal market. In my view, these developments suggest the presence of two equally competing ideas on the direction of the university on the African continent. In simple, ideals of a socially responsive university are being developed and aligned with ideals of a globally competitive university. Despite the apparent parallelism, the pre-occupation with university rankings and research units production with less emphasis on efficacy suggests that being globally competitive in a neo-liberal sense has become stage in popular perceptions on what the university should be and do. Although the two ideas are not mutually exclusive of each other, the manner in which any one of them gets emphasized can lead to an internal strife in the conceptions of the nature and role of the university as well as the reshaping of different university missions (Altbach, 2011).

In this paper, the focus is mainly on what it means to be or to operate a socially responsive university. I consider a socially responsive university can be considered as one whose nature and function is not only conceptualized as intrinsic but also as one which needs to be understood in relation to the other, the society in general or in service to humanity. This loose characterization contains a number of unexplained assumptions and possibly contradictions. One of these is the idea that the concept of relation with or to the other may mean that the university only owes society some service although university is itself part of society. The University of Cape Town, for instance, considers that the idea of the university social responsiveness is the key connector between society and university (Favish, et al, 2008, 37). The mandate implies that staff and students should respond to the social, economic, and development challenges facing society through the different disciplines and areas of research. Although the idea of university social responsiveness was considered as having to do with the university's research and teaching mission – that somewhat this referred to the university's 'outreach mission' in society, Favish et al (2008) also argue that this mandate had everything to do the university's core business of research and teaching in the first place. In some way, promoting the university's outreach mission also implies that the core functions of the university had to be significantly re-imagined. The re-imagination translated the idea of 'social responsiveness' to mean that genuine university civic or community engagement should at the same

time have everything to do research and teaching in the university-society nexus. Similarly, Altbach (2013, 316) argues that "the research university is no ivory tower and is relevant to the wider community".

It is further considered that the inclusion of "civic engagement" was deemed necessary, because it recognized the critical role voluntary community service plays in helping to promote active citizenship among students, recognizing major strands of responsiveness such as research, teaching and civic engagement. In this triad, civic engagement was primarily considered as having no links to the university curriculum (Favish, et al, 2008, 38). In other international cases, the idea of a socially responsive university has become "part of the debate about competitiveness and sustainability in the globalization context" (Vasilescua, et al, 2010: 4178). In other cases, there has been conflation between the idea of the university social responsibility to the idea of the university managing its corporate identity (Atakan and Eker, 2007: 58). The latter is in many respects reductionist on the nature and functions of the university. Despite that there is a growing trend to run the affairs of the university in a business-like manner, a university cannot be treated or operated a business company. At stake in it are public goods and individuals whose goals and ideals go beyond market quantifications.

The example of university responsiveness captured from one of Africa's leading institution, above, depicts a number of shortfalls when one considers the same in the light of developing capable citizens despite the cursory acknowledgement that the university propagates the development of active citizenship. In the first place, the policy framework does not necessarily allude to the idea that part of the university's social responsiveness would impact on developing appropriate capabilities in individuals for them to live better and meaningful lives. Yes, the framework anticipates civic engagement and the promotion of active citizenship. How this civic engagement and active citizenship becomes linked to the development of adequate human capabilities on a continent that is largely under-developed is left to chance.

The authors in question also rightly acknowledge that another challenge with the social responsiveness programs or initiatives of a university is that until now most universities whose academics are engaged with societal challenges have not developed systematic methods of measuring the impact and the quality of their social responsiveness activities. In this regard, the absence of agreed mechanisms for measuring the quality of social responsiveness undermines the very efforts to enhance the social responsiveness of the university. It is recognized that within this challenge is the idea that current university performativity regimes are prone to measuring such outputs in the form of its quantity as well as quality in overall contribution to the university's academic credibility. Nevertheless, social responsiveness initiatives are difficult to measure in terms of their contribution to what universities are for. This difficulty creates a further dilemma when the same is used as springboard for the development of human capabilities.

On the other hand, the University of Johannesburg's social responsiveness project is, among other things, taking shape in a project looking at the socially embedded university through notions of access, equity and social justice

in Higher Education. At its inception the project acknowledged that the university in South Africa has undergone considerable changes that largely remain unexplored and under-researched mainly after the end of apartheid. Cross and Divala (2014,1) argue that the need to address socio-economic imbalances, increasing access alongside economic growth and the need for adequate student development enabling greater participation in society are all tied together in conceptions of equity and social justice. Such a positioning requires understanding of what we actually mean when we say the social responsiveness project is essentially a project on social justice. What conceptions of social justice are at stake and whose social justice? In the following section, I will provide a brief overview of some conceptions of social justice. In doing this, I wish to propose what may be the probable and preferred conception of social justice the conception of a socially embedded university is using and why the conception despite its novelty in contemporary scholarship can be the cause of more problems given the African condition.

Understandings the framework of social justice in the context of higher education in Africa

Sen (2009, 5) in appraising John Rawls's (1971) theory of Justice as Fairness argues that:

> The requirements of a theory of justice include bringing reason into play in the diagnosis of justice and injustice. Over hundreds of years, writers on justice in different parts of the world have attempted to provide the intellectual basis for moving from a general sense of injustice to particular reasoned diagnoses of injustice, and from there to the analyses of ways of advancing justice.

Debates on social justice tend to take various angles, from understanding the roots of justice in society to what a justice system of life would constitute and many more. Some of the more recent debates have moved from a focus on simply understanding justice in terms of entitlement (Nozick, 1974), to an understanding that what is really at stake is the (equal) distribution of social goods, primary or otherwise (Rawls, 1971). The widening gap between those who have and those who do not have cannot be said to have been resolved by the increasing body of literature on what a socially justice society looks like or should constitute. Some modern critics, as well as contributors, in search of more viable options, have suggested that it is not so much about the systems we put in place but the kinds of capabilities we develop in people (Sen 1999, 2009; Satz, 2007, and many more). As such, the development of human capabilities has squarely been placed at the doorsteps of what a just modern education system should be and do.

Due to the vast areas covered by the debates on social justice, this paper will only bring to scrutiny what I consider to be the most recent two directions in understanding social justice. The most important question that will be applied across the debate is on what the different angles in understanding social justice would mean in the context of the African higher education systems, specifically on whether these understanding would help in developing the skills or human capabilities intimated to when we discussed the nature and purpose of higher

education on the African continent, especially the idea of a socially responsive university. Towards the end, I will pay more attention on whether, in view of Africa's sparse and differentiated developmental patterns, the capabilities approach as recently re-articulated by Sen (2009) is sufficient for the task or on whether this conception has inherent weaknesses when applied to the African context. The paper will do this by engaging into this debate contemporary understandings of a 'socially responsive university' and what this may mean for many universities on the continent in view of the capabilities approach.

A Rawlsian approach to understanding the nature and function of the university in Africa and what it means to be socially responsive

John Rawls's work, A Theory of Justice (1971), has been celebrated across continents and in recent decades as a seminal work in understanding the nature and function of the idea of social justice. John Rawls's theory of justice also referred to as "justice as fairness" was produced in reaction to the inadequacies of a majoritan understanding of justice that is essentially rooted in utilitarian thinking. In utilitarianism, what is good, just and fair was understood as that which can generate the maximum amount of happiness and pleasure for the greatest number of people possible in a particular context. In this regard, what is justice is that which can resonate with the approval of a majority of people in a constituency. To a larger extent, despite John Rawls's rebuttal of the logic behind the theory, contemporary processes especially most parliamentary processes on the African continent and elsewhere still think that this is the most honourable format of developing and sustain justice institutions, processes and people.

As part of a defense of the position above, people resort to the idea that it is easy to calculate or envisage the benefits of a process or policy and depending on whether the larger constituency would be comfortable with it, such a process or policy would be endorsed as fair. The other defense people bring forward is that human beings are different and continually depict differences in their preferences and as such no other mechanism has the dynamic of making sure things are done except if we considered the majority of stakeholders and that their approval of the policy or process would ipso facto mean the legitimacy of the policy or process as just in the management of public affairs.

In revolting to this formula of justice, Rawls (1971) introduced a theory of justice anchored on two major principles that are reciprocal to each other. The first principle is the principle of liberty in which Rawls articulates that each person should have an equal or the same extensive scheme of basic rights as any other person. The scheme of rights extended to each person in the same way is that affecting the basis of the dignity of the person such as social and economic rights as well as the right to life and others. Nevertheless, Rawls was much more concerned with the just arrangements in the social and economic institutions. Rawls's formulation sharply goes

against norms of capitalist exploitation exemplified in works such as that of Robert Nozick (1974) whose theory of entitlement maintains the right of acquisition for individuals and that distribution thereafter should merely be a gesture of good will from the individual acquiring the good or the property. This formula of arriving at justice would obviously end in society where the mighty get it all, which Rawls opposes.

The second principle in Rawls's double bind, as it may be called, is the principle of difference. Central in this principle is the recognition from Rawls that even if an equal extensive scheme of basic primary goods is distributed to everyone such a distribution would not translate to the creation of justice institutions although it is a starting point. In other words, because of different starting points in life, an equal extensive scheme of redistribution will still result in an unequal society. This is why the second principle advocates that under the principle of justice as fairness, unequal distribution of basic primary goods is allowed if it is to the advantage of the least advantaged or if that unequal distribution is linked to office and qualification.

There are a number of issues that arise from Rawls's framework of justice when this theory is applied to the operations of higher education system on the continent. One of these is the idea that as much as universities take in students on the basis of merit, that what is merit may differ depending on the circumstances of the individuals particularly where structural issues such as gender, rurality, lack of adequate school resources, etc. The extent to which these structural issues affect individual's chances of entering university would have to be taken seriously in applying the difference principle as Rawls proposes. In terms of redistributive mechanisms that a state may devise, Rawls suggests that the least advantaged of society are the people whose should benefit more. The transformation of higher education and policies surrounding access to higher education in South Africa and many African countries, are largely framed on the basis of Rawls's principles of justice as fairness. Rawls's formulation further implies that what we call a just arrangement is not dependent on the endorsement or approval of a majority of the constituency but that the resource in question is fundamental or basic to human livelihood and that its equal distribution respects the constitution of being human. This principle is applied irrespective of whether the basic good in question is beneficial only to a few members of society.

In view of understanding justice as fairness in the context of developing a socially responsive university, Rawls manages to put the basic principles in place. At least, university structures and process should be seen to put fair principles in practice and not only those that are seen to benefit the majority or constituencies of the ruling party ideologies. But once this is done, once principles of fair distribution are in place, does that translate to justice outcomes of the largely differentiated and marginalized African population in human development?

Rawls's framework of justice as fairness is not immune from criticism and one of the central criticisms that has been levelled against the theory is its perception that once the basic primary goods are equally distributed that would constitute a just society. Cohen (1993), Satz (2007), Anderson (1999) and others, while appreciating the merits of justice as fair in Rawls's terms, have become weary of the incomplete job the theory would do in

establishing justice institutions and enabling the development of human capabilities. While it is clear that Rawls was far much more concerned with equalizing the different starting points that ultimately make the benefits of social and economic institutions unfair to those with less privileged starting points, the theory did not sufficiently take into account what happens once people have been given an equal starting point. In other words, the theory was oblivious to the fact that even if we may have the same starting point, one of us could be carrying baggage from past history or background that makes effective use of the equal basic resources untenable. As an extension of this argument, most of the critics of the original theory of justice as fairness have tended to focus much on a capabilities approach as a remedy to the shortfalls in Rawls's original position of justice as fairness. Satz (2007) for example, argues that the only way we would ensure a fair system in the education of future generations is when the output capabilities of individuals at the end of their university education are such that these individuals can equally compete in the social economic sectors of life. But that envisaged equal capacity to compete is on the basis of them having acquired equal capabilities in the process of their education. Serious attention to the capabilities approach is also linked to Amartya Sen's works, one of which I will focus below.

The capabilities approach: Sen's revisionist take on Justice as fairness

Amartya Sen starts of additions to Justice as Fairness by acknowledging that "the need for an accomplishment-based understanding of justice is linked with the argument that justice cannot be indifferent to the lives that people can actually live" (Sen, 2009, 18). In Sen's understanding, the equal extensive scheme of liberties, the freedoms are centrally connected with the capabilities because the

> freedom to choose gives us the opportunity to decide what we should do" and that with that opportunity comes the responsibility for what we do … Since a capability is the power to do something, the accountability that emanates from that ability – that power – is a part of the capability perspective, and this can make room for demands of duty (Sen, 2009, 19).

The kinds of freedoms that Sen is concerned with are not only the ones concerned with the kind of lives people manage to lead, but also in the freedoms that people actually have to choose between different styles and ways of living (2009, 227). In this regard, Sen's connection between freedom and capabilities finds its meaning mainly through the application of substantive positive freedom.

Sen's overall argument is that resources, income or wealth are inadequate ways of judging advantage. In understanding the nature and purpose of social institutions, Sen argues that people do not outrightly seek wealth as a good in itself and neither is wealth a good indicator of the good life, but that this good is sought after for something else in life; that it is an enabling force to the overall capabilities that people will manage to enjoy in life (Sen, 2009, 253). In Sen's understanding, "the capability approach gives a central role to a person's actual ability to do the different things that she values doing. The capability approach focuses on human lives, and not just on

the resources people have, in the form of owning – or having use of – objects of convenience that a person may possess" (2009, 253). Despite the universality of human file, the human condition is pretty much contextual. Does the capability approach still make sense in cases where the human condition is exposed to limited and scanty resources for life? I examine some of these ideas below.

Possible limitations of the capability approach to understanding university social responsiveness

Africa has some of the poorest countries in the universe. In terms of university annual rankings, a majority of African universities form the tier at the end of the world university rankings. In their functions, most African governments have actually relegated the contribution of the university to national development due to donor funding dictations that prioritise primary and secondary education over tertiary education. In cases where some mention of university education is acknowledged it mainly comes in the form of advocating for skills development for national development (Kruss, et al. 2012). Nevertheless, the capability approach in its entirety can be considered as holding a lot of promise on how universities across the African continent can begin to re-imagine their ideals and practices of social responsiveness in foregrounding social justice practices and enabling the creation of a future generation appropriate for the changing challenges of society.

The application of the capability approach within the African university provides for avenues to foreground adequate human development, agency, wellbeing and freedom. The approach "offers a compelling and assertive counterweight to dominant neoliberal human capital interpretations of education as only for economic productivity and employment and asks instead about what education enables us to do and to be" (Walker, 2006, 164). But just as much as the capability approach places emphasis on the development of human capabilities, it also makes the human capabilities the very basis for evaluations so that our evidence for what is to count as justice is really the evidence on which capabilities have been developed and the extent to which they have been developed.

But if the above thinking obtains, a number of questions can be raised in view of the circumstances within which higher education is meant to operate on the African continent. If the development of capabilities is a more meaningful way of creating a fair and justice society, is it possible to have an equal endowment of capabilities across peoples and sections of society? However, Africa's economic landscape is skewed and there are huge gaps between the rich the poor and this raises serious questions on whether the capabilities approach given that development of capabilities is intricately linked to the availability and suitability of available resources for the development of capabilities. For, example, Sen (1999, 2009) rightly considers the development of capabilities is an actualization of the positive or substantive freedoms that people have. On the African continent, the level of political conflict and socio-economic turmoil raises questions on whether citizens can manage to uphold and promote the very basics of human rights even if these are enshrined in different constitutional arrangements. In view of these realities isn't the capability approach, considered as freedom as development from Sen's (1999)

position simply asking too much and assuming too much of systems that can barely provide for the very basics of human existence? Isn't the capability approach merely a luxury given these challenging African realities, such as poverty, hunger, disease and political strife?

Melanie Walker's (2006, 164-166) understanding and re-iterations of the capability approach also centers on the development of persons over and above a pre-occupation on "economic wealth and income as an indicator of a country's quality of life, and against human capital arguments for judging education only by its success in preparing participants for employment" (2006, 165). The approach enables people to develop in themselves a functioning that enables one to make normative evaluations about equality and well-being. But what if the very basis of equality and well-being is fundamentally challenged by the forms of one's existence? Will the capability approach to social justice still provide sufficient and compelling case? If we go by Walker's (2006) ideas that focusing on human capabilities enables our evaluations of the evidence for what is to count as justice in our capabilities, isn't social justice skewed, that it is only the justice of those capable of experiencing and affording to put into practice substantive freedoms? Walker (2006, 164) confirms this dilemma when in quoting Sen (1992, p. 81), she explains that: "in the capability- based assessment of justice, individual claims are not to be assessed in terms of the resources or primary goods the persons respectively hold, but by the *freedoms they actually enjoy to choose the lives that they have reason to value'* (emphasis mine).

Lastly, one can conclude from the above defense that it is quite evident that the promotion of social justice through a capabilities approach is essentially a resources argument, which is in many respects challenging for a number of deprived contexts including those on the African continent. This is the case because it is in available resources that opportunities for developing human capabilities are found. Minus adequate resource for human well-being, a life of meeting basic daily needs is ipso facto a life where capabilities are only developed by default.

Concluding comments

In this essay, I have moved the notion that while social justice issues are age old issues in society, meanings of and approaches to social justice have taken different routes and that pre-occupations on social justice have virtually permeated other crucial sectors of society including higher education. The identity, nature and functions of the university have also contributed in shaping the discourse on social justice. In an attempt to bring different conceptions of social justice to bear, the paper finally settled on the capability approach and its scrutiny thereof. While the capability approach is acknowledged by many as a better version in understanding the nature of social justice and how it can be applied to educational contexts on the African continent, the argument mounted in this paper fundamentally challenges the idea of capabilities. The approach has a number of limitations if it is wholesale adopted to become the anchor of what it means to develop a socially responsive university. The main

contestation in the paper centred on Sen's (1999, 2009) and Melanie's (2006) espousal of the theory. This contestation has taking into account the African realities and what is central to the development of capabilities - a life of adequate choices. The capabilities approach at best assumes adequate resources thereby making this form of human development a privilege for adequately resourced contexts.

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Challenging Disparities in Teacher Education in Canada:
The Impact of the Association of Canadian Deans of Education (ACDE) Accords

David Mandzuk
University of Manitoba
CANADA

Abstract: *This article provides an overview of the agreements or "accords" that were collectively written and ratified by the Association of Canadian Deans of Education (ACDE) over the past 10 years. The accords range in focus from Initial Teacher Education and Indigenous Teacher Education to Research in Education and most recently, Internationalization in Education. Given that there are over 60 very disparate post-secondary institutions offering teacher education programs in Canada, having deans actually agree on a set of basic principles in these key areas was a major accomplishment indeed. This article will provide readers with a background on teacher education in Canada, an overview of ACDE and the six accords, a window into how the accords are being used by deans to influence policy and challenge current practice, and finally, a brief discussion of the implications of the accords across international contexts.*

Introduction

Much has been written about the challenges of preparing teachers for the changing realities and increasing demands of today's classrooms around the world (Carter, 2015; Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2006; Fullan, 2001; Hargreaves, 1994; Lampert, 1986; Lieberman & Miller, 1990) and those same challenges exist in Canada (Beck & Kosnik, 2006: Crocker & Dibbon, 2008; Davies & Guppy, 2014; Hasinoff & Mandzuk, 2015; Mandzuk & Hasinoff, 2010), a country that is respected around the globe but sometimes feels that it lurks in the shadows of the U.S., its more populous and more powerful neighbour to the south. The purpose of this paper is to highlight some of the unique features of the Canadian educational context and in particular, to examine the role that the Association of Canadian Deans of Education (ACDE) has come to play in the last ten years in providing leadership and a common vision on matters related to teacher education and education more broadly. More specifically, this paper will focus on the six accords that ACDE has ratified since 2005, the ways in which deans are actually using the accords to challenge disparities within their own faculties, across their respective universities, and with various stakeholder groups, and finally, the implications of these documents for teacher education across international contexts. Before we examine the accords, a brief overview of teacher education in Canada is in order.

An Overview of Teacher Education in Canada

Being a relatively "young" country[1], teacher education in Canada has only been in existence, in any formal sense, for about a century and it wasn't until the post-World War II era that it was agreed that all teachers should have degree and that their preparation should take place in a university setting (Gilliss, Froese-Germain, Mcgahey, & Riel, 2013). It is a vast country geographically, second in size only to Russia, it has two official languages, English and French (although it is also committed to multiculturalism[2], and it is comprised of 10 provinces and

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[1] Canada did not become an independent nation until 1867.

[2] Multiculturalism is generally defined as the belief that all cultures are equally valuable and have the same right to be encouraged and accepted in society. The *Canadian Multiculturalism Act* of 1988 has been federal government policy for over 25 years.

three territories.[3] Contrary to what is found in the U.S. and many other countries, there is no national office of education which means that any matters related to education, post-secondary education, and more germane to this paper, *teacher education,* are the jurisdiction of the provinces and territories. This decentralized approach to education dates back to 1867 and was one of three provisions enshrined in the Constitution Act, previously known as the British North America Act (Davies & Guppy, 2014). What should be of particular interest to the reader is that to this day, each province and territory[4] has the right to "customize", at least to a certain degree, its curriculum and teacher education requirements for their particular contexts. Therefore, while there are certainly similarities in how teacher education programs are organized (for example, they all have foundations courses, methods courses, and at least a few practicum experiences), the number of courses students must take and the length of required practicum do vary from province to province. In addition, accrediting bodies exist in some provinces like Ontario and British Columbia but in others, departments within the provincial governments are responsible for teacher certification.[5]

Provincial and territorial jurisdictions also have some unique requirements. For example, in provinces like Manitoba and Saskatchewan, where there is a significant Aboriginal population, there is a required Aboriginal Education course while in Nova Scotia, there is an emphasis on the unique history of African-Canadians in that province[6]. Although on the one hand, these kinds of provisions are important in meeting *local* needs, they can also be problematic if there are too many of them and they start to fragment how teacher education is delivered across the 60 plus teacher education programs across the country. If one also considers that there are both concurrent and consecutive[7] teacher education programs in both official languages offered across six time zones and soon in select Indigenous languages, and if one keeps in mind that there are also programs offered by off-shore institutions like Charles Sturt University and faith-based institutions like Trinity Western University, one can begin to understand some of the challenges in offering a *common* experience to those who wish to become

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[3] The Canadian provinces (working generally from east to west) are: Newfoundland and Labrador, Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. The three territories are: Nunuvut, the North-West Territories and the Yukon.

[4] In most cases, Northern colleges in the three territories partner with more established universities in Canada's larger cities to the south to be able to deliver teacher education programs in isolated communities that are sparsely populated.

[5] In 1987 the BC government, over the objections of the BC Teachers' Federation, introduced legislation creating a College of Teachers, with power to certify, discipline and otherwise regulate teachers. In 1995, similar legislation was proposed in Ontario. The Ontario College of Teachers was established in 1997. The BC College of Teachers has since been dissolved and replaced by the Teacher Regulation Branch in the BC Ministry of Education.

[6] Increasingly, faculties of education across Canada or their respective Ministries of Education are mandating a compulsory Aboriginal education course to ensure that all students have at least some background on Aboriginal history and an understanding of some of the major issues facing Aboriginal people in Canada today.
Many African-Canadians who live in Nova Scotia (and to a lesser extent other Atlantic Provinces) are descendants of slaves who came to Canada via the Underground Railroad. For more information, see:
http://www.blackhistorycanada.ca/events.php?themeid=21&id=6

[7] In Canada, "concurrent" programs imply that students work on both degrees at the same time while "consecutive" means that students complete an Education degree after first completing a first degree.

teachers in Canada. This is where deans of education in Canada have played and continue to play an important role.

ACDE and Teacher Education in Canada

Although at the current time, ACDE is quite an active organization liaising with the Council of Ministers of Education (CMEC), the Canadian Education Association (CEA), teachers' federations across Canada, and other special interest associations affiliated with the Canadian Society for the Study of Education (CSSE)[8] , its predecessor, CADE (Canadian Deans of Education) was primarily a social organization, with fairly low levels of participation. Several of the presidents tried to engage in association-wide activities with a broader scope; however, each of these met with limited success. As recently as 2002, a small number of deans attended the annual fall meetings, and almost none attended the annual CSSE Conference held each spring. In those early says, CADE had no constitution or mission statement, and some would argue, no clear purpose.

When Dr. Rob Tierney became the dean of the Faculty of Education at the University of British Columbia and Dr. John Wiens became dean of the Faculty of Education at the University of Manitoba in the early 2000's, they and a few of their colleagues believed that there was room for ACDE to play a greater role in providing leadership on matters related to education, in general, and teacher education in particular. In 2003-2004, Dr. Tierney, working with Apple Canada, organized a summit for deans, held in Vancouver, British Columbia that focused on wireless technologies in learning. Surprisingly, close to 40 deans attended and the relationships that began to develop at that time seemed to lay the foundations for a more active association.

From that point on, the deans began to think about how to gain some attention from government and other organizations that were making decisions about education in the country. The most pressing issues in those early days were: teacher mobility across provincial boundaries, Aboriginal education, and what was generally perceived as an attack on university-based teacher education and on the teaching profession in general (J. Wiens, personal communication, January 29, 2015). In the United Kingdom at that time, there was a movement to shift teacher education into public schools rather than universities using more of an apprenticeship model[9]. However, the Canadian deans were opposed to such a trend and wanted to speak proactively and publicly in support of university and research-based teacher education. Equally, they wished to speak against offshore providers such as Charles Sturt University offering teacher education in Canada so the idea of an Accord on Initial Teacher Education began to take root.

Those in favour of working towards the General Accord clearly wanted it to be a nationally endorsed document, with French and English colleagues supporting and signing it. In 2005, many deans who had not yet been a part of

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[8] According to its website, the Canadian Society for the Study of Education, founded in 1972, is the largest organization of professors, students, researchers and practitioners in education in Canada. CSSE is the major national voice for those who create educational knowledge, prepare teachers and educational leaders, and apply research in the schools, classrooms and institutions of Canada. See http://www.csse-scee.ca/csse/. CSSE is also the umbrella organization for 11 constituent associations including ACDE, the Canadian Association of Foundations of Education (CAFE) and the Canadian Educational Researchers' Association (CERA).

[9] At the time of writing this paper, this is still the case in the U.K. For a current analysis of the state of teacher education in the U.K., see the Carter Review of Initial Teacher Training (ITT) at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/399957/Carter_Review.pdf

the discussions attended the CSSE conference in order to learn out more about it. This meeting was a bit of a watershed for the Association as many of those deans (a large number from the province of Ontario, Canada's most populous province) were initially quite resistant to the idea of a national deans' organization of any kind, and were particularly opposed to a national group attempting to speak for all Canadian deans. After long hours of discussion and debate, those individuals came to understand that the intent of the Accord was not to be prescriptive as some of them had feared (for example, no one was trying to tell individual faculties how to run their programs) but to give voice to a group that had previously been rather silent on the national stage. Over time, almost all deans have come to see that ACDE does have a purpose and a fundamental part of that purpose is for deans to be "public intellectuals" with a responsibility to speak out on educational matters (K. Ellsworth, personal communication, January 7, 2015). In the next section of this paper, I will focus on the six accords, in turn, providing more of a window into each of them and their importance within the Canadian educational context.

An Overview of the ACDE Accords

General Accord

The ACDE General Accord [10] was the first of six accords that were drafted and while it may be the broadest in scope, it was probably the most challenging to ratify as it signalled the beginning of a new era in Canada when the deans of education moved beyond the disparities between their respective institutions and the territorial stance that they had sometimes assumed, to a more collaborative stance that would position members of the association as authorities on matters of education. In its opening paragraph, the accord states that it represents "an agreement to work together in advancing education in Canada" and that those signing on "become part of a network with shared commitments and values relative to education and are contributing to [a] national, public discourse on the importance of public education in developing and sustaining a civil society" (ACDE General Accord, 2006a, p. 1). The accord also talks about how consensus was built with input from representatives of both large and small institutions from all regions of the country and from institutions using both official languages.[11] In addressing the Canadian context, the accord dismisses critics who earlier on saw the drafting of accords as an attempt to standardize teacher education across the country. It states that, "ACDE has no wish to impose a system of national standards that would erode the important local and regional characteristics of initial teacher education…and we must resist all efforts to homogenize or standardize education" (ACDE General Accord, 2006a, p. 3). So while there may have been such efforts elsewhere as in the U.K. and the U.S., there was no appetite at all to move in the same direction in Canada in those years and that trend continues to the present.

Accord on Initial Teacher Education

The Accord on Initial Teacher Education followed quickly on the heels of the General Accord and went beyond the "normative principles" emphasized in the first document. First and foremost, it stresses that Canadian society is increasingly diverse and that "Canada's teachers must be equipped to prepare all students for their roles in this diverse world" (ACDE Accord on Initial Teacher Education, 2006b, p. 1). The Accord affirms that all initial

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[10] For more information on the ACDE General Accord, see: http://www.csse-scee.ca/docs/acde/acde_generalaccord_en.pdf

[11] The fact that both English and French-language institutions signed on to the first accord was an achievement unto itself given that to this day, there is still some resistance on the part of French-language institutions to playing a greater role within ACDE.

teacher education programs "should involve the development of situated practical knowledge, pedagogical knowledge, and academic, content knowledge as well as an introduction to research and scholarship in education" (ACDE Accord on Initial Teacher Education, 2006b, p. 2). It also acknowledges that becoming a teacher is a developmental process with both an intellectual and a practical component; therefore, teacher education programs should be situated within a university or university-college setting "in order to allow for the meaningful interaction of student teachers and research-oriented faculty and to promote the interconnected nature of theory, research, and practice in the profession" (ACDE Accord on Initial Teacher Education, 2006b, p. 2). The Accord goes on to lay out a series of 12 principles which include: 1) the notion of "teachers as professionals", 2) the importance of teachers assuming social and political leadership roles, and 3) the need for teachers to be responsive and responsible to learners, schools, colleagues, and communities. In addition, the principles remind teacher educators that initial teacher education programs should: 1) engage beginning teachers with the politics of identity and difference, 2) encourage teacher candidates to be research-oriented and honour multiple ways of knowing, and 3) provide teacher candidates with opportunities to examine their own practice (ACDE Accord on Initial Teacher Education, 2006b, p. 4). As I will discuss later in the paper, this document has been particularly helpful in reviewing and revising current teacher education programs across the country and it has provided a foundation upon which new programs have since been built.[12]

Accord on Indigenous Education

The Accord on Indigenous Education that was ratified in 2010 was widely perceived as being one of the most important of all of the accords given the long legacy of colonization in Canada, the increasing Aboriginal youth population, and the social and economic ills that many Aboriginal people face every day. The Accord begins by clarifying that while the word "Indigenous" is the preferred term for the Accord, the terms "Aboriginal", "First Nations", "Indian", "Metis" and "Inuit" are used throughout the document to highlight the continually evolving nature of the Indigenous context in Canada and for that matter, around the world. The Accord states outright that transformational change is needed in Indigenous education which means "rejecting the status quo", moving beyond the "closing the gap discourse", and contributing to the well-being of Indigenous peoples and their communities" (ACDE Accord on Indigenous Education, 2010a, p. 2). The Accord goes on to state that "the processes of colonization have either outlawed or suppressed Indigenous knowledge systems[13], especially language and culture and have contributed significantly to low levels of educational attainment and high rates of social issues such as suicide, incarceration, unemployment and family or community separation" (ACDE Accord on Indigenous Education, 2009, p. 2). The four principles upon which the Accord is based are: 1) "a socially just society", 2) a "respectful, collaborative, and consultative process with Indigenous knowledge holders", 3) the promotion of multiple partnerships, and 4) a valuing of the diversity of Indigenous knowledges and ways of knowing and learning (Accord on Indigenous Education, 2010a, p. 5). The Accord concludes with an overview of nine overarching goals which include: 1) respectful and inclusive curricula, 2) culturally responsive pedagogies,

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[12] For more information on the ACDE Accord on Initial Teacher Education, see: http://www.csse-scee.ca/docs/acde/acde_teachereducationaccord_en.pdf

[13] During the first part and middle parts of last century, many Indigenous children were taken away from their families to attend residential schools. The general result has been a generation of Indigenous people who no longer speak their language or are attached to their culture. Because of this tragic chapter in Canada's history, the country is currently in the process of coming to terms with the long-lasting implications of residential schools through the Truth and Reconciliation Process. See: http://en.wikipedia.org/wiki/Indian_Residential_Schools_Truth_and_Reconciliation_Commission

3) affirming and revitalizing Indigenous languages, 4) Indigenous education leadership, and 5) culturally respectful Indigenous research[14]. As I will discuss later in the paper, this accord has become a touchstone for many important conversations across the country about Indigenous education and has been cited by both the Council of Ministers of Education (CMEC) and the Assembly of First Nations (AFM).

Accord on Research in Education

Efforts to start working on the Accord on Research in Education began in June, 2007 and were borne out of an increasing concern about national and international trends to define, evaluate and judge the quality of research and make decisions about which research "contributed to the broader societal good" (ACDE Accord on Research in Education, 2010b, p. 2). At a time when new forms of research were being developed, this rather narrow conception of educational research motivated deans of education to take a stand on ensuring "the development and application of robust, inclusive frameworks for thinking about the nature, scope, value, and impact of research in education" (p. 2). After laying out the context and goals for the accord, the next section examines the terrain of educational research exploring the diverse ways that educational researchers explore questions related to K-12 schooling, post-secondary education, and learning across the lifespan. This section also examines the various methodologies that educational researchers use on their own or in collaboration with others either within a single disciplinary perspective or across disciplines. It is clear that the signatories to the accord were taking a stand on the importance of valuing a diverse range of research methodologies for different purposes at a time when the lenses used by funding agencies, universities and other educational stakeholders seemed to be narrowing and of course, the same trend continues to this day. After three years of consultations, and the critique of successive drafts, in 2010, the signatories to the Accord[15] agreed to nine principles which included the following: 1) that "educational research is responsible both to the scholarly community and to a complex network of social, political, and cultural organizations and communities"; 2) that "multiple forms of research must be applied including discipline-based, community-based, and interdisciplinary forms of research"; 3) that respectful dialogue and multiple interpretations are both desirable and necessary; 4) that the importance of value of educational research must be judged in ways that reflect an understanding of impact, ongoing engagement, uses, and outcomes; and 5) that ethical dimensions are foundational to any consideration of the quality or integrity of any educational research (ACDE Accord on Research in Education, 2010b, pp. 3-4).

Accord on Early Learning and Early Childhood Education

As with the accords that preceded it, the Accord on Early Learning and Early Childhood Education was initiated due to rising concerns that the deans of education had not been involved enough in the ongoing debate about the importance of early learning and early childhood education in Canada. It was also intended to acknowledge the disparities that exist between children from different socio-economic backgrounds and the effects that these differences have on their academic success and life chances (see Janus & Duku, 2007; Lareau, 2011). In the opening section, the context and purpose of the accord are stated and a document released at about the same time by the Council of Ministers of Education (CMEC) is cited endorsing "a sustainable pedagogy for the future that

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[14] For more information on the ACDE Accord on Indigenous Education, see: http://www.csse-scee.ca/docs/acde/acde_teachereducationaccord_en.pdf

[15] For more detail on the ACDE Accord on Research in Education, see: http://www.csse-scee.ca/docs/acde/Research_Accord_Background.pdf

does not separate play from learning, but [on the contrary] brings them together to promote creativity in future generations" (CMEC, 2012, p. 1). The accord also speaks to the split system of care that exists in many countries in the world and in many provinces of Canada where childcare and early years learning are not integrated in any systematic way; having acknowledged that this is often the norm, the Accord does note that many jurisdictions in Canada are moving towards a more integrated approach in this regard. The Accord also notes that discussion on early learning has expanded to include discussions about "the nature of childhood, the quality of early childhood care and learning, how to measure such quality and how to measure outcomes for children" (ACDE Accord on Early Learning and Early Childhood Education, 2012, p. 5). This Accord[16] concludes with a set of 12 principles which, among others, affirm that: 1) early learning education should focus on the whole child; 2) children are capable and ready to learn and should be viewed as full of potential; 3) adults are ethically responsible for ensuring the health and well-being of children; 4) early learning should take into account a wide range of philosophical, pedagogical, and theoretical approaches; and 5) policy and practice in early learning should be informed by current educational research, knowledge, and an appreciation of this field as a critical component of public education (ACDE Accord on Early Learning and Early Childhood Education, 2012, pp. 6-8).

Accord on the Internationalization of Education

Consistent with the processes used for the previous accords, the Accord on the Internationalization of Education was the result of a very broad consultative process over a number of years and was borne out of three broad concerns about the rapid increase in internationalization efforts in education. First, "increasing international mobility has facilitated the rapid internationalization of higher education, straining the capacity of institutions to respond to service demands that are socially accountable" (ACDE Accord on the Internationalization of Education, 2013, p. 2). Second, "local and global forces are challenging educational institutions to respond to increasing levels of complexity, uncertainty, diversity, and inequality in Canada and internationally" (ACDE Accord on the Internationalization of Education, 2013, p. 2). Third, "current economic imperatives of globalization have intensified the drive towards profit-seeking, standardizing, and potentially exploitative internationalization activities" (ACDE Accord on the Internationalization of Education, 2013, p. 2). The next section of the Accord then provides an overview of the potential benefits of internationalization policies and practices which include: 1) the potential for enriching and enhancing educational experiences for all students; 2) the potential for increased intercultural understanding and dialogue; 3) the potential for building partnerships based on reciprocity, social accountability and sustainability; 4) the potential for integrating learning throughout curricula; and 5) the potential for system change (ACDE Accord on the Internationalization of Education, 2013, p. 3). However appealing these benefits may seem, the Accord also draws our attention to a number of potential risks such as: 1) exploitative practices which may emerge from an exclusive focus on profit maximization; 2) systemic exclusion where, for example, only advantaged students are able to benefit from international experiences; 3) personal and social disruption; 4) activities that may be perceived as (neo)colonial; and 5) issues related to personal security rising from international experiences (Accord on the Internationalization of Education, 2013, pp. 3-4).

This discussion of the benefits and risks then leads to a section on the implications for practice which supports a call for principled action in four main areas: 1) promoting inclusive experiences of mobility based on sustainable initiatives; 2) promoting ethical teaching and research partnerships based on equity and reciprocity; 3) promoting the internationalization of curriculum that makes room for intellectual debate about alternative futures and

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[16] For more information on the ACDE Accord on Early Learning and Early Childhood Education, see: http://www.csse-scee.ca/docs/acde/Accord_Early_Learning_En.pdf

prepares students to address complex local and global problems; and 4) establishing ethically and socially accountable internationalization activities that are integral rather than peripheral to an institution's core activities.[17]

Now that I have provided the reader with an overview of the six accords, it is time to learn about how they have actually been put into action by informing educational debate and policy development and by challenging the disparities that currently exist across the educational landscape in Canada.

The ACDE Accords in Action

Almost ten years after the first accord was ratified, we are learning how current deans (many of whom were involved in the writing of at least some of the accords) are actually trying to act on them in their daily work[18]. In this section, I will discuss how deans use the accords: 1) within their own faculties, 2) with other deans and senior administrators of their universities, and 3) with external partner organizations such as government, teachers' federations, and representatives of the various school districts with which they work.

First, from the feedback that has been submitted, it is clear that the vast majority of deans are using the accords to raise awareness about the issues with their own faculties. This seems to be the case particularly with the Accord on Initial Teacher Education, the Accord on Indigenous Education, and the Accord on Early Learning and Early Childhood Education In each case, deans have reported that they have used the accords as foundational documents for informing such processes as undergraduate and graduate program reviews as well as the development of new programs and courses as is the case with the Accord on Indigenous Education. As each faculty of education across Canada comes to grip with the discouraging statistics on Aboriginal student success, many deans have decided that it is high time that things change so the ratification of the accord was indeed timely as it has sparked new enthusiasm for change. A number of deans have also reported that the Indigenous Education Accord has influenced the development of courses, Aboriginal teacher education options, and even Faculty strategic plans that have placed a greater emphasis on Aboriginal student success.

Second, based on the feedback submitted by deans of education in Canada, it is clear that the accords are also being used in their interactions with other deans and senior administrators of their universities as they try to influence policy development at the university level. According to what we have heard, two accords, the Accord on Research in Education and the Accord on Internationalization in Education, have been of particular interest across university campuses. The Accord on Research in Education has been used to try to influence the thinking of people who sit on research ethics boards, who often come from other disciplines, and are sometimes perceived by researchers in faculties of education as unappreciative of the value and quality of educational research; this is particularly the case with participatory action research and research involving students as subjects. The Accord on Internationalization, on the other hand, has been useful in informing universities and the development of their strategic plans, particularly as they relate to their ever-increasing international activities. Deans have told us that the Accord on Internationalization serves as a reminder of the importance of reciprocity in activities such as

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[17] For more detail on the ACDE Accord on Internationalization in Education, see: http://www.csse-scee.ca/docs/acde/Accord_Internationalization_EN.pdf

[18] With the assistance of ACDE Executive Director, Katy Ellsworth, the current president of ACDE, Dr. Blye Frank, Dean of Education at the University of British Columbia has been seeking feedback from other deans across the country on how the accords are being used and it is this feedback as well as my own experiences and conversations with other deans that have informed the writing of this section.

student exchanges with other universities, service learning programs with NGOs and the communities they serve, and international practicum agreements with international schools. More generally, deans have also told us that the Accord serves as a constant reminder of both the benefits and the risks of international engagement and the importance of attending to security concerns when sending faculty and students abroad.

Finally, deans of education in Canada have told us that they use the accords in their interactions with external partner organizations such as the Council of Ministers of Education, teachers' federations, and representatives of local school districts. In this kind of external work, the two accords that seem to be of particular interest are the Accord on Initial Teacher Education and the Accord on Indigenous Education. The Accord on Initial Teacher Education, for instance, is used by many deans as a springboard for conversations with external partners about improving the quality of pre-service teacher education programs and more specifically, the practicum component of those programs. The Accord on Indigenous Education is proving to be very helpful in discussions involving governments, school districts and universities across Canada as they attempt to avoid the mistakes of the past and work collectively to improve Aboriginal student success both at the K-12 and post-secondary levels. Although there has been some progress in recent years (Davies & Guppy, 2014, p. 154), we still have a long way to go in Canada before Aboriginal student participation and achievement rates come close to their non-Indigenous counterparts. Lastly, deans have reported that the Accord on Early Learning and Early Childhood Education serves as a foundational document for these same parties to talk about how we can improve the quality of the early learning experiences of disadvantaged children, how we better prepare early childhood specialists, and how we might more effectively bridge between the world of childcare and the early years grades in the K-12 system.

Implications of the ACDE Accords across International Contexts

Although the ACDE accords have been written for a Canadian context, I am convinced that there are also implications for the accords across international contexts. One implication is that if accords like these can be developed in a country as vast and diverse as Canada, it should be even easier to develop similar agreements in countries that are geographically smaller, less diverse, and have far more governmental oversight on matters related to education and teacher education. A second implication is the important message that is sent when educational leaders from diverse institutions are able to put their differences aside and through an iterative process, agree on a set of guiding principles designed to provide direction on the work they do and the programs they offer. A final implication of the accords is that they demonstrate how much more effectively individual deans can engage with a wide variety of stakeholders when they have the "voices" of other deans behind them.

Conclusion

The purpose of this paper has been to provide the reader with a sense of the unique features of the Canadian educational context, a window into the Association of Canadian Deans of Education (ACDE), the six accords that have been developed over the last ten years, and the ways in which those accords have been used by Canadian deans of education to try to bring about principled and inclusive change in educational policy and practice. Although the potential for more is great, at least for the time being, ACDE has decided not to write any more accords but to focus instead on the "mobilization" of the ones that have been developed. As deans of education in Canada are finding, while the writing of the accords is challenging enough, galvanizing the educational community and actually acting on those accords is quite another matter. In the end, however, people like me who are currently serving as deans of education, are optimistic that the collective efforts of those who came before us will continue to have an impact on the quality and scope of the broader educational debate in Canada and quite possibly, around the world.!

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Schooling inequality, higher education and the labour market: evidence from a graduate tracer study in the Eastern Cape, South Africa

Michael Rogan (Corresponding author)
Institute of Social and Economic Research, Rhodes University
6 Prince Alfred Street
Grahamstown, 6139
South Africa
m.rogan@ru.ac.za

John Reynolds
Institute of Social and Economic Research, Rhodes University
6 Prince Alfred Street
Grahamstown, 6139
South Africa
John.reynolds@ru.ac.za

Abstract: *An emerging body of research has shown that there are large inequalities in access to higher education in South Africa. There remains a gap, however, in identifying how factors such as schooling background, academic performance, race and gender are linked with key higher education outcomes. In particular, the significance of these factors for first-choice degree attainment at university and in the subsequent transition to the labour market are of interest. This paper addresses these questions by presenting a descriptive and multivariate analysis of data collected through a tracer study which interviewed graduates from two Eastern Cape universities. The results suggest that schooling history, race and gender are associated with career choice and unemployment. These findings have important implications both for equity and for the efficiency of higher education institutions. The article concludes with a discussion of potential policy responses and the implications for equity in higher education.*

Introduction:

Inequality in primary and secondary schooling outcomes is a persistent feature of the education system in post-apartheid South Africa.[1] In turn, differences in schooling quality carry over into the post-school sector where choices for further education and training are often limited by schooling background and socio-economic status. In particular, research has suggested that South Africa's relatively low participation rate in higher education (Cloete, 2004) and the large number of young people who are not in employment, education or training (NEETs) is a product of low schooling quality and a post-school training sector which does not meet the needs of the majority of school leavers (Cloete, 2009; Cosser & du Toit, 2002; Pillay, 2004).

In addition to the low levels of participation and completion in higher education, there are at least two further areas of concern for higher education in South Africa. The first is the substantial gap between programme or degree preference and enrolment, on the one hand, and completion, on the other (Cosser, 2009). Even if government is successful in achieving its stated goal of shifting the

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[1] South Africa has one of the world's highest measure of intra-class correlation (ICC) which is a standardised indicator of variation in academic achievements (Branson & Zuze, 2012).

balance of enrolments away from Humanities subjects towards Science, Engineering and Technology (SET) and Business and Commerce (Cloete, 2004; Department of Education, 2001; Pillay, 2004), its achievement would be blunted by limited success in completing first-choice qualifications, particularly in cases where first choices were in desired fields of study such as SET.

The second area of concern is the heterogeneity in employment outcomes among those who have completed a university degree. Identifying the reasons for differential employment outcomes for graduates is crucial for both equity and efficiency reasons. Equity considerations require investigations of the ways in which socio-economic and schooling inequalities continue to shape employment outcomes in order to identify ways of achieving more equal outcomes for all graduates. Efficiency considerations require that the human resources are deployed optimally within the labour market by matching graduates with jobs that meet their skills profiles.

This study attempts to link schooling, demographic, socio-economic and academic factors to first-choice degree completion and labour market outcomes. More specifically, this study investigates whether, and to what extent, 'pre-higher education' factors are associated with whether the degrees that university graduates obtain reflect their first qualification choices, and also examines the effects of these factors and degree types on labour market outcomes.

The remainder of the paper is structured as follows. The next section reviews the literature on the transition from schooling to higher education in South Africa with a particular focus on programme choice, followed by the recent literature on graduate employment and unemployment, and the broad findings of the graduate tracer studies which have been conducted in South Africa to date. Section three describes the graduate tracer study design and the analysis upon which the empirical section of the paper is based. In section four, the results of the descriptive statistics and a multivariate analysis are presented in two parts. Finally, section five discusses the results and reflects on the implications for higher education in South Africa.

Review:

Programme choice and the transition from school to university

Research on higher education outcomes has been limited, in large part, to enrolment and graduation rates, employment and earnings in the South African literature. One clear exception is a literature (Cosser, 2009, 2010; Cosser & du Toit, 2002; Cosser, du Toit, & Visser, 2004) which has examined the intentions of secondary students to complete specific degree programmes at universities (ambitions) and then matched these with outcomes. On the whole, this work has concluded that there is evidence for a wide disparity between learner preferences or ambitions and actual higher education enrolments (Cosser, 2010).

In addition to identifying a gap between intentions and enrolments with respect to degree choice, this work has suggested that the mismatch between intentions and outcomes differs both by race and field of study. For example, Cosser and colleagues (2004) found that, among school leavers who intended to pursue a degree in SET, White students were more likely to enrol in an SET programme at university relative to other race groups. Concomitantly, the preference gap for Africans who intend to study an SET subject has been particularly and persistently larger (Cosser, 2009).

Two further contributions from this literature are, first, that poor academic performance during the last year of schooling (matric) is the main reason for the gap between programme intentions and enrolment (Cosser et al., 2004). Second, however, is the finding that programme preferences also change considerably <u>after</u> enrolment or, in other words, during the course of university study and are

therefore not necessarily confined to differences in enrolment outcomes (Cosser et al., 2004). It is this particular finding which requires more attention and is one of the areas of focus of the present study.

Post-apartheid trends in graduate employment

Much more research has been conducted on graduate employment in South Africa and the focus of this work has been on whether or not graduate unemployment is a significant and growing problem. On the one hand, several studies (Bhorat, 2004; DPRU, 2006; Kraak, 2010; Pauw, Oosthuizen, & van der Westhuizen, 2006) have suggested that graduate unemployment is increasing in South Africa. The general view according to this literature is that, despite a skills gap in the labour market, there is still a mismatch between the skills demanded by employers/firms and the training provided by universities (Bhorat, 2004; Bhorat & Oosthuizen, 2005; DPRU, 2006; Kraak, 2005). In particular, there has been some suggestion in the literature that graduates from fields such as Humanities and the Arts are less likely to find employment, compared with those from fields like Engineering and the Medical Sciences (du Toit & Roodt, 2008).

On the other hand, more recent research (Altbeker & Storme, 2013; van Broekhuizen, 2013; van der Berg & van Broekhuizen, 2012) has suggested that the problem of graduate unemployment in South Africa has been exaggerated since the unemployment rate for people with university degrees has consistently been below 6% (broadly defined). Much of the 'problem' of graduate unemployment, therefore, seems to be associated with students who have attended Further Education and Training (FET) colleges while unemployment rates for university graduates remain low (van Broekhuizen, 2013; van der Berg & van Broekhuizen, 2012).

Not all graduates, however, experience the labour market on equal terms and there is still evidence of gendered and racial patterns of employment among graduates (Moleke, 2005a). A number of studies on graduate employment in the post-apartheid period (Bhorat, Mayet, & Visser, 2010; Branson, Leibbrandt, & Zuze, 2009; Letseka, Breier, & Visser, 2010; Moleke, 2005a; Pauw, Oosthuizen, et al., 2006) suggest that race, gender and type of institution (i.e. historically white universities (HWUs) vs. historically black universities (HBUs)) are still significant determinants of labour market outcomes.

Although some of this disadvantage in labour market outcomes is related to field of study, there is evidence to suggest that black graduates, and particularly those from HBUs, are significantly less likely to find employment immediately after graduation, even after controlling for field of study (Moleke, 2005a). The reasons for the poorer employment prospects for graduates of HBUs are not clear but empirical work with firms has suggested that some employers may still perceive HBUs as having a lower quality of graduates (DPRU, 2006; Pauw, Bhorat, Goga, Ncube, & van der Westhuizen, 2006). An alternative explanation for graduate unemployment (Kraak, 2010) which has gained some traction is that graduates with general degrees, and particularly those from the HBUs, enter the labour market without any substantive social networks among private sector firms and enterprises.

Methods:

Research design

Much of this information on university graduates in South Africa and their subsequent labour market outcomes has come from national Labour Force Surveys. However, there have also been a handful of dedicated graduate tracer (or destination) studies which have 'traced' and interviewed graduates after they have completed their studies (Bhorat et al., 2010; CHEC, 2013; Cosser & Letseka, 2010;

Moleke, 2005a, 2005b, 2010). The data analysed in this paper come from a graduate tracer study which interviewed successful graduates from the two traditional universities[2] in the Eastern Cape province of South Africa, namely Rhodes University and the University of Fort Hare. Respondents were drawn from a stratified[3] random sample of all graduates who completed a three or four year Bachelor's degree in either 2010 or 2011. Responses from a total of 469 graduates from Rhodes and 742 graduates from the University of Fort Hare (UFH) were successfully captured (n=1,211). Given the difficulties in obtaining reliable contact details for graduates, the survey was administered both through telephonic interviews and through an online survey platform. On the whole, the response rates (39% for the University of Fort Hare and 47% at Rhodes) were appreciably higher than for past tracer studies conducted in South Africa. Once the data collection was complete, statistical weights were estimated in order to correct for non-response.

Analysis

The analysis for this study has two distinct parts; the first part consists of a descriptive analysis of degree choice and the labour market transition among graduates from the two universities. The second part then identifies, through a multivariate analysis (logit estimation), how schooling quality[4], academic achievements, field of study as well as race, gender and socio-economic status are associated with the probability of completing a first choice degree and finding employment, respectively.

Limitations

There are several important limitations to the study's design. First, the study team did not have full access to student records. As a result, the information captured in the survey is the result of retrospective, self-reported evaluations and cannot be verified by administrative records. Second, and related to the above, the survey respondents were also asked to act as secondary sources of information on such household characteristics as parental employment, income and education and tertiary education among siblings. An additional limitation associated with the design of tracer studies, selection bias, is a source of concern since the ability to contact respondents may be correlated with a number of the outcomes being investigated (e.g. employment status).

Graduate sample characteristics

Since Rhodes University is classified as an HWU and Fort Hare is an HBU, it is not surprising that the racial composition of graduates from the two universities is very different. Most graduates from Rhodes University (57 per cent of the 2010 and 2011 cohorts) are still 'White' while only 35 per cent are 'Black African'. The vast majority (93 per cent) of graduates from Fort Hare, however, are classified as Black and less than five per cent are White. The racial compositions of the two

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[2] Traditional universities offer theoretically-oriented degrees and are less vocational compared with comprehensive universities and universities of technology (see de Villiers, van Wyk, & van der Berg, 2013).

[3] The sample was stratified by field of study- as categorised by the South African Classification of Educational Subject Matter (CESM) manual. The categories included: Science Engineering and Technology (SET), Business and Commerce, Education, and Humanities.

[4] Public schools in South Africa are divided into quintiles according to their poverty ranking. In the regressions, the school poverty variable is constructed as a dummy variable where quintile 5 schools and elite private schools are the reference category (0) and quintiles 1-4 are coded as '1'.

universities still, to a great extent, reflect their historical positions in South Africa's higher education system.[5]

There is very little evidence to support the claim that race is strongly associated with field of study (Table 1). In particular, the suggestion (e.g. Moleke, 2005b) that Black students, and particularly those who study at HBUs, are significantly more likely to enrol in programmes (such as Humanities) which have a lower likelihood of employment or less relevance to employers does not appear to be the case for Rhodes and Fort Hare graduates. Moreover, Black graduates from Fort Hare (47.7%) are not significantly more likely to have completed a degree in the Humanities than Black graduates from Rhodes (41.6%).

Table 1 Field of study, by university and population group

	Black African	Coloured	Indian or Asian	White	Total
Rhodes University					
SET	21.72	1.92	40.66	19.16	20.60
	(3.70)	(1.96)	(10.24)	(2.21)	(1.91)
Business/	34.98	19.23	23.08	21.08	26.05
Commerce	(4.41)	(11.91)	(7.67)	(2.37)	(2.18)
Education	1.69	3.85	0.00	0.44	0.95
	(0.97)	(2.82)	(0.00)	(0.22)	(0.37)
Humanities	41.61	75.00	36.26	59.32	52.40
	(4.19)	(12.06)	(10.10)	(2.86)	(2.38)
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**
University of Fort Hare					
SET	18.54	8.20	0.00	0.00	17.43
	(1.47)	(5.87)	(0.00)	(0.00)	(1.38)
Business/	24.45	26.23	46.15	39.06	25.23
Commerce	(1.58)	(12.73)	(29.15)	(8.18)	(1.54)
Education	9.27	11.48	0.00	25.00	9.97
	(1.40)	(7.80)	(0.00)	(8.08)	(1.36)
Humanities	47.73	54.10	53.85	35.94	47.37
	(1.94)	(13.76)	(29.15)	(9.40)	(1.88)
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Notes: The data are weighted. Standard errors are in brackets.

In light of the large differences in schooling quality in South Africa, one important finding is that the schooling histories of the two sets of graduates are very different (Table 2). About half of the Rhodes cohort attended public elite schools (compared with about a third of Fort Hare graduates). These are often described as former Model C[6] schools and, while classified as public institutions, the tuition fees are often high (typically prohibitively so for low income households), learner to teacher ratios are low, and the schools are relatively well resourced in terms of infrastructure. About 30 per cent of Rhodes graduates attended private schools with very high (often exorbitant) tuition fees which

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[5] There are a very small number of graduates from the other two population groups in South Africa (Coloured and Indian). About five per cent of Rhodes graduates are classified as Indian and about three per cent are Coloured. At UFH, less than one per cent are Indian and about two per cent are identified as Coloured.

[6] Towards the end of the apartheid era, the parents of learners who attended white government schools were given the option to convert the governance and funding structures of these schools into a 'semi-private' model (Model C). The term 'former Model C' is now often used to describe these schools. Today these schools are no longer 'semi-private' but they are often still associated with good academic results and higher school fees than in other types of public/government schools.

restrict attendance to learners from the upper-income and wealthiest households in the country. Over half (53 per cent) of Fort Hare graduates, on the other hand, attended low cost public schools. These schools are generally associated with lower academic achievements, high learner to teacher ratios and relatively poor infrastructure.

Table 2 Type of school attended

	Rhodes University	**University of Fort Hare**	**Total**
Public-elite	49.88	33.68	40.35
	(2.41)	(1.92)	(1.52)
Public- low cost	14.77	52.66	37.05
	(1.79)	(2.02)	(1.50)
Private elite	29.60	3.72	14.38
	(2.17)	(0.73)	(1.06)
Private low cost	5.09	9.17	7.49
	(1.06)	(1.17)	(0.82)
Home schooling	0.17	0.16	0.17
	(0.17)	(0.16)	(0.12)
Farm school	0.49	0.61	0.56
	(0.35)	(0.30)	(0.23)
Total	**100.00**	**100.00**	**100.00**

Notes: The data are weighted. Standard errors are in brackets.

Findings:

Degree preferences and completion

Degree preferences between the two groups of graduates were similar. For example, the same percentage (30 per cent) of graduates from both universities reported that, during their final year of school, they planned to study a discipline within the field of SET at university (Table 3). At the same time, the Fort Hare cohort exhibited a slightly higher preference for Commerce and a slightly lower intention to study Humanities during the last year of high school. In terms of realising these intentions, about 47 per cent of the Rhodes graduates and 41 per cent of the Fort Hare graduates went on to complete a degree in their first choice subject. In other words, Rhodes graduates were only slightly (and not significantly) more successful in completing the degree which they intended to study while still in school.

However, these figures mask large differences between fields of study (Table 4). At Rhodes, for example, about 60 per cent of graduates who intended to study a discipline within the SET subject category successfully completed a degree in SET (but not necessarily in the same discipline or subject as was originally intended). Among Fort Hare graduates, however, less than half (48 per cent) of those who intended to obtain an SET degree did so. Across the four CESMs Rhodes graduates were significantly more likely than Fort Hare graduates to complete the degree in which they originally intended to enrol.

Table 3 Intended field of study while still in matric (1st choice)

	Rhodes University	University of Fort Hare	Total
SET	30.02	29.67	29.81
	(2.21)	(1.77)	(1.38)
Commerce	24.84	29.18	27.49
	(2.18)	(1.73)	(1.35)
Education	0.76	3.78	2.60
	(0.39)	(0.79)	(0.51)
Humanities	44.38	37.37	40.10
	(2.39)	(1.87)	(1.47)
% who went on to complete the intended degree at university	47.41	40.99	43.46
	(2.37)	(1.84)	(1.46)

Notes: The data are weighted. Standard errors are in brackets.

Table 4 Graduation in intended field of study, by first choice field of study in matric

	Rhodes University	University of Fort Hare	Total
SET	59.75	47.90	52.55
	(4.34)	(3.56)	(2.78)
Business/ Commerce	81.28	66.96	72.00
	(3.71)	(3.45)	(2.67)
Education	---	65.90	59.94
		(9.70)	(9.45)
Humanities	92.27	84.80	88.02
	(1.77)	(2.25)	(1.50)

Notes: The data are weighted. Standard errors are in brackets.

The main reasons for changing from the initial intended course of study also differ between the two groups (Transition to *the labour market*

Turning now to the transition from university to the labour market, Figure 1 identifies the broad unemployment rates of graduates on the 1st of March, 2014 (the month in which fieldwork began). The most striking finding is the difference in unemployment rates between Rhodes and UFH graduates. The unemployment rate of seven per cent among Rhodes graduates is closely in line with the national average for university graduates (see Pauw, Oosthuizen, & van der Westhuizen, 2008; van der Berg & van Broekhuizen, 2012) while the unemployment rate among UFH graduates is almost three times higher (20 per cent).

Table 5). The main reason that UFH graduates changed their intended course of study (32 per cent) was that their marks were not good enough to gain entry or to continue to completion. Financial pressures also seem to be a consideration for the Fort Hare group with seven per cent indicating that there is a perceived lack of jobs in their initial choice of study or that a lack of a scholarship prevented completion (14 per cent). Among the Rhodes graduate group the main reason was a loss of interest (48 per cent).

Transition to the labour market

Turning now to the transition from university to the labour market, Figure 1 identifies the broad unemployment rates of graduates on the 1st of March, 2014 (the month in which fieldwork began). The most striking finding is the difference in unemployment rates between Rhodes and UFH graduates. The unemployment rate of seven per cent among Rhodes graduates is closely in line with the national average for university graduates (see Pauw, Oosthuizen, & van der Westhuizen, 2008; van der Berg & van Broekhuizen, 2012) while the unemployment rate among UFH graduates is almost three times higher (20 per cent).

Table 5 Reasons for not completing intended course of study

	Rhodes University	**University of Fort Hare**	**Total**
Lack of jobs in SA	2.79	7.36	5.74
	(1.13)	(1.43)	(1.01)
No scholarship	5.79	14.24	11.25
	(1.74)	(2.07)	(1.49)
Marks not good enough	23.29	31.64	28.68
	(3.13)	(2.55)	(2.00)
No places available	9.81	24.32	19.19
	(2.25)	(2.41)	(1.78)
Started but couldn't continue	13.37	5.42	8.23
	(2.42)	(1.32)	(1.21)
Lost interest	48.11	20.47	30.25
	(3.62)	(2.14)	(1.97)

Notes: The data are weighted. Standard errors are in brackets. Cells are not mutually exclusive therefore columns do not total to 100 per cent.

Figure 1 Broad unemployment rates (as of March 1st), by field of study
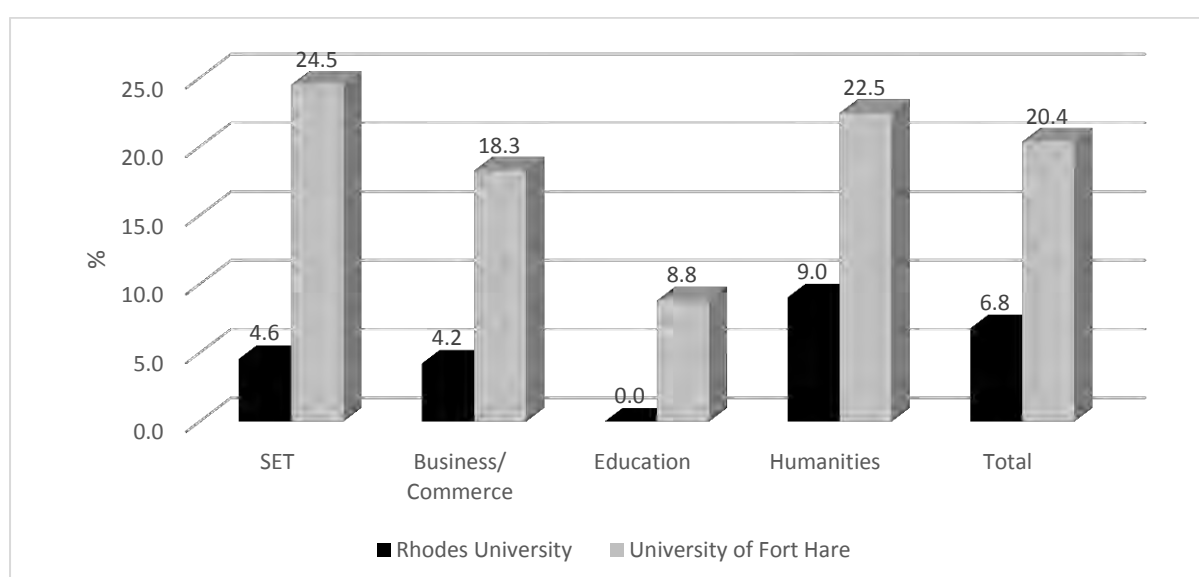
Notes: The data are weighted.

Contrary to some of the expectations described in the literature, the descriptive statistics do not provide any evidence that the risk of unemployment for Humanities graduates is significantly higher than for other fields of study. While Humanities graduates from Rhodes are more than twice as likely to be unemployed than SET and Business graduates, the difference is not statistically significant (i.e. confidence intervals overlap at the 95 per cent level of significance). At Fort Hare, SET graduates actually have a higher rate of unemployment but, again, the difference is not significant. The significantly lower risk of unemployment among Education graduates (about nine per cent among the UFH sample) is likely the result of the practical application of a teaching degree and relatively easy absorption into the teaching profession relative to the other fields of study. Another significant difference (not shown in the figure) is that the vast majority (73 per cent) of Rhodes graduates are employed in the private sector while 67 per cent of UFH graduates are employed in the civil service (see also Moleke, 2005a).

Finally, among the graduates who are employed, there are some important differences in job search strategies which may explain some of the differences in labour market outcomes (
Table **6**). The single most common means of finding their current job among the Rhodes graduates was through personal contacts or networks (30 per cent). Moreover, if the categories of relatives, social media and personal contacts are combined, then just under half of Rhodes graduates found their current employment through a social network. Fort Hare graduates, on the other hand, relied to a greater extent (36 per cent) on newspaper advertisements than on any other specific search strategy.

Table 6 Means of finding employment (among employees- i.e. not the self-employed)

	Rhodes University				
	SET	Commerce	Education	Humanities	Total
Employment agency	13.16 (4.06)	12.73 (3.58)	0.00 (0.00)	7.25 (1.87)	9.84 (1.61)
Relatives	6.04 (2.66)	5.15 (2.12)	0.00 (0.00)	7.75 (1.92)	6.59 (1.27)
Social media	4.96 (2.46)	15.08 (3.97)	21.05 (18.05)	11.82 (2.32)	11.56 (1.74)
Personal contacts	21.02 (4.56)	27.07 (4.56)	27.63 (18.35)	34.12 (3.41)	29.56 (2.38)
Newspaper	8.76 (3.91)	9.78 (3.44)	60.53 (18.99)	11.08 (2.24)	10.86 (1.71)
	University of Fort Hare				
Employment agency	0.00 (0.00)	4.50 (1.57)	0.00 (0.00)	1.62 (0.80)	1.92 (0.56)
Department of Labour	10.03 (3.18)	6.16 (1.89)	11.90 (5.62)	8.82 (1.80)	8.68 (1.28)
Relatives	1.21 (1.20)	3.08 (1.36)	1.82 (1.81)	3.42 (1.22)	2.79 (0.73)
Linked to bursary	12.11 (3.44)	4.92 (1.70)	21.56 (6.59)	15.48 (2.32)	12.91 (1.52)
Social media	5.84 (2.54)	7.84 (2.09)	0.00 (0.00)	4.36 (1.29)	4.99 (0.91)
Personal contacts	8.39 (2.86)	13.84 (2.66)	7.84 (3.82)	11.78 (2.15)	11.32 (1.37)
Newspaper	36.62	40.69	20.55	37.50	36.23

(5.04)	(3.87)	(6.08)	(3.13)	(2.10)	

Notes: The data are weighted. Standard errors are in brackets. Cells are not mutually exclusive therefore columns do not total to 100 per cent.

Estimations

In order to explore the descriptive findings on first choice degree completion and graduate unemployment in greater detail, two sets of logit regressions were estimated. Each set of estimations is presented first as a pooled sample and, given the vast differences between the two universities, both institutionally and in terms of graduate characteristics, the results are then presented separately by institution. In addition to the variables listed in the first column of the following two tables, both sets of regressions control also for schooling achievements, academic achievement at university, parental levels of education, or parental employment status.[7]

In the first set (Table 7), the correlates of graduating with a first choice degree are presented. The results from the pooled sample (I) indicate that those graduates who intended to pursue an SET or Commerce degree were significantly less likely, relative to those who planned to complete a Humanities degree, to have completed their first choice degree. Black graduates and those from low income schools are also less likely to have completed a first choice degree, even after controlling for schooling achievements and other background factors. The interaction effects (II) suggest further that Black graduates from Fort Hare and Black female graduates (on the whole) are significantly less likely to have completed their first choice degree.

Among the Rhodes sample (III), those from low income schools are also less likely to have completed an intended degree as are graduates who initially intended to study SET, Commerce or Education. Interestingly, there are no racial differences in degree completion among the Rhodes sample and none of the interaction terms are significantly associated with graduating with a first choice degree. The results from the Fort Hare sample (V) identify Black graduates and those from low quintile schools as being significantly less likely to have successfully completed an intended degree. While UFH graduates who reported initial intentions to study an SET or Commerce subject are also less likely to have completed these intended degrees, none of the interaction effects are significant.

Finally, the correlates of unemployment among graduates are presented in Table 8. In the pooled sample (I), the estimates are generally in line with the existing literature and suggest that there is a significantly higher risk of unemployment for Fort Hare graduates, Black graduates, women and those who completed a degree in the Humanities. However, the expected interaction (II) between Humanities and race is not significant which suggests that Black graduates who completed a degree in the Humanities are not at a specific risk of unemployment. Black graduates from Fort Hare are also not at a higher risk of unemployment, over and above, the risks identified in the main effects

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[7] In order to test for a possible bias associated with the method of data collection (i.e. online self-complete vs. a telephonic interview) both sets of estimations include a dummy control for whether the survey was completed online. In all specifications, the coefficient on the dummy for online completion was not significant.

regression (I). Black women and particularly those from low income schools, on the other hand, face a significantly higher risk of unemployment.

Among Rhodes graduates (where unemployment levels are very low), there are very few significant correlates of unemployment (III). Importantly, however, the risk of unemployment is significantly higher for Black graduates and, in particular, Black women (IV) even after controlling for field of study, schooling quality, socio-economic factors and the employment status of their parents. The more interesting question is what explains the relatively higher risk of unemployment among the Fort Hare sample where race is unlikely to explain differences *within* this group.[8] The results show that, in the main effects regression (V), the two significant correlates of unemployment are gender and low income schooling. Moreover, in the final regression (VI), one of the crucial factors associated with unemployment among Fort Hare graduates is the interaction (0.822) between these two variables. In other words, being female *and* Black carries an extra risk of unemployment over and above the risks identified in the previous column.

The interactions also show an association between field of study (particularly SET and Education) and a lower risk of unemployment (relative to Commerce graduates) among Fort Hare graduates with a poor schooling background.

Table 7 The correlates (logit estimations) of completing a first choice university degree

	Pooled		Rhodes		Forth Hare	
	(I)	(II)	(III)	(IV)	(V)	(VI)
UFH	0.007	**0.928****	---	---	---	---
	(0.213)	(0.389)				
Female	-0.162	0.191	0.0176	0.104	-0.263	0.805
	(0.133)	(0.241)	(0.227)	(0.274)	(0.171)	(0.726)
Black	**-0.340***	0.230	-0.141	-0.035	**-1.074*****	-0.379
	(0.196)	(0.287)	(0.243)	(0.392)	(0.366)	(0.515)
Schooling performance						
Math or science higher grade	-0.191	-0.205	-0.418	**-0.445***	-0.100	-0.142
	(0.184)	(0.183)	(0.258)	(0.259)	(0.281)	(0.287)
English higher grade	-0.072	-0.056	0.282	0.287	-0.217	-0.222
	(0.150)	(0.151)	(0.325)	(0.330)	(0.174)	(0.174)
Math upper class pass	-0.003	-0.044	**-0.475***	**-0.481***	**0.786****	**0.758****
	(0.197)	(0.198)	(0.247)	(0.247)	(0.330)	(0.334)
Science upper class pass	0.101	0.130	0.407	0.445	-0.302	-0.255
	(0.254)	(0.254)	(0.308)	(0.313)	(0.473)	(0.487)
Low income school	**-0.492*****	-0.220	**-0.462***	0.021	**-0.452*****	-0.248
	(0.143)	(0.301)	(0.279)	(0.421)	(0.172)	(0.255)
Ambitions						
SET_matric	**-1.296*****	**-1.092*****	**-1.196*****	**-1.057*****	**-1.375*****	**-1.154*****
	(0.165)	(0.205)	(0.262)	(0.279)	(0.224)	(0.320)
Comm_matric	**-0.560*****	-0.315	**-0.753*****	-0.510	**-0.528*****	-0.198
	(0.159)	(0.221)	(0.289)	(0.319)	(0.197)	(0.330)

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[8] In fact, the number of Indian and White graduates from Fort Hare who are unemployed is so low that they were excluded from the final two estimations in the table.

	(I)	(II)	(III)	(IV)	(V)	(VI)
Edu_matric	0.343	-0.750	**-2.438****	**-3.178*****	0.497	-0.132
	(0.443)	(0.678)	(1.035)	(1.183)	(0.485)	(0.762)
Interactions						
Black*UFH		**-1.142*****				
		(0.423)				
Low income *SET_matric		-0.481		-0.772		-0.384
		(0.333)		(0.710)		(0.438)
Low income *comm_matric		**-0.547***		-1.074		-0.521
		(0.313)		(0.669)		(0.407)
Low income*edu_matric		1.329		---		0.728
		(0.892)				(0.957)
Black*female		**-0.492***		-0.164		-1.109
		(0.287)		(0.478)		(0.748)
_cons	5.546***	5.006***	6.277	1.787	5.886***	5.145***
	(1.394)	(1.408)	(4.371)	(5.808)	(1.671)	(1.736)
N	1156	1156	445	444	711	711

Notes: The data are weighted. Standard errors are in parentheses. * p<0.10, ** p<0.05, *** p<0.01 The regressions also include controls for: age, parental level of education, and mode of data collection.

Table 8 The correlates (logit) of unemployment among Rhodes and Fort Hare graduates

	Pooled		Rhodes		Fort Hare	
	(I)	(II)	(III)	(IV)	(V)	(VI)
UFH	**0.735****	0.497				
	(0.342)	(0.809)				
Female	**0.319***	**-1.239***	0.102	-1.429	**0.350***	-0.148
	(0.188)	(0.713)	(0.462)	(1.377)	(0.206)	(0.399)
Black	**1.226*****	0.862	**1.576*****	0.164	---	---
	(0.358)	(0.559)	(0.383)	(1.381)		
Schooling performance						
Math or science higher grade	0.116	0.152	0.494	0.485	-0.048	-0.021
	(0.268)	(0.282)	(0.452)	(0.535)	(0.348)	(0.350)
English higher grade	-0.100	-0.098	**-0.857***	-0.873	-0.008	-0.014
	(0.192)	(0.196)	(0.506)	(0.560)	(0.207)	(0.209)
Low income school	0.276	0.735	-0.346	0.665	**0.424***	**0.976***
	(0.193)	(0.846)	(0.677)	(1.409)	(0.217)	(0.471)
Field of study						
SET	0.256	**0 .952****	0.0368	-0.042	0.408	**1.435*****
	(0.265)	(0.452)	(0.944)	(1.063)	(0.282)	(0.507)
Humanities	**0.425***	**1.180***	0.995	1.270	0.345	**1.166****
	(0.225)	(0.670)	(0.732)	(0.870)	(0.239)	(0.596)
Education	-0.513	0.940	---	---	-0.627	1.094
	(0.519)	(0.732)			(0.528)	(0.754)
Interactions						
Black*UFH		-0.088				
		(0.809)				
Low income *Black		-0.854		-0.445		
		(0.880)		(1.492)		

	(1)	(2)	(3)	(4)	(5)	(6)
Low quintile *UFH	1.059 (0.723)					
Black*Female	**1.305*** (0.692)		**2.489**** (1.076)			
Low income *Humanities	**-1.186**** (0.517)		-1.507 (1.619)		**-1.116**** (0.564)	
Low income *SET	**-1.130**** (0.577)		0.209 (1.804)		**-1.585***** (0.628)	
Low income *Education	**-2.442**** (1.040)		---	---	**-2.762***** (1.078)	
Black*Humanities	0.033 (0.694)		0.140 (1.487)			
Female* Humanities	-0.007 (0.383)		0.127 (1.335)		-0.024 (0.419)	
Female*Low income school	**0.667*** (0.403)		0.360 (1.387)		**0.822*** (0.446)	
_cons	-1.299 (1.574)	-1.175 (1.646)	-9.262** (4.386)	-9.538** (4.885)	1.122 (1.672)	0.719 (1.731)
N	1104	1104	429	429	667	667

Notes: The data are weighted. Standard errors are in parentheses. * p<0.10, ** p<0.05, *** p<0.01. The regressions also include controls for: age, parental employment, SCE marks (self-reported), average university mark (self-reported) and mode of data collection.

Discussion:

The results of the study described in this paper have contributed to the post-schooling literature in South Africa in two main ways. First, the findings extend the existing work on degree or programme choice by suggesting that the completion of a first choice degree is further conditioned by 'pre-higher education' factors such as schooling quality, race, gender and intended field of study. This means that at least part of the preference gap identified by Cosser (2009) is explained by poor schooling backgrounds and, by extension, a lack of adequate preparation for university study.

Schooling quality and low socio-economic status therefore do not only have the expected impacts on access to higher education or performance at university, but they are also clearly linked with study choices and career development. This conclusion is particularly critical given that learners in South Africa are required to start making decisions about their future education and training in Grade 9 (i.e. at age 16) when little support or guidance are offered, especially at under- resourced schools (Stumpf, Papier, McBride, & Needham, 2012). This is also an important issue of equity if learners from poorer schools who have demonstrated an academic ability (i.e. they qualified for and graduated from a university) are not able to follow their intended course of study.

Second, the findings suggest that, while graduate unemployment is far higher among Fort Hare graduates, at least some of this disadvantage is actually carried over from the type of schooling (and the related levels of socio-economic status associated with attending a low income school) obtained by graduates. In line with many of the debates in the international literature (Nunez & Livanos, 2010; Schomburg & Teichler, 2006; Teichler, 2002, 2007), much of the focus in the South African literature has been on the relevance of university curricula (and Humanities in particular) to skills needed in the job market. The results of both the descriptive statistics and the multivariate analysis, for example, do not support the claim that Black students (including those who are enrolled in HBUs) are more likely to enrol in subjects with poorer prospects for immediate employment (Moleke, 2005b; Pauw et al., 2008). Moreover, the evidence from these two universities does not

suggest that Humanities graduates are significantly more likely to be unemployed after controlling for other factors.

Given the above, the remaining crucial question is whether the higher rate of unemployment among Fort Hare graduates is really the result of the oversupply of certain skills (Pauw et al., 2008; Woolard, Kneebone, & Lee, 2003) or whether factors such as poor matching (Altman & Marock, 2011) or signalling – including the effects of perceptions and preferences of prospective employers about graduates from HBUs, or a lack of appropriate social networks in the labour market (Kraak, 2010) apply. While not definitive, the evidence presented in this paper tends to support the latter three factors.

Poor access to social networks in higher education, particularly for first generation students, may explain not only the high rates of university drop-out (see Letseka & Maile, 2008), but also degree choices and the unsuccessful transition to the labour market (Altman & Marock, 2011; Kraak, 2010). For example, the descriptive findings on successful job search strategies suggest that different search strategies are successful in the private and public sectors, and that Rhodes graduates appear to be more successful in leveraging social networks to obtain private sector employment. One policy implication is, therefore, that matching interventions (see Altman, 2007; Altman & Marock, 2011) may be required to link university graduates with appropriate labour market opportunities.

Conclusion

University graduates, and especially those from poorly resourced schools and low income communities, are an important human resource precisely because they have demonstrated a tangible ability to succeed. Perhaps the main contribution of the graduate tracer study presented in this paper is the conclusion that policy should focus most closely on university students from poorly resourced schools and as early as possible in their university studies, in addition to interventions in those schools themselves, as poor academic performance appears to be a major factor in students' abandoning their first choice fields of study. Also, the problem of graduate unemployment in South Africa, while relatively small, is highly concentrated in historically disadvantaged universities and particularly among graduates from poor secondary schools. Rather than addressing study choices, *per se*, to address graduate unemployment, policy should focus on improving the match between these graduates and the labour market, not only by addressing the supply-side issues explored in this study, but also by addressing evidence in the literature about the shaping of labour demand by employer preferences and employment practices.

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Governance of education - Challenges for professional agency

Laila Niklasson
Mälardalen University – Sweden
laila.niklasson@mdh.se

Abstract: *The aim with this study is to increase our knowledge about the relation between structures of governance and local initiatives by professionals. Based on theory of professional agency, staff from different levels in an organization offering preschool were asked about follow up systems and possibility of professional agency. The result showed that the national curricula for preschool and the Education Act created a situation where the curriculum was perceived as a foundation for equally good "educare", but at the same time every "level" created a variety of additional follow-up activities. The conclusion is that a national governance by objectives and results creates a situation where local authorities and organizers, as well as professionals, to a certain extent, can re-create follow up systems and activities which suits their administrative and most of all, pedagogic needs. The "cost" for this local and professional agency is that the additional several follow up systems/activities increases the administrative burden for the staff.*

Introduction

An earlier perception of governance of education as mainly national has changed to deeper knowledge of structures on local, regional and global levels. Depending on the actual education system in the country the structures can be more or less challenging to professional agency. As Aili and Nilsson (2007) phrase it, professionals have to work in a tension between professional and organizational demands. In this study the professionals are working in the education system on various levels, the common issue is organizing preschool. Although aware of that teachers can be perceived as semi-professionals, the term professional is used in this study (Brante, 2013).

Sweden belongs to a group of countries with voluntary preschool and compulsory elementary school. There are national curricula for both voluntary preschool and compulsory elementary school, in addition the Education Act comprise both compulsory elementary school and voluntary preschool. The national curricula for preschool has national objectives and to the governance used is steering with objectives and results (Wahlström, 2014, European Commission, 2013), compared with earlier governance based on rules (Berg, 2011a). In a Swedish perspective the objectives are national but the responsibility for reaching the objectives is local, for the organizer of K-12. One way of explaining the responsibility is that staff in the education system work in a steering model with double steering (SOU, 2004).

Within this shared responsibility between state and the organizer of K-12 there is also a possibility of professional agency (Berg, 2011). The objectives are set but how to reach the objectives is a question for the professionals. That is, the professionals are supposed to take initiatives.

Whether taking initiative is agency can be discussed. Eteläpelto et al. (2013) critically discuss how agency is defined and start with that there is a lack of common definition of its core meaning. As Giddens (1984, 1993, as cited in Eteläpelto et al. 2013) perceives agency as individual, intentional and often as event (now) it can be critically discussed from a social perspective. As a contrast, Archer (2000, 2003, as cited in Eteläpelto et al, 2013), suggests that there is both individual and collective agency. She is also emphasizing a temporal (then and now) perspective to make it possible to discuss

individual and social change. What is similar to Giddens, is that Archer also perceives agency as intentional. Further on, agency is perceived as related to identity and Archer suggests that a personal identity also includes a social identity. A temporal, development perspective is essential for professional agency according to Eteläpelto et al., if not, it is possible to discuss for example how staff creatively transform their work practices.

Professional agency is mainly perceived in a positive way, like taking initiatives and suggest development. But it can also be perceived as taking a critical stance, and resist change. A manifestation of professional agency can be an individual-level action or collective-level action). Eteläpelto et al. (2013) summarizes in defining professional agency as 'exercised when professional subjects and/or communities influence, make choices and take stances on their work and professional identities' (ibid, p. 61). Manifestations of agency can be entering into or suggestion new work practices, maintaining existing practices or resisting changes.

The aim with this study is to increase our knowledge about the relation between structures of governance and local initiatives by professionals. Based on theory of possible agency for professionals staff from different levels in an organization offering K-12 were asked about follow up systems and possibility of agency. The focus is on organizing preschool activities.

Educational context

Preschool is not compulsory in Sweden, but it is compulsory for the municipalities to organize preschool. All parents can apply for preschool for their children when their child is one years old. Usually the parents get a placement for the child close by the home. Most preschools are organized by the municipality, but some are private. The private preschools are inspected by the municipalities and they have to work in accordance with the national curricula and the Education Act. As the education system is governed nationally with a goal and results model the local organizers have to have a follow up system, checking that the process is working and that certain results are achieved. In theory all levels can have follow up activities: municipality, district in municipality, preschool units (comprise several preschools), preschools (comprise several work teams) and even a work team.

The presentation below is from an urban municipality with districts. The districts are partly autonomous and have administrators and managers for different areas, such as preschool. The district managers in a municipality cooperate with preschool manager who are mangers on unit level. They, in turn create a managing team and are responsible for a large number of work teams. Apart from preschool teachers, there are child minders, assistants and staff for cooking and others.

A	B	C
7 preschool units	13 preschool units	8 preschool units

7 preschool managers	12 preschool managers	7 preschool managers (one preschool manager was responsible for two preschool units)
45 % preschool teachers	40 % preschool teachers	38 % preschool teachers

Figure 1: Organization of preschool, 2013. Source: interviews, and Annual reports from the three districts, 2013

A preschool unit can comprise 5-8 preschool, 12- 19 work teams (a work team can comprise 3-5 persons in staff), in total between 70-100 staff members in each unit. 320-330 children can participate in a preschool unit. All preschool units have some kind of selection of ages, which is clarified by names like "group for small children" for children age 1-2 year and "group for older children" for children age 3-5 year. An alternative is that each age group comprise one group, then there are five department at the preschool unit (children age 1, 2, 3, 4 or 5 year). When a child is six years old it starts preschool class (voluntarily).

In this preschool context several selections were carried out for doing a data collection.

Data collection

The findings presented in this article are based on document and selected answers from questions about follow up systems and perceived professional agency. One part of the data collection consisted of reading documents from central administration on municipality level, district administration, preschool unit level and work team level. Another part consisted of interviews. Managers for preschool on district level, preschool managers on local level and preschool teachers were interviewed.

Three districts in an urban municipality were chosen on a municipality level by central administrators working with preschool, the six preschool managers on units were chosen by the three district managers and the six preschool teachers in the work teams were chosen by the preschool managers. In total, fifteen interviews were carried out.

All staff interviewed were women. Their ages varied from in their twenties to in their sixties. Some only had a few years of experience from experience while other had decades of experience. Some had an exam as preschool teachers, others were teacher in primary school (including preschool in their exam), some had exam from behavioral science or leisure time instructors. One staff still participated in Initial Teacher Education, but had participated in Children and Leisure time program in upper secondary and thereby had the title child minder.

The interviews were carried out in each workplace, which was in the district office and preschool units. All staff got the questions in advance and a letter informing about ethical rules (Hermerén, 2011) such as information about the context of the study, that the data should be used for development and research, voluntary participation and that individual answers should be presented in a confidential way.

All fifteen interviews were transcribed verbatim. They were then read several times and sorted in accordance with the themes which appeared trough the reading. Some of the themes were already apparent in the guide for questioning. To validate the study parts of the text was sent to district managers, preschool managers and preschool teachers. Parts of the data collection have been presented to the municipality administration and district managers for commenting. All correction which were asked for have been carried out as much as possible.

This study is part of a larger study presented as a work report in Swedish. The issue of professional agency was also brought up in the study and all respondents were explicitly asked how they perceived possibility to change and act concerning follow up. For this study the interviews and the work report was reread with only focus on governance and local initiatives inspired by earlier studies about professional agency.

The article continues with a short presentation is made on the follow up tools and follow up activities on different levels. The discussion is then carried out using the concept of professional agency and varieties of how the professionals are handling the follow up tools and follow up activities.

Findings

Municipality level
On municipality level a digital tool is used called *Integrated management and steering*/ in short IMS, which comprise routines for follow up, documentation and reporting "up" to municipality level. Data is reported three times a year, Tertial 1-3. The reporting concerns administrative issues like how many children participate in the preschool, but also an assessment which is carried out by the staff on work team level concerning "the preschool ability to support children´s learning and development, the so called Quality indicator. The work teams carried out an assessment using a scale from 1-6. The preschool managers on the preschool units summarizes the work team answers and the district managers for preschool, in their turn, summarizes all the answers from the preschool units. The results from this follow up is used in current activities in the preschools. According to staff on all levels, the digital tool ISM, is filling its function. One way of interpreting this answer is that it is filling *a* function. The managers at district level perceive ISM as an internal tool, the preschool managers perceive it as both an internal and an external tool and the preschool teachers perceive it as an external tool. The preschool teacher collect data which is registered in the tool, but they give the information to the preschool manager, who register the data and transfer it to the district level. ISM is "far away" from the preschool teachers. ISM is a follow up system and steering mainly useful for district and municipality level.

This is not to say that the results from ISM is never used, it is used for example during days which are allocated for evaluation, often in June each year. Nonetheless, both at districts and preschool unit level it was perceived that this steering and follow up had to be complemented. ISM is not a follow up tool for every day work, and especially not for the pedagogic activities.

District level

The tools on district level all origins from the need to develop a tool to follow up the daily pedagogic activities. The need for following up and carrying out a systematic quality assurance was emphasized in a new Education Act from 2010 (SFS 2010:800), and a revision of the Curriculum for preschool from 2011 (SKOLSF 1998:16/2011:69). The steering documents also clarified the responsibility for preschool manager and preschool teachers concerning quality assurance and follow up. In addition the national School inspectorate has commented certain shortcoming in preschool activities, especially concerning quality assurance. Development work had been carried out earlier, but after 2011 the work became more systematic.

As an answer to the shortcoming concerning quality assurance some districts choose to develop digital tools. They did not agree on a common tool, instead three additional different follow up tools were developed in the districts. All the tools at district level are intended to be used as support to follow up what is called the pedagogic year, the pedagogic activities. A pedagogic year starts in June or August with planning and ends in June. This is different from an administrative year which starts in January and ends in December. How often the tools are used differ between the districts, but the basic idea is that different activities should be summarized by help of the tools two to four times a year.

The first tool is to a high degree process oriented and used every week with two to four more occasions during the year when a more elaborated follow up is carried out. Its design originates from Reggio Emilia and pedagogistas are supporting the work teams during the work. That is, the tool is not constructed at the district level from the start. Politicians at district level choose that the pedagogic of Reggio Emilia and thereby also the digital tool used, in this study called Project model/PM, should be used. Even though already a developed tool, the pedagogistas and other staff members have discussed and carried out changes of the design of the Project model during the years. PM is also used in districts where this pedagogic perspective, Reggio Emilia, is not the choice for all preschool units. That is, PM can be used in parallel with other digital tools.

The second tool is more oriented towards separate activities and documents with question areas which can be printed and used at different occasions during the year, with two to four more occasions during the year when a more elaborated follow up is carried out. Its origin is based on different learning areas in Curriculum for preschool and a wish to create a common basis for development. It is called Common development for preschools/CDP and is support for capturing results. There are no support persons designated for working with this tool and it is based on what can be called traditional preschool pedagogic, where observations are central. It was created by the district manager in cooperation with the staff and has been slightly changed during the years.

The third tool is oriented toward support to capture results and is used at two to four occasions during the pedagogic year. It is called Goal and Result Steering/GRS. Its origin is a support for strengthening use of theories and analytic tools in analyzing pedagogic activities. An analytic tools is designed based on learning theory where central concepts are learning as belonging, learning as

creating meaning, learning as becoming and learning as doing/activity. These dimensions of learning can be compared with social learning theory from Wenger (2000) and Warhurts (2006). Initially a group of support persons were training for giving support for working with this tool. It was created by an administrator on municipality level in cooperation with a group of staff and has been somewhat changed during the years.

Some comments were given about all three districts tools from all levels, such as that it is time consuming to carry out the activities and that all staff do not feel comfortable with the tools. What differed was that the PM and CDP seem to be implemented while GRS is in an implementation phase. Staff who was employed when PM and CDP were implemented remembered that it took time before all staff perceived the advantage with the follow up tools. Even though there are possibilities to change PM and CDP it is GRS, which is the latest introduced, which is perceived as not entirely completed as a follow up tool. Changes occurs continuously in GRS and the work teams working with can perceive the tool as 'hard to work with, but beneficial'.

Local level

As mentioned earlier there is both an administrative and a pedagogic year. Most preschool units mark and present the activities in a calendar, formed as a wheel. But all activities are not marked, especially not those which occurs every week. The study showed that it was not only the follow up systems from municipality level and district level which were used. In addition the preschool units had follow up activities which were formal continuously during the year. There could also be follow up activities which were created either on preschool unit level or by the work teams. As an example reflection could be mentioned. All staff have time for reflection each week. This time should be used for either individual reflection based on notes or documentation during activities in relation to the objectives for the preschool unit, or group reflection. The result from the group reflection should be written in a protocol so that absent

staff and preschool manager can follow the activities. Let us say that there are 52 weeks during a year, even if half of the reflection protocols are written they will be 26. As mentioned earlier a preschool manager can have 12-17 work teams and then, in theory, has to read more than 300 protocols each year, only from the reflections.

There are also consequences when there are differences. With differences questions arises about what 'others do'. Staff on different level can start to create an image of what others do, and question if 'the other' follow up tool is steering too much or if staff working with 'another follow up tool' is assessing children (which is not allowed), instead of assessing the activities at preschool.

Discussion

The aim with this study is to increase our knowledge about the relation between structures of governance and local initiatives by professionals. The result from the interviews with fifteen respondents engaged in preschool, but on different levels show that there is a possibility for

initiatives, but there is a limit. Professional agency, that is initiatives, can also come at a cost of self-inflicted, in this case, new follow up tools.

The follow up tools appears to provide support and they are possible to adapt, but they are also steering instruments as certain activities should be carried out and at the same time staff has to focus, direct their attention to the areas and the routines which are comprised in the tools. There seems to be both steering and possibility for agency (Berg, 2011a, b). The district levels used its agency to create the follow up tolls, but the results from the study shows that also the preschool units and the work teams have a certain degree of professional agency.
There are possibilities, but not to do 'whatever':

1. There are no possibilities to change the structure of the municipality follow up system, the IMS. It is compulsory to use it and data/reports have to be filled into the digital tool continuously during the administrative year. The assessment from staff using quality indicators is compulsory.

2. There are possibilities to change the structure of the different follow up tools on district level, PM, CDP and GRS. Changes can be initiated from all levels, and discussions are carried out during revisions. It is compulsory to use them, but it is only once a year, during the evaluation in June there seems to be a 'check point' whether the tools is used. Based on the results from the study the higher level it is perceived
    that the tools are used and sometimes often, the closer the work teams the answers indicate that the use could be more occasionally.

3. The tools are designed in a way that there should be discussions, written data and the data should be summarized on all levels. The consequence is that on each level there is a possibility to fill in and formulate in a more or less elaborated way. In addition, the managers do now expect 'same answer' and there is no 'correct answer'. Different skills concerning writing and reflection is tolerated and managers give response to support development. Instead staff is instructed to focus on local needs and areas for development.

The description of the background to the local follow up tools shows that it is a combination of local context in general and certain persons (administrators or politicians) which has led to the design of the local follow up tools on district level, and administrators on the unit and work team level. In addition there are national documents steering the activities in preschool. The staff could perceive that the follow up tools have been constructed based on too different needs. That does not seem to be the case. The follow up activities which are carried out on different levels, are perceived, in general, as coherent of the respondents. One reason to this could be that the all follow up tools and follow up activities in the end have their origin in the national curriculum for preschool and the Education Act.

A question can be asked how 'sustainable' the follow up tools are. Governing by objectives and

results can change. Politician can choose another pedagogic perspective and staff who are very engaged in a certain follow up tool can apply for another work. Three different follow up tools on district levels were created. Due to the elaborated support system within Reggio Emilia pedagogy the follow up tool PM seems to be a tool which can be moved between different contexts, it is bound to persons (pedagogista), but not to administrators or teacher.

In summary, the result showed that the national curricula for preschool and the Education Act created a situation where the curriculum was perceived as a foundation for equally good 'educare' (education and care in combination in preschool), but at the same time every 'level' created a variety of additional follow-up systems. All three district levels had created a separate follow up system. In addition all preschool unit level had also created additional follow up systems; some additional follow up activities were also mentioned at the work team basis. The reason mentioned of all was that there was a need to follow up the pedagogic activities, which was not developed enough in the central administration system. There is a

need to critically discuss differences between follow up system and follow up activities, but the main finding is that a professional agency is exercised. The agency was manifested in taking initiative to additional follow up, but also in not always carrying out follow up activities. The results showed that it was the work teams which in the end had the possibility during daily work to carry out, more or less in accordance with what was expected concerning follow up. The district level and the unit levels seemed are more or less dependent on the basic data from the work teams.

The conclusion is that a national governance by objectives and results creates a situation where local authorities and organizers, as well as professionals, to a certain extent, can re- create follow up systems which suits their administrative and most of all, pedagogic needs. The 'cost' for this local and professional agency is that the additional several follow up systems/activities increases the administrative burden.

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Are locally contracted teachers cost effective means to increase teacher accountability for the poor?
- Case study of community hired teachers in rural Zambia

Taeko Okitsu
The University of Tokyo,
7-3-1, Hongo, Bunkyo-ku, Tokyo, 113-0033, Japan
taeko_inagaki@hotmail.com

Abstract: *In Zambia, the number of community-managed schools—institutions in which parents and other members of the community are expected to directly recruit volunteer teachers from the locality, and remunerate, monitor, discipline, and dismiss those who do not meet expectations—has dramatically increased since the 1990s. Such local education administration is viewed by some commentators as a viable means of addressing the low sense of accountability in the profession with limited cost. Following a case study of three such community schools, this paper investigates how the hiring and firing of volunteer teachers is actually handled in rural Zambia through an exploration of the perspectives and experiences of local actors. The results show that the capacity of parents and their local communities to recruit and manage volunteer teachers effectively is limited due to several micro- and macro- contextual factors; a constraint that has led to shortfall in the expected impact of such decentralization on teacher accountability.*

Keywords: Decentralization, community participation, contract teachers, teacher accountability

Introduction

The participatory school-based management (SBM) has been a mantra in international education development discourse for some time. Proponents argue that decentralising certain functions to the school level, while promoting parental and community participation in its key decision-making will ensure the schools' accountability and responsiveness towards parents and local community (World Bank 2003; Barrera-Osorio et al. 2009; Bruns et al. 2011).

Recently some commentators went on to argue for the 'strong' form of participatory SBM, where parents are given the power to hire and fire their own teachers, has a potential for greater teacher accountability to their clients (parents and students), than the 'moderate' form of SBM where parents are merely invited to participate in budget planning and resource management (World Bank 2003; Patrinos and Kagia 2007; Bruns et al. 2011).

The high expectation for participatory SBM notwithstanding, the causal relationship between such form of school governance and student outcomes in the Sub-Saharan Africa has been mixed (Brunst et al. 2011). This suggests that a study to explore the 'processes' of community participation in school and teacher management in a given context is urgently needed.

Against this background, this paper explores how parents and local community members manage their teachers in community-managed schools in Zambia, and how that influences the teacher accountability. Zambia presents a very interesting case as the government has encouraged parents and local community to establish their own schools by hiring and firing locally contracted teachers called 'volunteer teachers.' While such teachers are expected to be directly 'accountable' to the parents and local community they serve, little is known about whether such expectation is met in reality.

Through the qualitative analysis of participation based on the voices of the various local actors including parents and volunteer teachers, this paper challenges some of the taken-for-granted assumptions on which attempts to promote local control of teachers in low income countries are premised.

Theoretical and empirical debates concerning decentralisation, participation and accountability

Concepts of Decentralisation, Participation and Accountability
Forms of decentralisation have been given various definitions by different commentators. McGinn and Welsh (1999) distinguish three types of decentralisation in education according to where the authority of control is located: *professional expertise, market efficiency and political legitimacy*. Different models of decentralisation in education defines the type of participation and the accountability relationship envisaged.

The decentralisation stimulated by *professional expertise* model regards regional/local education authorities and schools as best qualified to control education. Accordingly, the accountability of decentralised education institutions in this model is most commonly upwards, within the realm of public education's professional hierarchy.

Decentralisation based on *market efficiency* envisages that markets allow customers to choose the schools that satisfy their desires and needs which professionals are unable to offer. Thus, the accountability of the schools and teachers to the clients are exercised through a competitive market, which allows the latter to "vote with their feet" (World Bank 2003).

In contrast to decentralization motivated by *market efficiency*, decentralization stimulated by a concern for *political legitimacy* believes that not only individual parent but the group of parents and wider members of the 'local community' have the political right to take part in key school decision making (Lauglo 1995). This model is known as participatory SBM and has been widely advocated as a promising alternative to the traditional *professional expertise* model of school governance.

In recent years, some proponents of participatory SBM have started strongly advocating for parental and community control of the hiring, remunerating and firing of teachers. They maintain that such local level autonomy in teacher management has the strong potential for greater teacher motivation and commitment to work (for example, DeStefano et al. 2007; Barrera-Osorio et al. 2009; Hanushek and Wößmann 2007; Patrinos and Kagia 2007; Bruns et al. 2011). The argument is that giving parents - who are the principal client and the closest to the point of delivery – the power to hire, reward, monitor, discipline and fire teachers, will incentivize teachers to make a greater effort as they would be afraid of their contracts not being renewed. It is thus argued that lower teacher absenteeism and better teacher performance will be achieved than their government counterparts, who are often rewarded and retained regardless of their standard of delivery. In low-income countries, such locally-hired teachers are frequently not only paid less than their government counterparts, but also often have a lower level of general education and comparatively little or even no training (Duthilleul 2005; Bennel and Akyeampong 2007). Nevertheless, given that training and remuneration costs can be substantially reduced, they are regarded to have a great potential to foster redoubled teacher effort, possibly at a lower per-pupil cost as well (Moore et al. 2007; Bruns et al. 2011).

'Community participation' in school governance –   empirical evidence in low-income countries
A number of experimental studies using randomised or quasi-randomised assignment to the participatory school governance have attempted to analyse the causal relationship between parental or community participation in school management and student outcomes, or other intermediate effects in low- or middle- income countries (for example, Duflo et al. 2007; Bruns et al. 2011). However, the results so far have been mixed and there is limited evidence from low income countries of this general relationship.

The notion of community as a static, homogeneous and un-hierarchical group has been challenged by many researchers (e.g. Rose 2003; Sayed 2002; Suzuki 2004; Bray 2003; Pryor 2005). Moreover, research from SSA often reports the social differences and power imbalances between education professionals (officials and teachers) and parents (for example, Suzuki 2004; Pryor 2005). The empirical research suggests, therefore, that the analysis of community participation in school governance requires the consideration of micro relations in given socio-economic and cultural contexts.

Ball's (1990, 1993) concept of a 'continuous policy cycle' in which policy is 're-contextualized' throughout the process, from policy-making to policy implementation, seems an useful theoretical framework for this study. In particular, his concept of 'context(s) of practice' in which policy is subject to interpretation and recreation Ball highlights that education policies are not simply implemented – they are enacted, interpreted and recreated by different actors in education practice in a specific context. Following his advice, this paper departs from the view that policy is simply implemented as prescribed. Rather, the present paper adopts an essentially sociological approach – i.e., it takes into account the point of view of the people being studies – to its enquiry into the meaning of community participation and its effects on accountability.

Furthermore, the sociological analysis of the meaning of community participation from the viewpoint of the people being studied will not be discussed in isolation from the broader macro policy contexts in which policy reform is implemented. More specifically, it will take into account center–region relationships with regard to the practical distribution of authority and resources to different levels of the decentralized hierarchy; also an important factor that influences the actual form of participation and its effect on accountability.

Community schools in Zambia
The Government of Zambia has pursued the decentralization and liberalization of education with strong emphasis on community participation in local education governance since the 1990s. The national education policy 'Educating our Future (EoF) promoted not only decentralization and community participation in government education institutions, but also emphasized the right of local communities along with the private sector and non-governmental organizations (NGOs) to establish and control their own schools (MOE 1996: 3, 136). Consequently, at the basic education level, the establishment of community schools "provided, run and financed by communities to meet their own needs" (ibid) has been actively promoted in parallel with private and NGO-owned schools:[1]

In Zambia, the number of community schools offering basic education has grown considerably in recent years, escalating from just 55 in 1992 to 2,773 in 2009, a figure which accounts for more than 30 per cent of the total number of schools nationwide that deliver this level of education (MOE 2009). The real driving force for the massive growth in community schools reportedly arose from the response of ordinary Zambians to the unmet demand for basic education, since many children were failing to gain access to government school due to prohibitive distances and costs such as parent-teacher association (PTA) fees (DeStefano 2006; MOE 2007).

The parents and other stakeholders in these institutions are required to play a larger role than their counterparts in respect of government schools. In particular, they are required to provide land and other resources for the school facilities; recruit volunteer teachers preferably holding a secondary school leaving certificate; remunerating, monitoring, disciplining and dismissing them as necessary; and administering the school resources including school grant allocated from the central government (MOE 2001, 2007; ZCSS 2005).

These duties are often, although not always, expected to be implemented through the work of the parent community school committee (PCSC), who are to be regularly elected in the community.

At the time of this study, there was no government subsidy to the salaries of volunteer teachers, and local communities had to bear all such costs unless they received some kind of external assistance.

The context of the study area and data collection method
Research was conducted in Masaiti District in the Copperbelt Province, Zambia from January to June 2008. Masaiti is a rural district in which the primary means of livelihood is mainly subsistence farming, supplemented by seasonal small-scale cash crop production and the burning of charcoal for sale as fuel.

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[1] At the time of the field research, the term "basic education" in the Zambian education system refers to nine years of formal schooling, a structure that incorporates what were formerly known as primary school (grades 1—7) and junior secondary school (grades 8—9).

There are three types of school offering basic education in Masaiti – government, community and private. At the time of the fieldwork, there were 40 government basic schools, 32 community schools, and 1 private basic school. Of the community schools, 10 offered grades 1 to 4 while the others offered grades 1 to 7.

Three schools were chosen as samples from the research district (table 1). Selection was made on the basis of a combination of convenience and purposive sampling. The criteria for the selection of sample schools are (a) location, (b) grades offered, (c) socio-economic status of the school community, (d) availability of external support.

Table 1 Basic profiles of case study schools

School	Loca-tion	Estab-lish-ment	Grades offered	Socio-economic status of community	External support
A	Peri-urban	1994	1–7	Mainly peasant farmers; some engaged in charcoal and vegetable sale in town	- Grant for infrastructure development from CARE and USAID - Grant for infrastructure development from African Brothers (Chinese charity) - Training of care-givers by CARE - Four teachers sponsored by USAID to study on a teacher training course via distance learning - Training of PCSC by CARE - Bicycles and T-shirts provided for volunteer teachers by CARE
B	Peri-urban	2000	1–7	Mainly peasant farmers; some engaged in charcoal nad vegetable sale in town	- Grant for infrastructure development from CARE and USAID - Training of care-givers by CARE - Four teachers sponsored by USAID to study on a teacher training course by distance learning - Training of PCSC by CARE - Bicycles and T-shirts provided for volunteer teachers by CARE
C	Remote	2000	1–4	Peasant farmers	- None

Source: The author.

The study conducted a series of semi-structured interviews using prepared guiding questions, in order to explore the respondents' perceptions and experiences about the parents and local community's participation in teacher management (hiring, remunerating, monitoring, disciplining and firing teachers and their consequences on teacher accountability.

Interviews were carried out with parents, the wider local community, PCSC executive members, volunteer teachers, and teachers seconded by respective mother schools (near-by government schools). Since most discussions with parents were conducted in the local language, I conducted them with the assistance of an interpreter.

As many PCSC meetings were observed as possible in order to grasp relationships between different actors and to shed light on the decision-making process related to the hiring and firing of volunteer teachers.

Community participation in teacher management in the community schools in practice and its effect on teacher accountability

This section analyses the ways in which parents and the wider community participate in the teacher hiring and firing in three selected community schools, based on the perspectives of the different actors. Specifically, form and degree of participation, the factors that promote or hinder it, and the influence this has on teacher accountability towards parents and community are examined.

Participation in recruiting and remunerating volunteer teachers in reality – limited economic capital and the complex micro power relations

The interviews with parent and local community members suggest that most of them – if not all of them - understand that it is their role to recruit sufficiently educated people in their locality to serve as the volunteer teachers in their schools and provide them with allowances that are sufficient to sustain their living.

Nevertheless, the parents and local community members reported that their ability to carry out these responsibilities effectively was greatly constrained.

Firstly, the education level of most villagers was limited and it was hard to find people in the locality with a secondary school leaving certificate, the minimum level of attainment expected of volunteer teachers by the government.

Secondly, it was even more difficult to find anyone who was willing to teach for little or no remuneration. Contrary to the policy's uncritical assumption of the ability and the willingness parents and the wider community to support their volunteer teachers, the level of their contribution varied from school to school, within and individual community, and from time to time, depending mostly on such variables as economic viability but also on other complex motivational factors. The following comment by a parent at school B is illustrative:

> We are happy to pay (to teachers). The only thing is that it is difficult to find the money, especially during the rainy season; we don't even have any meal [maize flour] at home. (Parent, school B)

The difficulty to remunerate teachers were the most severe in the school C, which is located in the most remotest and the poorest among all three sample schools:

> Out of 86 pupils, only about 10 managed to pay. People here have no other means but cutting charcoal for survival during the rainy season. Most of the children here are orphans so it is very difficult to receive a contribution from them. (Volunteer teacher, School C)

The amount that parents were required to contribute to the fund varied mostly depending on the viability of the community; and ranged from ZMK 3,000 (USD 0.73) per child per term in school C, to ZMK 6,000 (USD 1.46) in school A. Accordingly, at school C, where the poverty level was the most severe, the community was only able to retain one volunteer teacher – and a mere grade 9 graduate at that. Thus, with no regular staff on the government payroll seconded by a mother school either, the PTR at School C was an immense 95:1 (table 2). Furthermore, it only accommodated grade 1 to 4, meaning that pupils were unable to proceed any further with their education as the nearest government school that offered higher grades was too far away. Even in school A where the highest level of PCSC subscription is set out, the amount of teacher allowance per term was far below the sustainable level of any citizen in the locality.

Despite such financial disadvantages, some volunteer teachers were enthused to teach out of a strong sense of communal responsibility, while several cited religious conviction as a strong motivational factor. The following comment of a volunteer teacher at school A is illustrative:

> I teach because of my love of the children. When I was a child, my father passed away, so I was

looked after by my grandfather. He was very old, so money for me to go to school was a problem. I remember how I suffered. I thought, "Let me assist these children in the community so that they will not suffer." I am a priest at the church, and people said that they had no one who was educated who could read the Bible; so, this started paining me. That is when I thought, "Let me concentrate on teaching these children so I can improve their education." That is the heart I have. (Volunteer teacher, School A)

Table 2 Community school teaching staff

School	Qualified government teachers seconded by mother school	Volunteer teachers by education level	Pupil Teacher Ratio (PTR)
A	1	G12: 4 G11: 1 G9: 1	1:30
B	1	G12: 4 G11: 1 G9: 1 G7: 1	1:23
C	0	G9: 1	1:95

Source: The author.

Yet, even those frequently experienced personal survival needs that exceeded such philanthropy, leaving them with no other choice but to resign and concentrate on a more profitable means of livelihood. One former volunteer teacher at school C explained his position:

The community came to ask me to assist in teaching their children, and I said let's come to some arrangement. But, community participation was not fully according to our agreement. They said each child should pay ZMK 500, but unfortunately, the parents couldn't afford that. That is why I decided to stop teaching at this school and go to another community school in town supported by a foreign missionary, which pays me better and more regularly. (Former volunteer teacher, School C)

In Schools A and B, USAID (United States Agency for International Development) awarded scholarships to a few qualified volunteer teachers who has the grade 12 certificate for enrolment on a distance learning course offered by a teacher training college. As a result, there was an increase in the number of young people in the community willing to teach at these schools, which included 4 grade 12 graduates in each school (Table 2). However, the scholarships were strictly limited both in number and duration, which led to the swift disillusionment of those teachers who were not successful. School C, which was located in the remotest among all other community schools under study and yet received no donor support, PCSC only managed to retain one volunteer teacher who was merely grade 9 graduate, as others having left owing to the frustration over the lack of any monetary reward from parents.

Some parents and school leaders also revealed that the volunteer teacher recruitment process sometimes lacked transparency and was dominated by a few powerful individuals in the community. Ordinary parents and other community members typically exhibited little knowledge about how volunteer teachers were recruited, considering themselves ill-qualified to involve themselves in the process given their own low educational attainment. For example, one mother remarked: "We don't know how these teachers were recruited; it is the teacher in charge who knows about education and who can find our teachers". This mother went on to complain that the vice chairman of the PCSC who was also the village headman who donated the land for the school,

recruited a teacher who was his close drinking friend, although he was known in the community to be bad tempered.

Furthermore, the selection of some of the beneficiaries of the USAID scholarship was not made according to the conditions set by USAID but through nepotism. For example, two out of the four teachers in school B were relatives of district officials and also the government teacher seconded by the mother school.

Thus, the unspoken policy expectation behind the community recruitment and remuneration of volunteer teachers that parents and local community were able to hire enough number of sufficiently educated volunteer teachers transparently turned to be questionable.

Community participation in monitoring teacher effort to hold teachers to account in reality
In line with policy expectation, two of the three community schools under study were found to have experienced regular monitoring of teachers by the PCSC. In contrast, in school C, some PCSC executives who lived near the school had been in the habit of visiting the school regularly for monitoring purposes in the past, but they had stopped going some time ago because they had become preoccupied with their own farming and other economic activities. Thus, availability and commitment amongst PCSC members in terms of regularly monitoring the school could not always guaranteed and appeared to vary according to school leaders' time and commitment.

As far as the ordinary parents are concerned, they were generally keen to know if their meagle investment in their children's education was indeed worthwhile, which they mostly judged based on the grade 7 examination pass rate.

At the schools A and B, the pass rates of the national grade 7 examination were remarkable in 2006, which parents in these schools generally expressed their satisfaction, In these schools, parents understandably credited good examination results to the commitment of the volunteer teachers. Such feeling had resulted in their greater motivation to pay into PCSC fund to be used as teachers' allowance.

The teachers themselves and a few active PCSC executive members identified several other factors that were likely to have contributed to the commendable examination results, including an improved Pupil Teacher Ratio (PTR) attributable to the recent increase in the number of volunteer teachers thanks to USAID scholarships; and the distribution of albeit out-of-date textbooks to individual pupils by CARE International. In this context, the significance of PTR and pupil-to-textbook ratio is worthy of further research. At the same time, it is also notable that those schools with good learning records (A and B) had reasonably sufficient teaching and learning materials, which, in a context of scarce community resources compounded by limited government assistance, was typically met by NGOs and international donors.

Good examination results at schools A and B notwithstanding, some parents and PCSC executive members revealed that their greatest concern remained the poor attendance record of volunteer teachers they employed. In community schools in Zambia, PCSC meetings represent a participatory and deliberative forum at the grassroots level, in which parents can freely air their views on matters concerning the quality of their school or the performance of teachers – with the majority of them being 'hired' by the community – is expected to be scruitinized; a process that includes the need to discipline or dismiss teachers whose behaviour or performance does not meet the required standard.

However, parents rarely voiced their concerns about teacher attendance at the PCSC meetings I observed. Many felt it inappropriate and inconsiderate to complain about such absenteeism openly, given they had made virtually no financial or in-kind contribution to the remuneration of volunteers' services. For example, one mother in School B community commented:

Teachers do not report on time because they are not paid. But we do not have the power to talk about

teachers because we don't pay them. What we should bear in mind is that teachers are also married and they at least need to eat. (Parent, School B)

However, the study also revealed that the community monitoring of volunteer teacher does not guarantee the ability of the PCSC to discipline or dismiss its volunteer teachers. High absenteeism rates amongst many volunteer teachers notwithstanding, taking disciplinary action by PCSC was not a realistic option in most cases, given the improbability of finding suitable replacements as indicated by the mother school-seconded teacher at School A:.

> There is nothing you can do! If you persist in asking them the reasons why they don't come to school, then they will stop [teaching completely]. Then, it is the pupils who will suffer. So, the only thing to do is to nurse them; treat them like babies (Teacher seconded by the mother school, School A).

Dismissing a volunteer teacher appeared to be a highly sensitive issue too, as it had the potential to unbalance the much-valued unity and social equilibrium of the community and even to incite an act of revenge from the teacher. For example, one PCSC executive member commented that people were generally reluctant to publicly criticize volunteers who came from the same community and were often members of their own extended families; as such, censure would have been regarded as inappropriate in a culture that valued social harmony. The PCSC chairman at school B stated that as much as he would like to fire one volunteer teacher who is known for his violent nature and sometimes verbally abuse children, he was afraid of actually firing this teacher because he was afraid of upsetting this teacher.

Thus, the above discussion highlights the limited power of parents and their representatives in PCSC to hold volunteer teachers they 'hired' to account. Yet it should be noted that volunteer teachers also faced great challenges in attempting to meet the demands of the parents and the local community, which I will turn next.

*Teachers' constraints to be accountable to parents and community for their demands and concern*s

Each volunteer teacher interviewed had a valid point regarding their absence from school. Volunteer teachers' survival instincts often surpassed any sense of obligation or accountability to parents or the community—if there was any. Indeed, time spent teaching—particularly during the rainy season when food at home was scarce and demand for weeding was high ― was a direct sacrifice of livelihood. As the following comments from one such teacher illustrate, they felt that their work was purely self-sacrifice for which they received inadequate support in return:

> We get nothing from there [the school]. We are also human. I should look smart like somebody who eats and washes properly, but the community doesn't motivate us. We just teach without anything. So, if you are not in the mood for teaching, you can just sit like that on that day; why should you go to school? (Volunteer teacher, School B)

Teachers also stressed the difficulty of improving the quality of learning when they were faced to teach classes of differing grades together, which was found to be normal practice in a climate of acute teacher shortage and rampant absenteeism amongst those whom school had managed to engage. Furthermore, some volunteer teachers were of the opinion that it was unacceptable that parents demanded accountability, particularly in terms of their children doing well in the grade 7 examination, given that teachers were ill-equipped, with very few teaching and learning materials, poor infrastructure, and limited opportunities to develop professionally.

Although under the new policy, registered community schools were entitled to the same education materials as government schools, they were often not provided with them. Indeed, there was great ambiguity around who was responsible for delivering teaching and learning materials to community schools—whether it was the near-by government school or the District Education Board (DEB).

Allocation of the quarterly school grant—a lifeline to the community school, which was generally extremely resource-poor—was also dispersed erratically from the DEB. This meant that they were barely able to purchase necessary teaching and learning materials. Even when the grant was dispersed, it was invariably too little to provide a budget with which a school might operate efficiently. Moreover, the funds were often controlled by the mother school, as discussed earlier.

Opportunities for volunteer teachers to participate in in-service teacher training were limited too, unless it was made available by external donors such as USAID. In this regard, some volunteers revealed that they had been denied access to in-service training offered at the DEB resource centre and their nearest government schools; a situation that effectively eliminated any chance of developing the professional knowledge and skills that were necessary if they were to perform to parental levels of expectation in terms of accountability and education delivery. Furthermore, some volunteer teachers reported that they were often derided by government school teachers, and sometimes even by their own peers in the community, on account of their low social status. The following comments from a volunteer teacher in school B summarizes the feelings of many:

> Teachers in the regular [government] schools think we are like animals; they even fail to communicate with us. In Zambia, if you are going to work, there must be something [financial or material compensation] and if you work there without it, you are seen as an inferior person. So, there is no such thing as working for nothing. The word "community" implies that they think we consist of people who are not educated. So now how can we teach our children effectively? (Volunteer teacher, school B)

Conclusion

Under the liberalization and decentralization of the education sector promoted in Zambia, parents and other members of local communities have been accorded the 'right' to hire and fire teachers from their localities. Both theoretical and policy literature expect the local management of teachers to be a cost-effective solution to increase the sense of accountability amongst teachers, thus reducing their absenteeism and improving student outcomes with limited cost. The logic is that such locally hired teachers would make greater efforts than regular teachers on government payroll as they strive to make their contract renewed by their employer – parents and local community members.

Such expectations notwithstanding, the present study has revealed that the capacity of the parents and local community to make their teachers accountable to them is critically constrained by several locally contextualised factors (micro factors) as well as the overall macro- context of the reform.

Firstly, parents often hesitated to publicly voice their concerns about a teacher's high absenteeism at PCSC meetings openly, although they were concerned about it. This, in turn, was due to the fact that they did not pay them sufficiently. Most residents in the study area are subsistent farmers and their day-to-day priorities invariably revolved around sheer survival. In such a context, their ability to remunerate their volunteer teachers sufficiently is extremely constrained. Some local unemployed youth volunteered as teachers in spite of the extremely low remuneration; driven mainly by a strong sense of moral obligation to educate the poor children of their own communities. Yet, such intrinsic motivation was frequently discouraged by their own survival needs, which contributed to a high absenteeism and staff turnover.

Secondly, parents and local community members often judge that hiring volunteer teachers who come from their own community and often their own relatives is culturally inappropriate. They felt that community-teacher conflict had the potential to upset the social equilibrium on which their day-to-day lives depend upon.

Thirdly, while some parents demanded that the PCSC dismissed those teachers who did not regularly report to school, the capacity of the committee to comply with such a requirement was severely constrained, due in the main to a chronic shortage of candidates to fill the vacancy. This situation resulted in frustration on the parts of both parents and teachers—with the former feeling powerless to motivate teachers to attend to their duties

regularly, and the latter left thinking that unreasonable demands were made of them for little or no reward.

Thus, this paper has demonstrated that putting the power to hire and fire teachers into the hands of the local community alone does not mean that it is capable of exercising such 'rights' or exercising them effectively. In reality, such de facto power was regarded by many parents as a tremendous burden rather than an advantage of decentralization.

Fourthly, the interviews with volunteer teachers revealed that they felt that they were ill-equipped to be accountable to the demands of the parents and local community, as they were not provided with not only sufficient remuneration but also with adequate school grant, teaching and learning materials, and the professional training from the government, which their government counterparts enjoy. Thus, this case study illustrates that a policy designed for decentralisation of education services with greater community participation in school governance does not necessarily include decentralisation of the corresponding financial and human resources when reform is conducted in the context of state response to resource constraints (Bray 2003). This macro-level consideration is not paid sufficient attention in the existing literature on the relations between decentralisation, community participation and teacher accountability in education.

The liberalisation of education adopted in Zambia transferred responsibility for the delivery of high quality basic schooling from the state to pupils' families and the wider community under the rhetorical banner of "greater democracy in the management and administration of the system (MOE 1996: 3). Such a policy shift was in line with the global narrative of neo-liberal principles and individual responsibility for meeting social needs (Rose 2003)—which understandably accorded well with the bankrupt government's attempt to achieve EFA with the minimum financial outlay. As such, the narrative around the community management of teachers appears to undermine the role of the state in the provision of various necessities that are required for teachers to perform effectively.

Taken together, this paper argues that the claim of some commentators (e.g. World Bank 2003; Barrera-Osorio et al. 2009; Bruns et al. 2011) that in granting the community direct control over the recruitment and management of teaching staff, teacher accountability will be improved, is open to question. Rather, the study demonstrates that, in the absence of strong state authority, the de facto delegation of the power to hire and fire community school teachers is unlikely to result in the increased ability of parents to hold such teachers to account.

The ethos of the community-managed school whereby teachers are locally hired, remunerated and disciplined was founded upon a number of theoretical premises—principally: 1) there is a large enough pool of sufficiently highly educated residents in the locality from which the community can select its teachers; 2) parents have the requisite economic capital to remunerate teachers to a degree that can sustain their livelihoods; 3) parents are able to freely discipline or dismiss those teachers whose performance and/or morale are judged to be unsatisfactory; and 4) teachers have the adequate ability and resources to respond to the demands and expectations of the parents. However, it was found that none of these criteria were met in respect of the school catchments under study; the like of which were apparently neither explicitly nor systematically taken into consideration in the government's promotion of community management of schools.

In the current situation, it is likely that community schools will continue to play an important complementary role in the achievement of education for all (EFA) in Zambia, serving the educational needs of the poorest and remotest citizens. Thus, adequate and consistent support to these schools should be provided on an equal basis to that of the government school, for example, the deployment of qualified teachers on the government payroll, and the supply of up to date teaching and learning materials. The development of formal policy guidelines setting out the government's support to the community school has been a big step forward in this regard. Nevertheless, further reform is necessary if the current inequitable two-tier schooling system is not to be reinforced, and community schools do not continue to suffer from poor education delivery, which in turn, may further discourage demand for schooling at the community level.

It is also imperative that volunteer teachers are provided with social and professional recognition, the concomitant financial remuneration, and a life-long career development plan. Simultaneously, the professional development of volunteer teachers – including short-term and long-term courses leading to a formal teaching certificate – should also be considered and implemented in a systematic fashion.

Finally, together with the above mentioned enhanced roles for the schools, various measures can be taken to enhance the capacity of parents and the local community to effectively and transparently participate in recruiting, monitoring and disciplining teachers as appropriate. Such activities may include capacity building of parents, local community members and the PCSC executives, in the area of adult literacy and numeracy, effective public deliberation, regular monitoring of teacher attendance and democratic elections of their school leaders.

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The comparative study on facilitating factors and obstacles upon educational policy implementation within 3 decades of East Asian Countries: Republic of Korea, Taiwan and Japan

Gampanat Boriboon,
Department of Adult Education, Srinakharinwirot University
114 Faculty of Education, Srinakharinwirot University,
Sukhumvit 23, Wattana Dist., Bangkok 10110 Thailand
aeswu2002@yahoo.com

Patcharaporn Srisawat,
Department of Guidance and Educational Psychology, Srinakharinwirot University
114 Faculty of Education, Srinakharinwirot University,
Sukhumvit 23, Wattana Dist., Bangkok 10110 Thailand
s_patcharaporn@hotmail.com

Sorrapakksorn Chatrakamollathas,
Burapha University International College (BUUIC)
169 Longhard-Bangsaen Rd., T.Saensook,
A.Muang, Chonburi 20131 Thailand
sorrapakksorn@hotmail.com

Wilairuk Langka,
Department of Educational Evaluation, Srinakharinwirot University
14 Faculty of Education, Srinakharinwirot University,
Sukhumvit 23, Wattana Dist., Bangkok 10110
w_langka@hotmail.com

Abstract: *The aims of this research were to compare context factors effecting to the educational policy, and to compare facilitating factors and obstacles effecting to the success of educational policy implementation within 3 decades of East Asian countries: Republic of Korea, Taiwan and Japan.   This research relies on qualitative methodology. The data were collected by documentary technique and in-depth interview technique with administrators, teachers, and college instructors who worked in these 3 countries. The findings were:*
1) *Economics was concerned for the educational policy formulations.*
2) *Politics was the basic driving forces behind the education reform.*
3) *The education reform emerged from the severe competition on the college entrance examination in most countries.*
4) *The facilitating factors effecting to the success of educational policy implementation were political, economic, social and cultural strengths.*
5) *The fast growing economic caused the high competition on the entrance examination which leaded to the social problem issue.*

Keywords: Educational policy, policy implementation

Background

Education is an important mechanism to develop citizens which is the key factor to develop country to have the potential in competition and creatively cooperation in the world. As the indication of the country development is economic indices and one of these indices is Gross Domestic Product (GDP) which represents the market value of all goods and services produced by the economy during the period measured, including personal consumption, government purchases, private inventories, paid-in construction costs and the foreign trade balance (Bodie, Kane, & Marcus, 2010). GDP can used as an indicator of cost of living of people in that country. The citizen in the countries that have high Gross Domestic Product (GDP) trend to have high quality

and potential in high competition which is the result from their education management. As the top three countries having high Gross Domestic Product (GDP) in year 2012 in East Asia and South East Asia were the People's Republic of China, Japan, and Republic of Korea (Knoema, 2013). Those countries got the high students' assessment score in mathematics and science knowledge called "Trends in International Mathematics and Science Study (TIMSS)", the indicator of success of education development which reference in many countries, in top 5 of the world more than decade. (National Center for Education Statistics, 1997; National Center for Education Statistics, 2000; National Center for Education Statistics, 2004; National Center for Education Statistics, 2008)

Education in Japan changed along with the political change. Japan had first started education reform in Meiji Era. (1898 - 1912) which was the same period as during King Rama V period in Thailand (Office of the Education Council, 2007). This was the reform for readiness in industry and military to hasten educational development throughout all levels especially vocational and higher education levels. But during World War II Education in Japan became the tools of military dictatorship substantially curriculum that focused on both fascism and warfare content. But after World War II, United States of America possessed Japan and tried to reform education by issuing Fundamental Law of Education 1947 to specify path for Japan to expand compulsory education focusing on equality and equity of citizen by specifying new syllabus focusing on becoming a complete human being and respecting individual rights along with democratic system. While the third education reform had the objective to improve education to fit to state of economics and society that changed by focusing on lifelong learning to prepare their people to the 21st century. Even though politics was important part in change in Japan education by decentralizing education to locality. Moreover, the important strength that Japan could manage education effectively was the preservation of the country's good traditions and culture by integrating them in education at all levels (Office of the Education Council, 2007).

Taiwan had the political oppression by China which was the conflict between these 2 countries. In Taiwan there was the difference between traditional Chinese strain and mainland Chinese. The conflict affected to the indetermination of the country's political but Taiwan found the way-out by developing economics growth which caused Taiwan at the present having the reputation among countries in developing the economics system and democratic politics in the world ranking such as the world business competition ranks in 1999 by the International Institute for Management Development (IMD) that ranked Taiwan 9th in management, 10th in science and technology, 11th in government, and 15th in people (Chaohinfah, 2006). This reflected that Taiwan could lay the foundation of all over people in the country by lifting their education level efficiently.

In Republic of Korea, Japan had the important role in the first period of education development (1945-1961). Later United State of America played the role and involved in Republic of Korea's education by financing the expansion of education opportunity. This was the starting of literacy development of Republic of Korea's citizen and between 1962-1992 republic of Korea used policy building economic growth by giving the precedence to the change of external factor that brought to the pressure from world competitiveness which made the structure change all the time. The effect of it motivated investment in education which resulted the society having higher level of education. (Lee, 2007)

These three countries had the similar starting point in education development. Their countries development reflected the efficiency in the education policy implementation which leading them to the best economics development countries in East Asia. Therefore, the research team were interested to study on facilitating factors and obstacles upon educational policy implementation of these three countries within 3 decades.

Research objectives

       1) to compare context factors: history, culture, economics, political and others effecting to the educational policy within 3 decades of East Asian countries: Republic of Korea, Taiwan and Japan.

       2) *to compare facilitating factors and obstacles effecting to the success of educational policy* implementation within 3 decades of East Asian countries: Republic of Korea, Taiwan and Japan.

Research method

This research relied on qualitative methodology which consisted of 2 stages:

Stage1: The data collection by documentary technique

Data were collected from the related literatures in educational policy, social factors, economics factors and the political factors of these three countries over past 3 decades. The content analysis was used to analyze the collected data for the role of social, economics and political in educational policy implementation.

Stage 2: In-depth Interview

In-depth interview was used to confirm the information from the stage 1. The interviews were held by research team through a structure interview questions that followed the research objectives. The structure interview questions' content validity assessment was done by professional experts. The interviewees were 16 administrators, teachers, and college instructors who worked in these three countries.

Results

The comparison of context factors: economics, social, and political effecting to the educational policy within 3 decades of East Asian countries: Republic of Korea, Taiwan and Japan showed that:

1.1 Economics was concerned for the educational policy formulation especially Japan and Republic of Korea. Japan was the first countries among these three countries that started the education reform because of the country's economic crisis: the 'Oil Shock' in 1970 causing the Japanese government started the educational reform in 1980 to prepare the readiness for becoming a developed country. While Republic of Korea's per capita income (PCI) increased, it's per capita income was less than $80 in 1960 and increased to $1,600 by 1980 then the Republic of Korea's government emphasized on the quality of education. Both countries focused on the education opportunity expansion such as Japan did the education reform in basic education by opening the opportunity for high school students in credit transferring while Republic of Korea tried to develop the tripartite education.

1.2 Politics influenced educational policy implementation, ostensibly in Taiwan. In 1986, Taiwan was criticized about the dictation of Kuomintang (KMT), Taiwan's Political Party, that controlled education to serve political purposes by producing solders as teachers to educate students having their national ideology. Therefore, politics was the basic driving forces behind the teacher education development, including the pressure from other countries that forced Taiwan to open the country for free trade. In Japan, politics also was the driving forces behind the education reform. The committee that the members were from different organizations involved in education reform which prepared Japan to be a leader in economics, science, and technology including to be the leader in international politics and the "National State". In 1993, Japan had the critical political change which was the lost in power in parliament of Liberal Democratic Party that was in power for more than 38 years. However, the educational policy of former government still operated continuously (JICA, 2004). While Republic of Korea after the critical political change by having the first civil prime minister in 1993 who realized the education reform as the tool to solve the education problem and to prepare the readiness for 21st century.

1.3 Social influenced policy implementation in Republic of Korea. The education reform in 1980 emerged from the social Ills and the severe competition for the college entrance examination. The government then focused on human development as a whole person instead (Kim, 2001). Like in Japan that there was also high competition on the college entrance examination which called "Examination hell". Therefore the government was interested in education reform. Moreover, Japan faced the delinquency, violence and bully in school problems which were serious social problems. Besides, the government focused on the educational reform to make the cooperation among schools, families, people, and locality happen (Ministry of Education, cultural, Science, Sport and Technology, 1989). Conversely, Taiwan was interested in environment and resources problem at most because of the crowded population and resources scarcity. This leaded to the environmental education for sustainable development. By integrating the environmental education in general education for students in schools and social education for people in communities.

2. The comparison of the facilitating factors and obstacles effecting to the success of educational policy implementation showed that:

2.1 The important facilitating factors effecting to the success of educational policy implementation of three countries were:

Political strength: political decentralization including education decentralization was one of strengths of educational administration in all three countries. Moreover, these three countries had the continuity in the educational policy formulation both in the government level (policy level) and the implementation units level (strategies level) even though the new government was from the different political party.

Economic strength: over the past three decades, there was change in all three countries which leaded to be the industrial countries. These countries produced workforce to meet the industrial needs. Although Japan gradually changed the education direction to develop its citizens to be the whole persons, Republic of Korea and Taiwan still developed their citizens in response to the economic growth by promoting the vocational education.

Social and cultural strengths: all three countries' cultures originated from Confucianism that inherited over thousand years. Moreover, all three countries gave precedence to characteristics of good citizenship and good value that suited for the country development path to the economics leader.

The characteristics of culture in all tree country were strong and difficult to change even though the social, and economics changed. This was the well facilitating factor for the country development.

2.2 The comparison of obstacles effecting to the success of educational policy implementation showed that:

For all three countries, the fast growing economics caused the high competition on the entrance examination after finishing the basic education which leaded to the social problem issue such as stress, suicide, the parents' investment in tutorial education, etc.

The same social condition that was an obstacle effecting to the educational policy implementation of all three countries was aging population problem. The study found that only Japan fully gave precedence to education for elderly but there was not such a distinct policy in other two countries. However, the study found that there were activities that promoted lifelong learning and education for social development in all three countries.

Suggestions

1) the educational policy should have the continuity both in the government level (policy level) and the implementation units (the strategies level) by issue the law or the system to protect the educational policy from the political interference then the policy implementation could operate continuously. In order that the political decentralization and educational decentralization should focus the participation in the local level and truly give the opportunity to the people in community in setting the educational policy in all education levels.

2) the manpower planning should respond to the country development direction by issuing the education plan corresponding to the local needs or the graduates users' needs. There is the need assessment practice. In order that graduates users truly participate from issuing the policy until policy implementing by setting up the network supporting all the education levels.

3) the country's social and culture strength should be promoted by focusing on citizenship characteristics, good value characteristics that suit for the country development path.

4) a system should be set to protect or reduce the severe competition in entrance examination to the higher level of study which will cause the social problem next.

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Primary/Junior Teacher Candidates' Understanding
and Application of Standards of Practice for the Teaching Profession

Shirley Van Nuland
Faculty of Education
University of Ontario Institute of Technology
11 Simcoe Street North
Oshawa, Ontario Canada L1G 4R7
shirley.vannuland@uoit.ca

Sarah Abdelmassih
Faculty of Science
University of Ontario Institute of Technology
2000 Simcoe Street North
Oshawa, Ontario Canada L1H 7K4
sabdelmassih@rogers.com

Abstract: *Since the latter 1990's, Australia, the United Kingdom, the United States, and elsewhere (Sachs, 2003) have debated the use of standards for the teaching profession. Ontario Canada has had standards in place since 2000. But what level of understanding of standards of practice is reported by Primary / Junior Teacher Candidates and how do teachers respond to their development and use? The Teacher Candidates responded to Likert-style and open-ended questions to capture their experiences and opinions. They believe that the Standards of Practice for the Teaching Profession (Standards) are useful for teacher performance appraisal, that there is a lack of discussion on the Standards and their role in their teacher education program, and that the Standards entail bureaucratic control over teachers. Suggestions for improvements on Teacher Candidates' understanding of Standards are provided based on the data and findings.*

Keywords: Standards of Practice; teacher candidate; understanding; application

Introduction:

Schools play in a "vital role in the physical, emotional, social, cultural and intellectual growth of students" (Manley-Casimir & Manley-Casimir, 2009, p. 12) where teachers strive to work for the well-being of children. These teachers need to be masters of their content area and skillful pedagogues in their teaching approaches to ensure they meet the diverse learning needs of their students. Teacher quality has been confirmed to be one of the most important factors to influence student achievement. Darling-Hammond, LaFors, and Snyder (2001) in their study to determine what matters and what works in teacher education and applicable to student achievement (reviewing the work of Greenwood, Hedges & Laine (1996), Ashton & Crocker (1986), and others) concluded that "teachers' qualifications--based on measures of knowledge and expertise, education, and experience--account for a larger share of the variance in students' achievement than any other single factor, including poverty, race, and parent education" (p. 10). Studies from other jurisdictions have arrived at similar conclusions (Cuttance, 2001). Darling-Hammond et al. (2001) determined that developing a common vision coupled with explicit standards that state what professional teachers should know and be able to do will help to teach in a diverse student community

Review of Literature and Context of Study:

Since the latter 1990's, Australia, the United Kingdom, the United States, and elsewhere (Sachs, 2003b) have debated the use of standards for the teaching profession. Ontario schoolteachers, since 2000, have been subject to *Standards of Practice for the Teaching Profession* (*Standards*) which describe "the knowledge, skills, and values" inherent in Ontario's teaching profession. These standards articulate the goals and aspirations of the profession." (Ontario College of Teachers, 2015a). A few short years after its establishment, the Ontario College of Teachers

(the College), as the registration and licensing body for Ontario's teachers and the accrediting agency for faculties of education, developed the first set of *Standards of Practice for the Teaching Profession* in 1999. These were reviewed and revised in 2006. This paper reports on a study of the understanding and application that Ontario Teacher Candidates have with regard to the *Standards*.

As the self-regulatory body for the teaching profession in the province, the Ontario College of Teachers accredits professional education programs in Ontario. "Accreditation helps to ensure the programs and courses that prepare teachers are based on the profession's ethical and practice standards" (Ontario College of Teachers, 2015b). The College describes accreditation as "a status granted to programs that meet the criteria established in regulation" (Ontario College of Teachers, n.d. p. 3). Regulation 347/02 outlines that this criteria is to include a clearly delineated conceptual framework, that the program is consistent with and reflects the college's *Standards of Practice for the Teaching Profession* and *the Ethical Standards for the Teaching Profession,* current research on teacher education and integration of theory and practice, that the program curriculum uses current Ontario curriculum, that the program includes successful completion of the practicum, etc. (Government of Ontario 2014). It is in this pre-service program that Ontario Teacher Candidates learn about the *Standards.*

Before entering into the discussion on Teacher Candidates and *Standards,* a short description on standards, their development and their role in general follows. Sykes (1989) notes that, historically, standards evolved slowly in stages and unevenly across the professions. Science and the modern university have strongly influenced this evolution, from apprentice arrangements to formal education in a professional school. Medicine is an excellent example of how standards evolved. Its early development was necessary because of the risks involved in having non-qualified practitioners or qualified doctors malpractice. Becoming a doctor has traditionally involved a university based pre-entry education which includes both an appropriate undergraduate experience and a rigorous professional one, selection for entry from one stage to the next, and a professional examination following academic graduation. This system entitles the successful candidate to practise in a variety of professional areas, experiencing actual practice problems under gradually lessening supervision until the neophyte professional is deemed fully qualified for autonomous practice. This process ensures there is a level of performance satisfactory to all parties--clients, peers, authority, and the public.

The explanation of standard as "a tool for rendering appropriately precise, the making of judgments and decisions in the context of shared meanings and values" (Sykes & Plasrik, 1993, p. 4) outlines the components that many practitioners agree are necessary in practising one's profession. A common understanding is essential in providing a judgment or decision on one's tasks; this allows for discussion/disagreement/agreement to occur within a shared understanding. Within industry and fabrication, the industry standard of "any set of agreed upon rules for the production of (textual or material) objects" (Bowker & Starr, 1999, p. 3) ensures that what is manufactured meets the needs of those requiring it. Within teaching, standards are presented as a "as a mechanism for improving the status of the teaching profession and as a means to develop high-quality teachers and enhance student learning outcomes" (Kriewaldt, 2012, p. 31 citing Darling-Hammond, 2006). A common language to discuss what it means to teach may be found in standards' documents. Standards may also be explained as "performances of teaching and learning in networks of practice" (Mulcahy, 2011, p. 109), whereby teachers may review their performances in comparison to the standards. Standards are found in many professional organizations and one area over which professional organizations have control.

In the *Standards of Practice for the Teaching Profession*, five domains were advanced by the Ontario College of Teachers; the five original domains included Commitment to Students and Student Learning; Professional Knowledge; Teaching Practice; Leadership and Community; and, outlined below, Ongoing Professional Learning. In each original domain, through global statements and more specific explanations, the teacher was described in a particular role (learner, professional, etc.) and how to undertake this role. Each domain was divided into categories and each category outlined behaviours that teachers would enact to activate the statement.

      Ongoing Professional Learning

Teachers are learners who acknowledge the interdependence of teacher learning and student learning. Teachers engage in a continuum of professional growth to improve their practice.

1. Teacher learning and student learning

    Teachers:

    a. understand that teacher learning is directly related to student learning;
    b. act as role models who demonstrate lifelong learning;
    c. engage in a variety of learning opportunities both individual and collaborative that are integrated into practice for the benefit of student learning.

2. Professional growth

    Teachers:

    a. recognize that continuous professional growth is an integral part of teaching;
    b. recognize that teaching and professional growth are influenced by personal, social and educational contexts;
    c. understand that teaching practice is enhanced by many forms of knowledge, ways of knowing and ways to access that knowledge;
    d. anticipate and plan the kinds of learning they will need to respond to a variety of educational contexts.

3. Improving practice

    Teachers:

    a. demonstrate a commitment to continued professional growth;
    b. know that professional learning is most effective when it is job-embedded, relevant and supported by others within the educational community;
    c. reflect on their practice and learn from experience;
    d. draw on and contribute, where appropriate, to various forms of educational research to improve their practice;
    e. collaborate with colleagues to enhance student learning. (OCT, 1999)

A *Standards'* review occurred in 2005 – 2006 with no change in the domain titles but in the description of each domain. These are the *Standards* currently in place. The current standard replacing the above Ongoing Professional Learning states: "Members recognize that a commitment to ongoing professional learning is integral to effective practice and to student learning. Professional practice and self-directed learning are informed by experience, research, collaboration and knowledge" (Ontario College of Teachers, 2015a).

The College determined that the *Standards of Practice*

provide a framework of principles that describes the knowledge, skills and values inherent in Ontario's teaching profession. These standards articulate the goals and aspirations of the profession. These standards convey a collective vision of professionalism that guides the daily practice of members of the Ontario College of Teachers (Ontario College of Teachers, 2015a).

The Purposes of the Standards of Practice for the Teaching Profession are stated as follows:

to inspire a shared vision for the teaching profession
to identify the values, knowledge and skills that are distinctive to the teaching profession
to guide the professional judgment and actions of the teaching profession
to promote a common language that fosters an understanding of what it means
to be a member of the teaching profession (Ontario College of Teachers, 2015a).

The remaining four *Standards* follow:

Commitment to Students and Student Learning

Members are dedicated in their care and commitment to students. They treat students equitably and with respect and are sensitive to factors that influence individual student learning. Members facilitate the development of students as contributing citizens of Canadian society.

Professional Knowledge
Members strive to be current in their professional knowledge and recognize its relationship to practice. They understand and reflect on student development, learning theory, pedagogy, curriculum, ethics, educational research and related policies and legislation to inform professional judgment in practice.

Professional Practice
Members apply professional knowledge and experience to promote student learning. They use appropriate pedagogy, assessment and evaluation, resources and technology in planning for and responding to the needs of individual students and learning communities. Members refine their professional practice through ongoing inquiry, dialogue and reflection.

Leadership in Learning Communities
Members promote and participate in the creation of collaborative, safe and supportive learning communities. They recognize their shared responsibilities and leadership roles in facilitating student success. Members maintain and uphold the principles of the ethical standards in these learning communities (Ontario College of Teachers, 2015a).

In comparing the 1999 *Standard* for Ongoing Professional Learning with the 2006 *Standard*, the previous standard was more descriptive of the teachers' behaviours or knowledge that they are expected to demonstrate (or reflect on, act on, collaborate, anticipate, etc.). The 2006 statement is more inspirational rather than directive.

In addition, the original *Standards'* documentation (1999) states that *Standards* were not developed for the purpose of teacher evaluation nor to be used in evaluating teachers. Yet, in 2002, the *Standards* structure (and, in effect, content) was adopted by the provincial government for the purpose of teacher evaluation.

Standards are seen both as a way to improve the teaching profession and to control teachers' practice. Issues such as external regulations, compliance, government imposition, and accountability are often associated with the definition of standards. Additionally, themes of improving the teaching profession, self-regulation, activism, and definition of standards of professional practice from within the profession are also identified in the literature.

Since future teachers in Ontario will be judged by the *Standards of Practice for the Teaching Profession*, it is essential that they know and understand these *Standards*. Each faculty of education is required to use the principles of the *Standards* and the *Standards* themselves as the basis for their programs. Since no studies have been developed on teacher candidates' understanding of *Standards,* this timely study was developed to address this void.

Three research questions were developed:
1. What do Teacher Candidates understand about the *Standards of Practice for the Teaching Profession*?
2. How do Teacher Candidates perceive that the *Standards* are used?
3. What do Teacher Candidates believe concerning the use of *Standards*?

The 35 statement items used to develop the survey were categorized into five areas: teacher professionalism and professionalization; performance appraisal and accountability; knowledge of the *Standards*; application of the *Standards*; and professional development (See Appendix 1).

Methodology:

In order to explore Ontario Teacher Candidates' responses to the current *Standards*, a survey was developed to investigate how Teacher Candidates view standards in general, with specific statements on how standards are used/should be used, how they should be developed, and the impact of the standards. The questionnaire design reflects standard practice in educational research (Gray & Airasian, 2003) seeking demographic data, responses to Likert-style statements, and qualitative comments. On ethical approval from the university's Ethics Review Board, a letter outlining the research and inviting participation was developed for the survey.

Population and Sample
The population for this study consisted of all Primary/Junior Teacher Candidates studying at a faculty of education at an Ontario university between 2013 and 2015. On completion of their program of study, the Teacher Candidates are eligible to teach from grades junior kindergarten to grade 6 (with Primary/Junior certification) in Ontario. Respondents included only consecutive teacher education students; these students have at least one undergraduate degree and are in a one-year teacher education program to achieve a Bachelor of Education. While concurrent education students are part of the faculty of education program, they were not included since their background knowledge of the *Standards* would have extended over five years of their education program. The course work that these Teacher Candidates undertake consists of mandatory and elective courses.

Instrument
The questionnaire consisted of three separate areas. Part A asked for demographic (gender, age, teaching level, teaching background on practicum placement) information. The responses in Part B were in reply to 35 statements formed to allow a Likert-style approach (1 = strongly disagree to 5 = strongly agree). The two open-ended questions in Part 3 intended to capture of teachers' experiences and response beyond Part B (Patton, 1990). The open-ended questions had not been analyzed for reliability. To measure internal consistency, Cronbach's Alpha was used. The alpha coefficient for the 35 items is .980, suggesting that the items have relatively high internal consistency. Following the rule of George and Mallery (2003), the reliability coefficient is considered 'excellent' since a reliability coefficient of .70 or higher is considered 'acceptable' in most social science research.

Data Collection
The questionnaire results generated quantifiable data (Gray & Airasian, 2003). The study occurred in the last two weeks of the Teacher Candidates' program just prior to the candidates entering their final practicum. The responses to the demographic questions were grouped and reported utilizing frequency tables to provide a collective picture of the survey sample. The Statistical Program for Social Sciences (SPSS) was used to conduct the analysis. Each set of survey responses was written as a single record with each respondent assigned a case identification number. The data analysis included a comparison of responses controlling for differences by gender and age and year of response.

The data was collected toward the end of the academic year when many students are stressed about completing assignments, preparing for placement, etc. To entice return of the surveys, the Teacher Candidates were informed that 10 draws for 'Tims' cards of $10. each would held for all Candidates who returned the completed form. Each completed survey and each identifier (name and mailing address) were sealed in two envelopes and returned to the Practicum Office where they were collected. The survey envelopes were opened first and given to the research assistant for data entry. The contents of identifier envelopes were removed and, at random, 10 entries were chosen to receive the 'Tims' cards.

Findings and Discussion
The majority of the respondents (n = 48) were female (n = 42) with a predominance of primary junior candidates (70.7%) aged between 18 and 24 years (56.1%).
This data for gender and age are comparable to the faculty of education primary junior program enrolment. In the Primary Junior program there are many more female teacher candidates than male candidates. The return rate of the survey is 15.8%. These Teacher Candidates completed the survey during the last two weeks of academic year,

just before their last placement. This lower response rate can be attributed, in part, to the time that they completed the survey, that is, at a time when they needed to complete final assignments and anxious to prepare for placement. The researcher deliberately held the survey at that time in order to give ample opportunities for discussion in classes on the *Standards* in the second term of the program. The surveys were distributed to the Teacher Candidates by two instructors in mandatory, content-laden classes.

Table 1 – Demographics

Gender	%	n		Age	18-24		25-34		35+	
					%	n	%	n	%	n
F	87.5	42		**F**	47.9	23	27.0	13	12.5	6
M	12.5	6		**M**	2.0	1	6.35	3	2.0	2

Familiarity with the *Standards* is the first step for Teacher Candidates to apply them to practice; 85.4% (41/48) indicated so. When asked if the *Standards* were discussed on the last practicum placement in which the Teacher Candidates participated, 45.8% (19/42) indicated that the *Standards* were discussed. This lack of discussion on the *Standards* while on placement suggests that they are not as important to the candidates as they believe when compared to their responses to the *Standards* statements or Teacher Candidates could not determine a connection between practicum and *Standards*. On the statement, "Standards of Practice are an important basis for quality improvement within the context of teacher learning and development", 89.6% agreed that it was important, yet it would appear not for discussion on placement in view of the limited discussion. Similarly, the responses to "The Standards of Practice are relevant for my ongoing professional development" (95.8%) and "Standards of Practice are important to foster teacher professionalism" (95.9%) evoked strong agreement from the Teacher Candidates but limited discussion on placement where one would expect discussion on their development and teacher professionalism. This lack of *Standards* discussion on practicum placement cannot be attributed solely to the Teacher Candidates. These future teachers are under the direction of Associate Teachers in whose classes they are learning and applying their skills. If the Associate Teachers are directing the discussion, Teacher Candidates may be reluctant to broach the topic. In a previous study on *Standards* (Van Nuland, 2014), 60.8% of the responding members of the Ontario College of Teachers (i.e., licensed teachers) reported that "Standards are useful to guide teachers' work". Associate Teachers who are also members of the College may see the *Standards* as not as useful to guide teachers' work, whereas 93.8% of the Teacher Candidates believe they are useful.

Table 2 – Significance

The statement "The Standards of Practice were discussed on my last placement" was used to relate to all item statements. The four statements in Table 2 were found to be statistically significant.

Statement	Levene's test for equality of variances Significance	2 Tailed-Significance (p)
I am familiar with the *Standards of Practice for the Teaching Profession*.	0.974 (>0.05) (equal variances assumed)	0.048 (p<0.05)

Teacher Candidates (54.2%) who stated that the *Standards* were not discussed on placement also disagreed with the above statement. A review of the Field Experience Handbook (i.e., handbook for Teacher Candidates, Associate Teachers and principals outlines all the requirements for practicum along with the evaluation process for Teacher Candidates) shows that references to *Standards* are limited to two sections: 1) the statement that 'The overall program learning outcomes have been based on the Ontario College of Teachers' Standards of Practice for the Teaching Profession' and 2) a listing of the *Standards*. The evaluation instrument of Teacher Candidates' teaching on their placement uses terms that are found in the *Standards* (e.g., commitment, knowledge, respect) but without specific reference in the evaluation instrument to the *Standards*. Teacher Candidates on placement are

absorbed with all the details necessary for their longevity on placement; without direct reference to or illustration of the *Standards* they may not be aware how the *Standards* apply to their work.

Statement	Levene's test for equality of variances Significance	2 Tailed-Significance (p)
The Standards of Practice have been discussed in my classes.	0.014 (<0.05) (equal variances not assumed)	0.035 (p<0.05)

Accreditation from the Ontario College of Teachers is required for Ontario's faculties of education to provide an education program for Teacher Candidates. The *Standards of Practice* are to be included in the courses of study such that the overall program learning outcomes are based on the *Standards*. Courses of study are shared with Teacher Candidates to acquaint them with the course outcomes, content, strategies, assessment and evaluation, etc. In response to the statement item, 70.9% of the Teacher Candidates state that the *Standards* were discussed in classes. Given the expectation that Teacher Candidates are to know the *Standards,* this result is of concern.

Statement	Levene's test for equality of variances Significance	2 Tailed-Significance (p)
Standards of Practice are important to enhance teacher status.	0.008 (<0.05) (equal variance is not assumed)	0.006 (p<0.05)

Teacher Candidates who stated that *Standards* were not discussed on practicum also believed that the *Standards* are not important to enhance status. Hoyle (1969) addressing 'teacher status' discusses that

> The status of the individual teacher, his self-esteem, and the manner in which he performs his role are to some extent dependent upon the status of the teaching profession in society. This is more than simply the question of whether teaching is a profession ... (but) ... whether teaching enjoys, or is likely to enjoy in the future the prestige and privileges which are accorded in our society to such high status occupations as medicine, law, dentistry, architecture ... which are at the top of the professional continuum (p. 80).

Professions such as medicine, law, dentistry, etc. have had standards as part of their education and practice. Without discussion of *Standards* in practice, Teacher Candidates lose the application of 'learning on practice' and 'learning in practice'.

Statement	Levene's test for equality of variances Significance	2 Tailed-Significance (p)
Standards of Practice are an important basis for quality improvement within the context of teacher learning and development.	0.137 (>0.05) (equal variances assumed)	0.022 (p<0.05)

Again Teacher Candidates who had not discussed the *Standards* during their practicum placement also believed that the *Standards* are not an important basis for quality improvement.

Fifty percent (50%) of the Primary Junior Teacher Candidates believe that the *Standards* entail bureaucratic control over teachers. The Ontario College of Teachers which developed the *Standards* regulates the teaching profession through teacher registration and accreditation, discipline. Each year members of the College must pay member dues to keep their certification current. The belief that *Standards* do entail bureaucratic control over teachers is supported by Fox, White, and Kidd (2011), Sachs (2003), and Kriewaldt (2012).

Conclusions:

This study investigated preservice teachers' perceptions and understandings of the Ontario *Standards of Practice for the Teaching Profession*. Analysis signalled statistical significance for some items paired with discussion of the *Standards* on placement. Based on responses from the Teacher Candidates and analysis of the data, a number of conclusions regarding *Standards* have been developed.

Since almost 30% stated that *Standards* were not discussed in university coursework, instruction and assignments must align with the *Standards*. Re-valuating the aims of each coursework unit and reworking the unit to more adequately reflect a specific standard should ensure that Teacher Candidates are more knowledgeable about the *Standards*. Teaching standards must be consistent across coursework curricula.

More rigorous measurements are needed. Hudson (2009) concludes that "[u]niversity coursework and related assessments can provide an indication of achieving these standards, especially stringent monitoring of field experiences where preservice teachers are placed in real-world roles to demonstrate their capacities for achieving teaching standards" (p. 70). This study supports his conclusion.

Almost 71% of the Teacher Candidates reported that *Standards* were often discussed in classes which shows that classes are not the only locale where *Standards* are learned since 85.4% of the Teacher Candidates indicated familiarity with *Standards*. If Teacher Candidates are to increase understanding and application of *Standards,* more direct discussion and application of the *Standards* is needed in pre-service classes and on their practicum placement.

Associate Teachers working with Teacher Candidates must demonstrate the *Standards* for Teacher Candidates. While Teacher Candidates understand the 'role model' (Berryman, 1998) role that they assume, Associate Teachers too have a similar role, to role model excellent teaching. To support the Teacher Candidates' growth, Associate Teachers and Teacher Candidates must hold discussions on the *Standards*.

Teacher Candidates are aware that there is a link between *Standards* and Ontario's teacher performance appraisal system but do not understand what the link is or how it applies. These connections need to be clearly explained so that the Teacher Candidates understand their implications.

Further areas of study were concluded from this review:
1. Follow-up to these Teacher Candidates as teachers is recommended at the end of their second year of teaching to determine changed understanding and uses of *Standards*.
2. With the implementation of a new two year teacher education program in Ontario beginning in 2015, research into the responses of Teacher Candidates at the beginning of Year 1 and the end Years 1 and 2 would provide valuable information on their learnings.

This study is limited by a low return rate. However, the combination of 2013-14 and 2014-15 Primary Junior Teacher Candidates has extended the data rather than taking only each year for analysis.

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Appendix 1

Statements Categorization

The statement items provided for response from teacher candidates are categorized into five areas: application of the *Standards;* knowledge of the *Standards*; performance appraisal and accountability; professional development; and teacher professionalism and professionalization;

While the statement items are categorized alphabetically in this appendix, they were presented in a random order for the survey.

Application of Standards of Practice Items: n = 11	**% Agree**
Standards of Practice are a constructive policy to frame teaching.	93.7
Standards of Practice are a framework to select entrants into teaching.	75.0
Standards of Practice are a positive way to frame teaching.	93.7
Standards of Practice are an important basis for quality improvement within the context of teacher learning and development.	89.6
Standards of Practice are an important framework to certify teachers.	79.2
Standards of Practice are an important framework to use when making decisions about promotion.	79.1
Standards of practice are important to use in communicating with the public.	87.5
Standards of Practice entail bureaucratic control over teachers.	50.0
Standards of Practice for the teaching profession are useful to guide teachers' work.	93.8
Teachers should be consulted in adapting Standards of Practice to a given context.	89.6
Teachers should be consulted in developing the Standards of Practice.	93.8

Knowledge of the Standards of Practice Items n = 4	
I am familiar with the *Standards of Practice for the Teaching Profession*	85.4
Standards of Practice are important for defining what teachers should be able to do.	81.3
Standards of Practice clearly outline what is expected of teachers.	91.7
Standards of Practice have been discussed often in my classes.	70.9

Performance Appraisal and Accountability Items n = 11	
Standards of Practice are a clear tool to assess teachers' performance.	77.1
Standards of Practice are a way of increasing teachers' accountability.	93.8
Standards of Practice are an important basis for articulating assessment of teachers' performance.	87.5
Standards of Practice are an important framework for evaluators to undertake teaching performance appraisals.	95.8
Standards of Practice are an important framework to identify competent teachers.	87.7
Standards of Practice are an important framework to identify good teachers.	81.3

Standards of Practice are an important framework to identify good teaching.	85.5
Standards of Practice are an important tool to regulate the teaching profession.	85.4
Standards of Practice are important to use for quality assurance.	81.3
Standards of Practice are useful for teacher performance appraisal.	95.8
Standards of Practice provide an important framework for benchmarking a teacher's minimum levels of achievement.	79.1

Professional Development Items n = 3	
Standards of Practice are relevant for my ongoing professional development.	95.8
Standards of Practice are relevant tools to support teachers' professional development.	95.9
Standards of Practice are useful to identify the key issues for teachers to improve their professional practice.	87.6

Teacher Professionalism and Professionalization Items n = 6	
It is important to use Standards of Practice to develop professional dialogue.	87.5
Standards of Practice are an important basis for reflection on my teaching practice.	87.6
Standards of Practice are important for promoting a constructive debate about teacher professionalism.	83.4
Standards of Practice are important to enhance teacher status.	77.1
Standards of Practice are important to foster teacher professionalism.	95.9
Standards of Practice are important to make the teaching profession stronger.	91.7

Explaining the Gender Gap in Student Performance in Mozambique:
The Role of Household Tasks

Sugata Sumida[1]

Hiroshima University, 1-5-1 Kagamiyama Higashi Hiroshima, Hiroshima, Japan

sumidasugata@hiroshima-u.ac.jp

Keisuke Kawata[2]

Hiroshima University, 1-5-1 Kagamiyama Higashi Hiroshima, Hiroshima, Japan

keisuke@hiroshima-u.ac.jp

Abstract: *Gender gap of student performance is one of the remaining challenge in Mozambique. This study shed light on the role of household tasks in gender gap of student performance and examine whether the gender gap comes as a result of difference in engagement of household tasks between boys and girls. We employ mean and quantile regression decomposition techniques with using the SACMEQ III data for 3360 pupils in Mozambique. Unlike the most literature, we find that the household tasks would have positive relationship with student performance, particularly in regard to the knowledge of the HIV/AIDS, but possible relations with level of student performance varies from the test score level. Our study illustrates potential influence of household tasks on gender gap of student performance in Mozambique.*

Keywords: Gender Gap, Mozambique, Household Tasks

Background

The situation of education sector in Mozambique have been made great improvement for both boys and girls. In 2000, the net enrollment was 49% for boys and 61% for girls, and in 2007 they improved to 88% and 83% respectively. The enrollment difference between boys and girls have also narrowed from 12% to 5% between 2000 and 2012, and it made steady progress toward the gender parity. On the other hand, the academic performance do not follow the same trend of enrollment rate. The test conducted under the research projects of the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) shows that in 2000, reading score for boys was 518 points while that of girls was 514 points, and in 2007, the scores fell to 478 and 473 points respectively. Not only the scores for boys and girls dropped, but also the difference in scores between boys and girls had widen from 4 points to 5 points, leaving girls' score behind. For the math test, boys' score was 537 points and girls score was 519 points in 2000, while in 2007 it was 488 and 478 respectively. The score gap between boys and girls was narrowed by 8 points between 2000 and 2007, but girls' score is still 10 points lower than boys. Extensive studies which compare boys' and girls' reports that generally boys' score is higher than girls in math test, and on contrary, girls' score is higher than boys in reading test (Hedges and Nowell, 1995; Goldin, Katz, Kuziemko and Perspect, 2000, etc.) In the case of Mozambique, however, this is not the case. Among the 15 education systems which participated in SACMEQ

III, Mozambique is one of the countries, apart from other five countries of Kenya, Malawi, Tanzania (main), Uganda, and Zambia, who shows overall girls' disadvantage in both test scores of reading and math. While the gap of enrollment rate has been considerably improved, the gap in test score and girls' disadvantage is still a remaining challenge in Mozambique.

Mozambican government identified the need and addressed systematical efforts for the gender parity. In 2006, the Cabinet approved the Gender Policy and implementation strategies, and established gender units along with appointed gender focal points in all sectors at central, provincial and district levels. In 2007, the Ministry of Women's Affairs and Social Welfare was established, where it was mandated to specialize in coordinating for gender and family related issues. Within the context of education sector, the National Education Policy contains specific guidelines for gender issues, such as school environment, social awareness, alternative system for girls' education, and increasing female teachers. More specifically, in the Basic Education General Regulation (REGEB) sets the guidelines for positive discrimination for girls in order to achieve parity in enrolment and retention. Nevertheless of these comprehensive efforts by the government, the gender gaps still remain in student performance, and it would also appear in different forms of gender disparity even after the schooling age. For instance, in Mozambique the literacy rate for youth, aged 15 to 24, are 79% for boys and 56 % for girls (UNESCO Institute for Statistics, 2009), and unemployment rate for young labor force, aged 15 to 24 are 13.9% for boys and 14.6% for girls (ILO, 2013). One of the important health indicators, prevalence rate of the HIV/AIDS, shows that there is a serious gap of 4 percent between boys and girls, facing girls to be more vulnerable to health issues (UNAIDS, 2013).

What factor causes the gender gap in academic performance has been widely debated by scholars in various areas. Biologist scholars, such as Geary, Saults, Liu and Hoard (2000), Hedges and Nowell (1995), Baron-Cohen (2003), and Kimura (1999, 1992), have concluded that biological difference between male and female in brain structure or sex hormones relates to student performance, and therefore causes gender gap specifically in math test score. Among psychologist scholars, they have made divergent conclusion that there is a difference in learning strategy between boys and girls, and the difference approach would affect performance gap between them (Gurian and Ballew, 2003; Carr and Jessup, 1997). Social scientists have investigated in several factors of effects in students' social background such as in gender-inequal culture (Guiso, Monte, Sapienza and Zingales, 2008), gender-bias environment (Miglani, 1990; Spelke, 2005) and home environment factors (Weiss & Krappmann 1993; Fullarton, 2004; Howi 2005). Although many of these studies have found to present evidence for a source of gender gap, they are not context-specific analysis which can be applicable for developing countries, like Mozambique. For example, child work is often criticized as an obstacle for children in developing country in term of access to school and effective learning. While extensive studies well established that child labors, which relates to commercial and economic work and done outside of household, affect student lower performance, the argument about influence of domestic work have not been reached to reach to generate overall consensus among researchers.

This paper aims to focus on the role of household tasks for gender gap of student performance gap, and to see whether the gap comes as a result of difference in household tasks. Drawing on the data of SACMEQ III for 3360 pupils in three proficiency tests of reading, math and HIV/AIDS knowledge, we explore mean and

quantile regression decomposition technique to examine whether engagement in household tasks contribute to the gender gap of academic performance to a greater or lesser extent. More specifically, the questions to be answered is; do engagement of household tasks have positive or negative relationship with test score? and do the relationship vary across the test score level? The major significance of this study lies in contribution to improvement gender gap in Mozambique but also to existing literature of investigation for gender gap factors, taking a special focus on pupil's domestic work.

Literature Review

Household Tasks and Academic Performance

Previous researchers have assessed the extent to which household tasks affect academic performance on certain context. Bezerra, Kassouf and Arends-Kuenning (2009) proved that high school students in Brazil, who work at home, can have four percent lower score in Portuguese language test than those who do not work at all. Drawing on survey of five head teachers, 46 form-four teachers and 201 day-students in Kenya with analysis of liner multiple regression, Jagero, Agak and Ayodo (2010) found that one of the main problems that students are facing to achieve academic excellence is many domestic chores at home. Two studies by Smith (1990, 1992) confirmed significantly negative relationship between academic achievement and time spent on household chores, and argued that time for chores compete with academic and other intellectual activities and causing destructive resentment.

On the other hand, several studies reported reverse relationship between household tasks and academic performance. Drawing on children who are in schools and also out of schools, Reich, Hein, Krivulskaya, Hart, Gumkowski and Grigorenko (2013) found that household responsibility have positive impact on academic achievement particularly for out-of-school children. They concluded that for out-of-school children household responsibility provides some opportunities to learn mathematic proficiency and helps to raise their academic achievement. Guarcello, Lyon and Rosati (2005) analyzed test scores between two groups, children who involve in household chores and those who do not, drawing on five developing countries of Brazil, Kenya, Lebanon, Sri Lanka and Turkey. These authors found that there is little difference between two groups and they perform at the same level of test score. The finding further suggested that there may be certain possible impact of work on ability of working children' effective performance, since the performance is the same despite of disadvantage of working children in lower level of attendance and more tiredness in class.

Household Tasks and Gender Gap

It is generally reported that girls are tend to engage more in unpaid work within household than boys (UN, 2010). Particularly in the less developed regions, young girls, aged 5-14, tend to engage heavy amount of household tasks, such as cooking, cleaning and care-giving (UN, 2010). Studies exploring influence of household tasks on girls' academic performance in a case of developing country have overall concluded that there is negative impact of household tasks on academic performance. (Chinyoka & Naidu, 2014; Stella, Juma & Simatwa, 2014; Achoka, Nafula & Oyoo, 2013). However, with regard to comparison of influence on boys and girls, these findings can be misleading. Omenge and Nasongo (2010) found, from drawing on mixed-day

secondary school in Kenya with 119 boys and 100 girls, that while overall negative linkage was confirmed between students' engagement in household tasks and low academic performance, direction and degree of the relationship were almost the same for both gender. Dida and Mungai (2014) echoed the same result of equal effect of household tasks for boys and girls in the case of primary school in Kenya with samples of 17 head teachers, 187 teachers and 217 students.

Method

Data

This study employs data from the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) III conducted in 2007 in Mozambique. The SACMEQ conducts an academic performance test as a part of education policy research projects to evaluate student proficiency in reading, mathematics and knowledge of HIV/AIDS for grade 6 pupils. Compared with other international performance test, the uniqueness of the SACMEQ III data is the inclusion of test for knowledge of the HIVAIDS. Mozambique has been participated in all projects conducted by SACEMQ, SACEMQ I between 1995 and 1998, SACMEQ II between 2000 and 2004, and SACMEQ III between 2005 and 2010. In SACMEQ III survey, 15 schooling systems from 14 countries in the Southern and Eastern Africa participated in the test. The test scores are standardized across countries to have a mean of 500 and a standard deviation of 100, and normal distribution is confirmed in each competency. However it is noteworthy to identify limitation of this dataset, in which remains possible floor effect that large portion of very low score affect statistics results by not being able to differentiate relatively lower achievement student score level in raw test score. The student questionnaire also allows us to construct student background such as socio-economic and cultural background, school life, and classrooms condition. Questionnaire to school heads provides information about school level such as school facilities, school management and school types, and questionnaire to teachers give us information about teacher and class level such as teaching practices, working conditions, and teacher's housing. Samples are selected by a stratified two-stage sampling design. In the first stage, schools are selected based on a probability-proportional-to-size (PPS) basis which was defined by the SACMEQ Coordinating Centre. The PPS technique allows large schools to have higher probability to be selected than smaller schools. In the second stage, twenty five learners are selected from all grade 6 classes in selected schools by using computer-generated random numbers. Through this process, total sample size become 3360 pupils from 183 schools, consisted of 1780 boys and 1580 girls.

The interest variables as an independent variable are consisted of 14 types of household tasks collected in the student questionnaire. Information is asked by means of questions: "How often do you do the following household tasks in the place (home) where you stay during the school week?" Students are given three choices for each question; Never, Some days and Most days. In present study, engagement in household tasks is measured as dichotomous variable with students who "Never" do are coded as 0, while students who engage in "Some days" and "Most days" are coded as 1.

Decomposition Estimation

To assess the role of household tasks on student performance, we adopt the Oaxaca-Blinder decomposition method. This method allows us to explain the extent to which gender gap may be explained by difference in engagement in household tasks, with remaining gap due to different some other characteristic. Equation is as following;

$$\bar{Y}_m - \bar{Y}_f = \underbrace{\alpha_m(\bar{X}_m - \bar{X}_f)}_{(\text{i})} + \underbrace{\bar{X}_f(\alpha_m - \alpha_f)}_{(\text{ii})} \qquad (1)$$

where $\bar{Y}_m$ and $\bar{Y}_f$ represents average test scores for boys and girls respectively, $\bar{X}_m$ and $\bar{X}_f$ is a vector of average values of observed characteristics about student, school, and teacher which are obtained from the questionnaire. α_m and α_f are parameters, which can be estimated by the standard OLS regression. Term (i) is referred to as explained term, which is contribution of difference of characteristics between boys and girls. Term (ii) is referred to as unexplained term, which is the contribution of differences in return to other characteristics and constant terms.

In this study, we are also interested in decomposing the gender gap at various points of score distribution, and employ one of the quantile decomposition techniques developed by the Firpo, Fortin, and Lemieux (2009). In this method, overall difference of θth quantile of test scores is estimated as following equation (2).

$$Q_\theta(Y_m) - Q_\theta(Y_f) = \underbrace{\beta_{\theta m}(\bar{X}_m - \bar{X}_f)}_{(\text{i})} + \underbrace{\bar{X}_f(\alpha_m - \alpha_f)}_{(\text{ii})} \qquad (2)$$

where $Q_\theta(Y_m)$ and $Q_\theta(Y_f)$ represents θth quantile values of test scores for boys and girls respectively, $\beta_{\theta m}$ and $\beta_{\theta f}$ are parameters, which can be estimated by the re-centered influence function regression (for more details, see Firpo, Fortin, and Lemieux 2009).

Results and Discussion

Descriptive Results

Gender Gap of Academic Performance

Table 1 shows the mean scores of boys and girls and score difference in each subject of reading, math and HIV/AIDS knowledge. In all subjects, mean score for girls is lower than the one for boys with statistically significance by 6.3 points, 10.37 points, and 16.03 points respectively. This result indicates that there is a substantial gender gap in student performance between boys and girls. The largest gap is found in the score of HIV/AIDS knowledge following math and reading. This finding is not consistent with current studies (Hedges

Table 1: Mean and Gender Difference of Test Scores

	Boys (N=1780)		Girls (N=1580)		Difference (Boys – Girls)
	Mean	SE	Mean	SE	
Reading	480.52	1.74	474.22	1.94	-6.30***
Math	489.8	1.64	479.43	1.84	-10.37***
HIV/AIDS	513.37	2.56	497.34	2.84	-16.03***

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

and Nowell, 1995; Goldin, Katz, Kuziemko and Perspect, 2000, etc.), who suggest that boys superior in math and girls superior in reading. This inconsistency results from context-specific difference, which are driven by many specific factors only observed in developing countries. To assess source of gender gap, these specific factors must be take account.

Figure 1 shows the gap degree at different levels of test score by plotting raw gender score gap at quantiles. The gap pattern of reading and math are similar, and different from the score in HIV/AIDS knowledge test. In reading and math, the gender gap is larger at lower score level, and smaller towards higher score level. In HIV/AIDS knowledge test, the largest gap is found at the middle score, but smaller at the levels who take lowest and middle-upper score.
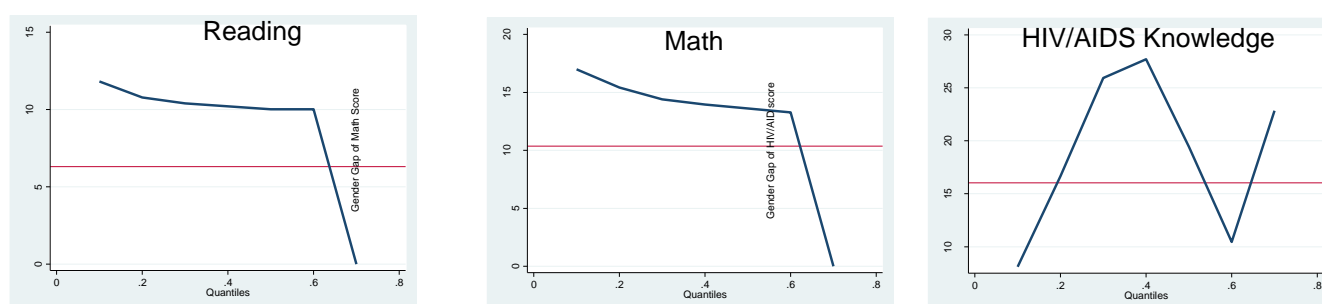
Figure1: Gender gap by quantiles of score distribution

Gender Gap of Household Tasks

Table 2 shows summarized descriptive statistics for 14 types of household tasks. Mean and standard error of engagement in the tasks are found in first four column for boys and girls. Comparison of the means give us gap in engagement of household tasks between boys and girls as indicated in the fifth column. Among 14 tasks, 11 tasks show statistically significant gap. It shows that girls are more likely to engage in 6 household tasks out of 11, namely "cooking", "house cleaning", "sweep outside house", "washing and ironing clothes", "fetching water", and "shopping". On the other hand, in 5 out of 11 household tasks boys are found to have greater engagement, such as "look after elderly relatives", "take care of sick family/relatives", "gardening, take care of livestock", and "help in family business".

Table2: Mean and Gender Difference of Household Tasks Engagement

Household Tasks	Description	Boys		Girls		Difference
		Mea	s.e.	Mean	s.e.	(Boys – Girls)
Look after younger relatives	Dummy (0, 1)	0.7547974	0.0114732	0.7762951	0.0116798	0.0148
Look after elderly relatives	Dummy (0, 1)	0.5280739	0.0133135	0.455259	0.0139576	-0.0676***
Take care of sick family/relatives	Dummy (0, 1)	0.6034115	0.0130462	0.532967	0.0139833	-0.0574***
Cooking	Dummy (0,	0.7085999	0.0121186	0.9010989	0.0083671	0.192***

House cleaning	Dummy (0, 1)	0.8848614	0.0085125	0.9215071	0.0075379	0.0371***
Sweep outside house	Dummy (0, 1)	0.8827292	0.0085806	0.9175824	0.0077076	0.0335***
Washing and ironing clothes	Dummy (0, 1)	0.8088131	0.0104872	0.8390895	0.0102987	0.0306**
Fetching water	Dummy (0, 1)	0.7206823	0.0119654	0.8037677	0.0111311	0.0862***
Chopping fire wood	Dummy (0, 1)	0.5536603	0.0132575	0.5274725	0.0139926	-0.0262
Collect fire wood	Dummy (0, 1)	0.5536603	0.0132575	0.5839874	0.0138147	0.0211
Shopping	Dummy (0, 1)	0.7626155	0.0113471	0.8053375	0.0110973	0.0384***
Gardening	Dummy (0, 1)	0.5863539	0.0131341	0.5204082	0.0140021	-0.0499***
Take care of livestock	Dummy (0, 1)	0.3326226	0.0125652	0.211146	0.0114387	-0.103***
Help in family business	Dummy (0, 1)	0.5799574	0.0131629	0.5180534	0.0140047	-0.0597***

Note: The results are based on weighted. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Mean Decomposition Result

First, in order to observe possible effects related to the gender gap, OLS regression is implemented separately for boys and girls. Based on the result, 58 variables are included in the decomposition estimation, which represent characteristics of student, school and teachers, along with information of students' engagement in household tasks. The result is shown in Table 3. It indicates that explained component for all three subjects have negative value, and unexplained component shows positive values which exceed the actual gap value. All values of explained and unexplained components are statistically significant. The negative value of explained component implies that the explained component contributes to explain not in a direction for creating the gap but in a direction for cancelling the gap. For instance, the result in reading suggests that the gap of 6.44 points is attributed by the difference of unexplained components by 13.78 points, and remaining -7.33 points is due to the difference of explained components. In other words, keeping the distribution of characteristics of student, school and teacher the same, but facing the boys returns to these characteristics, students tests score would be lower by an average of 13 points. The same interpretation applies to 15.66 points for math score and 23.04 points for HIV/AIDS knowledge score.

Table 3: Oaxaca-Blinder decomposition, Boys returns as counterfactual

	Reading	Math	HIV/AIDS
Boys	481.6***	491.2***	513.5***
	(-2.036)	(-1.858)	(-2.89)
Girls	475.1***	480.5***	498.6***
	(-2.209)	(-2.012)	(-3.249)
Gap of test score mean	6.444**	10.64***	14.89***
	(-3.004)	(-2.738)	(-4.349)

Explained	-7.335***	-5.018***	-8.151***
	(-1.91)	(-1.533)	(-2.458)
unexplained	13.78***	15.66***	23.04***
	(-2.929)	(-2.877)	(-4.52)

Note: The results are based on weighted. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Second, the explained and unexplained components are grouped into four groups according to the characteristics of student, school and class, and household tasks which has been kept as separate category due to our study interest. Thus, the components consists of 14 household tasks, 15 student characteristics, 8 school characteristics and 11 class characteristics. Table 4 presents the detailed result of decomposition. Among the explained component, differences in school characteristics is negatively related to the gender gap in all three test scores, and that of student characteristics would have negative contribution only in reading and math. Our interest component of difference of engaging in household tasks is contributing in a direction for cancelling the gap in HIV/AIDS test score for 4 points out of 23 points accounted by unexplained component. Therefore, on the contrary of our previous literatures, we may posit that in the case of HIV/AIDS knowledge in Mozambique that girls' poor performance could be explained by the fact that they lack the engagement of household tasks which lead to better performance.

Table 4: Detail Oaxaca-Blinder decomposition results

	Reading	Math	HIV/AID
Gap of test score	6.444**	10.64***	14.89***
	(-3.004)	(-2.738)	(-4.349)
Explained			
Household Tasks	-1.634	-1.664	-4.422**
	(-1.174)	(-1.134)	(-1.757)
Student	-3.459***	-1.719**	-1.243
	(-1.144)	(-0.771)	(-1.215)
School	-2.314***	-2.043***	-2.630**
	(-0.723)	(-0.636)	(-1.034)
Class	0.0723	0.408	0.144
	(-0.395)	(-0.366)	(-0.559)
Unexplained			
Household Tasks	3.557	21.36*	-28.7
	(-11.75)	(-11.55)	(-18.42)
Pupil	40.80*	26.06	49.36
	(-21.79)	(-21.35)	(-33.95)
Schools	-42.42	-36.35	3.56
	(-33.1)	(-32.08)	(-51.88)
Class	-11.06	-5.212	0.188
	(-10.89)	(-10.05)	(-14.09)
Constant	22.9	9.798	-1.361
	(-41.97)	(-40.89)	(-64.97)

Note: The results are based on weighted. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Quantile Decomposition Result

As examined previously, we confirmed that the gender gap is not constant across the test score distribution. Thus, using the estimated counterfactual distribution, we will further examine relative importance of household tasks for explaining the gender gap over the test score distribution. Table 5 shows the result of quantile decomposition regression at nine quantiles of test scores distribution with three components of regressors; raw gender score gap, household tasks' component, and other component. Standard errors are computed by bootstrapping with result 100 times and shown in parentheses. For all test scores, overall picture of gender gap of test score is similarly described by the estimated result of the mean as in Table 1, but there is a slight difference in details. In the reading score, the largest gender gap is found in the poorest performing students, 10 points gap at 10th decile, while in math score the gap is significantly large in a range around lower-middle level, 13 points gap at 40th and 50th deciles. In HIV/AIDS knowledge score, large gap is found in wide range of groups between 20th and 70th deciles with 18 to 24 points gap.

The contribution of household tasks in explaining the gap is, as following the previous results, negatively shown in all three test scores, but its degree and significance varies across the distribution. While the mean estimation shows that negative and insignificant contribution to gender gap, in the case of reading and math, the contribution of gender gap appears significant at the middle range for around 4 points gap in reading. For HIV/AIDS test score, the statistically negative contribution is found at the lower middle range around 5 to 7 points.

Table 5: Quantile Decomposition of gender gap

Quantile	Reading			Math			HIV/AIDS		
	Gender Gap	Household Task	Coefficient	Gender Gap	Household Task	Coefficient	Gender Gap	Household Task	Coefficient
0.1	10.9048***	0.286832	10.618**	12.7723***	-1.23417	14.0064***	12.2336***	-3.81115	16.0447***
	(3.31937)	(2.67584)	(2.11454)	(3.1526)	(3.60323)	(3.48317)	(2.76856)	(4.0738)	(3.1303)
0.2	7.97993***	-0.960469	8.9404**	12.6864***	-0.66405	13.3504***	18.5346***	-7.66441*	26.199**
	(2.11184)	(2.3761)	(2.11712)	(2.46943)	(2.18562)	(2.13975)	(2.61765)	(4.81407)	(4.05084)
0.3	6.10417***	-2.52751	8.63167***	11.6268***	-1.65026	13.2771***	24.6584***	-7.37266**	32.0311***
	(1.91727)	(2.64772)	(2.2184)	(2.16792)	(2.17625)	(2.20484)	(3.15439)	(4.10173)	(3.60246)
0.4	7.52953***	-3.5726	11.1021***	13.7178***	-0.234412	13.9522***	23.355**	-6.58409*	29.9391***
	(2.10037)	(2.67538)	(2.38072)	(1.11376)	(1.05927)	(1.39004)	(3.15913)	(3.74565)	(3.38265)
0.5	8.31753***	-4.8729**	13.1904***	13.2771***	-5.7E-14	13.277**1	22.6166***	-7.0969***	29.7135***
	(2.30863)	(2.90707)	(2.37659)	(1.19175)	(1.15566)	(0.75621)	(3.23882)	(3.21983)	(2.72694)
0.6	7.59387***	-4.90059**	12.4945***	11.5143***	-1.94742	13.4617***	20.2349***	-5.73076*	25.9657***

	(2.55587)	(2.86052)	(2.20235)	(1.72979)	(1.64136)	(1.19023)	(2.63761)	(3.19147)	(3.11987)
0.7	3.83711	-4.86344**	8.70056***	7.82266***	-1.41841	9.24107***	18.6574***	-3.77646	22.4339***
	(2.66101)	(2.78521)	(2.19888)	(2.64388)	(2.18113)	(2.01469)	(3.08633)	(3.34926)	(2.89929)
0.8	0.350729	-3.79126	3.44053	10.4341***	-1.00141	11.4356***	14.9644***	-4.30714	19.2716***
	(2.87375)	(2.87032)	(2.36787)	(2.28428)	(1.97744)	(1.83578)	(3.76013)	(4.26982)	(3.4966)
0.9	0.070483	-1.63042	1.7009	6.41351**	-1.1E-13	6.41351***	1.55254	-4.36844	5.92097
	(2.90179)	(3.34951)	(2.45729)	(3.19991)	(2.22321)	(1.71564)	(5.74789)	(8.11058)	(6.23251)

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Conclusion and Recommendation

This study brings to light on the role of household tasks underlying the gender gap in student performance in Mozambique. The first analysis result shows that there is substantial gender gap of test scores in reading, math and HIV/AIDS knowledge in Mozambique, disadvantaging in girls. The largest performance gap is found in the test of HIV/AIDS knowledge following math test, and the gap is relatively smaller in reading test. The study also found that the gender gap is not constant across the score distribution. In the test of reading and math, the largest gap is found at the poorer performance student, while in test of HIV/AIDS knowledge the gap is more severe at the students who take average score. From these results, policy recommendation would appear to suggest that bringing special attention to poorer performance students would serve to improve the disparity of test performance in reading and math at primary schools in Mozambique, while improvement of gap about HIV/AIDS knowledge average performing students may be a key to narrow overall gender gap of student performance.

The Oaxaca-Blinder decomposition and counterfactual distribution confirmed the similar results of negative contribution to the gender gap in the case of test score of HIV/AIDS knowledge, where girls' poor performance could be explained by the fact that they lack the engagement of household tasks which lead to better performance. One possible assumption from this result is that the tasks which girls are more engaged than boys, such as cooking and shopping, give them an opportunity to interact with adults, and through these activities help them to obtain knowledge about the HIV/AIDS. However, the data of household tasks obtained by SACMEQ questionnaire may not capture all possible tasks that Mozambican pupils engaged at household. Furthermore, this study employed the variable of household tasks as a dichotomous variable, and the results may be changed by taking cognisance of quality of household tasks. Therefore, the large and significant coefficient on household tasks may not necessarily reflect the true relationship with test performance. However, it would partly capture the negative relationship between household tasks and gender gap.

This paper hoped to contribute to the policy effort by the Mozambican government, and also to add to the debate of gender gap factors. Future analysis would be strengthen by adding qualitative analysis which allow researchers to understand not only source of the gap but also process of causing the gender gap.

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Rethinking democratic citizenship education in Africa: towards moderate deliberation

Rachel Ndinelao Shanyanana
Lecturer in Contemporary Social Issues
University of Namibia
Private Bag 13301, 340 Mandume Ndemufayo Ave, Windhoek,
NAMIBIA
E-mail: rshanyanana@unam.na

Joseph Jinja Divala
Department of Education and Curriculum Studies,
University of Johannesburg
P.O. Box 524, Auckland Park, 2006
SOUTH AFRICA
Email: jdivala@uj.ac.za

Abstract: *This paper interrogates the idea of democratic citizenship as it is applied in a number of post-colonial African context. The paper philosophically argues that although substantive deliberative democracy has been defended as a more preferable option globally, such a framework will be difficult to attain if not impossible in the context of most African countries. Nevertheless, we still agree with Gutmann's (1996:69) foundational notion that public education ought to cultivate in all citizens the skills and virtues of democratic citizenship, including the capacity to deliberate about the demands of justice for all individuals. In our view and given the African contexts from which we make this position, serious deliberation about the demands of justice is a central virtue for the possibility of inculcating democratic citizenship. It is primarily through the empowerment of realistic democratic citizens that social justice becomes real in many disenfranchised African communities.*
By employing both an interpretive and a critical paradigm, we argue for a moderate deliberative democratic education framework as one that is consonant with African democratic experience. This paper will further argue that unless the African democratic states promote moderate deliberative democratic education, citizens may possibly not be able to engage in matters of mutual concern and will inevitably fail to have meaningful deliberations that can start addressing unjust encounters confronting the continent today, thereby potentially thwarting the democratization agenda Africa requires.

Keywords: Democratic education, Citizenship, Deliberation, Moderate deliberation, Africa

Introduction

The idea of democratic citizenship as it is applied in a number of post-colonial African contexts is largely contestable. In this paper we argue that although substantive deliberative democracy has been defended as a more preferable option globally, the framework poses challenges when thought of in the context of most African countries. Nevertheless, we agree with Gutmann's (1996, 69) foundational notion that public education ought to cultivate in all citizens the skills and virtues of democratic citizenship, including the capacity to deliberate about the demands of justice for all individuals. In our view and given the African contexts from which we make this position, serious deliberation about the demands of justice is a central virtue for the possibility of inculcating democratic citizenship. On the other hand, this paper further argues that unless African democratic states promote moderate deliberative democratic education, citizens may possibly not be able to engage in matters of mutual concern and will inevitably fail to have meaningful deliberations that can start addressing unjust encounters

confronting the continent today, thereby potentially thwarting the democratization agenda Africa requires. We propose to present this argument by first taking stock of the origins of democratic life on the continent before turning to democratic initiatives in Namibia and Malawi. Second, we will analyze contemporary forms of democratic citizenship engagement using the maxi-mini analysis in which we pay attention to the merits of some forms of minimalism. Third, we will propose moderate deliberation as a preferable mode of democratic engagement given the challenges Africa faces in its cultural, social and educational spheres of life.

Possible sources of African democratic forms of life?

Is there any real consensus on where forms of democratic life on the African continent come from? In this introductory note we wish to propose three fronts which can be considered as the seedbeds for democratic life on the continent. First is the much riddled traditional life in the different indigenous societies on the continent. Numerous scholars on African Philosophy attest to this. Evidence of this is abound in works of John Mbiti, Odera Oruka, Paulin Hountondji, Kwame Gyeke and many others. One of the most overlooked fact of the African people was that communities held robust forms of deliberation under the banner of traditional life although not everyone was included just like in Athenian democracy. African countries experienced a long period of colonialism imposed by prominent Western colonial powers such as France, Belgium, Britain, Germany and Portugal, to mention just a few (Shanyanana, 2014: 21). Twin sources can vaguely be drawn from aspects of colonial rule in which some parts of society, especially kingdoms, had semi-autonomous forms of governance. The first independent states held the promise of entrenching democratic rule in the form of self-governance although these quickly turned into dictatorships for most of the countries such as Malawi.

Upon liberation from colonial rule as well as from dictatorial post-colonial governments, the assumption was that education institutions in African countries such as Malawi and Namibia would be accessible to all people, irrespective of gender, race, status, ethnicity or religion, resulting in knowledge production relevant to the context of Africa and the local interest of the people. Unfortunately such a promise did not hold for long. It can be argued that the idea of liberation in Africa strongly resonates with ideas from the Brazilian philosopher, Paulo Freire's (2004) "liberatory" perspectives on education, which entailed setting one free from all forms of domination and dependence. In our view, recognition of the African people's interests as equal and democratic agents should become the epicentre of social and educational transformation in Africa. As a result, questions concerning the underlying meanings associated with democracy in Africa; the dominant ideas driving Africa's democratic engagement and for whom or by whom these ideas are ushered become some of the dilemmas confronting the status of African democracy, if such a word can be considered to exist. In the middle of these questions, we examine whether there is a plausible framework that could potentially enhance democratic engagements in Africa;

a format that can be employed meaningfully without alienating the masses. In attempting to resolve these dilemmas we bring on board the research we have done on Malawi and Namibia as well as our existential experiences of the democratic changes we have experienced in the democratic transitions of these nations.

Namibia's transition to democracy and the forms of her democratic engagement

Namibia is a nation-state in Southern Africa with the population of 2,165, 828 million people (CIA World 2012). The country was first under German colonial rule for 30 years (1884-1915), and was called German South-West Africa. Followed by 75 years of South African apartheid regime (1915-1990), and the country was known as South West Africa (USAID, 2005, 3). The Namibian people fought for liberation against colonial and apartheid regime and gained independence in 1990.

Before independence, Namibian society was segregated based on racial lines and characterised by the effects of apartheid policies especially in its education administration and governance. As a result, the democratic government formulated educational policy to transform and address these past imbalances in education. The system was highly oppressive, authoritarian and autocratic, and there was not much consideration of basic human rights and freedom for all Namibian citizens. Namibia's colonial patterns of life were enforced predominantly on the black majority, who were oppressed by the white minority group (Government of the Republic of Namibia, 2004, 5). The colonial education system made different provision for the schooling of black, coloured and white learners. There were separate schools for coloured, black and white learners. For each racial group, education was considered separate, unequal and aimed at maintaining colonial ideological control (Harber, 1997, 116). The colonial government was characterized by a single National Party ideology, the aim of which was to separate people along racial lines. Citizens were expected to respect the rule of law and to adhere to colonial policies, such as separate racial development. Decision-making processes about governance took place without the inclusion of all citizens. Black people, for example, were not involved in policy development and governance.

This historical situation, as it was unfolding in Namibia, did not create enabling conditions for democratic citizenship education. It did not lead to the development of a form of citizenship education that could enable people to participate meaningfully in deliberations about issues affecting them in their particular circumstances. Therefore, this background necessitates first an analysis of what could be appropriate forms of democratic engagement that can be adopted in order to cultivate a democratic citizenship.

The winds of change started to blow in Namibia around March 1990, when the country gained its independence under the new democratic government after 105 years of colonialism and apartheid rule. It was in that spirit of independence that the new government deemed it necessary to replace the apartheid education system with a democratic education system. A process of renewal of the democratic education system was then launched as a

requirement to redress the many ills brought on the country's education by the legacy of apartheid. The newly elected democratic government of Namibia aspired to emancipate its citizens from all forms of oppression.

Thus, the first education policy introduced by the new government was *Towards Education for All*, formulated in 1993. The major goals of this policy were access, equity, quality, democracy, justice, democratic participation, respect for human dignity, and lifelong learning (Government of the Republic of Namibia, 2001, 8). These Objectives were aimed at creating equal access to quality education and resources. This policy also integrates the basic principles and goals of education for all (EFA), which was based on the World Declaration on Education for All, of which Namibia is a signatory (Government of the Republic of Namibia, 2001, 8). The aims articulated in the abovementioned policy are also stated in Article 20 of the Constitution of the Republic of Namibia, adopted in 1990. Article 20 asserts that

> "all persons have the right to education. Primary education shall be compulsory and the state shall provide reasonable facilities to render effective this right for every resident within Namibia, by establishing and maintaining State schools at which primary education will be provided free of charge" (Constitution, Act No. 34 of 1990, Article 20).

Through various educational policies above, the subjects that implicitly manifest democratic values in education are Life Skills, Environmental Studies, Social Studies, History and Geography. These subjects focus more on the teaching of rights and knowledge about government structures. Furthermore, they highlight the different parts and functions of government, the duties and responsibilities of a good citizen, and the differences between local government and national government. The transformational goals were to prepare citizens to know their basic human rights, freedom, and democracy, and to respect that of others irrespective of status, gender and ethnicity. However, in 1999, the Presidential Commission reported that, of all the above-mentioned goals, only access to education has largely been met.

As a result, Namibia's form of democracy focuses more on citizens' rights to vote and service delivery. Citizens are expected to abide by the law, to be tolerant and respect the rule of law and government policies. The general citizenship picture of this period shows that many citizens did not have the opportunity to participate in and deliberate on their own social and political affairs. The aforementioned historical background illustrates that Namibia seriously needs an appropriate form of citizenship education if democratic citizenship engagement is to be developed. Thus, the preceding picture illustrates that Namibia needs an appropriate form of democratic citizenship education if democracy is to be engendered.

Malawi's historical path towards independence and predominant patterns of citizenship education

Malawi's political history to-date is different from the stage at which Namibia currently stands although that may have little impact, if any, on how far democratic processes have developed in Malawi. Malawi became independent from colonial British rule in 1964. The first independent government ruled Malawi from 1964 to 1994. In 1996, Malawi underwent another phase of political change to multiparty democracy. Although such a system was assumed to have been introduced way back in 1964, the reality was that the ruling party then speedily turned into a dictatorship and other political parties, ideologies were banned up to the democratic revolt in 1994. The main context against which Malawi's approach to democratic citizenship is commented on is that which stretches from traditional forms of life to the dictatorship. Some reflection will be brought to bear on current forms of democratic citizenship and why a moderate deliberative format is being proposed.

Before independence, Malawi was under the British rule and was part of a Federation that comprised Zimbabwe, Zambia and Malawi under the names Southern Rhodesia, Northern Rhodesia and Nyasaland respectively from 1953. Despite being part of the prevailing colonial political administration, Malawi's traditional patterns of life continued to influence patterns of leadership and organisational life including her social and political life to-date. Within this dominant prevailing status quo, the ruling family and associated families fulfilled the roles of counsellors to the chief. Members of the ruling family exercised full citizenship rights. For example Ngoni traditional life and society in the central region of the country and parts of the south and most of the northern region is patrilineal and members of the royal families enjoy more citizen privileges than others. During the colonial period, the traditional patterns of life were encouraged, not for emancipatory purposes but for easier management of the ethnically diverse cultural traditions of the country (Divala, 2007, 34).

The predominantly traditional pattern of life described above paints a picture of an assumed equality between men and women, and between men belonging to different clans, which was not the case. Although within a society clear distinctions were expected between members of the ruling family and other members of society within the menfolk, it is also true that the rest of the members of society were further associated to in terms of their clans and the position the clan held in society in general, particularly in terms of how close to kingship the clan was. In reference to my village, one can argue that royalty dissipated itself into society with some clans at the bottom of the radar as having much less influence in society although members of the clan were accorded the status of equal members of society.

In addition to the above, women and girls did not have the same rights as male members of society in terms of how they could influence social and political patterns in society. As in many traditional settings, traditional public life was dominated by male members. Women were confined to fulfilling domestic roles most of which were private, pertaining to the household within which they were located. To date, despite a number of promulgations repeating the equality of men and women in public life, most things still remain the same; women

still continue to be regarded as second class citizens at the service of the male population. Traditional forms and patterns of life are dominant in most rural settings. Malawi is largely rural to a larger extent, 89 % of the population live in rural settings. In view of this, Mill (1986) states that the rights and interests of every person or any person are best secured by being disregarded when the person interested is himself or herself able and habitually disposed to stand up for them. While one can argue that women and girls stand up for their rights in their private domain, in keeping with Mill's ideas, we think that such an understanding is a total misreading of what Mill meant. . Mill was concerned with public participation and taking part in affairs of the public. What is fascinating in this regard, is that non-participation deprives one of voicing one's views as much as it retards the very development of the person; this is why participation in Mill's terms is crucial.

Apart from the prevalence of traditional life and the low status ascribed to women as described above, Malawi's approach to democratic citizenship became confounded during the first independent state as well as in subsequent governments after the dictatorship was overthrown. In the following paragraphs we take a look at these developments.

Divala (2007, 34-35) argues that upon gaining independence in 1964, the dominant political imperative at the time was to unite the nation under one leadership, one party and one ideology against a common enemy, colonialism. But it was a process that inadvertently resulted in the creation of the dictatorship of Dr Kamuzu Banda and the Malawi Congress Party. Within the same space ideals of unity, obedience, loyalty and discipline were adopted as the four pillars for nation building (see also Fiedler, 1996:149). What these developments meant was that Education for citizenship was offered through officially controlled and structured courses and that this education had to speak to the values captured in the ruling party's four cornerstones. In addition to this 'Civics', the course through which these values were taught, was not any different from other subjects such as Geography or Biology. Due to prevailing political dictatorship, enforced by agents of the state such as the Malawi Young Pioneers, national values became heavily associated with the being of the ruling party and also as values of the most feared person, the *Ngwazi* (lit trans. 'conqueror'), as the nation used to refer to him. Deviation and non-compliance were often met with death. In this regard, the euphoria of being independent after 1964 had disastrous consequences for democratic citizenship across the nation.

When the multiparty system of government was re-introduced after 1994, a renewed sense of citizenship and democratic rights and freedoms was advocated. Materials for civic lessons both within the schools as well as in community outreach programmes were introduced. These materials carried a specific representative conception of democracy that is in many respects formal and constitutional. It has been argued that if these materials are to be used for the teaching of democratic citizenship they are very likely to produce passive democratic citizens (Divala, 2007, 35). This is the case because the materials are knowledge-based and not practice based. For instance, the

materials emphasise the advantages of the multiparty democratic system and its accompanying freedoms (Kasambara, 1996:240-243, 251). In addition, there is a persistent narrow focus on voter education as a way of ensuring that democracy is sustained. This is done even though the exercise of this voting right is confined to the voting periods generally. What happens after voting is done? The provisions fall short of creating adequate democratic citizenship skills. Malawi's approach to teaching democracy to-date still places a heavy emphasis on formal and constitutional ideals of democracy, principles of equality, tolerance as well as definitions of democracy and human rights. Malawians are also considered to participate in the affairs of their government through the cabinet, the judiciary and the legislature (Chirwa, Kanyongolo & Kayambazinthu, 2004, 112-113). Nevertheless the level and manner of general citizen participation in the cabinet and judiciary is far from fulfilling the condition of democratic participation due to the limited number of people who can participate in these processes. The approach to democratic citizenship discussed here does not provide sufficient space for the cultivation of active democratic citizenship.

Understanding contemporary democratic citizenship engagement through a 'maxi-mini' analysis
The cases of Malawi and Namibia which we have presented here show that the masses have been kept out of meaningful active citizenship engagement; that they are ill informed about active and effective civic participation for a vibrant democracy. In some cases, democratic expectations are thrown out to the masses as if they are self-explanatory and easily implementable. In the follow-up section we probe forms of democratic engagement suitable for African states.

From the same understanding as above, it is evident that what is counted as democracy in Malawi and Namibia are merely forms representative democracy that generate minimalist forms of democratic engagement. In this paper, we propose a participatory format of democratic engagement (much as an) *rephrase* application of McLaughlin's (1992) 'maxi-mini' analysis. In this analysis, democratic citizenship is considered as standing on a continuum with two opposing ends of the axis; at one end of the continuum, is a minimalist view of democratic citizenship which is described namely "formal, legal and juridical" (McLaughlin, 1992, 238). To him, a minimal democratic citizenship does not "require the development in citizens of their broad critical reflection and understanding, informed by a political and general education of substance, or virtues and dispositions of the democratic citizen conceptualized in fuller terms. This minimal citizenship describes the basic institutional conditions of a liberal democracy and the corresponding skills and knowledge that citizens need. The maximalist perspective on the other hand holds fast to the public-private divide (McLaughlin, 1992, 238). The position believes that a tabulation of rights and obligations does not in itself explain why citizens should adhere to them (Norman, 1992, 37). The maximal perspective is commendable because of its attempt to deepen participative democratic citizenship and to achieve greater participation across all sections of society and not just with men.

The maximalist perspective believes in basic conditions of deliberative democracy such as democratic agency and democratic reciprocity, which are central in cultivating the required democratic character (Gould, 1990, 290). In the next section we examine some of the ideas supporting this line of thinking through the proposition for deliberative democracy.

Dominant trends in deliberative democracy

In order to understand the question of what kind of participation is ideal in a democratic society, we engage the dominant proponents of democratic citizenship. According to Benhabib (1996, 68), legitimacy in a complex democratic society must result from the free and unconstrained public deliberation by all citizens on matters concerning constitutional issues and questions of basic justice. She further argues that, as a process, public reasoning must provide spaces for all affected people to deliberate and give justifiable reasons for their arguments during deliberation. For instance, all women, children and the least affluent groups should be able to participate in a public debate and offer their reasons without fear of being rebuked or ridiculed. This deliberative model of democracy is a necessary condition for the attainment of legitimacy and rationality with regard to collective decision-making processes in a public space. Benhabib (1996, 69) stresses that, when more decisions are made through a collective process, the potential of the deliberative democracy model will be maximized and, at the same time, legitimacy and rationality will be increased.

Benhabib's discursive view of democracy reveals that deliberative democratic processes must be guided by the norms of equality and symmetry, thus: (a) all participants have the same chances to initiate speech acts, to question, to interrogate, and to open debate; (b) all have the right to question the assigned topics of conversation; and (c) all have the right to initiate reflexive arguments about the rules of the discourse procedure and the way in which they are applied and carried out (Benhabib, 1996, 70). Based on these principles, all citizens are expected to have equal opportunities and to feel free to take part in public discussions and debate with rational, reasoned and reflexive arguments. This recommendation makes deliberative democracy more meaningful irrespective of literacy levels, rurality and the technical lack of know-how in managing to engage in the public space, etc. In a nutshell, this framework requires an environment in which citizens are able to express their concern without fear. To Benhabib, this is an enabling environment where people can talk back.

In addition, Gutmann and Thompson (2004) in addressing the question, "*Why deliberative Democracy?"* note that a democratic society is always confronted with disagreement and conflict among its citizens. They call for a deliberative democratic model that stands on three principles of democratic deliberation, namely *reason giving, accountability and reciprocity* (Gutmann & Thompson 2004, 3- 7). These principles endeavour to construct a community and an atmosphere whereby decisions are reached through a process of open discussion. In this process, each participant is free to suggest the agenda and initiate the topic for discussion. The participants are

also free to propose ways of deliberation and to contribute freely. They need to be open and willing to consider the views of others. Gutmann and Thomson (2004, 3) further state that people must not be treated as objects or passive subjects, but have to be treated as free and equal agents who participate in the governance of their society either directly, or through their representatives. In this model, participants do not only exercise their power through bargaining or voting, but by actively providing justifiable reasons and demanding that their representatives do the same. They clearly support a deliberative education if democracy is to be promoted.

Other forms of deliberation call for belligerence as a way of harmonising the democratic engagements (Callan, 1997, 211). This approach has to do with participants' ability and attempt to question the accurateness or correctness of one another's moral beliefs and the importance of the differences between their positions in order to stir or induce distress, combined with a rough process of struggle and ethical confrontation. Callan further notes that belligerence in deliberation opens up opportunities and moments for ethical or moral reconciliation, "when truth and error in rival positions have been made clear and a fitting synthesis of factional viewpoints is achieved" (Callan, 1997, 212). In my view, Callan's argument is compelling because no student or teacher is allowed or has a right to silence others in deliberation, but all participants can freely articulate their minds without fear of being rebuked, interfered with or being intimidated. Callan (1997, 221) also asserts that, because deliberation cannot achieve the agreed upon outcome without controversy and distress, the participants in the process will acquire skills and capacity to confront one another through dialogue, much in resonance to Mill's values in participation. Put differently, this format of educating citizens to be democrats must instill in students the capacity to provoke, stimulate and motivate others to speak in order to understand one another's feeling or mind.The underlying assumption is that, it is through belligerent and provocative engagement citizens can speak their mind especially about unjust practices and ills confronting contemporary society.

Despite that, deliberation in the form a belligerent and maximal strand could be an ideal approach, but it can also be an impediment to the proper cultivation of democratic engagement in the context of African education system across all levels. Earlier, McLaughlin (1992, 245) acknowledged that the belligerent engagement, which falls under the maximalist strand, may pose the danger of presupposing a substantive set of public virtues that may exceed the principled consensus that exists or can be achieved by students both at tertiary level as well as primary and secondary levels. This could be because of the prevailing traditions and culture, perceived social attitudes on public life and engagement ascribed to some sections of society, and lack of sufficient knowledge resources to do so, among others.

In consolidating the position above, Norman (1992, 37) identified some menaces inherent within a belligerent and maximalist democratic citizenship project, as this perspective is likely to lead to the failure to promote a range of public virtues or to the disintegration of society. Clearly, there are some contesting views on what is regarded as an ideal view of citizenship education, not only in Britain but also in Africa. The maximalist view of citizenship

implies that there is genuine robust debate and engagement with government that should "articulate the practice of a substantial form of education for citizenship" (McLaughlin, 1992, 245). We argue that a maximalist view of citizenship may pose problems and jeopardise democratic citizenship education, since it requires active and provocative deliberation in which participants are expected to belligerently provoke each other in a manner that makes it difficult to "talk back" about an issue and to offer cogent arguments towards reaching a legitimate outcome (Benhabib, 1996). This is also much the case because democratic development in the two countries do not show sufficient conditions of viability of the position given the long histories of marginalization, subjugation, and dismal forms of public engagement that people were made to believe was right and for their own good.

In defence of moderate deliberation as an appropriate tool for citizenship education in Africa

Before we proceed to explain this position, we acknowledge that a minimalist democratic citizenship as described by McLaughlin (1992) does not "require the development in students of their broad critical reflection and understanding, informed by a political and general education of substance, or virtues and dispositions of the democratic citizen conceptualized in fuller terms" (McLaughlin, 1992, 238). Nevertheless, unlike maximalist, minimalist citizenship views all participants, active and non-active, as capable of finding deliberative space without excluding anyone to dialogue. In defence of this position, McLaughlin argue that minimalist citizens need to know how to vote "wisely", and that this capacity in them assumes that the simple act of marking a ballot paper involves careful consideration of the candidates and their policies ― a task which he argued requires "broad critical reflection and understanding" (McLaughlin, 1992, 238). In addition Dieltiens (2005, 199) points that an education for minimal citizenship requires much the same as an education for maximal citizenship. On both ends of the minimal-maximal continuum, citizens need to be able to engage in public debates, to make reasonable arguments, to recognise their interdependence and to value diversity. We therefore argue for a minimal democratic citizenship form of education that encompasses less deliberation and non-belligerence, as argued by Waghid (2010, 231). We argue that this may be sufficient for maximising participation and promoting defensible democratic education necessary for Africa.

Elsewhere, Waghid proposes deliberative democracy, "as a form of communal engagement which allows space for critically, non-domination and ensuring that human relationships flourish, the practice of deliberative democracy can be considered specifically of relevance to African societies because of its history of colonialism, racial oppression and segregation, and economic, political and social instabilities, insecurities and complexities" (2009, 76). The point is that deliberative democracy is more about collective engagement by participants actively taking part in debates, which is more about communities actively participating in deliberations with provocative engagement, which may exclude the less expressive and non-eloquent from the debates. Our point is, this process may induce more passiveness and subservience among people especially disadvantaged groups. Therefore, we

differ with Callan (1997) and Waghid's argument for belligerent deliberative democracy in relation to African communities. Our position is that, deliberation that expects participants – young people or elders and women – to engage in a provocative and confrontational manner to reach agreed-upon outcomes will not be a viable option for contemporary African societies, because that is not the way of African cultural patterns of thought. If citizens, especially young people and women in rural areas were to engage elders and political leaders belligerently, they may be reprimanded for being disrespectful toward them; this has the potential to compromise any chance of successful democratic engagement. Thus, we argue that a belligerent/maximal deliberative democracy in its simple form is inappropriate for Africa in terms of engendering a plausible form of democracy; hence we advance the need for a moderate deliberative framework.

We conclude this defence by invoking Gyekye (1997, 135) who argued that in order to address local problems, we need Western perspectives to take into account African ways of life and African practices. The context of Malawi and Namibia requires that the promotion of viable forms of democratic engagement systematically take into account the histories and modes of social and political socialisation of groups who were previously excluded from public life such as women, the girl child, rural and illiterate citizens. Nevertheless, Gyekye also cautions against "both the wholesale, uncritical, nostalgic acceptance of the past – of tradition– and the wholesale, offhanded rejection of it on the grounds that a cultural tradition, however 'primitive', would have positive as well as negative features" (1997: xi). In view of these ideas, we argue that for African democratic citizenship education system to promote equal participation, there is a need to begin from a moderate form of deliberation. Such a format holds a higher potential for lessening the existing lack of active participation and it can serve as a temporary solution in deliberating about the various challenges facing African societies today. This may ultimately enable citizens to express their democratic rights through deliberation and help them to hold their leaders and systems accountable to their democratic visions.

Conclusion

In this paper, we have argued that there are challenges facing contemporary African Societies in terms of democracy and democratic citizenship. This is because of the narrow conception of democratic citizenship and the articulated rationale underpinning the system. We made a point that African democratic citizenship has emphasized an electoral democracy, which is at best, elite democracy. This leads to a malnourished form of democracy as evident through an inversion of real representation as found in Mill's seminal work on representative government. We then reconceptualise the notion democratic citizenship that transcends mere representation to participation, by using McLaughlin's mini-maxi analysis. We made a call for a shift from participation in general to a particular kind of participation which is deliberative. Considering the challenges engulfing African societies today, we defend the deliberative form democracy, which we have entitled moderate.

Our argument is that deliberation in simple and in many of its strands assumes uplifted or belligerent forms of reasoning and argumentation or even perception as espoused by prominent theorists. As a remedy for malnourished forms of democracy, it is itself not sufficient within the African context considering the socio-political turmoil confronting contemporary Africa. Instead we have defended moderate democratic citizenship as a solution for Africa if issues of concern are to be deliberated by all citizens and potentially addressed.

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Promoting teacher leadership in Nigerian public secondary schools

Olutola Olujuwon[1], Juliet Perumal[2]

[1]Dept of Education Leadership and Management (South Africa)
[2]Dept of Education Leadership and Management (South Africa)
University of Johannesburg, Johannesburg
cenduserve@yahoo.com;julietp@uj.ac.za

Abstract : *This study explored the need for teachers to assume leadership positions in the context of Nigerian public secondary schools. The study also aimed to explore the justification for the promotion of teachers assuming leadership in schools. Motivation for the study is based on my interest in teacher leadership as an educational administration lecturer in a Nigerian college of education as there is no provision in schools for the enhancement of teacher leadership skills. Also, the curriculum for pre-service teachers in Nigerian colleges of education does not provide courses in teacher leadership. Participants in the study were purposively sampled. They included nine teachers, three principals, three vice-principals and an educational administrator in and Educational District in Lagos, Nigeria. Data was elicited through semi-structured interviews and document analysis. The findings from the study revealed that teacher leadership in schools enhances achievement of educational goals and school improvement. The promotion of teacher leadership in Nigerian public secondary schools is likely to reduce principals' workload as well as enhance the mentoring of teachers thereby enabling them to conduct their professional duty more productively. The themes that emerge from the study include teachers achieving the aims of education, mentoring, teacher leadership expertise, collective leadership, teachers as loco-parentis and facilitating easy administration.*
The study contributes to revising educational policies with a view to promoting teacher leadership in Nigerian public secondary schools

Keywords: Teacher leadership, school reforms, models of leadership, teacher attributes

Introduction

Nigerian literature has highlighted the enhanced expectations and challenges that Nigerian teachers are facing. These challenges include an increase in violence, examination malpractices, political and appointment instabilities, economic problems and new legislation around appointments and promotions. These factors have contributed to the complexities with which school leaders now have to contend (Nwaboku, 2006; Perumal, 2015). Similarly, teachers still experience inflexible working conditions, low morale, low levels of trust by the society in effecting changes and they are blamed for all the woes in the education system (Adegbesan, 2013; Arong & Ogbadu, 2010). However, teaching and learning in some parts of Nigeria have witnessed unprecedented terrorist attacks since 2009 perpetrated by the Islamist terrorist group Boko Haram, whose name means "Western education is forbidden". Education is the worst hit from these deadly attacks where schools were bombed and burnt to ashes. Students, teachers and other school personnel were killed or abducted and these has untold hardship on the educational sector. Similarly, the new millennium has brought new challenges to school leadership and has made school leadership complex and demanding (Crawford, 2005; Naidoo & Perumal, 2014). In addition, Hargreaves and Goodson (1996) assert that teaching is increasingly complex in schools today due to current realities of high standards in professional practice and in improving pupils' performance in a knowledge economy. Against this background, the study attempts to answer the research question: What is the rationale for promoting teacher leadership in public secondary schools in an Educational District in Lagos, Nigeria? The aim of the study was to foreground participants' understanding of teacher leadership in public secondary schools.

Teachers are recognized as one of the keys to educational reform and school improvement and are crucial agents of change in today's knowledge economy (Harris & Muijs, 2004; Supovitz, Sirinides & May, 2010). Experts in the field of education have identified the roles and responsibilities of teachers as leaders as critical in achieving goals in schools (Afe, 2007; Edwards & Perumal, 2014). This supports the study conducted by the Institute for Educational Leadership in the United States in 2001 which revealed that teachers play key roles in instructional leadership and that well prepared professional teachers are central to educational reforms. Harris and Muijs (2004:13) affirm that "teachers are the midwives of the knowledge society and that without them or their competence; the future will be malformed and stillborn". This aligns with Urbanski's & Nickolaou's (1997) assertion that "without teachers becoming partners in the leadership necessary in

education today, significant and sustained change is unlikely in schools". Feiman-Nemser (2001) explains the need for teachers assuming leadership roles in schools in order to enable them to meet the demands of improving learning standards and a dedicated teaching culture.

Therefore, the demand of school leadership in the 21st century has shown that no single individual can provide all the answers for effective school leadership (Beachum & Denthih, 2004; Danielson, 2007). Also, researchers have argued that due to the current challenges in school leadership, the leadership and management of schools can no longer be the exclusive preserve of those in formal leadership positions (Donaldson, 2007; Smylie, Conley & Marks, 2002). Therefore, leadership must be extended to other levels in the school as this will enhance school leadership and achievement of learning outcomes (Harris & Muijs, 2005; Neuman & Simmons, 2000).

Teacher leadership as a framework for the study is considered a unique departure from the traditional understanding of school leadership. It sees leadership not as a role or function, rather as relationships among people within the organization (Harris & Muijs, 2004). Also, teacher leadership relates to the discovery of teachers' potentials for collaboration for school development (Institute of Educational leadership, IEL, 2001; Mayo, 2002). Similarly, it also entails teachers taking up formal and informal leadership roles both inside and outside the classroom and in the area of school development and community involvement (Grant, 2006). York-Barr and Duke (2004:288) sum it up as a "process by which teachers; individually or collectively influence their colleagues as well as other members of the school community as they try to bring about better teaching and learning processes". Similarly, Keevy and Perumal (2014) contend that it enhances commitment from members and empowered the school as a collective unit.

The various views on teacher leadership affirms the rationale for promoting teacher leadership in schools as it ensures participation, collaboration and capacity building which enhances school improvement. It also enhances support from all levels in the school whereby leadership and management responsibilities are shared amongst staff members (Harris & Muijs, 2004). This supports Muijs' and Harris' (2003:4) assertions that the practice of teacher leadership "reclaims school leadership from the individual to the collective and from the singular to the plural".

Literature review

Teaching and learning has been recognised as a knowledge-driven enterprise. Thus, a flexible form of leadership is necessary to address this complex change in educational settings (Harris & Spillane, 2008; Edwards & Perumal (2014). There is a need for official formal school leaders to expand the boundaries of leadership to accommodate other stakeholders in the educational sector - especially teachers as leaders. Patterson and Patterson (2004:74) state that a teacher leader is "someone who works with colleagues for improving teaching and learning, whether in a formal or informal capacity". Thus, the concept of teacher leadership is valuable and guided by a conviction that all members in a community have knowledge and expertise that can benefit the organisational efficacy as a whole and that the leadership role is not confined to an individual (National Association of State Schools Boards on Education, (NASBE) 2008). The report of the Task Force on Teacher Leadership of the Institute for Education Leadership (IEL) in 2001 reveals that:

> Teacher leadership is not about "teacher power" rather, it is about mobilising the still largely untapped attributes of teachers to strengthen student performance at ground level and working toward real collaboration, a locally tailored kind of shared leadership, in the daily life of the school. Teachers must be an essential part of that leadership, never more so than when issues of instructional leadership are at stake (IEL, 2001:4-5).

This position is supported by Harris and Muijs (2003) that teacher leadership is concerned with developing high quality learning and teaching in schools, which has its focus on improving learning. It is also a mode of leadership premised upon the principles of professional collaboration, development and quality. This aligns with the study of Poerkert (2012) that teacher leadership lead to improved professional learning for colleagues and the teachers themselves.

In a related research, Hickey and Harris (2005) found that teacher leadership strongest contributions are in the areas of professional development, collaboration, as well as sharing of expertise and knowledge. This is in line with Lieberman and Miller (2004) assertions that "teacher leaders contribute to building school-wide vision".

Similarly, the study of Whitsett and Riley (2003) reveal that the core of teacher leadership is building relationships with peers and influencing colleagues' work toward school improvement. This aligns with Silva, Gimbert, and Nolan's (2000) studies that teacher leaders are agents of change. They view teacher leaders as challenging the status quo, designing and implementing various programmes directed at school improvement. Therefore, Katzenmeyer and Moller (2001) suggest some facets on the roles teacher leader should play in schools and this include leadership of students and leadership through decision-making. Also as facilitator, coach, mentor, trainer, curriculum specialist, creating new approaches, leading study groups; leadership of operational tasks: keeping the school organised and moving towards its goals, through roles as Head of Department, action researcher, member of task forces. This will foster collaboration and partnership among stakeholders as well as making the school organised and in achieving its stated goals. Hickey and Harris (2005) argue that providing teachers with leadership opportunities improves their classrooms and schools and above provides the organisation with professionals who will assume the mantle of leadership in the future. Therefore, teacher leaders possess some characteristics that enables them effect changes in the teaching and learning processes. This is in line with Wasley (1991:4) assertions that teacher-leaders "help redesign schools, mentor their colleagues, engage in problem solving at the school level and provide professional growth activities for colleagues". They are role models for their students and offer hope and encouragement to students and colleagues in the school (Wilson, 1993). In addition, teacher leaders are credible experts (Perumal, 2013). This is due to their knowledge of the subject matter as well as exceptional teaching skills in achieving educational goals (WestEd, 2003; Patterson & Patterson, 2004). Furthermore, it disputed the age long established view that teaching is limited to classroom (Troen & Boles, 1994).

Nevertheless, literature reveals that there is strong resonance between teacher leadership and the distributed form of leadership. Muijs and Harris (2007) contend that teacher leadership concepts are based on set of behaviours, practices that are undertaken collectively. Thus, it is "centrally concerned with the relationships and connections among individuals within a school". Furthermore, literature has further shown that most theoretical conceptualization of distributed leadership has stressed emergent and collaborative leadership that would incorporate teacher leadership as one of its manifestations. York-Barr and Duke (2004) concept of teacher leadership is centered on a vision of leadership built on influence and interaction, rather than power and authority. Gronn (2000) and Southworth (2005) noted that distributed leadership is an emergent property in which a group or network of individuals pool their expertise together to achieve educational goals. The two concepts involves collaborative leadership approach of every public school's stakeholder (principal, teachers, students, parents, community) towards achieving effective and efficient leadership that will enhance high academic achievement of learners.

Research methodology

This study adopted a multiple case, qualitative research methodology. This method was preferred because it is exploratory and descriptive as it enabled an in-depth understanding from the participants' points of view on promoting teacher leadership practices in schools in the context of Nigerian senior secondary schools (Leedy & Ormrod, 2001). Purposive sampling was used as it enables an in depth study of individuals in their natural environment by providing rich information that can enhance the study and its findings (Fraenkel & Wallen, 2003). Participants comprised of nine teachers, three Principals, three Vice-Principals and one Educational Administrator in Education District V. These participants had experience, seniority and leadership positions. They were professional teachers; eleven of them had more than 20 years teaching experience, and four had more than 10 years in leadership positions. Similarly, the participants were full time staff and were certified by the Teachers' Registration Council of Nigeria (TRCN) they were also members of the Nigeria Union of Teachers.

One hour individual semi-structured interview that focused on the rationale for promoting teacher leadership in schools was conducted with each participant at school sites, after school hours and during teachers' free period. The data collection process lasted for eight months.

The research questions posed to the participants and based on their responses reveal much about teachers' perception on the challenges, policies of school leadership as well as its rationale for teacher leadership in Nigerian senior secondary schools. To enhance the validity and reliability of the study, data from semi-structured interviews were audio taped and then transcribed verbatim. I analysed teachers' work schedules and the National Policy on Education (NPE) of 2004. I also consulted the Lagos State Teacher's Handbook (2003), TRCN Teachers' Handbook (2005) and the National Teacher Education Policy (2009). These documents are

statutory documents to be kept in schools as they outline the aims, goals and the objectives of education in Nigeria. I used documentary analysis to corroborate the principals', vice-principals', TGPS's and teachers' interviews and to provide basic descriptions of teacher perceptions in promoting teacher leadership in public secondary schools.

Data was presented using direct quotes and comments of participants and analyzed using content analysis and discourse analysis. This enabled the compression of participants' words into fewer content categories based on explicit rules of coding". It also facilitated understanding the interaction of the literal meaning of language of people in their day-to-day activities (Shaw & Bailey, 2009; Stemler, 2002). Three interrelated processes comprising data reduction, data display and data verification (Miles and Huberman 1994), allowed for the inductive category of coding and a simultaneous comparison of all units of meaning across categories which formed the themes of the research.

Ethical clearance to conduct the study was obtained from the Faculty of Education's Ethics Committee of the University of Johannesburg; Education District V in Lagos, Nigeria; also from principals of the five public secondary schools. Pseudonyms were used to protect the identities of the participants and the schools. The five schools in this context are located in urban areas in Lagos and are funded by the Lagos State Government. The schools are in the Education District VI and are far from each other. One of the schools in the study is situated in a military facility, two are in an estate; one is close to the seaports in Lagos, and one is situated very close to a major highway. The data from the semi-structured interviews and policy documents were categorised into major themes. These themes cohered around the rationale for promoting teacher leadership in Nigerian public secondary schools. Against this background, we asked the participants the same research questions: What is the rationale for teachers as leaders in Nigerian public secondary schools? Their perceptions were analysed and presented below.

Achieving the aims of education in schools

Achieving the aims of education is regarded as the hallmark of the educational system of any country. Achieving educational aims help to produce individuals that are responsible to themselves and their country, thoughtful, enterprising and are considered major players in the social, economic and political arena of their country. Fafunwa (in Olujuwon & Keshnro, 2011). The aims of education as stated in the National Policy on Education in Nigeria, it to help a child or young adult develops the abilities, attitudes and other forms of behaviour that are of positive value to the society in which he/she lives (Federal Government of Nigeria, 2004). Akinkuotu (2001) contends that it helps individual to attain their potentials and self fulfilment within their society. Saida, one of the vice-principals believes that teacher leadership is significant in achieving educational aims as this is regarded a prerequisite for a country's development. Saida remarked that: *The rationale of teacher leadership is very, very important in schools and having good leadership in schools means that the aims of education will be achieved and education is the basic thing we need for development. So, the importance of leadership in schools cannot be over emphasised.*

Njoku another teacher shares Saida's views on the importance of promoting of teacher leadership in achieving the aims of education. Njoku explained that: *The rationale for teacher leadership is to achieve the aims of education. It will make things work in schools.*

The responses describe the significance of teacher leadership in achieving progress in schools. It could also enhance achieving the aims of education as outlined in the Millennium Development Goals (MDG) and Education For All (EFA) as this is critical in providing qualitative education for children and youth for sustainable development of the country. Literature has shown that teachers are the 'hub of any educational reforms" and teacher leadership enables teacher to be leaders in schools and thus effect changes in a comprehensive manner (Odo, Ezike & Nwani, 2000: Maduewesi, 2005). Additionally, Oduolowu (2009:329) asserts that teachers "are the determinants of quality education" as they are responsible for the translation and interpretation of educational policies, curriculum instructional materials packages and assessment of learning outcome at the levels of learners".

Mentoring

Mentoring is a mechanism whereby a senior colleague tutors a junior person on the nitty –gritty of the job in an organisation (Leck & Wood, 2013). Mullins (2007) describes it as a supportive and challenging relationship in which the mentor offers advice, guidance and support to the mentee based on experience.

Orji, one of the teacher participants noted the importance of having someone as a guide to correct and admonish a subordinate based on experience. Orji regards it as inappropriate if such a relationship does not exist in an organisation. Orji commented that: *It is very important, because, if there is nobody to tell you through experience...what to do and the right way to do it, it's not a good thing.*

The importance of mentoring as professional development strategy has been documented in literature. Hudson (2013) claims that mentoring enhances career planning, communication skills and potential leadership roles for mentors. Also, it can develop leadership skills and thus increase professional status. This is consistent with the study of Gilles and Wilson (2004) that mentoring "gives teachers leadership opportunities that build confidence and professional courage. This study reveals that mentoring will enhance trust and build collaborative activities in Nigerian senior secondary schools.

Teacher leadership expertise

Expertise refers to an individual's experience, knowledge and skills which make people to respect and value their opinion (Lunenburg, 2012). For example, medical doctors or lawyers are respected based on their expertise. In the school system, teachers' expertise plays an important role as students depend on the superior knowledge and pedagogic. Thus, Luthans (2011:4) affirms that "an individual with expert knowledge will always be respected in the community and by colleagues based on his/her knowledge, skills and experience". High a Vice Principal contends that schools amalgamate teachers' skills as the accumulation of composite staff skills play a part in achieving success. An excerpt from High reveals that: *We need teacher leadership in schools because a schools system is a destination where everybody has to come to put in their bits. So as well all progress, we are given some roles to contribute our own quota despite the ones we are already contributing.*

The Teacher Leadership Exploratory Consortium (2008) asserts that teachers possess knowledge and capabilities that are critically needed to strengthen school reform and improvement through participation and collaboration in solving problems. Findings from the study show that teachers' expertise enhances professionalism and progress as well as teaching and learning in schools.

School leadership

This is a process of guiding the ability, actions of stakeholders towards achieving the stated educational goals. In the school system the principal takes charge as the accounting officer by planning, developing and monitoring of curricular and co-curricular as well as maintaining discipline among staff and students of the school (Section, 24 & Section 25, Lagos State Post Primary Teaching Service Law, 2005). According to Massarawa, a teacher participant, there must be a responsible officer who is in charge of the daily activities in an organisation. Massarawa explained that: *In any establishment or organisation, there must be somebody who must be paddling the affairs ...who must be directing the affairs of that organisation. Somebody to report to*. This view is supported by Aladelola, a principal who commented on the need to have somebody at the helm of affairs who takes full responsibility for action or inaction in the organisation. Aladelola remarked that: *There must be somebody in charge to take full responsibility for anything good or bad that occurs in the school.*

In schools, there is an organisational chart that provides a pictorial representation of the overall structure, the nature of duties and responsibilities of the various units and the levels of authority and formal organisational relationships (Mullins, 2007; Simmering, 2006). A vivid example is Lagos State Teachers Handbook of 2003 that spells out duties and responsibilities of each stakeholder, i.e. the Principals, Vice-principals, heads of departments and teachers (PP-TESCOM, 2003). This is a convenient way of knowing who is responsible for a particular schedule of duty in the organisation. Mullins (2007) asserts that an organisational chart may be useful for training and management succession as well as for formulating changes (Mullins, 2007).

Winners a teacher participant provided another dimension. She contended that the non-existence of teacher leadership in a school would lead to commotion as there will not be opportunity for anybody to be in charge of a duty. Winners stated that: *If there is no teacher leadership in the school, there will be commotion. There won't be a room for anybody to be in charge of a particular duty.*

The excerpts highlight the need for responsible leader in school that will provide the vision, direction and support for stakeholders in achieving educational goals. There is growing evidence that effective school

leadership makes a significance difference to schools and students learning outcomes (Bush, 2009; Day, et al., 2009). This is consistent with the findings of the study that effective leadership enhances progress in schools.

Teacher as loco parentis

Teachers acting as loco parentis is characterised by a teacher legally taking on the functions and responsibilities of a parent in a school system and acting in the best interest of the child (Stuart, 2010). Teaching in Nigeria is bound by the institutional rules, schemes and norms of the teaching profession. This is specified in the Teachers' Code of Conduct by the Teachers Registration Council of Nigeria; it expresses the professionalism, discipline, rights and responsibilities of a teacher and the ethical standards expected of professional teachers in their relationship with students, parents, colleagues and employer (TRCN, 2013). The professional responsibility of a teacher is to guide, instruct, monitor, help, assess and evaluate students to assist pupils in succeeding on their educational journey.

Clark summed up the important loco parentis roles of teachers to students based on their closeness to students in school and the pastoral care of protection thereby creating an environment where students are secured and protected before returning home. Clark explained that: *The teacher is closer to them. We are told in our handbook that we are the in loco parentis. We are their parents in the school. They stay with us for some hours before they return to their parents. So in our care here, we have to behave like we are their parents, though we know we are not their biological parents, we have to play that role in their lives. It's very important*.

The excerpts describe the responsibilities of teacher as custodian of students in schools.   Literature has shown that prolonged interaction with students often leads to teachers making indelible impressions on the lives of their students (Perumal, 2013). Gourneau (2005) states that school experiences can mould and have an impact on the lives of students and their future. The study shows that teachers' positive characteristics have a long life impact in the life of students.

Facilitates administration

This refers to tasks performed by individuals so as to achieve the goals of the organisation. Okoli a principal noted the various duties performed by stakeholders in the school which makes school leadership easier. Okoli observed that:

> The rationale for teacher leadership in schools is for easy, easy administration that is why we have the organogram. The principal, vice-principal academics will handle the academic part, the vice-principal administration will handle the administration part, then the year tutor to monitor the register and teachers under him or her, while the heads of departments will mark the lesson notes of teachers under him/her for easy administration.

Aladelola a principal also noted that the rationale of teacher leadership will enhance efficient administration in schools which will promote the image of the school academically and in co-curricular activities. Aladelola remarked that: *It will enhance efficient administration and will help to increase the tone of the schools as well as ensuring that the school's name is heard more especially in terms of good performances in external examinations and co –curricular activities*

The above excepts illustrate the benefits of harnessing the potentials of teachers in the school thereby enhancing the achievement of school aims and objectives. This promotes teachers' skills, competencies and effectiveness in schools. National College for School Leadership (NSCL) (2009) emphasised that there is success when leadership is distributed across an increasing variety of roles. This is consistent with the findings of Leithwood, Day, Sammons, Harris and Hopkins (2006) that where leadership is distributed; it improves schools and students learning outcomes. This is in line with the study's assertion that "teacher leadership will enhance effective leadership in schools through various contributions of its members".

Collective leadership

The demand for effective leadership in schools in the 21st century shows that the era of a principal as a sole leader in school is no longer tenable in schools leadership (Olujuwon & Perumal, 2014). Thus several researchers advocate for multiple forms of leadership in schools (Gronn, 2003; Spillane, 2009). Okoli, a

principal states that the principal alone cannot do the work of school leadership. Okoli stated that: *The rationale for teacher leadership in schools is that the principal alone cannot do the work.*

This view is supported by Adebayo, a principal who contended that the essence of teacher leadership is to make the workload of school leadership not to be too heavy for the principal. Adebayo comments that: *The reason for teacher leadership is that the workload won't be too heavy on the principal.*

The excerpts illustrate that the principal alone cannot cope with the demands and pressure of school leadership. There is need for helping hands to assist the principal in achieving the goals of the school. This could occur when teacher leadership is promoted, where the principal notices, nurtures and makes use of the talents and knowledge of every staff members in formal and informal ways (Mednick, 2003;Perumal 2013). By empowering teachers educational outcomes can be achieved. This is consistent with the findings of the study that the era of sole leaders is no longer tenable in schools and teachers as leaders will enhance student's progress as well as school improvement.

Discussion

This study investigated the rationale for promoting teacher leadership in Nigerian public secondary schools. The study showed that teacher leadership practices in schools enhances school leadership and as well boosts the teaching and learning processes through mentoring, teacher leadership practices and collective leadership. It also show that in promoting teacher leadership help in achieving the aims of education as stakeholders brought to bear their expertise in various ways as well as in mentoring of subordinates on the nitty-gritty of the profession. All these enhance administration efficiency, accountability and progress in the school. It affirms the notion of multiple forms of leadership in school leadership (Gronn, 2003; Hargreaves & Fink, 2008; Spillane, 2009).

The finding is important as it reveals the significance of teacher leadership in achieving educational goals through various roles of multiple leaders in the school. It also helps in subordinate development through mentoring by senior colleagues as well as professional development through sharing of skills and expertise. Empirical research illustrates teacher leadership as a successful school reform strategy that can improve teaching and learning (Poekert, 2012). While a significant literature base exists on teacher leadership in developed countries, it is yet to be fully developed in Sub Saharan Africa (SSA), hence there is insufficient empirical research at the secondary school level (Arikewuyo, 2009; Frost, 2012; Grant, 2006). Thus, teacher leadership must be entrenched in the pre-school curriculum as well as in establishing the school of leadership for those aspiring to leadership positions. Thus, Nigerian secondary schools must embrace teacher leadership concept and discard the traditional notion of school leadership in line with best practices and current realities in school leadership.

Conclusion

The study showed the rationale for promoting teacher leadership in Nigeria senior secondary schools. The findings revealed mentorship, teachers' expertise as well as effective school leadership portend a good omen for school leadership in Nigeria. This will help to achieve educational goals and as well in harnessing the skills and knowledge of teachers in schools. In addition, the study shows that teacher leadership is beneficial to stakeholders as it gives them a sense of belonging through sharing of skills and various leadership roles undertaken that enhances professional development and school improvement. The study also reveals that school management cannot be left alone for the principal but must extended to teachers in the school as this would enhance efficiency in school leadership. However, organisational, professional and personal consideration factors that affect the practice of teacher leadership must be done away with for effective teacher leadership in schools. The study suggest that teacher leadership should be advocated in place of the traditional notion of leadership which limits teachers' roles and responsibilities and as the study have shown; that the teachers knowledge of subject matter and interaction with students enhances teaching and learning.

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Impediments embedding the realisation of learning equity in South African schools: Insights from classroom practitioners

Edmore Mutekwe
Vaal University of Technology, South Africa
E-mail: edmorem@vut.ac.za

Abstract: *This study explored the obstacles to the attainment of equitable learning in schools using a qualitative exploratory case study as the design genre. It sought answers to the following research questions: What measures are in place in schools to promote equitable learning? What obstacles do educators face in their quest for learning equity in schools? Data were collected through focus group interviews from a sample size of 50 classroom practitioners purposefully and conveniently sampled. Through the thematic approach adopted for data analysis the study unearthed a variety of obstacles to learning equity including pedagogical practices, issues of racism and the marginalization and deprivation of a significant section of the South African population. The main conclusion of the study was that the obstacles identified perpetuate and, in some instances, exacerbate a legacy of disparities thus impeding the attainment of equitable learning in schools. The study recommended the adoption of measures aimed at promoting equity pedagogy through socio-cultural mediation and a reduction of negative attitudes and the stereotyping of differences in the schools.*

Key words: Equitable learning, ethnocentrism, equity pedagogy, stereotypes

Introduction and background to the study

Herein the argument that the post-apartheid South African education sector inherited a full complexity of the country's apartheid colonial legacy is advanced. Given the view that cases of racism, sexism and class discrimination continue to manifest themselves in the core activities of teaching, learning and research, the author asserts that the learning equity agenda 'preached' through various political and educational fora remains elusive. This view dovetails with Badat's (2007) contention that South Africa is, once again, facing a critical moment in its quest for transformation particularly towards learning equity in institutions of learning. While the foundation for democratic education was laid by the dawn of a new education era in 1994 following the demise of the apartheid regime, the challenge of producing and sustaining this democratic development has remained not just a toll order but utopian in nature (Mutekwe, Machingambi, Maphosa, Ndofirepi & Wadesango, 2013). Central to this challenge is the need to determine precisely how the instruments of democracy such as, equal access and participation as well as social justice are upheld in our schools as public institutions for the promotion of the modalities and, indeed, the habits of a human rights and social justice culture on the one hand, and the advancement of the socio-cultural and economic rights for all South Africans regardless of their social diversity (Badat, 2007). The discussion in this paper thus unravels some of the curricular and pedagogical practices that

render the attainment of learning equity utopian in the South African educational landscape. It unfolds with a conceptualization of the notion of learning equity as aptly described by Van der Westhuizen (2012) and McGee Banks and Banks (2009), who contend the concept describes a process of empowering all learners by according them not only equality of educational opportunity but also ensuring they receive fair treatment in their educational institutions. Viewed from this perspective, learning equity thus involves establishing parity in the teaching and learning practices regardless of learner diversity in terms of such demographic indices as race, sex, gender, religion, social class, ethnicity, disability, culture or creed (Eisner, 2005).

Aim of the study

The study sought to explore impediments to the attainment of learning equity in schools by examining not only the theoretical perspectives as given in the literature on the subject but also by drawing insights from different classroom practitioners in South African schools.

Statement of the problem

The thesis of this discussion is that despite the demise of the apartheid regime in 1994, which marked a watershed moment in South Africa's educational history and heralded the onset of democracy and in spite of the laudable advances made in transforming the post-apartheid educational system towards access and equality of educational opportunities and the beginning of a deliberate and necessary process of undoing the effects of the many years of institutionalised inequalities, the goal of equitable learning in schools is far from being realised owing to variety of obstacles.

Theoretical framework used as the lens for the study

Deploying amongst others, the theories of structural and cultural reproduction and the socio-cultural perspective to learning and development, the discussion highlights the various ways in which issues of social class differences, racial, ethnic and gender divisions have constrained some while enabling other learners' access to quality education in the South African schools (Christie, 2008). Bourdieu's theory of social reproduction is used as one of the lens to offer a comprehensive explanation of the persistent inequalities typical of educational stratification despite state efforts at educational expansion nationally (Tzanakis, 2011). For Bourdieu (2008), the mechanism argued to perpetuate and reproduce structured social inequalities in society is based on the effective transmission of family-based parental endowments to the offspring since generally parents tend to endow their children with physical, human, social and especially cultural capital whose transmissions create inequalities in the learners' educational and occupational attainment (Mutekwe, 2014b). Bourdieu argues that schools and teachers can aid or abet this family-based reproduction process by rewarding possession of elite cultural capital in students as well as by setting up elitist standards rigged to favour the middle class learners while marginalizing their working class

learner counterparts (Tzanakis, 2011). Similar sentiments are expressed in Bowles and Gintis' (1976) correspondence principle and Bernstein's (2000) pedagogic discourse of visible and invisible pedagogies where they assert that schools perpetuate social stratification along social class lines through both the explicit and hidden curricula.

Drawing on Bourdieu's theory of social reproduction, the concept of cultural capital describes the transmissible parental cultural codes and practices capable of securing a return to their holders (Tzanakis, 2011) It embodies the sum total of investments in aesthetic codes, practices and dispositions transmitted to children through the process of family socialisation, or habitus as Bourdieu's terminology describes it (Bourdieu, 2008). As an important form of cultural inheritance, the learners' habitus often reflect their social class positions and or their location in a variety of fields geared towards the perpetuation of dichotomous structures of dominance and subordination (Mutekwe, 2014a). On account of the view that family habitus varies by social class, middle-class or elite cultural resources often become the cultural capital valued in educational and broader society (Bourdieu & Passeron, 1977). Knowledge and possession of a highbrow culture, as argued by Bourdieu and Passeron, are unequally distributed according to social class and education, to be institutionalised as legitimate and to confer distinction and privilege to those who possess and deploy it (Bourdieu, 2008). Along with economic, social and human capital, such cultural capital actively reproduces social inequalities among learners.

Central to the above view is the notion that instead of bridging the social class, race or ethnic divide among learners, schools are in fact, part of the problem of social inequalities (Bourdieu, 2008). They appear to offer equal opportunities to learners, yet in practice they do not (Christie, 2008). Instead they reproduce class inequalities and at the same time make such inequalities appear fair and natural as if they are the results of individual abilities rather than social class position. This perspective is similar to C. Wright Mills' conception of the sociological imagination, developed in the 1950s as a way of thinking about structure, agency and history and to argue that although as individuals human beings have their own lives, their hopes, dreams, relationships, decisions, aspirations, achievements and failures are to a greater extent determined by the social structures they exist in (Giddens, 2010). Thus, according to the debate on structure, agency and history, social structures influence human agency, the human ability to change their circumstances. However, it is important to note that the debate also rebuts this view on the grounds that the agency or free will to act can also influence one's destiny (Giddens, 2010). In essence, this implies that structure and agency can be mutually constitutive. It is also in this sense that Giddens alludes to the notion of a duality of structure to assume that the structural properties of social systems can be both the medium and the outcome of the practices that constitute those systems (Giddens, 2010). See in this light, social structures thus have both rules and resources or constraints and enabling qualities on the human potentialities. Extrapolating from classroom experiences and examples, one can argue from the perspective

of language use, which is often used to mediate and exemplify the aforementioned modalities and the principles of classroom interaction. Language includes in itself rules of syntax and lexis but also leaves room for interpretations and the creation of completely new words (Giddens, 2001). It is the system of interaction that is responsible for maintaining a certain standard of consistency in order for a given language to make sense to both the teacher in the classroom and the interpreter or decoder, who in this case is often the learner. At the same time, the completeness of the language can always be manipulated through interaction by the agent depending on his social class, racial or ethnic background (Mutekwe, 2014a).

The need to promote equitable learning can also be enhanced through the adoption of the socio-cultural approach to teaching and learning, which foregrounds the view that all school and classroom activities need some form of socio-cultural mediation if learners are to be effectively scaffolded in the zone of proximal development in order to transform their lower cognitive functions to higher ones (Vygotsky, 1987). From this perspective, mediation through learning tools (material, psychological, semiotic and other human beings) should be regarded as a condition necessary and sufficient for learning equity in schools (Kozulin, 2002). The Vygotskian view of socio-cultural mediation asserts that schools and classrooms that recognize their learners' different zones of proximal development are often able to provide effective scaffolds to allow for equitable learning and progression to higher cognitive operations (Wertsch, 2004). The zone of proximal development is a conceptual framework coined by Vygotsky to account for the difference between what learners can do on their own and what they can do with the assistance of an educator, older sibling, parent or a more competent peer collaborator(s) (Tudge, 1990). To promote learning equity therefore, educators who subscribe to this conceptual framework ensure that the performance gaps in each and every learner in their classrooms are taken care of so as to cater for their individual differences thereby promoting equitable learning in schools (John-Steiner & Mahn, 2008; Mutekwe, 2014). The above views clearly show that although theoretically the equitable learning agenda is possible to realise there are many obstacles to its full attainment in educational institutions. To explore this view further, the study had to involve some empirical work to elicit the views of some experienced classroom practitioners on the subject and such views are apparent in the subsequent sections of this study.

Methodology

The study adopted a qualitative exploratory case study to unmask the obstacles to the learning equity agenda in South African schools. An exploratory case study as defined by Mills, Gabrielle and Wiebe (2010) describes a design genre often applied to an in-depth scientific investigation of a social phenomenon or phenomena to provide greater insight into the culture characteristic of the phenomenon or phenomena under study. Its adoption in this study was guided by an assertion by Yin (2011) that it offers researchers an in-depth understanding of what happens within a case by looking beyond its descriptive features and studying its holistic context. This view,

coupled with the fact that case studies are multi-perspectival analyses (Yin, 2011), helped me to consider not just the voice and perspective of the participants, but also the interaction between and among them and this helped give them a voice to express their collective perceptions on the factors affecting the attainment of equitable learning in schools reflected as the lived experiences of the educators and learners' school culture and or curricula in both the explicit and implicit forms.

Population and sample

The population for this study was classroom practitioners drawn from the Vaal Triangle region of South Africa. The sample of study consisted of 50 post-graduate in-service teachers conveniently and purposefully selected from a cohort of 200 teachers reading for a Master of Education Degree in a South African university. These were chosen on account of their possession of a wealth of classroom experiences spanning ten to twenty years.

Ethical considerations

Guided by Babbie and Mouton's (2012) assertion that social science research dictates that ethical principles be upheld for all research, I first sought and obtained permission to conduct this study from the university authorities. The second procedure was to seek ethical clearance from the Gauteng Department of Education to interview their teachers. I also sought and obtained the teachers' informed consent by first disclosing to them about the nature of the study, the risks, beneficence and alternatives and to offer them an extended opportunity to ask questions before deciding whether or not to participate (Betram & Christiansen, 2014). Further to this, I also informed the participants of their right to voluntary participation, autonomy, privacy, anonymity, confidentiality, non-maleficence and that they were free to withdraw from the research at any time without any penalty. Fortunately, none of them withdrew from the study prematurely.

Data collection procedures

The collection of the data for this study was done through focus group interviews with 50 classroom practitioners divided into five focus groups of ten members each so as to allow the researcher to gain a deeper understanding of the views expressed by these teachers. Each of the focus groups was interviewed twice for an hour in a month to capture their general conceptions of impediments to learning equity in schools. The focus group interviews provided me with an opportunity to directly reach, hear, see, feel and interpret the experiences of the participants, thereby contributing subjectively, to my understanding of their social construction of the teachers' reality of the impediments to equitable learning in schools. Through the focus group interviews I managed to moderate and direct the discussions towards the desired areas of the research focus (Nieuwenhuis, 2012). The focus group interview sessions of this study were initiated through a strategy Odimegwu (2004) describes as *the funnel technique,* where semi-structured questions were used to first ease the participants into the discussion before they

delved into issues of inequitable learning full throttle. To ensure that all the interview sessions were conducted without disrupting the school tone, the researcher settled for days when both the researcher and participants had no lectures running. Each focus group discussion was scheduled on a different day.

Data Management and analysis

Guided by Hesse-Biber's (2012) assertion that an analysis of emerging patterns is essential in the data management and analysis of a research study my first focus was to look for similarities and differences amongst the teachers' response to questions on impediments to learning equity in educational institutions. This helped me to produce a rigorous analysis of patterns of meanings that underlay their shared experiences of the obstacles to equitable learning in their schools. The analysis proceeded on a case-by-case basis as described by Smith and Osborn (2008). For example, every focus interview transcript was read several times to first get a generic understanding, then more closely so as to separate the texts into meaning units. For each meaning unit, a descriptive summary of the experiences the participants recounted were noted. Following this, interpretative coding was undertaken to identify the salient themes before moving on to the next case. Interpretative themes from the focus group interviews were then synthesised to produce the superordinate that anchored the discussion of findings. The data analysis, presentation and discussion of findings first maps the changes realised in terms of equal access to education in South Africa since the end of apartheid, followed by a discussion of the factors elicited through the focus group interviews as impacting negatively on equitable learning.

Results and discussion

The following themes formed the basis of the discussion of findings; conditions necessary for learning equity, unequal resource mobilization and allocation in schools, lack of tolerance for diverse classrooms, the prevalence of discriminatory tendencies, inability for teachers to adopt effective socio-cultural mediation, inability to implement situated learning experiences, perceptions of social class differences and complexes, ethnocentric tendencies and biased learner assessment practices. The findings under each of these superordinate themes are discussed in detail in the subsequent sections.

Conditions necessary for learning equity

Responding to the question requiring them to state what factors they consider important for equitable learning in their schools, participants cited the following as crucial**;** being just, equal, fair or impartial in the teaching and learning processes. This view is consistent with Eisner (2005) and Darling-Hammond's (2005) contention of learning the practice (learning equity) should regard all learners as equals regardless of their diverse backgrounds, differences or handicaps.

Unequal resource mobilization and allocation in schools

Participants also decried the unfair distribution of teaching and learning resources in some schools as one of the obstacles to learning equity. The participants were quick to point out that while both basic education and higher education have been improved and expanded in the past 20 years of democracy in south Africa, this has not translated to a more equal society in terms of educational resources as some schools remain under funded, ill-equipped and poorly staffed. Participants also pointed out that the extraordinarily high cost of the many prestigious junior and high schools and universities in the country make an attempt to level the educational playing field for all learners not so level. For example, high-achieving low-income learners do not often have the means to attend selective schools that better prepare them for later success. Because of this, low-income pupils do not even attempt to apply to the top-tier schools for which they are more than qualified. For some of the participants, despite the view that a major task of South Africa's new government in 1994 was to promote racial equity in the state education system, unequal resource mobilization and allocation continues to haunt the education system. One participant gave a chronicle of how during the apartheid era, which began when the National Party won control of Parliament in 1948 and ended with a negotiated settlement more than four decades later, the provision of education was racially unequal by design. The participant pointed out that for him, it is disturbing to note similar trends exist in some situations between the pre apartheid and the post-apartheid unfair resourcing of schools. He argued that during the pre-independence era educational resources were lavished on schools serving white learners while those serving the black majority were systematically deprived of qualified teachers, physical resources and teaching aids such as textbook and stationary and this scenario seems to be obtaining in some provinces in South Africa, particularly Limpopo and Mpumalanga, where some schools have gone for close to a term without text books (Badat, 2007).

Lack of tolerance for diverse classrooms

Responding to the question of how intolerance of diversity manifests itself in classroom activities, the participants argued that although from a scientific perspective the human species is a single race, it is really disturbing to note that terms such as races and racial groups continue to be used in South African schools. One participant interestingly complained that the term racial group is even enshrined in legislation and that phrases such as race equality and race relations are in widespread official use, yet racial equity in education includes the assignment of learners to public and private schools and within schools with regard to their race instead of providing them with a full opportunity for participation in all educational programmes regardless of their race. For this participant, this also reflects a level of intolerance of diversity though in a subtle way. In addition, neighborhoods generally segregated by class leave lower-income students in lower-quality schools. For higher-quality schooling, learners in low-income areas would be required to take public transport which they do not have the means to pay for. One participant had this to say in support of her response:

P1: *Fewer than 30 percent of learners in the bottom quarter of incomes even enroll in a four- year school and among that group, fewer than half graduate.*

Another contributing factor to inequitable learning in schools that participants pointed out as reflecting a lack of tolerance of learner diversity is the practice of streaming or tracking practised by some schools. Streaming or tracking sorts learners into different classes or groups based on perceived ability or future plans. The point of tracking is to create an environment in which the learners' abilities match both the curriculum as well as the other learners in the class (Eisner, 2005). This separation, however, creates an inequality within itself. Starting at an extremely young age, the sorting of learners mimics a hierarchy similar to one which will form later on in life (Mutekwe, 2014b). Students are both viewed and treated differently depending on which track they take. The quality of teaching and curricula vary between tracks and as a result, those of the lower track are disadvantaged with inferior resources, teachers and even attitudes. In many cases, tracking stunts learner who may develop the ability to excel past their original placement.

The prevalence of discriminatory tendencies

Discussing if they have ever witnessed any forms of discriminatory tendencies in their schools, the following two views emerged in the focus group discussion: The first is lack of fairness in the way learners are treated in their different classes and the second is lack of authentic inclusion. For the participants fairness, which implies that factors specific to one's personal conditions should not interfere with the potential of academic success lacks in many schools and classroom activities as educators adopt biased approaches in their interactions with learners. Regarding the second factor, inclusion, which refers to a comprehensive standard that applies to everyone in a certain education system, is not adhered to as educators tend to group learners according to perceived abilities and handicaps in their classrooms. These two factors impede equitable learning because they are closely related and are dependent on each other for true learning equity in the educational system. Other impediments to learning equity elicited through the focus group discussions include school and education system level obstacles such as lack of investment in quality education for some regions and schools, inappropriate gender attitudes and behaviors, lack of ideal female role models and gender-friendly school environments. Participants claimed that all of these factors promote learning inequalities in education. It also emerged from the focus group interview that some of the educators tend to code switch to their vernacular during the course of their classroom interaction with learners and this sidelines some learners who may be unable to communicate in the language the educator and some learners code switch to. The above views imply that the campaign for learning equity should not only be articulated through human rights declarative documents but also through educational policies, practices and job descriptions for educators to curb discriminatory tendencies among school personnel. Essentially this means advocating non-discriminatory practices in the classrooms and schools, whether directly or indirectly against anyone on any one of these grounds, race, sex, gender, class, language or ethnicity.

Inability for teachers to adopt effective socio-cultural mediation in their classrooms

Among the responses given by teachers on factors that affect the realisation of equitable learning in schools was the theme of the failure by some teachers to effectively deal with the diverse social and cultural backgrounds of their learners during the course of their classroom interaction. This view made me to draw on the Vygotskian view that all teaching and learning should be effectively mediated. In the Vygotskian socio-cultural approach to learning and development, socio-cultural mediation of learning describes learning situations facilitated by an educator(mediator) who ensures that the learners understand the content at stake (Kozulin, 2002). A mediator in this sense is not only a human being such as a teacher, parent or more competent peer collaborator but can also be a tool or tools used to enhance an understanding of the concepts covered in the teaching and learning process (Wertsch, 2004). As mentioned above, the results of this study revealed that effective mediation is central to the attainment of learning equity in schools. As a concept embodied in the social constructivist epistemology, it implies that all teaching and learning situations need to be mediated in one way or another. For Vygotsky (1987) there are basically three forms of mediators: material tools, psychological tools or other human beings (adult, parent, teacher or a more competent peer collaborator). The role of mediation in learning is therefore to scaffold and transform the learners' lower cognitive functions to higher ones as the learner progresses from knowledge of one concept to the next. Mediation thus aims to ensure that every function in the learner's cultural development appears twice: first, on the social level, and later on the individual level or between people (inter-psychological), and then inside the learner (intra-psychological) (de Valenzuela, 2010). The findings also revealed that teachers who are not able to mediate effectively are thus unable to promote the realisation of equitable learning in their classrooms.

Inability to implement situated learning experiences

Asked to explain how they make use of their learners' socio-cultural backgrounds during their teaching and learning processes, many of the teachers in the sample claimed that they find it difficult given the diverse nature of their classrooms. This led me to reflect on the insights from Lave and Wenge's (1998) notion of communities of practice and situated learning experiences, which they assert have a profound impact on learning in the schools. These authors have put forward an interesting account of how locating learning activities in social interactive activities helps learners develop some degree of social cohesion, which they describe as communities of practice. Their ideas dovetail with those of Brown, Collins and Duguid (2009), who also maintain that one of the important ways through which diverse classrooms can become learning communities in which each participant makes a fair significant contribution to the emergent understandings of all members, despite having unequal knowledge is through social interactive activities involving the use of the learners' every day experiences as the building blocks for their motivation. Brown et al. (2009) examine the role of what they termed reciprocal teaching, an approach in which learners and their educators take turns leading discussions about shared texts to foster structured dialogues

and authentic learning communities of practice. For Brown et al., (2009) such an approach enables positive conceptual changes in both the learners and their educators as they begin to share with each other well-defined tasks through learning conversations and this has the potential to culminate in equitable learning in schools.

Perceptions of social class variations and attitudes toward differences

The focus group interview participants pointed out that social class as determined by income has always played an important role in shaping academic success. Those learners who come from families of a higher socio-economic status are often privileged with more opportunities than those of lower socio-economic status. Those who come from a higher socio-economic status can, for example, afford things like better tutors, rigorous preparatory classes, impressive summer programmes, and so on. Their parents generally feel more comfortable intervening on behalf of their children to acquire better grades or more qualified teachers. They are also sometimes more willing to donate large sums of money to a certain institution to better improve their child's chances of acceptance, along with other extravagant measures. This creates an unfair advantage and distinct class barrier with their counterparts from a lower socio-economic status. As a result, teachers may have a more positive attitude towards learners from a higher socio-economic status that they do to those from a lower socio-economic status. Issues of superiority and inferiority complexes may also accompany the teachers' perceptions of the learners leading to inequitable learning outcomes in schools. These findings resonate with the views of theorists of structural and cultural reproduction, namely Bourdieu, Bernstein, Giddens and Bowles and Gintis who assert that the social structures in which human beings exist engender and perpetuate social inequalities of various forms. For Bourdieu home backgrounds do this through the transmission of family-based parental endowments to the children as a form of cultural capital and schools and teachers aid and abet this family-based reproduction process by rewarding possession of elite cultural capital in learners and by setting up elitist standards rigged to favour the middle class children while marginalizing their working class learner counterparts. In Bowles and Gintis' (1976) correspondence principle the school as a social structure also reproduces social class differences through its hidden curriculum, and for Bernstein (2000), pedagogic discourses also create and perpetuate social stratification along social class, race, gender and ethnicity.

The prevalence of ethnocentric tendencies in schools

Participants also cited ethnocentric views among teachers and learners as one of the factors impeding the attainment of equitable learning in schools. Ethnocentrism is viewed as the thinking that one's own group's ways are superior to others or judging other groups as inferior to one's own (Barger, 2015). Participants argued that this obstacle to learning equity often manifests itself through superiority and inferiority, racial, tribal, religious, gender and ethnic complexes as well as in inter-ethnic relations, and similar social issues. One participant had this to say in relation to how ethnocentrism manifests itself in his school:

P3: Some of the educators and even learners tend to make false assumptions about others' ways based on their own limited experience. Sometimes the assumptions made impact negatively on the victim especially the assumption is accompanied with a treatment that is prejudicial or biased against the victim.

A closer analysis of the above excerpt reveals the impact of labelling on learners implicit in Mead's (1934) symbolic interactionist perspective, which posits that labelling often leads to a self-fulfilling prophecy in the victim of the label. Also implicit in the above views is the view that the assumptions we make about others' experience can involve false negative judgments, as reflected in the definition of ethnocentrism in the preceding section. The assumptions can also reflect false positive attitudes about others' ways. In educational institutions false positive assumptions can be as misleading as false negative assumptions and this may affect the attainment of learning equity as such assumptions may interfere with the educators' assessment practices. Other implications for ethnocentric tendencies in schools as expressed by participants are that they sometimes impact on equitable learning by falsely distorting what may be meaningful and functional to other educators and learners through our own tinted glasses as we view their ways in terms of our life experiences, instead of their context. We fail to understand that their ways have their own meanings and functions in life, just as our ways have for us. Central to this is the view that we do not understand that we do not understand them (Barger, 2015). So we are not aware that we can develop more valid understandings about how they experience life. At the best, we simply continue in our unawareness. Yet this can have consequences within our own school settings and the wider society. We may be well meaning in interethnic relations, for example, but can unintentionally offend others, generate ill feelings, and even set up situations that harm others and promote xenophobia or hatred for strangers. For example, it is easy not to see the life concerns of others (particularly minorities and the disadvantaged) or conversely to pity them for their inabilities to deal with life situations such as linguistic challenges in a foreign nation, school and society. In educational institutions, a lack of understanding between educators and learners can thus inhibit equitable learning by restricting constructive resolutions when they face conflicts between social groups.

Biased learner assessment practices

A number of participants pointed out that educational tests, assignments and examinations can sometimes be sources of inequitable learning in schools. Asked to elaborate on this view, one focus group interview participant had this to say:

P4: Assessment tasks, class exercises, tests or examinations can enhance learning equity if they are good ones and if they are used properly. They also permit us to make accurate inferences about the skills and knowledge our learners possess. Because those skills and knowledge can't actually be seen, because they are covert, we rely on the learners' overt performances on educational tests to arrive at interpretations about what it is that they know and can do.

Another focus group interviewee added that:

P5: Most teachers toss offensive content into their test items without recognizing it. That is, they do so unwittingly.

It emerged from the focus group interviews that the process of making examinations or test-based inferences about learners, in fact, represents the bedrock of educational assessment. Therefore, if teachers' inferences about their learners are accurate, then chances are that their learner assessment processes can promote equitable learning in schools and they can also make appropriate decisions about the best ways to instruct those learners equitably (van der Westhuizen, 2012). On the other hand, if teachers' inferences about learners are inaccurate, biased or unfair, then the instructional decisions they make are likely to be unsound (Popham, 2012). A test item is apt to offend a particular group of learners when the item's content somehow denigrates the particular group to which those learners belong. For example, if an item on an important class test happens to include a disparaging remark about Afrikaners or Zulus in South Africa and both parents of learners who took the test belong to these ethnic groups, chances are that the learners would most likely be offended. Given that common sense tells us that learners who have been offended are not likely to perform optimally, not only in responding to the offensive item but also in responding to subsequently encountered items on that test, such practices certainly impede equitable learning outcomes in schools.

A burning issue that poses as a big obstacle to learning equity as reflected in the focus group interviews is the teachers' use of culturally denigrating comments or remarks for learners, be it in assessment exercises or classrooms comments. One example cited is that if a class contains a large number of learners from a particular ethnic, for example, children from Zimbabwe or children those who are physically disabled, it might be fairly easy for that teacher to be sensitive to what might offend those particular learners. However, if there is one Jewish learner in the class whom a test item offends because of its anti-Semitic connotation, that is one learner too many. If there is one Pakistani learner in the class whom a test item offends because of its Asian-denigration content, that is also one learner too many. Learners do not have to be Jewish or Pakistani themselves to be offended when items on a test contain anti-Semitic or anti-Asian content. However, many students will be and should be offended by test items that disparage any social group and this would impact negatively on the realisation of the learning equity agenda in that school. The issue of unfair penalization of learners during assessment processes was also cited as one of the factors affecting equitable learning in some schools. This form of assessment bias can arise when a test item actually penalizes a learner because of that his or her personal characteristics such as gender or geographic locale. The following examples were debated during the focus group interviews: Supposing a middle school mathematics teacher has compiled or set an end-of-unit exam intended to see how well his pupils can solve mathematical word problems and one of her test's first few items is set in the context of a professional soccer game, and learners are supposed to solve a word problem that includes a key reference to MAC (metres after the catch). In order to solve the problem, learners definitely need to understand what the abbreviation means, which is,

when a soccer ball is thrown to a receiver and the receiver catches the ball and makes additional moves (metres) before being tackled by an opponent. In this case this test item would be easy for boys in that class who have experiences with soccer but as for girls, chances are that although as a group, they may learn more and more about all sorts of sports, and although televised sports events now clearly and consciously include female analysts and announcers, the fact remains that more boys than girls are likely to understand the meaning of MAC than girls. It is in this sense that girls will be considered as unfairly penalized by this biased assessment because it was the item's gender-linked content that disadvantaged them, not the mathematics question per se. In such circumstances learning equity is seriously challenged in the classroom. Just as in the case of offended learners discussed above, the girls may underperform not only on an offending item but on other items in the test, unfair penalization has essentially the same effect and is indeed an impediment to equitable learning. Learning equity in the above sense is affected by a biased assessment procedure because a learner encounters an item containing key content that he or she regards as incomprehensible. He may then feel inadequate not only with respect to the particular item involved but also with respect to other items on the test due to an attitude developed.

Conclusion

The conclusion drawn from the discussion in this paper is that the realisation of the learning equity agenda is riddled with obstacles of various forms: ethnocentric tendencies, conditions necessary for learning equity, perceptions of differential social class backgrounds, inability of educators to adopt effective socio-cultural mediation in schools, the inability of educators to implement situated learning activities in their classrooms, unequal resources mobilization and allocation in schools, the existence of discriminatory tendencies among school personnel and biased school assessment practices. From the findings of this study, a number of strategies that have the huge potential to foster not only meaningful and purposeful learning but also promote sustainable learning equity in educational institutions have emerged and these are outlined in the next section under the theme of recommendations.

Recommendations

In view of the findings of this study, the following recommendations are made: Educators need to ensure a complete integrating all of the learners' socio-cultural attributes in their mediation of teaching and learning in the classrooms, refraining from negative attitudes and the stereotyping of differences, adopting equity pedagogies in the school and classrooms and avoiding ethnocentric tendencies along race, sex, social class, ethnicity, religion or disabilities, adopting impartial learner assessment practices. Schools also need to create just, humane and democratic learning environments to foster equitable learning. Educators also need to realise that though one of the key factors for learning equity, equality of educational opportunity is not a sufficient condition since learning equity entails not just affording learners' equal access to education but also ensuring that they are treated in just or

fair ways within their institutions of learning. Furthermore, to ensure learning equity becomes a reality in schools, both educators and learners alike need to realise that when they encounter learners or others from other ethnic backgrounds, they have an opportunity to learn new ways of seeing and experiencing life which they never knew existed. In fact it is important that they take cognizance of the fact they can learn the emendous potentials humans have for being different, such as looking at learning, interactions and life in general in a complementary perspective instead of as an inherent conflict. By realizing that they can also better understand themselves by contrasting their own ways with other life experiences and asking about our own meanings and functions, then they are able to go beyond ethnocentrism to experience lessons that can provide them with new possibilities for better experiences in life.

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Learning to teach History: reflections on how student-teachers practiced

the skill of introduction in micro-teaching

Maropeng Modiba,
Department of Education
and Curriculum Studies,
University of Johannesburg,
P.O Box 524, Auckland Park,
Johannesburg, 2006, South Africa,
Email: mmodiba@uj.ac.za

Valencia Mabalane,
Department of Education
and Curriculum Studies,
University of Johannesburg,
P.O Box 524, Auckland Park,
Johannesburg, 2006, South Africa,
Email: valenciam@uj.ac.za

Abstract: *The paper reports on a study of four student teachers' practice of the skill of introduction in their History micro teaching lessons. Classroom observations and stimulated-recall discussions were used to collect data. The findings highlight the student teachers' limited understanding of the teaching approach emphasized by the Curriculum Assessment Policy Statement (CAPS). Drawing on, amongst others, Dunne and Pendlebury's (2003) views on the importance of a mental disposition based on normative standards accepted as principles of acting when teaching particular knowledge, the argument in the paper reflects on the manner in which questions were asked on the subject content. The use of micro-teaching in the model of teacher education that is proposed by the CAPS document is also questioned. The paper concludes by emphasizing the importance of taking curriculum policy analysis seriously in designing teacher education programmes that are responsive to national goals within a country.*

Keywords: student teachers, micro-teaching, introduction skill

Introduction

There has been controversy and sharp debates about what teaching history as a school subject means in practice. For example, how do we balance content and skills in the classroom (Aldrich, 1997; Crick, 1998), what is the appropriate balance between pupils' investigation of historical problems and teacher exposition about the past? (Osborne, 2002; Husbands, 1996) and what sort of historical understanding should we promote and how should it be assessed? (Lee, 1992; Medley & White, 1991). Various conceptions are identified in the literature, for example, practical-craft (Volante & Earl, 2002); technological (Deng & Gopinathan, 2003); personal (Connelly & Clandinin, 1990); academic (Carter & Anders, 1996) and critical-social (Kinchloe, 2004). These conceptions have varying implications for teacher education, therefore, it is important to

understand the one that underpin policy, in order to highlight what is crucial for competence.

In this paper we look critically at four micro-teaching lesson introductions in South Africa as examples of a skill student History teachers were learning for Further Education and Training (FET) [Grades 10 to 12, that is, 16-18 years old]. Their ability to translate the aim of teaching in practice was of particular interest. Gordon (2007, 121) describes it as a capacity that reflects "the awesome power to analyze and assess what they and the schools [have to] do…"

According to I'anson et al. (2003), microteaching in a pre-service teacher education programme is useful in presenting a secure, controlled and enabling context for students to try out skills of teaching and get considered feedback from peers and teacher-educators (see also, Bell, 2007). For instance, a lesson introduction is important because it allows for the organization of a favourable learning atmosphere creatively developed to stimulate learner interest, capture and sustain focus towards the content. It opens up the context for learning through a brief review of the previous lesson to link content to the new one, but it is important to make sure both have a clear relationship. A lesson can also be introduced by asking a question that draws upon the learners' experiences in a given setting, reviewing new words or terms from either a previous lesson or a completely new context, or it can involve the use of a short story that is captivating and has a bearing on what will be taught. Importantly, the story has to be simple and not difficult to understand, so it is important to use simple language and base it on the learners' experiences. Finally, an introduction can be an outline that shows what will be learnt.

Micro-teaching can thus be associated with a behaviourist approach to teacher education (Cruickshank & Metcalf 1993; Wilkinson, 1996). The approach belongs to the late 1960s through to the early 1990s when learning to teach emphasized the exposure of prospective teachers to classroom teacher behaviour that had been found effective in eliciting specific learner achievement. Teacher education based on this approach involved deliberate manipulation of behaviour so that pre-service teachers approximated it in their own practice. Learning to teach meant the identification of distinctive teaching skills to be developed through simulated practice. Therefore, in studying the introductions, we wished to answer the following question:

(1) What purpose of the skill(s) were student teachers practicing when introducing the topic 'The development of Capitalism in the USA 1900 to 1940'?

The following sub-questions ensured that we looked for the same aspects in the student teachers' introductions:

- What purpose of an introduction were you practising?

- How did the purpose help you prepare the class for the aim of teaching this topic?

- How successful were you in trying out the skill?

- How was the feedback from your peers and the lecturer – did it clarify what you needed to work on to fulfil the aim of teaching this topic?

- What else can you say about how you tried out the skill? How can you explain its significance to the aim of teaching this topic, specifically, the question that has to be answered?

As co-actors with and on the subject content, the student teachers had to try out a skill in a manner they believed would have a bearing in introducing the topic in a manner that facilitated what the CAPS proposed as the aim of teaching it. The policy is discussed briefly below.

The policy (CAPS) on teaching school History in South Africa

The CAPS describes the aim, historical concepts and skills, as the planning and design features, that are supposed to inform teaching History. The background of each topic and its sub-topics are also explained. For example, the policy states that all topics in Grades 10-12 have to:

> ….convey that history is a discipline of enquiry and not just received knowledge; historical knowledge is open-ended, debated and changeable; history lessons should be built around the intrigue of questions; and research, investigation and interpretation are guided by posed questions (DOBE, 2011:11).

Because of the limited scope of the paper, we shall not discuss the policy in its entirety for this subject but merely focus on the expectations for the topic the students chose to teach, namely, "Capitalism in the USA 1900 to 1940". The topic is prescribed for Grade 11 in terms 1 and 2 to answer the question "How did the Great Depression in the USA bring about a crisis of capitalism?" The content for the topic includes the following:

· the nature of capitalism in the USA - entrepreneurial and competitive; with rugged individualism; free market; and with minimal state control over business;

· the American dream of individual possibilities - 'rags to riches';

· capitalist boom of the 1920s: strengths and weaknesses in the US economy;

· USA society in the 1920s;

· Wall Street crash of 1929: reasons for and economic and social impact;

· election of Roosevelt: offering a New Deal;

· analysis of the New Deal: legislation and programmes for relief, recovery and reform;

· opposition to the New Deal: analysis of the criticism;

· assessment of the New Deal: to what extent did it weaken or strengthen USA capitalism;

· outbreak of the Second World War and the economic recovery of the USA;

· impact of and responses to the crisis of capitalism in the USA in other parts of the world, such as Germany and Japan; and

· conclusion: the cyclical nature of capitalism (Ibid., p.20).

The policy introduces the topic as follows:

Background and focus

The topic 'Capitalism as it developed in the USA' should be taught by focusing on the following sub-topics: the crisis of capitalism that occurred as a result of the Great Depression and the criticism that Roosevelt's New Deal was socialist. Learners must analyze what was set up to bring about relief, recovery and reform. The question they have to answer is the following "Could Roosevelt's form of state intervention to create jobs, as well as the welfare system he set up, be considered socialist reform and, did he thereby undermine the capitalist system in the USA?" (DoE, 2015: p.20). Answering the question has to facilitate the learners' ability to analyze, criticize, apply, change, and challenge. Promoting the formulation of the policy, Bam and Visser (1996) argued that in South Africa "we need citizens with critical and reflective thinking abilities. …. the history classroom is the ideal place to develop these skills" (p.93-94).

The introduction also indicates that learners have to understand how history content reflects thinking about the past rather than a body of knowledge that has to be learned. Teachers are expected to model how to engage with subject-content to develop a state of knowing History. It is for this reason that, for example, Husbands (1996) argues that:

> Just as academic historians are concerned to develop understandings of the past whilst being aware of the limitations of historical method, so history teachers try to develop pupils' understanding of the past and of the limitations of historical understanding (Husbands, 1996, p.5).

The essence of this view is that teachers have to do more than provide an academic narrative to the learners. Their teaching should be aimed at (i) promoting understanding that history reflects ways in which the past was thought about, and (ii) developing the ability to analyze and criticize historical narratives as interpretations that are based on particular conceptions of History as a discipline or knowledge domain.

According to Lee (2005), there are structural concepts that guide the thrust of historical propositions,

providing "a layer of knowledge that lies behind the production of the actual content or substance of history" (p.32). They constitute the structure of history, and in Nichol and Dean's (1997) view they are 'procedural knowledge concepts' as they entail the actual process of developing historical knowledge. A clear understanding of historical knowledge is thus dependent on the procedural knowledge concepts on the basis of which it is developed. In short, history needs to be looked at as a way of organizing human phenomena.

According to Carr (2006) when teaching, it is important not to act solely on the basis of a set of theoretically vindicated educational principles. In his view, educational practices and processes devoid of deliberate efforts to identify and understand these principles contribute to teachers' inability to understand and improve what, how and why they teach as they do.

What Carr describes as principles Dunne and Pendlebury (2003) refer to as the standards that constitute the basis of acting and create a context within which to discern particularities in the knowledge domain, refine sensitivities and thus develop a propensity to be perceptive within it. They argue that even though such discernment may not produce action directly, it does enhance possibilities for developing a disposition that would serve as fulcrum around which to weigh options that are suitable for action. It is this perceptiveness, in their view, that makes teaching a moral act (see also Penlington, 2006). The point is discussed in greater detail below.

Teaching as a moral act

According to Dunne and Pendlebury (2003) the moral character of teaching depends on the practical deliberation that facilitates the development of a disposition based on normative standards that are widely acceptable as principles of acting when teaching within a particular knowledge domain/discipline or subject. The meaningfulness of teaching can thus not occur without actions resulting from this kind of deliberation. Applied to history teaching this view would imply that teaching the subject effectively should depend on a disposition that makes it possible, as suggested by Husbands, for teachers to develop pupils' understanding of the past and of the limitations of historical understanding. In practice this would involve the identification, analysis and criticism of the subject content or historical narrative dispositions to highlight its particular orientation and limited perspective. Applied to the requirements of CAPS for teaching history, the view implies that teacher education should enable student teachers to teach in ways that develop learners' understanding of historical knowledge on the basis of procedural knowledge concepts/orientations on which it was developed. Enabling student teachers to do so is likely to provide them with a context within which, they in turn, would understand how and why their teaching could be viewed as a reflection of a disposition resulting from their capacity to integrate meanings developed from studying History as a major and those

promoted in the methodology courses they studied.

The next section discusses the methodology that we employed to examine this integration from the skills the student teachers practised to introduce subject content through micro-teaching.

Research design

Sampling

Data was collected from a cohort of student-teachers who were purposively selected because they studied History as their method module in one university in South Africa. They were studying towards the Bachelor of Education degree and in their final year. This is a four-year degree in which students study their specializations in the other faculties concurrently with the professional modules that are offered by the Faculty of Education. In this particular university micro-teaching lessons were used as a context to practice how to teach from the second year of study.

The students were divided into 10 groups of 8, for the history specialization modules micro-teaching lessons. Within each group they were asked to select different topics from the CAPS FET document. The topic 'Capitalism in the USA 1900 to 1940" was selected by four students within the 10 groups and thus availed itself as the only topic that was useful to gather detailed data on how they initiated a critical stance with their lesson introductions as required by the CAPS. This made our sampling both purposive and convenient. The profiles of the students whose lesson we observed are provided below.

Profiles of the students

Student teacher 1 is Zandi a 22 year old IsiXhosa speaking, assertive, self-motivated and gentle (black) female from Bhizana - a rural area in the Eastern Cape Province. She attended a poorly resourced blacks (African) only public school in Bhizana. She studied History and English literature as major subjects and enjoyed both local and international history. Her academic performance was good.

Student teacher 2, Kobus is a 21 year old Afrikaans-speaking (white) male - assertive and opinionated. He grew up in an affluent middle class environment in Germiston Gauteng, where he attended an Afrikaans medium high/secondary school. His academic performance was also good. He majored in History and ICT but had little knowledge of South African history.

Student teacher 3 is Shane a 22 years old self-motivated and outspoken coloured (mixed race) male who lives in one of the Johannesburg middle class coloured suburbs. Shane speaks both English and Afrikaans and attended a dual language- English and Afrikaans- school in his community. He studied History and English as majors. His academic performance was excellent and he enjoyed economic and international history.

Student teacher 4 is Reila a 22 years old reserved, self-motivated and gentle Asian female who lives in one of

the Southern Johannesburg middle class Asian suburb. She was English-speaking and attended an English medium school in her area. She studied History and Geography as majors and enjoyed local and international history. Her academic performance was excellent.

Ethical Considerations

We sought and obtained permission to conduct this study from the student teachers who participated and the faculty of education in which they were studying. To do this, the would-be participants (student teachers) were formally informed about the purpose of the study prior to observing their micro-teaching presentation and conducting individual interviews with them. They were also informed of their right to voluntary participation, privacy, informed consent, confidentiality and that they were free to withdraw from the research at any time without any penalty. None withdrew. Also prior to the interview sessions, participants were fully assured that the data gathered would be treated with strict confidentiality.

Research Methodology/Approach

We were interested in the student-teachers' attempts to place a historical event (Capitalism in the USA 1900-1940) into a historical context in manner that foregrounded the critical issues related to the question: "Could Roosevelt's form of state intervention to create jobs, as well as the welfare system he set up, be considered socialist reform, and did he thereby undermine the capitalist system in the USA?" CAPS proposed learners had to answer. Since we believed that as History under-graduate students they had begun to develop a mental disposition that would enable them help their learners analyse and criticise the subject content in order to identify what to draw on to answer the question, Symbolic Interactionism (SI) proved invaluable to examine this disposition as a basis from which they integrated the individual meanings they attached to the CAPS aim of teaching the topic and orientations they had adopted as a result of the method course they studied. It (SI) is a heuristic tool that views what people do as dynamic and mpultifaceted. The approach is premised on the belief that they *act* on rather than *react* to situations (Blumer, 1969).

Central to SI is that humans are actors who constantly adjust their behaviour to the actions of other actors. The adjustment of the actions comes through an interpretation of these actions and is premised on three core principles, namely meaning, interactions and interpretation. Blumer (1969:2) explains the premises as follows:

> The first premise is that human beings act toward things on the basis of the meanings they have for them...The second premise is that the meaning of such things is derived from, or arises out of, the social interaction that one has with one's fellows. The third premise is that these meanings are handled in, and modified through, an interpretative process used by the person in dealing with the things he

encounters.

Therefore, methodologically, we could employ an exploratory qualitative inquiry to explore how the student-teachers first, translated the aim of teaching a chosen topic in setting up an appropriate for learning. Second, how they integrated their interpretation of the aim with the one provided in their methodology lectures. It was important to capture their explanations of how, if at all, they adjusted or modified their initial meanings by integrating these interpretations. As active agents and not passive practitioners, the student-teachers' decisions and actions were to be understood mainly on the basis of the inter-subjective meanings they relied upon when planning and designing their introductions. Their actions represented an integration of meanings that constituted a reality formed on the basis of adjusting or modifying individual meanings (Is) attached to the aim of teaching the topic that was stipulated in the CAPS document and meanings conveyed by the methodology lecturers about the kinds of history teachers they were supposed to be (Mes).

Since they all studied History as a major in their degrees, we expected their choice of concepts, approaches/procedures of teaching, language and ways of thinking to be informed by their knowledge of the subject and the manner in which they had adjusted or modified their initial interpretations of the aim of CAPS after exposure to methodology lectures. We thus had to pay special attention to their interpretative processes and establish their appropriateness to both the historical principles and aim of CAPS which defined the distinctive intellectual inquiry that was required for answering the posed question. The student teachers could not introduce what was important to thinking about how 'Roosevelt's form of state intervention to create jobs, as well as the welfare system he set up' could be considered as socialist reform, and thereby as undermining to the capitalist system in the USA, without an appropriate mental disposition to figure out how to think and act when engaging the content they considered important for answering the question.

Data collection methods

We employed observations and stimulated recall discussions to collect data. The observations were used to capture data on what the student teachers did when practicing a skill used to introduce subject content for the topic they chosen to teach while the stimulated recall discussions were to encourage them to explain the interpretive processes on the basis of which they decided what to do. In particular, we were interested in how they integrated their individual interpretations of the CAPS' aim with the lecturer's when deciding on the purpose of introducing the topic. These observations and discussions were held for a period of one year.

Research process

In the micro-teaching lessons we observed by watching and listening to what was said and done during the student teachers' interactions with their peers. We paid special attention to the procedures used, how concepts

were explained, the language used and ways of thinking that were encouraged.

Each of the four students was observed for 35 minutes per lesson. The lessons were video recorded so as to capture what we could not or might have not seen while observing. As Banks (2007:6) puts it "...Visual methodologies are ...a method designed to take a researcher into realms that she may not have considered and towards findings previously unanticipated".

After the lesson presentations stimulated recall discussions were held with the student teachers to capture the interpretive processes they relied upon to figure out how best to introduce the topic they had to teach.

Data Management and Analysis

The collected data from observations and interviews were studied separately through a systematic analysis that focused on the concepts, language (words and thoughts) and activities represented in the introductions - as data to be studied (Grbich, 2007; Patton, 2002). We started with an analysis of the student teachers' explanations of their introductions forcussing specifically on the discourse markers associated with the aim of teaching the topic, namely, 'the ability to analyze the criticisms that were set up to bring about relief, recovery and reform from the Great Depression'. Meaningful segments that reflected how the aim was captured in practice in terms of how the introduction (as a skill) was used, were revealed in response to the question: What purpose of an introduction were you practicing? For example, **Zandi** said: " I used the CAPS document as a point of reference…I tried to clarify the concept of capitalism with the example I used.", **Kobus:** "I used the concept of Capitalism as a basis for planning as required by the curriculum", **Reila:** "I'm not sure, but I think I have to teach learners about the past and link it to the present by asking them to explain their experiences of capitalism in South Africa" and **Shane: "**to introduce the concept I had to ask how can we understand Capitalism in South Africa with the hope of getting answers I could use to clarify Capitalism in the USA but I'm not sure if I succeeded in using this".

Examples of segmented data such as '*point of reference, planning basis, linking, clarifying*' which were found to be connected were grouped together and coded because of being similar, related and having common words/phrases. Afterwards we attached a label or name to each, for example "*clarify concept of Capitalism*" was labelled as '*introduction as a drawing upon the learners' experiences in their own setting; a review of a concept'* and allocated evidence/quotations (Flick, 2007), for example, introduction as *'asking learners to explain concept to be taught* was used as a category that we refined as we compared the responses to each other and what the student teachers did in their introductions. Segments that were found to be coherent, relevant and suitable to the research aim and question were allocated to a category and thereafter categories were used to develop themes that reflected why student teachers thought explanations of Capitalism as a concept would create an appropriate learning context for the topic they had to teach. A theme such as -

'introducing the concept of capitalism to clarify it as an economic system' was developed to reflect the essence of the category formed from responses provided on the purpose of introductions. The other themes that emerged reflected the meanings captured from both practice and explanations of historical knowledge as text-book bound and student-teachers' actions as less important than subject content to understanding history. Data that is related to these themes is presented below.

Data Presentation

Student teachers introduced the topic by mentioning capitalism as an essential concept to understanding "Capitalism in the USA between 1900 and 1940" but found it difficult to identify the strategies, language and ways of thinking they could use and help learners grasp its meaning as an economic system. Examples of what they did are provided below.

Introducing the concept of Capitalism to clarify it as an economic system

07 April 2014

Kobus started the lesson as follows:

He asks learners if they have done their homework. Then asked one learner: "Jabu please read to us the section on Wall Street crash of 1929: reasons for and economic and social impact", Jabu read the section and then he asked Rhoda to continue "Rhoda please continue to the end". Thereafter he asked learners to explain what Jabu and Rhoda have read and corrected the English language errors he could pick up. Here is an example, "Jabu and Rhoda what is meant with 'The Great Plains were in ruins by 1934'… is that the draught helped cripple agriculture in the Great Depression. It was the worst in the history of America as a whole". Learner A remarked: ..." I feel that it was capitalism that created problems for the country. It contributed to poverty because people focused on enriching themselves".

Kobus responds: I understand how you feel, but I want to advise you ···. Stop being political and focus on the textbook, read what it is in the textbook for you to pass and leave politics alone···

09 April 2014

Shane enters the grade 11A classroom and greets leaners "Morning class". He put his poster, textbook and laptop on the table and asked them to take out their textbooks and open page 74: for the topic: Capitalism in the USA 1900 to 1940 and look at Sub-topic: 'Great Depression in the USA and the nature of capitalism' and read the first paragraph quietly. It was the following paragraph that they had to read:

"In the 1920s, many speculators, (people who hoped to make a lot of money stock market) bought stocks on margin. Confident in what seemed a never-ending rise in prices, many of these speculations neglected to seriously consider the risk they were taking. On the 3rd September 1929 the stock market reached an all-

time high. In the weeks that followed prices began to decline. Then on 24th October:

- 12,894,650 shares were sold.

- Prices fell dramatically as sellers tried to find people willing to buy their shares.

- Rather than the bankers rallying investors by buying more stocks, rumours circulated that they were selling.

- Panic hit the country. On the 29th October, over 16 million shares were sold. The market had lost 47 percent of its value in twenty-six days (Frank, Sikhakhane, Subramony, Stephenson, Mbansini, Pillay, 2012: 74).

- He then asked learners to sit in groups of 10 to discuss what they had read in response to the question: "What is your understanding of Capitalism"?

- Learner1: It is the kind of economy that is privately owned and not state owned. Individual becomes rich and own private companies.

- Shane: Do you agree with⋯ (Name concealed) guys?

- Learner2: A bit Sir. I think it is the economy where all the means of productions are owned by individuals not the society and the state. Individuals get the profit from the production.

- Shane: Good, I agree. This leads us to today＇s topic which is Capitalism in the USA 1900 to 1940 and we will focus on the 'Great Depression in the USA and the nature of capitalism'. We will see how the Great Depression encouraged individualism and classism in the American society". I hope your textbooks are opened. We will alternate our reading from page 97 and I will explain in between as we go along.

(Students alternate reading with Shane giving one to two sentence of explanation). "⋯The Great Depression encouraged division and classism in the USA⋯ you can see from the picture in your textbook⋯Kabo continue… do you know what capitalism is"?

1**1 April 2014**

Zandi enters the classroom with a chalk and the textbook in her hand. She indicated that her lesson will focus on the concept: Capitalism. Her specific aim was to clarify why it is important to recognise that there is often more than one perspective of a historical event and that the representation of the past and the forces that shaped it would usually indicate a particular perspective. Thereafter she asked learners to explain what they had learnt from from the notes she wrote on the board in their previous lesson. She

said: "…I hope you went through the notes… Class can I ask you to summarise what you read from the notes I gave you yesterday…what about you Mandla… what is Capitalism according to your notes"?

Learners repeated the notes, some read from their notebooks and others from textbooks. The answers provided were a reproduction of either what she had written on the chalkboard taken from the textbook or what was in the textbook.

<u>18 May 2014</u>

Reila asked the learners to answer questions in the textbook and made notes on the chalkboard as they repeated sections in it (textbook) as answers. "Refer to page 97 of your textbook and answer the questions on 'Prohibition laws in America'… Thank you Paul… (She writes on the board)… please copy these answers from the board so that you can do corrections at home and also use them for study".

Historical knowledge as text-book bound

The four student teachers seemed to value the textbook and seemed reluctant to devise a language and ways of thinking that would encourage their peers to explain the concept of Capitalism in a manner that clarified concepts that underpinned what learners had to study as subject content and thus promote their understanding of such content as propositions reflecting a process of developing historical knowledge. Their explanations were considered less important than what was said in the text-book. When asked about this aspect they indicated preference and over reliance on the textbook as a source of historical knowledge. **Zandi** explained: "… I tried to clarify the concept of capitalism with the help of what they had read…as a guide. I tried to confine their views and what they think to the textbook" and **Reila** simply said: "I tried to clarify the concept by using the textbook to help learners understand how to express the content better. …. , thus I try to make the textbook more accessible to learners".

Kobus simply retorted: "That's why I said, please define Capitalism. … what do you think of capitalism, the answer is right in front of you, in the textbook.…an economic system in which corporations and private individuals control the means of production in order to make a profit"[this was read from the text-book].

Shane like Kobus gave an introduction by defining the concept Capitalism from the textbook. He greeted learners and then stated the following Shane: "Today we are going to learn about the 'Capitalist boom of the 1920s: strengths and weaknesses of the economy'… an economic system in which corporations and

private individuals control the means of production in order to make a profit". How does the text-book explain this to us?"

Student-teachers' actions as less important than subject content to understanding history

The basis of history teaching in South Africa is the CAPS. It indicates that the aim, historical concepts and skills that have to be taught constitute the three main features for planning and designing for every lesson. Teachers and student teachers are expected to take them into account in their planning and teaching. However, the student teachers thought of the importance of these features in descriptive rather than normative terms. It seemed unimportant to think of their actions as crucial to modelling how the historical principles relevant to the content they were teaching could be questioned on the basis of the aim, historical concepts and skills that had to be taught. An example reflecting this challenge is provided below.

Concept: Capitalism in the USA

Specific aim: an interest in and enjoyment of the study of the past

Skill: The introduction will be question-based – they will be asked to explain Capitalism.

Teacher Activities: During the introduction I will ask the learners to reflect on text-book content on the 1920s in the USA and then imagine how they would have felt living in this context without money and food. Here is a question that will help them think about life and experiences in a capitalistic economic system when without money and food: "Yesterday we discussed how people who have come to South Africa and live in squatter camps (informal settlements) are facing money and food hardships. How should they be responding to their experiences?"

Once students have answered the question I hope they will be able to have some understanding of why content in text-books on the conditions of living during the Great depression to highlight historical principles differently?

Discussion

CAPS positions the teacher, more pointedly, towards the attainment of curriculum targets. It has set targets and suggested ways by which to realize them in the context of the broader educational goals set at the national level. In respect to teacher preparation, this implies the learning of teaching approaches that require practices that prioritise the attainment of these targets. In other words, teaching is viewed as a

useful bridge by which, in the case of CAPS, teachers assist learners to understand aims, historical concepts and skills have been delineated clearly. Teacher education has to provide method courses that help them develop the capacity to interpret policy and identify what is essential to it as an educational proposal to be translated meaningfully into practice.

The student teachers' introductions seemed to prioritise the skill of asking questions that draw upon the learners' familiarity with subject content dealt with previously as homework. When introductions are used for this purpose, it is important that when setting up a context for learning through a review that draws upon the learners' previously given work or new words or terms, as it was the case in this study, there should be a clear relationship between what is provided and the new learning that has to occur (Bell, 2007). However, evidence from the introductions does not reflect attempts to link the responses given or subject content in the text-book to the aim that needed to be addressed by foregrounding relevant historical concepts and skills that had to be taught for learners to understand what to drawn on to respond to the CAPS question. Where an attempt was made by, for example, trying to link hardship in informal settlements in South Africa to hardships during the depression, this remained at a descriptive level with no effort to unpack what may be historically significant in terms of the concepts and skills that needed to be developed. Student teachers seemed not to have considered the aim seriously in deciding on what to do to introduce the topic despite being provided with historical concepts and skills they were expected to help learners develop. It was important to create a learning context in ways that demonstrated how they deliberated on the best possible ways of making it easy for their peers to grasp the essence of their introductions, and thus the aim of teaching the topic, through the concepts and skills communicated to them. The language (communication), ways of thinking and activities to introduce the concepts and skills ought to have encouraged critical reflection on the content read to clarify how it could be used to fulfil the requirements of the CAPS aim. Therefore, it can be assumed that the student teachers took it for granted that definitions of Capitalism as a concept would serve as a resource to draw on, reflect, analyse and develop critical responses to the question as they continued to teach the topic. While the importance of understanding the general meaning of Capitalism as a concept could not be underplayed, it is still reasonable to argue that the student teachers ought to have attended deliberately to the reasons for teaching it and, not overlook critical engagement with the CAPS aim through the questions they asked, activities they used and their reactions to responses to them.

The restricted orientation to teaching history that we witnessed can be related to a behaviouristic approach to teacher development that encourages the uptake of only a few basic procedural skills with the hope that more will be developed later from experience as practising teachers. However, as Farnham-Diggory

(1994) has cautioned this orientation often results in mechanistic teaching practices.

When teacher education employs micro-teaching as a strategy to teach how to teach, it involves, according to Eraut (2000), deliberate manipulation of the behaviour of pre-service teachers who have to learn from practices that had been found to be effective in assisting learner achievement. The simulation of these practices, however, implies an orientation to practice that is unique and specific to a context. Hence, when a teacher education programme uses the strategy, there is an expectation of modelling behaviour that is deemed effective. Therefore, as implementers of policy the student teachers needed to have been exposed to processes of what to take into account when interpreting the aim in the CAPS document for them to make judicious decisions with regard to it. The fact that their explanations made no reference to any form of modelling is interesting and leaves us wondering if they were afforded such guidance at all in their methodology courses.

The evidence presented herein perhaps explains why Harley and Wedekind (2003) have expressed concern about the general uncritical adoption of policy initiatives in South Africa. Their argument is that instead of engaging policy from a perspective that takes a sustained 'disciplined' and 'disciplinary' approach, in which substantial and sustained corroboration of evidence and argument is prioritised in order to arrive at a reasoned judgement, those who implement policy adopt it on the basis of its possible social appeal. Therefore, Harley and Wedekind (2003) encourage a situation in which teachers, as implementers of policy, engage critically with it before appropriating it for use at classroom level. Dunne and Pendlebury and Penlington's views on practical deliberation provide useful insights in this regard too. Their argument that being well-grounded in normative knowledge enables mastery of modes of inquiry that are important in fostering reasoned judgement emphasises the need for teachers to have subject expertise before enactment. This is a professional quality that will afford them a critical orientation towards teaching. However, evidence in this study makes it difficult to determine with certainty why the student teachers seemed far-off to achieving the CAPS pedagogical aim. They were History majors and it was thus fair to assume a reasonable measure of subject expertise on their part and an ability to make sense of the discourse used in the policy.

Apart from obtaining clear understanding of what the aim of CAPS required in terms of instructional activities, student teachers needed to understand History and ways in which it could be if the methods instructors provided guidance on how to identify behavioural assumptions in the CAPS as a policy they had to learn to implement.

Concluding remark

This study highlights the importance of teaching curriculum policy analysis in teacher education programmes. To understand and be responsive to national goals within a country, programmes, as sites, wherein to develop policy interpretation theoretical knowledge and skills are crucial. The integration of curriculum studies theory modules with the methods courses or modules is thus invaluable for the development of this interpretive capacity when learning how to teach. The theory is central to judgements that are likely to make the translation and implementation of curriculum policies successful. In particular, for South Africans, the development of such capacity has become urgent because the government plans to make History compulsory for all learners in secondary schools. Failure to equip student teachers with this capacity might make teaching History indoctrination rather an enhancement of understanding how the subject reflects orientations in explaining the past.

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EXPERIENCE BASED ANDRAGOGIC APPROACH FOR IMPROVING QUALITY PRIMARY SCHOOL TEACHER IN INDONESIA

H. Mohamad Surya

Faculty of Education, Pasundan University, Bandung, Indonesia

Jalan Kapten Abdul Hamid 58 Bandung, Indonesia

hmsurya@bdg.centrin.net.id

Abstract: *This study is the elaboration of the implementation of the programs carried out at Pasundan University, Bandung, as a mandate from Indonesian government regarding degree program of upgrading academic qualification for teachers in the job position. The objectives of this program was to accelerated number of teachers in the job position to get S-1 degree in education which targeted all teachers in Indonesia has possessed S-1 degree in 2015. Attention to be focused on analytical study to the whole learning process based on the assigned by using andragogy and experience based mediated learning strategies as theoretical framework. Data collected through interviews with program managers at Pasundan University and in the region, lecturers, tutors, students, alumnies; as well as documentation study; and observation of learning activities. Result and conclusion of study will be presented in this paper. As implication from this study, the recommendation regarding teacher education and training will be presented.*

Keywords: S-1 degree, in job position, andragogy, adult learning, mediated learning,

Background

Since the enactment of Law No.14/2005 regarding Teachers and Lecturers, teachers in Indonesia are required to have a professional teacher qualification requirements which include (1) the academic education of at least S-1 issued by the accredited University/College; (2) master the four competencies namely pedagogical, professional, personal, and social; and (3) possess an educator certificate. This Law also is striving for all teachers to have S-1 degree or Diploma IV, and possess an educator certificate in 2015. As the logical consequences of implementation of this Law, government have to facilitated in accelerated program for increasing of teachers academic qualification with wide spread access, and do not disturb teachers responsibility in schools. In fact, only 1.456.491 or 63 percent of teachers who have educational qualifications of S-1 and they've served in schools spread across the Indonesian region and are mostly located in the remote areas. At Kindergarten, number of teachers to be upgraded their qualification are 155.661 or 89% and at Primary school are 1.041.793 or 83%.

Accelerated program for upgrade of teachers academic qualification to S-1 degree in Indonesia has been done by some universities/colleges by conventional system as well as by distance learning. For upgrading academic qualification of Primary School teachers through S-1 Program of Primary School Teachers Education (PSTE), until year 2008 has been appointed 50 higher education as organizer of S-1 PSTE program and in the same year also has been appointed 23 higher education as organizer of S-1 PSTE program through distance learning system based ICT. This is a breakthrough policy for implementation distance learning system although with limited participant due to the limited funds from central government. Some special effort that has been done for accelerated upgrading teacher academic qualification in the job position, such as in 2006, a number of 18.754 teachers has been upgrade their qualification to S-1 degree through: (1) Open University (12.616 teachers), (2) conventional system (5.000 teachers), (3) Distance Learning based ICT (1.000 teachers), and (4) Distance learning based Teacher Work Group (1.500 teachers). Year 2007, a number of teachers from varied educational unit received financial grant from Provincial government.

Even though has been done those effort, until now a number of teachers to be upgraded their academic qualification just still not enough, so its need to find another alternatives to overcome this problem. In the same year, Universitas Pendidikan Indonesia (Indonesia University of Education) in Bandung has begun an accelerated program for upgrading primary school teachers academic qualification through *Dual Mode* of PSTE. This program is an integration of face-to-face learning with self learning system. Actually this program has received a good response from the teachers and from the Provincial government of West Java as well as the Government of Regent/City. The effort for accelerated teachers academic qualification upgrading, it is impossible to achieve target if it was used only the current or conventional system of teachers education.

Government is striving for all teachers to posses S-1 degree or Diploma IV in 2015. One of the efforts solution is to involve a number of universities that have educational programs throughout Indonesia to provide an opportunity for the teacher to enter at degree level education without having to leave their work and come to campus. Based on the Decree of the Minister of National Education number 015/P/2009 there were some 80 Universities in 28 provinces involved in the program of "Education for Teacher Education Degree In Job Position". Pasundan University is one of the participants of the program which began in 2009. Up to now 5618 students have been enrolled and 3471 of them have been graduated and spread out across19 districts in the province of West Java and Banten.

Focus of study

This study is the elaboration of the implementation of the programs carried out at Pasundan University, Bandung, with attention to the specificity of this program compared to the regular program. Students do not need to come to campus and lectures held in the area where they were assigned by using andragogy and experience based mediated learning strategies. Theoretical framework used as a fundamental of this study is Kolb's Experiential Learning and Learning Styles Theory (1984), Malkolm Knowles Andragogy and Adult Learning Theory (1978), Scale of Experientiality (Gibson & Hopkins, 1980), and other theories relating to Learning Technology. The study was conducted in order to obtain an overview of the learning strategies implemented in this program by taking into account the specificity of the teachers as students, among others, the position of the task, the experience, the characteristics of an adult, learning strategies, learning tools, management, and others. Data collected through interviews with managers at Pasundan University and in the region, lecturers, tutors, students, alumni; as well as documentation study; and observation of learning activities.

Theoretical Framework

Students in this program are teachers who classified as adult with possess a lot of working experiences as teachers.Therefore, the approach to be implemented in the learning process and another learning treatment is used the concept of adult education or andragogy, experiential learning, problem based learning, contextual learning, and another approaches according to teacher's characteristic as adult learners. As a theoretical viewpoint, adult learning have some characteristicts as follows.

Intelligence and Wisdom

According to Thorndike, 1928 (in Glickman, 2010) adult learning did not peak in youth and diminish steadily there after. In adult learning, it is fundamented by intelligence and wisdom which not found at children and youth. According to Horn and Cattell (1967) which cited by Glickman (2010), identified two categories of intelligence namely *fluid intelligence and crystallized intelligence. Flud Intelligence* which depends heavily on physiological and neurological capacities, peaks early and explains why youth exceed on tasks requiring quick insight, short-term memorization, and complex interaction. *Crystallized intelligence,* assessed by untimed measuring for judgment, knowledge, and experience, is more heavily influenced by education and experience. Hence, older individual advantage when it is measured. Contemporary theory of intelligence view that intelligence consists of

multiple factors. According to theory proposed by Howard Garner (1999) namely *multiple intelligence* there are seven intelligence namely: linguistic, logical-mathematical, musical, spatial, bodily kinesthetic, intrapersonnal, and interpersonnal.

In relation with cognitive aspect, Stenberg (1985, 1990) in Glickman (2010) proposed a theory of intelligence that may be helpful in thingeking obout the cognition of teachers. He called *a triarchic theory of intelligence,* because it consists of three sub theories. The first theory is referred to as *comonential;* it deals with cognitive processing.The second sub theory is *experiential* which suggest that assessing intelligence requires consideration not only of the mental components but of the level of experience at which they are applied. The third sub theory is called as *contextual* deal with socially *influenced ability;* individual are said to cope with life's challenges by adapting to environment, shape in the environment, or selecting a different environment – all the while being influenced and what is considered appropriate and intelligence behavior within one's cultural milieu. Contextual sub theory is very important in effort to understand and assist adult learning process..

Furthermore Stenberg (2001) has recently explored those particular forms of intelligence that have come to be referred as wisdom as an adult learning characteristic. In his *balance theory of wisdom,* Stenberg stated that wisdom is a type of practical intelligence concerned with balancing intrapersonal interests, interpersonal interests, and extra personal interests. Therefore, the wisdom adult will consider their interest and their family, or environment in making decision to create good learning environment. According to Bassett (2005) in Dickman (2010) this wisdom will support development aspect of affective, spiritual, and personal relationship. He said that wisdom have four dimensions such as: discerning (cognitive), respecting (affective), engaging (active), and transforming (reflective).

Andragogy

Next adult learning characteristic is **"andragogy"**, education for adult who have certain different characteristic with pedagogy or education for children. Adult learning will take place in the educational pattern of andragogy or education for adult. Part of being an effective educator involves understanding how adults learn best (Lieb, 1991). Andragogy (adult learning) is a theory that holds a set of assumptions about how adults learn. Andragogy emphasis the value of the learning process. It uses approaches to learning that are **problem-based and collaborative** rather than didactic, and also emphasis more **equality between the teacher and learner**.

Andragogy theory has been developed by Malcolm Knowles (in Glickman 2010) as a contribution for theory of adult learning. According to Knowles, there are five assumtions of adult learning:

a. Adults have psychological need to be self-directing;
b. Adults bring a reservoir experience that can and should be tapped in the learning situation;
c. Adults readiness to learn in influenced by a need to solve real-life problems often related to adult developmental tasks;
d. Adults are performance centered in their orientation to learning -- wanting to make immediate application of knowledge;
e. Adult learning in primarily intrinsically motivated.

In the context of andragogy, teachers as student will be treated as adult with characteristics as follows: (a) Learner have worked and voluntary or forced to learn, therefore learning should be *student centered* with treat them as subject and not object; (b) Generally, learner possess working experience and life as a capital in doing learning as adult learner. (c) Generally, learner has left for a long time of formal education. Therefore they lack of habit and way of new learning; (d) Generally, learner rarely use abstract ideas. Therefore material should be approached by concrete experiences. (e) Generally, learner more interested to situation and problems and not interested to subject for examination. Therefore learning should be approached by problem solving; (f) Generally,

learner more interested not for knowledge, but as a tool for fullfil their needs. Therefore learning should be approached by "learning by doing" principles with stressed by group activities.

Self-directed learning

Learning by adult people more self-directed, or learning directed by themselves according to their interest and goal. It is differ with children learning which more directed by teacher. In relation to professional and personal development, all teachers should be learn continuously.

Self-directed learning will be as a resource for learner dynamic in doing learning for upgrading their profession and personality. By this dynamic power, all learner could develop learning plan which more directed according to their potential and experiences. This learning activity is require autonomy, self discipline, ability in time management, creative in choice learning strategies, collaboration with other learners, communication skills, using information technology and communication.

Transformational learning

Transformational learning is a learning process which a link between process and substantial to be learned and with environment condition. For example, what thing to be learned by teacher in one training will be implemented in daily task as a teacher. Therefore, there will be a relationship between substantial to be learned with implementation in the daily job. This mean that learning activities done by teacher at the same time also as a kind of improving professional qualities, and then will improve teaching-learning qualities to improve student learning outcome.

Experiential learning

Experiential learning is a learning process based on student experiences as a learning resources. Generally, adult learning activities always related with daily life experiences. Therefore, adult learning will be more effective which in the form experiential based. When matching experiences with content, one must begin by establishing a range of experiment for the unit. To facilitate the process, Gibbons (1980) has adapted this aspect of decision-making to the following hierarchy of experiences:

- *Receptive mode.* Experiences, or representations of them, are presented to learners, who remain a passive audience throughout.
- *Analytical mode.* Learners conduct field studies in which they apply theoretical knowledge and skill in order to study some event, analyze some aspect of the environment, or solve some practical problem.
- *Productive mode.* Learners generate products, activities, and services, either assigned or of their own devising.
- *Developmental mode.* Learners pursue excellence in a particular field by designing and implementing long-term programs of study, activity, and practice.
- *Psychological Mode.* Learners learn to understand themselves and their relationships with others. They accomplish the tasks presented by their stage of development toward maturity and make contributions to the lives of others.

Kolb's (1984) learning theory sets out four distinct learning styles (or preferences), which are based on a four-stage learning cycle. Kolb's model offers both a way to understand individual learning styles, and also an explanation of a cycle of experiential learning that applies to all learners. Kolb proposed that an individual learner moves through a spiral of immediate experience which leads to observations and reflections on the experience. These reflections are then absorbed and linked with previous knowledge and translated into abstract concepts or theories, which result in new ways and actions to adjust to the experience that can be tested and explored. Kolb described the four stages in the cycle of experiential learning as:

- Concrete Experience - (CE)
- Reflective Observation - (RO)
- Abstract Conceptualization - (AC)
- Active Experimentation - (AE)

The four learning styles are: (1) Diverging (preference for feeling and watching - CE/RO), (2) Assimilating (preference for thinking and watching - AC/RO), (3) Converging (preference for thinking and doing - AC/AE), (4) Accommodating (preference for feeling and doing - CE/AE)

Frameworfk of Degree Program for Teachers in the Job Position

Goal of the Program
Degree S-1 Program of Education for teachers on job position is a special program for teachers who served in the formal education unit. This program aimed to support effort of accelerated upgrading of academic qualification for teachers on the job position according to requirement as stated in the Law number 14/2005 regarding Teachers and Lecturers. This program is implemented by university/college which possess education program for producing teachers and another educational personnel. Lecturing process using *dual mode,* such as through integration of conventional learning (face-to-face in campus) and self learning system, supported by utilization multimedia effectively and efficiency.

Curriculum
The curriculum applied in this program is the curriculum which used in each appointed university/college. Standard of Graduate competence which as curriculum reference, refer to standard of academic qualification and teacher competencies consist of four main competence namely: pedagogic, personality, social, and professional. In its implementation, curriculum of this program, need to be designed appropriately, so make a possibility accomodated group subject matter which implement through face-to-face learning activities in campus and a group of subject matter which able implemented by *self-instruction*, with tutorial as well as without tutorial.

Recognition of Working Experience and Learning Outcome
University/College could give recognition toward working experience and learning outcome consist of teaching experience, lesson plan, and relevant award, while learning outcome covers academic qualification, training, and academic achievement. All evidence of teacher working experience and learning outcome compiled in one document namely portfolio. Recognition toward working experience and learning outcome maximum 65% from number of credit to be required. Those recognition implemented as a kind of reward toward teacher *"credit earning"* in finishing of teacher academic qualification.

Learning Process
Basically S-1 program for teachers in job position is equal with regular S-1, and have to be referred to Standard of Graduate Competence. Therefore learning pattern have to keep achieving standard of graduate competence. The essential difference between S-1 Program for teacher in job position with regular program is at the learning process. Learning process in S-1 program for teacher in job position implemented through integration of face-to-face learning activities in campus and or mediated learning and self learning activities. Overall learning process implemented in the form of: (a) face to face lecture in campus as well as in the local learning center; (b) self learning with tutorial or without tutorial; (c) practice and practicum, (d) reconstructing field experience,

Learning material
 In face-to-face learning activities in campus,the learning materials are developed fully mandated to lecturer, while in self learning pattern using self learning materials which special design in order to be self learned by

students. Learning materials are developed in the form of modules in printed modules or electronic modules. However, to assist student learn, lecturer acted as tutor to help student in learning process.

Evaluation of Learning Outcome

Evaluation of learning outcome for self learning activities with tutorial implemented through evaluation toward at least two assignments, mid-term test, and final test with weighting in accordance with the academic regulation in University/College. Implemented of final examination in face-to-face lecturing and self learning implemented in campus. Graduation in this program regulated by University/College based on each academic regulation. Student who has finished this program recieve the right S-1 degree certificate from University/College.

Student Recruitment

As the goal of this program is to support the effort of accelerated upgrading academic qualification for a teacher in the job position, therefore accepting new student implemented through selection procedure which credible according with academic and administrative requirement. Student candidate is a permanent teachers as civil servant and non-civil servant.

Manpower

The personnel expected to provide and could support implementation S-1 Program for teacher in job position, they are:

Lecturer

The function of Lecturer as subject matter support with main duty teach and responsible toward all lecturing implementation and developed description of subject matter, syllabus, in lecturing implementation in outside campus could took cooperation with another higher education institution, as well as in using lecturing means or human resource (lecturer). Assisted lecturer in those lecturing is decided by head of higher education institution based on recommendation from higher education institution with qualification based on rule of law.

Program manager

Program manager is a person who manage implementation S-1 Program for a teacher in job position that has mastering managerial and management of self learning. Number of personnel is appropriated with need and condition of higher education institution.

Administration Personnel

University/College have to possess academic personnel, administration of accounting, students affair division, means and infrastructure. Number of administration personnel is appropriated with need and condition of University/College.

Academic Supporting Personnel

University/College must have academic supporting personnel, such as laboratory assistant, technician, librarian. Number of academic supporting personnel is appropriated with need and condition of University/College.

Means and Infrastructure

The kinds of means and infrastructure which need provided to support implementation of S-1 program for teacher education in job position, they are: lecturing rooms, rooms and equipment of practice and practicum (laboratory), rooms and equipment of ICT, library, and school miter as place for teaching practice program. Means and infrastructure which possess by University/College must be judged in receiving number of new students who will receive for each group of learning based on rule.

Funding

Those funding of Program could come from students (self paid), cooperation with region government (Steakholder) and another resource. Management of fund done integratiedly with another fund based on rule in

University/College. Teacher in job position who joined in those program, as well as paid by government, regional government, and self paid implemented with do their duty as a teacher.

Partnerships and Cooperation
In the implementation S-1 program for teacher education in job position, University/College could take partnership with another higher education institution. Partnership with higher education institution partner could be done in form cooperation with another institution, such as: education quality assurance agency, center of development and empowerment of teachers and educational personnel, and education authorities (managers working group of teachers, deliberation subject teachers, or another institution (such as: vocational training centers, business and industry) could implementation in using means and facilities for lecturing activities. In implementation cooperation, University/College could be coordinated with various stakeholders in central and regions. Coordination could be implemented through consultation activities, visiting, negotiating, corespondence, regular meeting, or another rides with possible.

Monitoring and Evaluation of Programs
Internally, University/College implemented monitoring and evaluation to keep quality of program implementation with use instruments which have been set by Directorat General of Higher Education (DGHE). University/College implemented monitoring and evaluation toward implementation of program which implemented by University/College partner. However monitoring and evaluation comprehensively and regularly toward program implementation is implemented by monitoring and evaluation which designated by DGHE.

Program Implementation in Pasundan University
Based on the Decreeof the Ministerof National Educationnumber 015/P/2009 Pasundan Universityhas been assigned as an organizer of degree program for teachers in job position. The implementation based on the regulation issued by the Decree of the Minister of National Education number 58/2009. This activities begin in academic year 2009/2010 participated by 377 students coming from two kabupaten (regency). Until now implementation did through MoU with 19 regents in West Java and Banten Province and participated by 5618 students and have been graduated 3471 S-1 education degree. The organizer in main campus in Bandung and in the region is appointed based on MoU between Pasundan University and 19 regional government. In main campus, the program implementation is under Rector responsibility, and for operational control is under the Dean of Faculty of Teacher Training and Education accompanied by an appointed team. In the region management of this program is under responsibility of Bupati (regent) and in the oprerational control is under the Head of Dinas Pendidikan (education authority) accompanied by an appointed Team.

Curriculum as reference for learning activities is equal with the curriculum in PSTE Pasundan University with some adaptation with recognition of teaching experience of each student. Student recruitment implemented in accordance with the regulation issued by the DGHE Ministry of Education. Learning materials are dieveloped by Lecturers Team based on formal curriculum with adaptation to principles of adult learning or andragogy, Experiential learning, and Contextual learning. Student received learning materials to be used by self learning with supported by lecture which is done in each local learning center every Saturday and Sunday. Therefore, this learning activities are not disturbed by teaching task in school. There are 84 lecturers involved in this program to assist student (teacher) in learning activities in region.
Learning activities by lecturing and tutoring in the region are approached by principles of andragogy, experiential learning, and contextual learning. Learning activities process is running by discussion, seminar, workshop, simulation based on each student field experience as teacher. By this approach, student can achieve new knowledge with related to their empirical experiences. Therefore, there was an integration between top down and bottom-up learning process. The same thing also implemented in activities of practicum and field of teaching practice in which there are integrations between academic learning activities and empirical experiences. In this learning situation, lecturers and tutors are more as director and facilitator of learning, rather than as an information and knowledge resources.

Evaluation of learning outcome is implemented through mid-term test and final test according to academic calendar in the main campus. Evaluation for final program was implemented through final examination session which done in region and referring to academic regulation. Final academic assignment (minithesis) developed based on classroom action research which reflected a scientific study toward each student empirical experiences. Research for minithesis writting implemented by using the guidance issued by Pasundan University. Minithesis writing is guided by lecturer from main campus.

Infrastructure and learning resources for support implementation of the academic and administrative program, are used the existing infrastructure and resources in region particularly in each school with adapted to curriculum requirement. Funding for supporting program implementation, collecting from students and grant from local government and another resources.

Result and Conclusion

Based on an analytical study toward whole implementation graduate program for teachers in job position in Pasundan University, through documentation study, field observation, interview with manager, lecturers, students, and alumnies could be presented description and conclusion as follows:

1. Since beginning of academic year 2009, program that has been implemented in Pasundan University Bandung, could be said that the program has successful running smoothly and has produced 3471 graduates. Currently the active participants were 5618 students. Therefore, it can be said that quantitatively the Pasundan University has been able to contribute in implementing the government program in an effort to accelerate number of teachers who have to fulfill a requirement of Law number 14/2005 such as academic degree S-1 in education. All the graduate beside get an academic degree according to the Teacher Law requirement, also they have upgraded their professional quality and at the mean time will support improving quality of education in the whole.

2. According to the program framework, teachers as students could upgrade their qualification by learning activities without have to go to campus and not leaving their task in school. They can participating in all academic activities in the environmental climate which adapted to their condition as adult learner as well as teaching experience. Therefore, upgrading quality have been running smoothly in integrated between academic requirement and personal condition and experiences.

3. Writing final scientific assignment (minithesis) as an academic requirement for finalized study is implemented in the form of classroom action research based on each teaching experiences. This approach has trained teachers for improving quality of scientific thinking which adapted with main task as teacher. Therefore, the process of minithesis development as a practice in solving daily instructional problems facing in the classroom.

4. Directly and indirectly learning period during participate in this progam as an experience set which very meaningful for teacher professional and personal development. During participating in this program, teachers has got a very meaningful experiences for additional knowledge in not receptive mode only, but have developed to increased on level mode of analytic, productive, developmental, and continually will exist in the psycho-social mode level. This thing has been stated explicitly by alumnies and another personnel such as school principals, supervisors, and teachers.

5. For lecturers, their involvement in this program has given a meaningful benefit experiences directly and indirectly. Lecturers has got empirical experiences by directing interaction with teachers as their students and broaden their vision, knowledge, and skills. At the same time, lecturer has also meaningful learning experience from real field condition which sometime are diferent with campus environment. Besides that, lecturers can implement principles of andragogy based on teacher real experiences in the classroom. Therefore, indirectly this program at once also as an effort for upgrading of lecturer as educator in preparing professional teacher candidate.

6. It can be stated that the implementation of this programs have a multifunction. *First,* improving and upgrading teachers academic quality to achieve S-1 degree in education. *Second,* upgrading and strengthening professional and personal quality of teachers. *Third,* has a function of teacher training systematically and structurally. *Fourth*, upgrading lecturer quality as educator for teacher candidate; *Fifth,* make a more closed connection between the teacher producer institution and the teacher user institution.

Sixth, as a vehicle for University in implemented of mandate of Tri Dharma Perguruan Tinggi (Three services of higher education).

7. Results from this program are product, effect, and impact. At product aspect, this program quantitatively has been able to produced thousands of S-1 educational degree for teachers in job position spreading in the region. At the effect, directly as well indirectly this program has changed teacher mindset through upgrading their academic status to be a scholar and influence their professional and personal quality. Furthermore, all those product and effect will give impact toward improvement of primary school quality and world of education in the whole. At the meantime it will contribute for improving national education in the country.

8. Finally it could be concluded that the program for upgrading teachers academic qualification with using principles of andragogy based on empirical experience and contextual in learning process have a positive result. Therefore, patterns developed and implemented in this program could be developed as a model in effort for improving and upgrading teacher professional quality. For this purpose it needs cooperation and partnership among staeke holders related with teacher training and education.

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Culturally relevant support to reduce attrition among bilingual teachers in urban school settings

Monica Haydee Ramos,
National Louis University, 122 S. Michigan Avenue, Chicago, IL 60603, United States,
e-mail address: monica.ramos@nl.edu

Abstract: *The retention of teachers continues to be a global concern (UNESCO, 2013). Preparing culturally responsive, bilingual, diverse teachers in Science, Technology, Engineering and Math (STEM) fields will aid in the closing of the teacher gap. The promotion of culturally relevant and bilingual pre-service teachers coaching support is paramount to reduce teacher attrition during degree attainment. Additionally, by providing a holistic and culturally relevant coaching approach to future teachers' needs while in their teacher training, better learning outcomes of diverse students in urban settings might be ensured. The student success coaching is a holistic and culturally responsive model aimed to support diverse, under-represented, bilingual teacher candidates, preparing to teach in urban schools settings, and participate in the Chicago Teachers Partnership Program (CTPP) at National Louis University (NLU).*

Keywords: teacher attrition, teacher preparation, culturally relevant coaching, pre-service teachers

Culturally relevant support to reduce attrition among bilingual teachers in urban school settings
The retention of teachers continues to be a global concern (UNESCO, 2013). Preparing culturally responsive, bilingual, diverse teachers in Science, Technology, Engineering and Math (STEM) fields will aid in the closing of the teacher gap. The diversity of the city of Chicago demands future teachers equipped with the appropriate tools to serve the increasing population of minorities, especially the Latino community that currently account 1-in-4 in the State of Illinois. According to the Latino Policy Forum, the number of English Language Learners (ELLs) in Illinois has grown to an 83 percent over the last 15 years. A significant percentage of this population is Spanish-speaking. The promotion of culturally relevant and bilingual pre-service teachers' holistic support is paramount to meet the specific needs and ensure better learning outcomes of diverse students in urban settings.
The student success coaching support is a holistic and cultural responsive model aimed to support diverse teacher candidates who are preparing to become bilingual math and science teachers in urban settings in Chicago. This system has provided successful results within the cohort of students and International Council on Education for Teaching (ICET) Emerging Leaders in Teacher Education (Elite) student leaders' who participate in the Chicago Teacher Partnership Program (CTPP) and are pursuing teaching degrees at National Louis University (NLU).
The purpose of this article is to present a holistic and culturally relevant coaching support model as a preventive factor to teacher attrition. It intends to inform teacher preparation programs, that serve kindergarten to eight grade (K-8), multicultural, bilingual teacher candidates in the STEM fields, and future teachers in urban schools about the significance of culturally responsive support to reduce attrition while in teacher preparation.
The educational importance of this article is denoted by the urgent need of qualified teachers. UNESCO's "Teaching and Learning: Achieving Quality for All," report illustrates that there is a need for 1.58 million new teacher recruits and 3.66 million to replace those leaving the profession, to retire or pursue other careers.

According to the report "On the Path to Equity: Improving the Effectiveness of Beginning Teachers" from the Alliance for Excellent Education (2014), in the United States a high percentage of teachers have either moved to another school or left the profession altogether in the last decade. The report informs that approximately half a million U.S. teachers either move or leave the profession each year. Ingersoll, 2003 (as cited in Sheopner, 2012) states that early career teachers with between 40 and 50% of 2 new teachers leave the profession by the first 5 years. This high turnover rate challenges teacher preparation programs and universities to look more closely into the importance to put in place a strong holistic and culturally relevant support during teacher candidates' preparation. The better support, feedback and training provided during teacher preparation can aid in the teacher attrition problem, especially among students from minority backgrounds.

There is a plethora of research addressing teacher attrition (Cooper J. M., and Alvarado A., 2006; Clandinin, D. J., Long, J., Schaefer, L., Downey, Pearman, C. J., & Lefever-Davis, S. 2012; Goldring, R., Taie, S., and Riddles, M. 2014; Steeves, C. A., P., Pinnegar, E., & Wnuk, S. 2015), but not very much so on the factors associated with this phenomenon before it happens. Although it is important to understand the reasons why teachers leave the profession within the early five year period, for ICET Elite is imperative to understand what are governments, higher education institutions, program directors, faculty and academic support professionals doing to prevent teacher attrition and help closing the teacher gap.

Introduction

The Chicago Teacher Pipeline Partnership (CTPP) is a four year grant based program working with four Chicago based universities (National Louis University, Loyola University, Northeastern Illinois University, and the University of Illinois at Chicago) implementing three essential components of the teacher preparation pipeline; 1) minority teacher candidate recruitment, selection, and retention, 2) teacher preparation for urban, high need schools, 3) teacher induction, development, and support.

The CTPP team at National Louis University focuses on the importance of minority teacher preparation in the areas of science and math. National Louis University's CTPP undergraduate elementary education first cohort started in the fall of 2010 with twenty-seven students. There was an interesting component added to this future teachers group, a student success coach. The intention of this role was to support the teacher candidates to ensure student success through their undergraduate preparation. The student success coach profile was defined as a highly qualified, experienced practitioner to serve as the liaison between the university faculty and students.

NLU's Student Success Coach cultural background reflects the representation of the increasingly diverse population in the Chicago Public Schools. The student success coach is responsible for collaborating regularly with university faculty and the CTPP teacher candidates. Monitors teacher candidate's engagement, provides emotional and social support, implements a proactive student outreach strategy, and sets, maintains and enhances goals associated with new teacher candidates. Based on the CTPP student success coach expectations, it was necessary to find a strategy to ensure retention, academic success and support.

The guiding principles of the *Student Success Coaching Model* are based in the holistic approach and a culturally relevant perspective. It recognizes the needs of the minority teacher candidates in various aspects that ultimately determine their success in higher education and help prevent teacher attrition. The coaching strategy is focused on the premise that "educators serve as facilitators for reflection and encourage learners to discuss and reflect on concrete experiences in a trusting, open environment… and creates ample opportunities for reflection" (Meriam, 2007).

The student success coach provides individualized student academic support, emotional and social support, and helps students create networks of support among their peers, the university and the community. The student success coach also offers the teacher candidates professional development opportunities that reinforce their abilities to become more confident and strengthen their network of support.

The implementation of the Student Success Coaching Model is comprised of six stages. 1) Safe space: this first stage of the model provides a safe space for teacher candidates, this phase is crucial in the ability to continue moving forward in the implementation of the model; 2) Validation of feelings: this stage helps in building rapport with the students; 3) Identification of the problem: during the individualized conversations, the students coach helps the student with naming or identifying the challenge impeding success. In addition, the recognition and reflection on the student's strengths and areas for implementation are addressed in this stage; 4) Explore alternatives with coach: here, the student and coach sort out strategies to exercise during a period of time to help overcome the challenge addressed in the previous stage; 5)Pick and try: the student commits to implement the strategy and coach provides student with resources; 6)Evaluation: student and coach talk about the effectiveness or failure of the strategy implemented and based on that result, the student starts, or not, the coaching model cycle until a successful result comes into place.
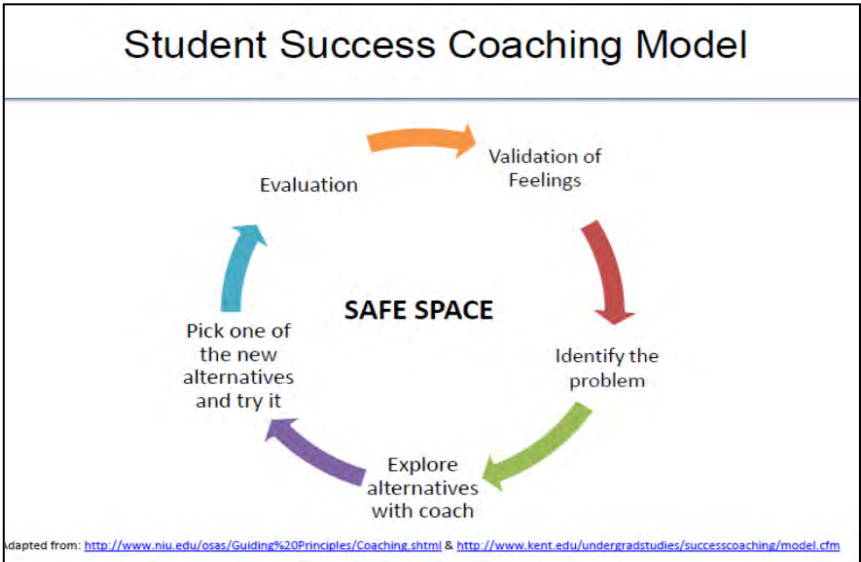
Table I: Student Success Coaching Model, Monica Haydee Ramos

Theoretical framework

The retention of teachers continues to be a global concern to the teaching field, education advocates, and education policy (UNESCO, 2013). According to UNESCO's Institute for Statistics (UIS) the new global projections anticipate chronic shortages of teachers will persist beyond 2015 and for decades to come, if current trends continue. The world will need an extra 3.3 million primary teachers and 5.1 million lower secondary teachers in classrooms by 2030 to provide all children with basic education. These figures are alarming. It is crucial to address this issue and strive to find solutions to support teachers during their teacher preparation to stay in the profession after the five year mark for early leavers.

One source of disconnection between teachers and their teaching environments is the racial discrepancy between the teaching force and the student population in urban public schools. (CTPP, 2009). In the current 2014-2015 school year, according to the CPS Office of Accountability, from a total of 396,683 enrollments, the overall percentage of Hispanics account for a 45.6%, from those 16.7% are considered English Language Learners (ELL). The African American population represents a 39.3%. In contrast, from a total of 22,519 teachers, only 18.6% are Hispanics and 24.3% African-American. Aware of this fact, the focus of this coaching model is built from a holistic understanding to student success, considering culture, language, emotions, social, economic challenges, and individual cultural repertoires (Rogoff, 2007), immigrant and first generation college experiences to provide relevant support to minority, bilingual teacher candidates during their enrollment in a teacher preparation program. The student success coaching support is intended to strengthen the social and emotional preparation of minority future teachers in urban schools as a prevention measure and reduction to teacher attrition. It is clear that the increasing diversity within the Chicago Public Schools, (CPS) demands a more diverse teacher population, especially in math and science.

The pressing need to prepare teachers in the Sciences, Technology, Engineering and Math (STEM) fields is reflected in the data by the Department of Research, Evaluation, and Assessment at the Chicago Public Schools. It states that only 1% of K-8 teachers had earned a degree in math or math education, 3% in a field of science, and 2% in reading. In 2007-2008, 84 (17 percent) K-8 schools had no teachers with mathematics endorsements, 62 (13 percent) had no teachers with science endorsements, and 159 (33 percent) had no teachers with reading endorsements (CTPP, 2009). In addition, Ingersoll & Merrill, 2010 (as cited in Mee & Haverback, 2014) argue that the attrition of teachers in urban areas and for teachers of science and mathematics has been especially high.

Research by Allensworth, Ponisciak, & Mazzeo, 2009, (as cited in the CTPP final proposal, 2009), shows that there is a high teacher turnover in approximately 100 Chicago public schools, which serve predominantly low-income African American and Latino children. In that same report, the researchers found that approximately 20 percent of CPS new teachers turn over each year. Furthermore, in the typical CPS school, over 50 percent of teachers leave their classrooms within four years. According to Shen (1997) high rates of teacher attrition increase school districts' expenditures on recruiting and hiring, disrupt program development and continuity, and ultimately hinder student learning. I agree that this issue negatively affects students learning and represents a significant source of waste of already limited resources. To alleviate this problem, would embedding a holistic, culturally relevant coaching model of support in teacher preparation programs provide minority, bilingual teacher candidates with a strong set of social and emotional skills to prevent them from leaving the teaching profession within the early years and reduce teacher attrition?

Methods, techniques or modes of inquiry
The approach for this research is qualitative. The methodology used in this research is based on the collection of information from student testimonials that illustrate the possible impact on teacher attrition, of a culturally relevant student success coaching model based on a holistic perspective. Throughout the CTPP program, students have been asked to provide voluntary testimonials about the relevancy of the holistic, culturally responsive coaching model in their path to becoming teachers and how the student success coaching approach has provided opportunities that strengthen their academic, professional, social, or emotional wellbeing, and how this prepares them to be better equipped socially and emotionally to be more confident in their future classroom practice. The following student written testimonials are part of a collection of documents voluntarily provided by students from 2010 to 2014.

These were selected based on the four levels of the teacher preparation program: freshmen, sophomore, junior and senior years, and a first year teacher graduate.

Data sources or evidence
According to Kemparaj & Chavan (2013), qualitative research denotes various methodological approaches with the purpose of generating an in-depth and interpreted understanding of the social world, by learning about people's social and material circumstances, their experiences, perspectives, and histories. Qualitative research aims to explore, interpret, or obtain a deeper understanding of social phenomena.
This study uses qualitative information based on testimonials from students in different levels of the undergraduate bachelors of arts degree in elementary education, (freshmen, sophomore, junior, senior), and a first year teacher graduate. It analyzes students' testimonials in the lines of academic success, social-emotional support, professional identity development, leadership capacity and sense of community as factors contributing to their intentions to remain in the profession.

Results and/or conclusions/points of view
Clewell & Villegas, 2005; Dee, 2004 (as cited in the CTPP final proposal, 2009), suggest that students are more likely to succeed when taught by teachers who share the same racial/ethnic background and can relate personally to issues facing students. This demonstrates that, if the teacher candidates are coached, mentored and supported by student success coaches from their same cultural background who can relate with them from life experiences, challenges, teaching experiences and language, those students will be more inspired to succeed.
In this process, the student success coach guides the teacher candidates through a phase of resilience, emotional strength and the creation of a supportive community within the university that will carry on to the teacher candidates first years of teaching and support teacher effectiveness. The following testimonials support this statement.

Elementary Education teacher candidate pursing a concentration in math, in senior year:
This teacher candidate is a first generation college student, (the first in her family to attend college), daughter of Mexican immigrants, born in Chicago, bilingual and financially dependent of her family. Her testimonial presents thoughts on the individualized coaching support, opportunities to expand her network and opportunities to practice beyond the classroom.

"I have been receiving a lot of personalized help in my path to becoming a successful teacher. I have been provided with so much help early on in my college experience, preparing for all the upcoming exams a teacher must take and by allowing me to start observing classrooms early on. In school, I receive a lot of help and information from my student success coach. She lets us know about different opportunities available for students involving things with CPS and other organizations. I was also given the opportunity to tutor my fellow classmates in mathematics. This helps the students but also helps me in learning what works and what doesn't when it comes to teaching or tutoring" E.O.

Elementary Education teacher candidate pursing a concentration in science, in junior year:
She is a Mexican immigrant who arrived to the US in her teen years; she is a first generation college student, single mother, bilingual and active leader in her community. Her testimonial reflects her story as a young immigrant and the importance of her culture in the coaching received in the teacher preparation program.

"My parents made the difficult decision of moving from our native country to America. It was extremely hard to adapt to a new culture, new language and new way of life. For all of us who did nothing wrong, we go through depression and sometimes anger that there is anything we can do about it. Coming from an immigrant working family, I have encountered many barriers throughout my life, barriers that seemed impossible to overcome. I know I can be part of the support our students need by becoming an educator. This is how my passion and commitment for education began. Discovering my passion helped me realize my role to serve my community, and the CTPP was part of that process. This program not only assisted me financially but it also inspired, motivated, and gave me the confidence to follow my dreams and pursue a college education; because I knew that there was someone who believed in me and who believed in my dreams. This is my third year at National Louis University where I am majoring in Elementary Education with a concentration in science. I had the opportunity to have an outstanding support program that includes a success coach. I am extremely grateful to have a success coach because not only I and the rest of student at National Louis University can relate to her, but we also benefit from her mentorship professionally, academically and personally. With our student success coach we have founded the Association of Latino Scholars at NLU to increase awareness about the Latino culture at the university and community level. Her coaching has helped me and the rest of the students feel very confident that after being part of the CTPP, we will gain the necessary leadership skills to continue to serve our community. I am extremely excited for being part of this opportunity that will allow me to be a stronger leader not only at NLU but also in my future classroom and my community." F.S.

Elementary Education teacher candidate pursing a concentration in science, in sophomore year:
This teacher candidate is a community college transfer student, first generation college student, second generation American from a Mexican immigrant family, bilingual, and a mother. She shares her insights on the coaching and emphasizes on social and emotional factors.

"I would like to acknowledge the coaching in the program. Our coach is kind and compassionate, and her open door policy makes her accessible. She is our biggest cheerleader, a shoulder-to-cry on, and a great motivator. She goes through great lengths to guide us in resolving any issues or obstacles we face so we can achieve success. She is always on the go, seeking out experiences and cultivating learning opportunities. She is a truly unique individual and the coaching a wonderful asset to the program. Attending special events or conferences promoted by the coach have built my social and networking skills. Being in a classroom setting with other students from diverse backgrounds provides a sense of camaraderie, support, and motivation." P.L.

Elementary Education teacher candidate pursing a concentration in math, in freshmen year:
A returning college student, second generation immigrant, second generation college student and mother, her testimony shows her experience in the first year of college and how the activities provided by the coaching component of the teacher preparation program have contributed to her first year success.

"Since day one, I felt welcomed by the people that are part of the CTPP program. I truly believe the program is, in large part, the reason why I decided to go back to school after so many years. I was not very confident when I started school and it seemed like an impossible dream that, at my age, I could actually complete my education. However, knowing that I had a fantastic group of people supporting me really made a difference. I saw they believed in me. Therefore, I knew I had to try my very best and do everything possible to succeed. Sure enough, my first year at was a wonderful experience thanks to the

enormous help I received. I attend numerous helpful workshops regarding education, and our "Family Meetings" where you really feel like part of one big family. I am most indebted to my coach. She has always been there for me. Her patience, guidance, and (especially!) her encouragement have been crucial in my first year of college. M.Z.

First year teacher graduate, bilingual, kindergarten teacher with a concentration in science:
She is a first generation college student, bilingual, Mexican-American, and first year teacher.

"I am a bilingual kindergarten teacher and former CTPP participant. The education, training, and coaching guidance that this program provided me, helped me acquire the knowledge, skills, and confidence that I need in order to become a thriving and exceptional teacher" E.C.

The *Student Success Coaching Model* has provided successful results in undergraduate persistence within the cohorts of elementary education teacher candidates and ICET Elite student leaders' who participate in the Chicago Teacher Partnership Program, and are pursuing teaching degrees with concentrations in science and math at National Louis University. Including early holistic and culturally relevant student support for multicultural, bilingual teacher candidates, in teacher preparation programs, positively affects teacher candidates' retention, while preventing attrition of future bilingual, math and science teachers of color. In some cases, first year teachers started using some of the skills applied during the culturally relevant coaching, that contributes to the persistence to stay in the teaching profession.

There is a promising indication of the potential contribution of the holistic, culturally relevant coaching approach that supports the success of under-represented, bilingual, teacher candidates who are committed to teaching and remaining in high-need urban schools in Chicago serving bilingual and children of color. In conclusion, based on the represented student testimonials, the holistic, culturally relevant student success coaching approach contributes to the prevention of early leavers in the teaching profession during students' attainment of an elementary education undergraduate degree. Coaching pre-service teachers from a holistic, individualized and culturally relevant approach contributes to strengthen the social and emotional foundations of underrepresented, bilingual teachers in the STEM fields with the focus on the reduction of teacher attrition.

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Challenging Disparities in Curriculum Implementation at the Classroom Level

Sumar Hendayana
Indonesia University of Education, Jl. Setiabudi 229 Bandung 40154, Indonesia
sumar_hendayana@yahoo.com

Linda Setiawati
Indonesia University of Education, Jl. Setiabudi 229 Bandung 40154, Indonesia
lindasetiawati_setiawati@yahoo.com

Asep Supriatna
Indonesia University of Education, Jl. Setiabudi 229 Bandung 40154, Indonesia
supriatna_asep@yahoo.de

Arif Hidayat
Indonesia University of Education, Jl. Setiabudi 229 Bandung 40154, Indonesia
arifhidayat@upi.edu

Abstract: *Since 2013, Government of Indonesia has been launching new curriculum which focused on Scientific Approach in every subjects to enhance quality of education in Indonesia. It is expected that teachers facilitate students engage in learning to construct knowledge and improve student's attitude. Ministry of Education and Culture (MoEC) trained selected teachers, principals, and supervisors through case cade approach to produce National Instructors (NI). Then, NI trained teachers, principals, and supervisors organized by Teacher Training Center at district level for one week at a school. The purpose of this study is to obtain information on how teachers implement the new curriculum at the classroom level. Main data were collected through lessons observation from thirteen schools (6 elementary schools, 3 junior high schools, 2 general senior high schools, and 2 vocational senior high schools) in Sumedang district. Lessons observation indicated disparities in teaching learning processes according to teachers. There was a gap to be filled between attained and implemented curriculum.*

Keywords: scientific approach, case cade approach, national instructor, lesson observation.

Introduction/objectives or purpose of the research

Government of Indonesia has revised school curriculum almost every ten years to meet the society needs. Curriculum 2013 has been tried out and implemented for improvement of quality of learning in many schools in Indonesia. The scientific approach has been incorporated into new curriculum. It is expected that students construct knowledge through observing, questioning, experimenting, associating, communicating in every subject. Curriculum 2013 also emphasis on improvement of student's attitude to prepare good citizens in the future.

At preparation stage, Ministry of Education and Culture (MoEC) trained teachers, principals, and supervisors through case cade approach. Ministry of Education and Culture conducted training of trainer (ToT) for selected teachers, principals, supervisors at national level to produce National Instructors (NI). Then, NI trained teachers, principals, and supervisors organized by Teacher Training Center at district level for one week at a school. The training contents included background of curriculum change, information of curriculum structure and contents, textbook analysis, learning models, teaching methods and approaches, authentic assessment, lesson plan development, and teaching practice. At the end of

training session, peer teaching was conducted as teaching practice. Trainees in rotate practiced to be a teacher while other trainees acted as students. To follow up the training, district office of education organized cluster-based in- and on-service teacher training at a school. At in- service teacher training session, subject teachers discussed technical aspect of teaching and learning process to come up with lesson plans under support of NI. Following the in- service teacher training session, the on-service teacher training session was conducted to implement the lesson plans at a school. A teacher taught the lesson while other teachers observed the lesson and soon after the lesson teachers had post-class discussion to share finding for improvement. NI chaired the post-class discussion and provided suggestion for lesson improvement.

The purpose of this study is to obtain information on how teachers implement the new curriculum at the classroom level. In detail, we want to obtain information of how do students learn and how do teachers help students to learn? Data were collected through questionnaires, interviews, and lessons observation from thirteen schools (6 elementary schools, 3 junior high schools, 2 general senior high schools, and 2 vocational senior high schools) in Sumedang district.

Theoretical framework
According to Taba, curriculum is an instructional design drawn up by considering various things about the learning process and the development of the individual (1962, p. 20), while McNeil adds that curriculum is a learning experience that is planned and directed, that is composed through the process of the systematic reconstruction of knowledge and experience under the supervision of educational institutions so that the learner can continue to have an interest in learning as part of their personal social competence (1984, p. 15). Furthermore, Syaodih asserts that curriculum covers all learning, activities and experiences of the students with the guidance from the school both inside and outside the classroom (2007, p.7).

All levels of education, starting from early education to higher education, have the duty to prepare the next generation having the good quality (Prihantoro, 2015). Along with these challenges, the curriculum also needs to be developed according to the needs. Since 1945, the curriculum has changed several times, namely in 1947, 1952, 1964, 1968, 1975, 1984, 1994, 2004, 2006, and 2013. The reasons for curriculum change from curriculum 2006 to curriculum 2013 are as follows: (1) internal challenge, due to high population growth, we need to provide good quality of education to prepare high quality of human resources to compete in the global era; (2) external challenge, the rapid development of science, technology, and information; (3) low student achievement, according to TIMSS (Trend in International Mathematics and Science Study) most Indonesian students were not able to solve high and advance level problems of reasoning and reasoning with incomplete information.

In general, Curriculum 2013 is characterized by four important elements. They are (1) standard of graduate competencies, (2) standard of contents, (3) standard of learning processes, and (4) standard of assessment.
1. Standard of Graduate Competencies (SKL)
The learners are expected to improve and to balance between the soft skills and hard skills that include aspects of competencies of attitudes (including: personal faith, morality, self-confident, and responsibility in interacting effectively with the social environment, the natural surroundings, as well as the world and its civilization), skills (including: a person having effective and creative thinking in the realm of the abstract and concrete domains), and knowledge (the ability to produce the persons

mastering the knowledge, science, technology, arts, and culture that are based on humanity, national, state, and civilization).

2. Standard of contents. Competence is developed through:
   a. Integrative thematic in all subjects at the elementary school level
   b. Subjects at the levels of junior high school and senior high school
   c. Vocations at the level of vocational high school

3. Standards of learning process
   a. Standard process focuses on observing, questioning, collecting information, presenting, summing, and creating.
   b. Learning does not just happen in the classroom, but also in school and community environments.
   c. Teachers are not the only source of learning.
   d. Attitudes are not taught verbally, but through example and role model

4. Standard of assessment - Competency-based assessment
   a. The authentic assessment (measure all attitude competencies, skills, and knowledge based process and outcome).
   b. Strengthening criterion reference assessment, i.e. the achievement of learning outcomes is based on the scores obtained on the position of the ideal score (maximum).
   c. Assessment is not only on the level of Basic Competencies (KD), but also the Core Competencies (KI) and Standard of Graduate Competencies (SKL).
   d. Encouraging the use of portfolios made up by students as the main instrument of assessment.

The important characteristic of curriculum 2013 is the balance among knowledge, skills, and attitude as shown in Figure 1.
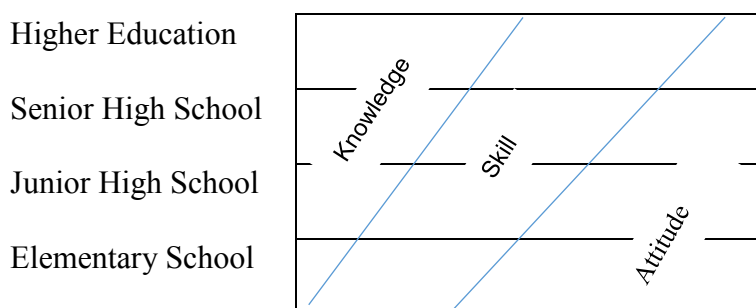
Figure 1. Proportion of knowledge, skill, and attitude at school levels (Marzano (1985), Bruner (1960)

Curriculum 2013 integrates attitude, skill, and knowledge with different portion according to school level. For elementary school, teaching contents should have much attitude followed by skill and knowledge. On the other hand, teaching contents of higher education should be more focus on knowledge followed by skill and attitude. Critical point implementation of curriculum 2013 is enhancement of learning process and assessment as shown on Figure 2.

Lesson Plan	Implementation of lesson plan	Supervision	School culture of quality
• Basic competence • Indicator • Objectives of	• Monitoring instrument • Matching Index lesson plan & implementation	• Supervision guideline • Implementation • Recommendation • Revision	• Quality standard • Leadership • School atmosphere

learning

- Subject matters
- Design of learning activities
- Teaching materials
- Output/product
- Assessment

- Enhancement & reward

Figure 2. Critical point implementation of curriculum 2013

Methods, techniques or modes of inquiry

This study aims to outline and discuss the implementation of curriculum 2013 at the school level to following answer research questions: (1) How does teacher training affect teaching practice? (2) How do student learn? (3) How do teachers help students to learn? Data collection was done through observation of teacher training and lessons observation. Questionnaires were distribute to teachers and principals to obtain information of understanding of curriculum change. Lessons observation were conducted to obtain information regarding student learning of 13 lessons at elementary, junior high, and high schools in Sumedang district.

Data source or evidence

Training observation	Lesson observation		
Elementary school teachers	Elementary School	Junior High School	Senior High School
Junior high school teachers	SD Pakuwon 1	SMPN 1 Jatinangor	SMAN 1 Cimalaka
Senior high school teachers	SD Pakuwon 2	SMPN 4 Sumedang	SMA 1 Sumedang
	SD Sukaraja 1	SMPN 5 Sumedang	SMKN 1 Sumedang
	SD Sukaraja 2		SMKN 2 Sumedang
	SD Sindang Raja		
	SD Manangga		

Results and/ or conclusions/point of view

1. Training of Curriculum 2013

   At national level, Ministry of Education and Culture conducted trainings for selected teachers to introduce curriculum change from curriculum 2006 to curriculum 2013. At district level, training of curriculum 2013 for teachers was organized by teacher training center at schools in Sumedang district. National instructors who participated at national training trained teachers at schools, 2

instructors trained 30 teachers for one week. According to training guide, constructivism and andragogy approaches are used in the training. Trainers were suggested to apply training methods of discussion, case study, assignment, lecture, role play, group work, and presentation. Training contents include background of curriculum change, book analysis, lesson design, assessment, and teaching practice. At the end of training session, peer teaching was conducted as teaching practice, a teacher taught while others acted as students. It was found that trainees engaged in training sessions, they participated actively in work group and discussion. However, teachers got difficulty to deliver a lesson applying curriculum 2013 during teaching practice through peer teaching as indicated by teacher centered of teaching style, teachers could not manage student teacher. Questionnaires were distribute to trainees to obtain information of their perception of the training. Most of trainees satisfied and understood the training materials as well as supported the implementation of curriculum 2013.

2. Lesson observation

It is expected that students construct knowledge through observing, questioning, experimenting, associating, and communicating instead of receiving information about knowledge. Thirteen lessons from thirteen schools were observed to obtain information of teaching learning process applying curriculum 2013.

a. Elementary schools. Generally, at the beginning of the lesson, teachers introduced the lesson include objectives of the lesson followed by group worked to solve problems on the worksheet. Teachers provided a worksheet per group. One group consists of four to six students and each student has official textbooks. At the end of the lesson, representative of each group presented the results of discussion. In case of Manangga Elementary School, students grade 5 studied about water cycle. Teacher explained the water cycle by showing pictures of water cycle utilizing LCD projector. Then, the teacher instructed students in group to draw picture how water cycle take place in nature. Due to big group of 4 to 6 students with one worksheet, view students worked seriously on the worksheet, the others did nothing, some students played around while the teacher did not care about it. At the end of the lesson 2 students from each group reported the result of group work at front of the classroom. It was observed that other students were not pay attention to presentation because presentation was not clearly seen from the back of classroom and student's voice was not loud enough. Case of Sukaraja number one Elementary School, students of grade 4 studied the theme of disaster. Teacher is a trainer of curriculum 2013. Teacher asked questions about kind of disaster and students gave example about flood. Then teacher asked students to work in group to discuss reason of disaster occurred and how to avoid the flood. Teacher instructed students to develop questions about the flood and other students think to answer the questions then a pair of students requested to come to front of classroom to simulate a dialog between a reporter and resource person. Students enjoyed and engaged in the group work to develop a dialog.

b. Junior high school. Grade 7 students of Sumedang No 4 Junior High School studied Indonesian about reading text of environment. Indonesian teacher instructed students to learn in group of 3 to 4 students to read Indonesia text of environment first and discussed among group member to answer the questions. Students engaged and enjoyed learning Indonesian to answer questions. The teacher was friendly enough with students, sometime the teacher sat next to students to observe and listen closely how students learn. Science lesson was observed at Sumedang No 5 Junior High School, grade 7 students learnt about living things. At beginning of the lesson students asked to go outside the classroom to observe and collect

data about characteristic of living things around the school. Collected data was discussed among group members inside classroom followed by classroom discussion. Students enjoyed science class since learning can be done outside the classroom.

c. Senior high school. We observed Indonesian lesson at Sumedang No 1 Senior High School for grade 11. The teacher is a trainer of curriculum 2013. Students were grouped into 8 groups of 4 students. Topic of the lesson was about how to write report of observation. Students searched the learning materials utilizing available internet connection and analyzed the learning materials in group. Students enjoyed very much learning in group since the teacher gave clear instruction and friendly enough with students. At the end of the lesson, the teacher invited students to share their finding at front of classroom followed by question and answer among students. We observed another Indonesian lesson at Sumedang No 1 Senior Vocational School, different situation was found, many students did not engage in the lesson since the teacher asked students work in group while the teacher sat for most the session, the teacher did not observed student learning.

Based upon findings we concluded as follows. Teacher training on curriculum 2013 did not affect teaching skills to implement curriculum 2013 at the classroom level. It may due to teaching practice at the end of training sessions through peer teaching was not effective to train teaching skills. Teachers understood about curriculum 2013 but did not guarantee teaching skills. Common sense was found that teaching learning processes were characterized by student group work at all level regardless effectiveness of student learning. Mostly, at elementary schools, students learning was not effective enough since number of group member was considered too big (more than 4 students in a group). Most observed teachers were not sensitive enough to observe students activities as indicated by some students did not pay attention to lesson. Teacher intervention was needed to guide students engaged in learning.

Educational importance of this study
The findings were important to feedback curriculum developer and teacher education institution to enhance the training methods and strategy. Teachers need more teaching practice than theory. Alternatively, real teaching as teaching practice may be considered instead of peer teaching since it is possible training venue at schools.

Connection to the themes of the assembly
This study of curriculum implementation at the classroom level can be considered as challenge disparities in education. It related to the sub-theme of Pedagogy and Practice.

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Principals as Literacy Leaders: Case Studies of Leadership with a Purpose

Tony Townsend
Griffith University, Queensland (corresponding author)
2 Alexander Parade, McCrae, Victoria, 3938, Australia
t.townsend@griffith.edu.au

Neil Dempster
Griffith University, Queensland
n.dempster@griffith.edu.au

Greer Johnson
Griffith University, Queensland;
g.johnson@griffith.edu.au

Anne Bayetto
Flinders University, South Australia
anne.bayetto@flinders.edu.au

Jane Wilkinson
Monash University, Victoria
jane.wilkinson@monash.edu.au

Abstract: *Data from national and international surveys of student achievement in literacy pointed to a recurring problem in Australian schools. Although the overall outcome of these surveys was positive, with the majority of Australian students achieving high standards, a significant minority did not. While it is well documented that within the school, classroom teachers affect student learning outcomes most, no turnaround in the achievement trajectory of students has occurred without the dedicated action of school leaders (Leithwood, Day, Sammons, Harris, & Hopkins, 2006). The current paper considers the ongoing Principals as Literacy Leaders (PALL) project and a series of case studies in nine primary schools in two Australian states. The results indicate that the PALL project has had a positive impact on the work of Principals in supporting reading initiatives and that this has helped to improve the quality of teaching reading in primary schools, which in turn has had an impact on student reading achievement.*

Keywords: Principals as Literacy Leaders, Literacy achievement, action research, professional learning

Background

Data from national and international surveys of student achievement in literacy pointed to a recurring problem in Australian schools. Although the majority of Australian students achieved high standards, a significant minority did not (Hughes & Hughes, 2012). Moreover, evidence from a series of national reports and inquiries into these shortcomings (Louden et al., 2005; Rowe, 2005) indicated that children who fall behind in the early years of schooling tend to fall further behind over the course of their school careers.

In spite of the long-standing and deeply entrenched nature of "the gap," there is a growing body of research evidence (Hallinger & Heck, 2010; Hattie, 2012) generating the conviction that the problem, while difficult to overcome, can be addressed in positive ways by schools. In fact, evidence has continued to accrue that factors such as the quality of instruction (Hattie, 2012); the quality of school leadership (particularly sustainable leadership), (Robinson, et al., 2009; Seashore-Louis, Leithwood, Wahlstrom, & Anderson, 2010; Townsend & MacBeath, 2011) and the impact of well-designed PD and support programs (DEECD, 2014; OECD, 2009; Wei, et al., 2009) leads to the conviction that improving the quality of student learning and achievement, in a sustainable way, is feasible.

What Do Principals Need To Know?

It has been suggested there is a research-to-practice gap in reading education with content and instructional practices not reflecting what is widely known about the effective teaching of reading (Buckingham, Wheldall, & Beaman-Wheldall, 2013). As credible instructional leaders, principals need to know about evidence-based research and authoritative commentary as it provides direction about what teachers need to teach and students need to learn. If pedagogy is not informed by research it may be that teachers 'teach nothing in particular' (Cohen, 2010/2011). While most principals do not have direct classroom teaching roles, their capacity to professionally engage with class and support teachers is strengthened when they can talk informatively about reading research and instruction. Routman (2014, p. 1) makes the point that "teachers must be leaders, and principals must know literacy [because] without a synergy between literacy and leadership and a committed, joint effort by teachers and principals, fragile achievement gains do not hold." Schmoker (2011, p. 20) refers to the need for "simplicity, clarity, and priority" whereby principals and teachers are well-informed about what should be taught. It is essential for educators to engage in discussions about the 'why' of what they do before they move onto 'how' it will be done.

What Reading Strategies Should Principals Understand and Teachers Teach?

There has been a convergence of evidence-based research about the essential components to be taught and learned if students are to become independent and successful readers. The *National Reading Panel* (National Reading Panel, 2000), the *National Inquiry into the Teaching of Literacy* (DEST, 2005) and the *Rose Review* (Rose, 2006), agreed that secure knowledge and skills in the five components of phonological awareness, letter-sound knowledge (alphabet and phonics), vocabulary, comprehension, and fluency are pivotal for reading acquisition. While the significance and importance of oral language is implicit in these reports, it is the Australian Primary Principals' Association project, *Principals as Literacy Leaders* (PALL) that has added oral language to the five components and identified these as *The Big 6 of Reading*. Teachers' deep content knowledge about these six components is essential but it is also about how they design and structure their reading programs that can have significant impact and long-term effect.

The PALL Training Modules

The five PD Modules in the PALL Program were:

Module 1: A Leadership For Literacy Learning Blueprint

The first module explained how a leadership for learning (LfL) framework had been synthesised from recent meta-analytical research reports into the connections between leadership and learning. The synthesis, or Blueprint as it was called in the project, is illustrated in Figure 1 below.
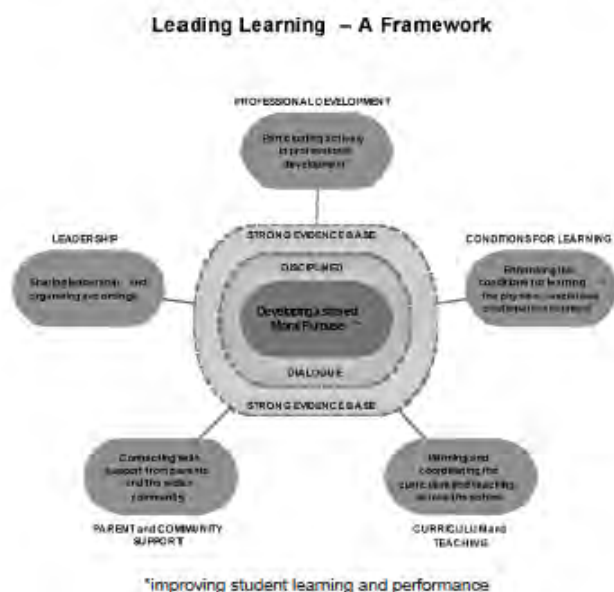
Module 2: What leaders need to know about learning to read

Module 2 demonstrated the complexity of the reading process and the importance of the research-based "Big 6," namely,

(i) Oral Language;
(ii) Phonological awareness;
(iii) Letter/ sound knowledge;
(iv) Vocabulary;
(v) Fluency; and
(vi) Comprehension.

Module 3: Leading literacy data gathering and analysis
The third module picked up the "sound evidence" theme highlighted in the Blueprint by focusing on the importance of evidence-based planning and decision making.

Module 4: Designing, implementing and monitoring literacy interventions
Module 4 defined the term "intervention," and explored implementation and intervention planning processes so that each school could produce an intervention implementation plan.

Module 5: Intervention evaluation and future planning
Module 5 took principals through necessary steps in planning school based evaluations of the interventions they had implemented – defining the **purpose** of the evaluation, identifying appropriate data gathering **processes** and determining how to **use** the data.

The Case Study Research
The current research was an action research project with a group of case study schools led by principals who had participated in the PALL Program of professional learning in 2013. The action research involved a focused research agenda aimed at documenting and developing a fine-grained understanding of the leadership practices which facilitated the implementation of effective teaching and learning strategies in reading in nine primary or district schools in two Australian states, Tasmania and Victoria.

Research Questions
There are two central questions that guided the case study research:
- Has the PALL project impacted on the leadership of principals when it comes to supporting a focus on literacy in schools?
- Has the focus on literacy guided by the school leaders had any impact on student attitudes towards reading and student achievement?

These led to three specific questions being asked at the case study schools:
Research Question 1: What were the effects of your school's planned leadership actions on teachers and their teaching?
Research Question 2: What were the effects of your school's planned leadership actions on students and their learning?
Research Question 3: What were the effects of your school's planned leadership actions on student achievement?

Data Collection
School visits were conducted to gather data at agreed points in the year (four in Tasmania and three in Victoria). The purpose of these visits was to gather data, from interviews with principals, teachers and parents, from student surveys and from student work, on what actually happened in the light of reading improvement intentions. Consistent with the improvement imperative of action research, the researchers undertook to process and analyse the data gathered from each school after each school visit.

The Case Study Schools

Of the nine case study schools involved in the research project, schools 1 and 2 are district schools (years K-10) in regional cities, school 3 is a primary school in a regional city, school 4 is a small school in a rural area and school 5 is in a metropolitan area in Tasmania. Schools 6 and 7 are in the eastern suburbs of Melbourne and schools 8 and 9 are in rural areas in Victoria.

Table 1 below shows that the case study schools are diverse in terms of both size and composition. All but one of the Tasmanian schools have more than 80% of the school population in the lower half of the Index Of Community Socio-Educational Advantage (ICSEA) index, which measures poverty and social advantage, whereas in Victoria, two of the schools have more than 80% of the school population in the top half of the index.

Table 1. Demographic composition of the case study schools

School	Enrolments 2013		FTE	Index Of Community Socio-Educational Advantage (ICSEA)			
	Girls	Boys		Bottom 25%	Middle lower	Middle upper	Top 25%
School 1	150	189	326	61	35	10	4
School 2	252	247	485	74	20	6	1
School 3	160	165	307	57	27	12	4
School 4	22	26	45	26	38	25	11
School 5	78	76	142	67	25	7	1
School 6	271	259	529	7	12	32	49
School 7	106	118	223	4	11	31	55
School 8	82	95	177	44	34	17	5
School 9	119	133	252	19	37	28	16

Table 2: Grade 3 and Grade 5 NAPLAN scores, 2011 and 2013

	Grade 3 Reading Score 2011		Grade 3 Reading Score 2013		Grade 5 Reading Score 2011		Grade 5 Reading Score 2013	
	School	Like School	School	Like School	School	Like School	School	Like School
School 1	322	378	438	382	423	456	467	471
School 2	337	371	364	367	423	450	455	458
School 3	389	379	394	385	469	457	484	473
School 4	429	396	411	408	496	471	544	493
School 5	348	372	363	375	463	451	456	464
School 6	499	452	458	452	518	521	551	528
School 7	415	471	459	457	533	542	540	533
School 8	378	389	443	396	520	465	497	483
School 9	427	422	450	417	517	493	488	500

Table 2 below provides a comparison of the average student reading scores on the National Literacy test (NAPLAN) in 2011 and 2013 for grades 3 and 5 in each of the case study schools.
What Table 2 demonstrates is that there is no specific pattern of improvement across the case study schools at either level.

This suggests high levels of complexity in running a school and managing student achievement, and the need for principals to be very specific about what they are trying to do and how they plan to do it. The data demonstrated a complex combination of the students and their backgrounds, the teachers they have and what

they do, and how the school supports students, teachers and parents, to focus on reading. It is now that we turn to the data collected from the schools to look at how this was done.

Case Study Results
Research Question 1: What were the effects of your school's planned leadership actions on teachers and their teaching?
It was clear in all the schools that the focus on literacy and particular elements within the BIG 6 was now much greater than it had been previously. Both school leaders and teachers within the schools commented on the increase in the knowledge base associated with reading and also the focus on improving reading across the school, as the comments below indicate:

- [There is] greater awareness about the elements, making sure that all the elements are there, seeing the elements in the planning, making sure there's resources for all of the BIG 6. (School Leader, School 1)
- Teaching of literacy is much more visible, using whole-small-whole strategies, task design, learning intentions expressed, some of it around general pedagogy but especially in the literacy block. (School Leader, School 2)
- Certainly there's been a lot more structure around our focus around developing our intervention strategies around reading. (School Leader, School 4)
- Planning for each of the six things is now focused and none of the areas are allowed to slide. The BIG 6 are in the curriculum documents which have just been revised at the end of last year, but are also in the term planners and the weekly work programs. (Teacher, School 8)
- …it's now a consistent approach, where before I think we had some whole school strategies in place, but they weren't as consistent as they are now that we have PALL. (School Leader, School 1)

This focus has helped to change the level of discussion about teaching practice as teachers become more collegial and interactive with each other. Discussions about improving professional practice were evident in each of the schools, as the examples below indicate:
- Previously classrooms were places where the teachers did most of the talking. Now there is more articulation of what teachers are doing and why, together with a deliberate and intentional activity to build oral language. Teachers are articulate with children about what they will know and do after each experience. Teaching and learning intentions are identified upfront by teachers. There is a lot more deliberate and intentional attention on the language children use. (School Leader, School 3)
- What we have learned is the importance of teaching strategies, strategies of how to predict and how to teach a class to visualise and all that sort of thing. All those strategies rather than reading and asking questions. And it's about making those connections that really make a difference. Yeah. It's making the connections, making them, letting them see what a valuable skill reading is and letting them see that without having that skill life is going to be quite difficult for them. (School Leader, School 4)
- And that's the best professional learning, when you're sitting with your colleagues, someone's delivering it, you're observing that, and then you know you're going to have to, you know, deliver it as well based on the recommendations of the group. It's really powerful, powerful learning. (Teacher, School 6)
- There is a greater openness for dialogue between the staff in the school. Staff are more likely to come and ask questions and seek support for literacy. (School Leader, School 2)
- [The principal] would pop her head into the classroom, and yes, she's often a very, very busy, person, but she'll make time to pop her head in the classroom, if we're having a discussion about language and words, she will stay and join in for a few minutes and interact with the students about it, and she projects a passion for all learning, but for literacy. A real passion. Every child here in this school, in the primary years, would know full well that she is passionate about these things. (Teacher, School 3)

These conversations in turn produced both different attitudes towards the task of teaching and had also supported teachers to try out new strategies, as the comments below indicate:
- We will now be teaching reading very much as strategies rather than just allowing kids to read. There are some kids who need help with word attack skills and I think that's where the BIG 6 will come in for us. (Teacher, School 4)

- Teachers are doing pre-excursion checks to find out what students already know about the environment to be visited. After each excursion they do a post-check/debrief about what was noticed and learned (School Leader, School 5)
- I think we've built a culture of whole-school approaches here, and it's very trusting that if we've made a decision this is the way we're going and there's an expectation that everybody will get involved. (School Leader, School 8)
- My level of questioning's probably different. I suppose part of our professional conversation we had to have goals and things, I said that I probably wanted to get more levels of questioning in my practice. And I think I've done a bit of that, yeah. So I'm just, yeah extending the children's thinking rather than just asking for answers straight away. (Teacher, School 1)
- I talk about fluency and inferring and use all of those terminologies with my children, and they're starting to use it in Prep. (Teacher, School 2)
- Oral language is more purposeful and intentional. Silent reading is no longer 20 minutes of just reading, but part of the time is spent on talking about what they have read, both to the teacher and to other students. (Teacher, School 3)
- …just makes me very aware of what it is that I need to do to improve in this area. It's given me a what, a how, and a why. And we're all in it together because this is what we need to be working on, this is what produces the results (Teacher, School 7)

From the above comments we can see that the role of the leader in this instance has been influential. Using the new knowledge provided from the PALL modules the leader has supported school level discussions about reading improvement, which led to both teacher conversations and professional development activity to improve teacher quality, which in turn led to teachers changing their teaching practice.

Research Question 2: What were the effects of your school's planned leadership actions on students and their learning?
The changed teaching practices identified in research question 1 had an impact on student learning but also their attitude towards reading. As the comments below indicate children were more engaged, confident and excited about reading than they had been previously:

- I notice the difference when I come to one of my original groups from a couple of terms ago… And I was just blown away. I was blown away with their conversation, I was blown away with their strategies. [One student] was quoting me the strategies that she was using, she was talking about chunking and all sorts of things… I'd be in Flying Start, and they'll go, well we're activating our prior knowledge. Well I mean you nearly fall off your chair when you have a child say that to you. (Teacher, School 1)
- Children are more engaged, more students are asking to take books home and they look forward to guided reading, which happens every second week. (School Leader, School 2)
- Children are more confident about speaking and they now realise that in these small groups everyone is going to be expected to speak, so they can't sit back and not participate. That's been a change for some of the children who just sat back in a large group. They can't be invisible in their little groups. (Teacher, School 8)
- Children are very engaged and some of this is because teachers are using more engaging activities. There is a lot of oral language developing their comprehension skills. (School Leader, School 9)
- We are noticing more enjoyment and kids are talking more about the kinds of books they are reading, especially the seniors who have been working with our coach where there is a much bigger emphasis on talking about what they read, conferencing the book and that type of thing. (Teacher, School 9)

Not only are students more excited about reading, they were starting to develop a range of strategies that would support their getting better at reading. This was demonstrated in different elements of the BIG 6 in different ways, but the overall impression is that students were now more confident, as the examples below indicate:

- Quite a few of them were reluctant readers, reluctant writers, reluctant speakers, but we don't see as much as that any more… you walk in there now you wouldn't know it was the same class. Especially with their level of independence and the way that they do those structured groups in the literacy block. It's something that needs to go in and just be observed to see how amazing it is. (Teacher, School 1)

- The children are now more engaged in talking and comprehension is improving. Children are becoming more skilled and confident about their own reading levels. (School Leader, School 2)
- Students are now more willing to say "I don't know what you are talking about, can you explain what you mean?" Students are much more comfortable to challenge teachers and teachers are much more prepared to be challenged and to say I need to find that out. (Teacher, School 2)
- …children know which things they do well and what they have to improve on. They write their goals every morning (Teacher, School 6)
- Students are now using strategies, summarising, taking the roles for deepening the understanding of a text, text-to-text, text-to-self, text-to-world is right through the students' language. (Teacher, School 2)
- Children are talking more about the connections and explaining their thinking about what they are thinking. (Teacher, School 3)
- We are seeing evidence of students using more sophisticated vocabulary in their speaking and writing. Students are having a go at sounding out these words. Their illustrations are more detailed. (School Leader, School 5)

Part of this progress could be tracked back to the learning environment established by the school leader and then taken up by the teachers. The environment of high expectations led to a consistent use of terminology and teaching strategies, as listed below:

- The students constantly hear the words "Excellent effort" – we don't have "ok" or "good" here. The kids are so respectful in the classroom – it's almost as if when they come through the gate they put on a whole new set of ways of being and doing. A lot of our kids stretch up because they know that's the expectation here. Our common approach here is excellence, high expectations, best outcomes: I tell my class they're the best Prep class in the whole world. That cultural stuff spreads across the whole school. (Teacher, School 3)
- I think overall confidence in our approach to teaching, which in different ways, that's been a big improvement for all of us. I know a lot of people sometimes are, well I'm better at teaching literacy or I'm better at teaching numeracy, but I think collectively I think we are all a lot more confident in the ways that we teach. (Teacher, School 7)

One critical finding of the study was that children's confidence in their ability to read, their enthusiasm to try things and their involvement in the language used by the teachers all had an impact on their motivation and engagement which was supported by their positive responses to the student survey (see Table 3 and 4 below).

Research Question 3: What were the effects of your school's planned leadership actions on student achievement?

Although the case study schools all received the results of their National Assessment Program in Literacy and Numeracy (NAPLAN) testing, it was far too early to use this data as a means of measuring student progress as related to this research. In some of the schools, the literacy focus was in the early years of school and the NAPLAN testing only commenced in year 3. In all cases, since the principals had only undertaken the professional development in 2013 and had only implemented what they had learned in 2014, the results of a May 2014 NAPLAN test would have been too early for any real change in student learning, based on the reading intervention, to take place. However, there was evidence of improvement in children's learning collected by the schools in different ways, such as other tests or teacher observations, but one thing that was noticeable was the emphasis now being placed on data when decisions about teaching, or about individual students, were being made. The comments below indicate the perception that there had been reading improvement:

- Compared to similar schools we're pretty happy – we're better in almost every aspect than like schools in Tasmania and Australia. We're still clawing our way up there and the staff is working so hard at it! (School Leader, School 3)
- So in the last 6-8 weeks we've done PAT-R, revisited the Single Word Spelling Test and also NAPLAN data's come in plus classroom data. And that's been really pleasing that triangulation of data. In general terms it's showing that the teaching strategies and the interventions are working, certainly, and the shift in pedagogy as well, the way they're teaching, there's been a shift in their approach. (School Leader, School 4)

- There has been a noticeable difference. We got the speech and language assessments back and for one girl she has improved so much she now speaks instead of tapping. PIPS testing scores were amazing with great gains. Some students wouldn't do PIPS at the start of the year [i.e., test refusal]. One student after the first excursion refused to write, yet after the second excursion, he wrote on his own. He doesn't speak a lot and is not confident with his drawing. He couldn't talk about where he had been. Now we see that he has made the most gains. (Teacher, School 5)
- Clearly that's a better set of numbers than we had last year … that's not to say last year's wasn't good, but it's better than it was. (School Leader, School 7)
- The Grade 3s, which is our first lot of students that went through the Ready, Set, Go, are above state average. Feeling really comfortable about where the kids are, the Grade 3, excellent results. (School Leader, School 8)
- PAT (Progressive Achievement Test) data show 2013 to 2014 reading comprehension school growth in Grade 1 is 18.88 when expected growth is 11.44, Grade 2 our growth is 14.58 when expected growth is 9.68, Grade 3 our growth is 13.55 when expected growth is 7.61; Grade 4 our growth is 10.36 when expected growth is 5.5; Grade 5 our growth is 12.58 when expected growth is 4.18; even our kids below and kids above has moved substantially. We still have those low kids but there is a significant drop in where we were last year. (School Leader, School 9)

Some examples of how teachers were now collecting and using data are contained in the comments below:
- We've certainly got [teachers] thinking about the data, analysing it month by month, how have things moved over the last month and all that. I don't think they're confident yet, I wouldn't say that. But they certainly think that they're more in control, they're more aware of it. (School Leader, School 7)
- Reading data is due next week but 95% of it is done already because staff are using it to inform practice. This has changed around the way they're using it. And that's a pretty big shift to have this year. (School Leader, School 2)
- There are learning samples kept right through and annotations and so on and their portfolio development. The individual plan for a child that is done in consultation with teacher and family members, right across the school. (School Leader, School 3)

One of the most important outcomes of the study was that data was now shared between teachers and teachers collaborated in their assessment of student learning. It was an acceptance that there is a collective responsibility for teachers to ensure that students were being treated fairly and this led to more appropriate uses of moderation to ensure that learning was occurring for all students.
- Seeing collective responsibility – whose responsibility is it? What literacy support do we need? Who will our target children be? So it's enabled us to have conversations that are a lot richer. (School Leader, School 2)
- …we've used an agreed model and then we've moderated that, the outcomes for that, turned around and said "Okay, let's post-test" and we've seen some lifting kids' understanding because all these three teachers in this team are using agreed strategy and pedagogy and they've gone about using similar resources and we've got them to try and see the benefits. Teacher, School 2)
- The interrogation of data, making sure we're data driven, and that was a big one for me, making sure we're driven by data in what we've come from, where we're at and where we've got to go. Anecdotally we knew there were some gaps but we really interrogated our data of the last 3-4 years in spelling and reading and we were able to see those gaps and some of the reasons behind that so that was a good driving force for me. (Teacher, School 4)
- And if you look at this, there's a whole list of strategies about okay, well, that's where our data's moved to now, to see what we need to do now to make the next step. So it's that, you know, bit by bit we've been moving along and this is clearly saying to me, it's working and we're achieving what we set out to do. (Teacher, School 7)
- Teachers now use the data pretty well now and they start to question the data and discuss it. (School Leader, School 9)

A more confident approach to assessing the level of performance of individual students led to the possibility of expectations being raised for all students as the comment below indicates.

- In terms of student achievement, from a Prep perspective, our expectations are becoming higher. At the moment we use the level 5 benchmark and I think we could move it to 7 for Preps because of the way we are teaching and because my expectations are higher they are reaching that as well. (Teacher, School 9)

What the study found, overall, is that the involvement of the principal in the PALL program had opened up new possibilities for schools to consider how to improve reading for all their students. Each school was doing things slightly differently, but a number of common issues could be identified:

- Knowledge of and the use of the BIG 6 enabled schools to select an area of reading that they wished to focus on, which both empowered and motivated teachers to adopt new practices;
- The leadership of the school was critical in terms of enabling a focus on and resourcing of new approaches to teaching reading;
- Teacher professional discussions were focused and teaching strategies were evaluated and shared
- Students became partners with teachers in the reading activity, learning the common language and engaging themselves in reading
- There was a new approach to data collection, analysis and interpretation, with solid data now being used to make decisions about students and next steps for improvement.

Parent and community support
Similar to previous findings, parent and community support was the area in which principals reported they most struggled. A number of principals noted that parents were not involved to a large degree in programs, an increasing number of mothers were working and the same small number of parents attended special evenings. Where there was parental involvement, it tended to be in junior years and limited to reading and sometimes, the Big 6. Encouraging parental engagement in senior years was particularly problematic. This is where thinking about strategies to encourage parental and community involvement at school level that may feel less threatening (such as suggesting parents ask children what they enjoyed at school and what they, as parents, enjoyed that day; or a family barbeque at the school) is crucial.

Teachers agreed that the greatest challenge was engaging parents in children's learning. In the early childhood sector, parents are there "because they drop the little ones off and the big ones just run off themselves to the classroom" – the older children do not seem to want parents there. One teacher had two or three grandparents drop kids off. However, it is quite clear that in every case study school, parental involvement in children's reading was an issue that would need further work. This occurred for various reasons, language issues, parents being employed, parents not feeling comfortable and in some cases teachers preferring it that way. But the case study schools are making strong efforts to reach out to parents in various ways.

Student Surveys
Students at each of the case study schools were given a short survey to establish their attitude towards reading, the extent to which they read for pleasure, either in free time at home or at school, how they felt when they were reading or involved in reading activities and whether their parents helped them in their reading at home. In all, a total of 1221 surveys were returned. Seven of the questions were common to all students and schools were invited to add three questions of their own. Questions were scored for 1 = never; 2 = sometimes and 3 = always. Table 3 shows the mean scores from Tasmania and Table 4 shows the mean scores from Victoria.

Table 3: Student survey results from Tasmania

	School 1 N= 38	School 2 N = 122	School 3 N = 48	School 4 N = 62	School 5 N=100	All Tasmanian schools N= 370	All schools N=1221
Do you enjoy reading?	2.47	2.49	2.52	2.35	2.80	2.58	2.56
Are you good at	2.32	2.44	2.48	2.32	2.41	2.41	2.48

reading?						
Do you read in free time at home?	2.18	2.28	2.10	2.32	2.47	2.31	2.19
Do you read in free time at school?	2.16	2.74	2.15	2.42	2.28	2.38	2.23
Does your teacher talk about how to improve your reading?	2.45	2.11	2.56	2.74	2.77	2.52	2.42
Does your teacher teach you in interesting ways about reading?	2.22	2.53	2.48	2.55	2.80	2.58	2.44
Does your family help you with your reading at home?	2.38	2.68	2.35	2.19	2.43	2.45	2.26

Table 4: Student survey results from Victoria

	School 1 N = 508	School 2 N = 56	School 3 N = 55	School 4 N = 232	All Victorian schools N=851	All schools N=1221
Do you enjoy reading?	2.61	2.61	2.16	2.50	2.55	2.56
Are you good at reading?	2.53	2.46	2.36	2.50	2.51	2.48
Do you read in free time at home?	2.24	2.11	1.96	2.01	2.15	2.19
Do you read in free time at school?	2.30	2.13	1.77	2.03	2.18	2.23
Does your teacher talk about how to improve your reading?	2.36	2.38	2.35	2.43	2.38	2.42
Does your teacher teach you in interesting ways about reading?	2.40	2.30	2.27	2.43	2.40	2.44
Does your family help you with your reading at home?	2.03	2.36	1.93	2.25	2.19	2.26

The survey scores from both Tasmanian and Victorian schools are fairly well aligned, with only minor differences between the two states and indeed between schools within the states.

With scores being in excess of 2.0 for almost all of the factors, it is clear that students enjoy reading, are only marginally less confident that they are good readers and have teachers who focus on improving reading and teach reading in interesting ways. However, the figures indicate that the least supported statements relate to those associated with students reading in their free time and also being supported by their family to read. This mirrors the schools responses about the difficulty of engaging parents in supporting the reading enterprise and also confirms the need for additional resources at both school and home to purchase books for students to read on a wide range of topics and at different reading levels to encourage free reading by allowing students to read within their areas of interest.

Conclusions

The decision to delve more deeply into the impact of PALL methodology for improving student literacy through a focus on leadership for learning has been demonstrated in the cases examined in this paper. Each case adds to other PALL program findings (since 2012) by showing more nuanced ways that principals and

their teams contextualise their professional learning through actions in their schools. Finally we draw together new knowledge understandings in relation to the three research questions.

Research Question 1: Has the PALL project impacted on the leadership of principals when it comes to supporting a focus on literacy in schools?

It is clear that the PALL project has had a positive influence on the principals involved in the case studies. It was also clear that the organising mechanism, "The Big 6" framework was new to most principals when they undertook the PALL activity and to many teachers when principals used it in the schools. Many used the individual elements that make up the Big 6, but none had used the holistic framework previously. All the people interviewed, both the leaders and the teachers, found the framework a helpful one in developing reading skills for students. Each of the schools used the framework in a different way, or focused on some elements more than others, but all the schools were using it on a daily basis.

Clearly being involved in PALL with its focus on the Big 6 had made an impact on the way school leaders worked with their staff and this in turn had made an impact on the way teachers taught and interacted with each other.

Research Question 2: Has the focus on literacy guided by the school leaders had any impact on student attitudes towards reading and student achievement?
At the time of writing, the 2014 NAPLAN reports were just being delivered to schools, meaning there is little hard data to indicate that the new focus on the Big 6 has helped to increase student achievement. It must be remembered that the principals in these case studies were only PALL trained in 2013, so less than a full school year has run since the principals have introduced the terminology to their teachers. However, the interviews with teachers indicate that the terminology of the Big 6 is now understood and used by students and that the foundation has been created for increased achievement as students move through the school.

It is also clear, from both the interviews at schools and from the student survey, that there is still much to do. There are many students who are choosing to do other things than read in their free time, both at home and at school and there is an indication that the involvement of parents in supporting their children's reading still has some way to go, despite many varied efforts by schools; Ready-Set-Go programs for children not yet in schools, Facebook sites where parents are kept informed of what is happening, information on the Big 6 going home in newsletters, cultural events, mothers' and fathers' special events to attract people to the school. The interviews identified how difficult it is in today's rapidly changing, fast-paced, world for some parents to find the time to spend with their children. Other parents spend a great deal of effort taking their children to organised learning, music programs, sports programs and the like, which means that someone else is spending time with their children. Parents who have both the time and the inclination to spend quality time talking to their children, reading to their children, listening to their children are constantly under pressure from competing demands.

In the end, having all students becoming confident readers is a team activity. What the research shows is that the school team: students, teachers and principals, are starting to move in the one direction and the movement is now becoming focused and successful. If other members of the team, parents and carers, can be encouraged to get involved, forming a strong bridge between schools and homes, the movement will become unstoppable.

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THE ROLES OF INDONESIAN TRADITIONAL SPORT GAMES IN THE TEACHING AND LEARNING OF PHYSICAL EDUCATION IN PRIMARY AND SECONDARY SCHOOLS

Yudy Hendrayana, Dr., M. Kes. AIFO

Universitas Pendidikan Indonesia

Abstract: *The research aims to see the extent of the roles, benefits, and advantages of Indonesian Traditional Sport Games (TSG) in physical education teaching and learning to improve physical fitness, biomotor skills, and some social and psychological aspects of primary and secondary school students. The methods employed were tracking and observation of research results by undergraduate students of the Faculty of Sports and Health Education, Universitas Pendidikan Indonesia, strengthened by literature review of journal articles and other relevant documents. The population and sample in the undergraduate students' research consisted of students of primary, junior secondary and senior secondary schools in West Java Province. Results of data analysis reveal that: Firstly, Indonesian Traditional Sport Games that have recently been frequently researched by the undergraduate students of the Faculty of Sports and Health Education are Gala Asin/Gobak Sodor/Hadang and Bebentengan; and secondly, Indonesian Traditional Sport Games significantly contribute to and influence physical fitness, biomotor aspect, social aspect, and some psychological components. In other words, Traditional Sport games serve important roles in the teaching and learning process of physical education (educational function), especially at the levels of primary and secondary schools. Hence, it is necessary to continue developing and promoting the use of Indonesian Traditional Sport Games in the teaching and learning of physical education.*

Keywords: Games, Sports, Traditional

Introduction

Indonesia abounds with Traditional Sport Games (TSG) that are highly potential to be used in the teaching and learning of physical education. Teachers and experts of physical education have been increasingly aware with these potentials. As a result, the teaching and learning of physical education, especially in Indonesia, has

embedded and used Traditional Sport Games. In line with the increasing inclusion of TSG in the teaching and learning of physical education in Indonesia, research in this field has emerged and started to flourish. Hence, the present research would like to analyze the current research results on the use of TSG in the teaching and learning of physical education in primary and secondary schools. Analyzing the current research results on TSG is essential to see whether TSG can be developed and further promoted to the general society, considering that the number of textbooks on TSG is still very limited.

In general, the research aims to see the extent of the roles, benefits, and advantages of Indonesian Traditional Sport Games in physical education teaching and learning to improve physical fitness, biomotor skills, social, and some psychological aspects of primary and secondary school students. More specifically, the aims of this research are formulated in the following research questions:

1. What is the trend of the current research in the field of Indonesian Tradition Sport Games (TSG) as implemented in physical education teaching and learning?

2. How do Indonesian Traditional Sport Games contribute to and influence students' physical fitness, biomotor skills (physical function), psychological (emotional function), and social dimensions?

Literature Review

Traditional Sport Games (TSG)

Theoretically, Traditional Sport Games have not been very much defined and discussed by experts and practitioners in the respective fields. References, both in the forms of journal and textbooks, are still scarce. Interestingly, explanations of these kinds of games come from students who have the experience of playing the games or from their teachers. Some physical education teachers and lecturers have attempted to write about traditional sports games; however, most of their writing is in the form of module limited for the use of their respective school or program.

There are four keywords to the terms Indonesian Traditional Sport Games, or shortened into TSG; they are games, sports, traditional, and Indonesia. It will be useful to define some of the terms separately in order to gain better understanding. To start with, a game is a kind of physical activity in the form of playing, carried

out for a certain purpose, both individually and in group. It is restricted by rules, space, and time, and is carried out for pleasure; therefore, it is often used by teachers as a medium of education. This definition is in line with the one proposed by the French sociologist Roger Caillois in his book *Les jeux et les hommes* (*Games and Men*) as cited in Felicia (2011). Callois defined a game as an activity with the following characteristics: "Fun, the activity is chosen for its light-hearted character; Separate, it is circumscribed in time and place; Uncertain, the outcome of the activity is unforeseeable; Non-productive, participation does not accomplish anything useful; Governed by rules, the activity has rules that are different from everyday life; and Fictitious, it is accompanied by the awareness of a different reality" (Felicia, 2011: p. 689). What can be inferred from the definition and characteristics is that a game becomes the main element of a physical activity. Indeed, a game is a physical activity that can be done by everyone, from children to adults. For children, it is an inseparable part of their life, and it tends to be their true primary need. Experts of education state that children's life is identical to playing/games, because almost all of their whole life is inextricable from it. In the same vein, Lutan (1997) says that humans tend to make games their essential need; hence, humans are also called play being (homo ludens). Games can evoke such excitement, agility, relaxation, and harmonization, that those who do it are inclined to be stimulated. It can be synthesized that a game is an activity carried out consciously, willingly, unrealistically, with limitations of time, space, and binding rules. Despite these characteristics, though, a game demands serious efforts from its players.

The second important term to define is "sport." *Wikipedia the free encyclopedia* explains that "**Sport** (or **sports**) is all forms of usually competitive physical activity which, through casual or organized participation, aim to use, maintain or improve physical ability and skills while providing entertainment to participants, and in some cases, spectators." Meanwhile, the third term, "traditional" is defined as "a belief or behavior passed down within a group or society with symbolic meaning or special significance with origins in the past" (*Wikipedia the free encyclopedia*).

Hence, it can be synthesized that traditional sport games are physical activities formed by elements of games performed by one generation to the next generation, either individually or in group, limited in terms of space and time, and in general are aimed to gain physical fitness and certain skills, or to have fun. The definition is reciprocal to one offered by UNESCO, "Traditional sports and games (TSG) can form the backbone of a community, and UNESCO is driven to protect and promote these sports to further community spirit, bring

peoples together and install a sense of pride in a society's cultural roots"

(*http://www.unesco.org/new/en/social-and-human-sciences/themes/physical-education-and-sport/traditional-sports-and-games/*). UNESCO definition of TSG highlights the importance of traditional sports and games for the unity of a community. In this light, Indonesian traditional sports and games serve similar function, namely to bind the communities by means of enjoyable and beneficial physical activities.

Meanwhile, according to Eddiyana (2002: p. 8) Traditional Sport Games are a form of sports originated from the habit of a certain community, which in its development came to be regarded as a type of game with the regional/local characteristics adjusted to the local traditional culture. TSG then come to be practiced both routinely and occasionally, with the intention of having fun and killing the time after working. In a quite different light, Uhamisastra (2010: p. 1) explained, "Traditional games are games played by children with simple tools, without any machines; as long as the children are healthy, they can join the games." In other words, traditional sport games are games outside the zone of formal games which in general develop by means of formal rules and with organizing committee, such as soccer, tennis, volley ball, etc. These "simple" games are ones originated from folk games, children games, traditional games, street games, and the like. Due to their benefits for movements and physical fitness, such games are considered important to be developed and used in schools under the name of Traditional Sport Games (TSG).

For physical education (PE) teachers in Indonesia in general, the term "game" is a familiar one, as it is commonly used and has been included in the terminology of PE, such as that for soccer game, volley ball game, badminton game, and the like. Further, Katzenbogner and Medler (1996) noted that there are some considerations for the inclusion of the elements of games in physical education, which can also be applied for the case of using TSG in PE, namely:

1. Games develop rhythmic movements.

2. Games give a nuance of competition/championship among students.

3. The use of various media in games provides happiness and satisfaction to students.

4. The use of simple tools places students in full control, causing them to dare to take risks in order to win.

5. Games test the hidden agility.

Based on the above reasons, pedagogically TSG can provide challenges to children as well as prevent them from getting bored, so that they will continue to actively participate in the teaching and learning process. TSG is developed to stimulate students to do activities seriously while maintaining the fun. Basically, the agility gained from games starts from something interesting and challenging. The fun and tension experienced by students will arouse their interest and desire to continue doing the activity and dismissing all obstacles commonly encountered in the conventional teaching and learning.

Research Method

The method ultimately employed was tracking of research results of undergraduate students of the Faculty of Sports and Health Education, Indonesia University of Education from 2008 to 2014. In addition, observation and literature review of Traditional Sport Games were carried out to buttress the results. The undergraduate students conducted their research using experimental, descriptive, and observatory methods. The population and samples of their research consisted of students of primary, junior secondary, and senior secondary schools in West Java. Meanwhile, their data were in general analyzed using difference and correlation tests.

Results and Discussion

Indonesian Traditional Sport Games and Current Trend in Research

The existing literature and results of observation show that there are countless types of Traditional Sport Games (TSG) in Indonesia. These games can be classified based on their characteristics and functions related to children's intelligences, such as below:

1. TSG that can develop children's intelligence in general are *Gagarudaan* and *Oray-orayan*. These games allow children to develop their intellectual intelligence because the games explore children's knowledge and insights.

2. TSG that can develop children emotional intelligence are *Bebentengan*, *Gala Asin/Gobak Sodor* or *Hadang*, and *Kasti* (Indonesian version of softball). These games are played in group. By working in group, children will hone their emotional intelligence to develop sympathy and tolerance to others, as well as be comfortable and get used to be in group.

3. TSG that can develop logical intelligence are *Engklek*, *Congkak*, *Macan*/*Damdaman*, *Lompat Tali/Spintrong* (jump rope), *Encrak*, *Entrengan*, *Bola Bekel*, and *Tebak tebakan* (Guessing Games). These games train students' counting and decision-making skills.

4. TSG to develop kinesthetic intelligence are: *Nakaluri*, *Adang-adangan*, *Lompat tali (Jump rope)*, *Baleba*, *Pulu-pulu*, *Sorodot gaplok*, *Lari balok*, *Petak umpet (Hide and seek)*, and *Enggrang*. In general, these games encourage the players to move, such as to jump, run, dance, swing, and the like.

5. TSG to develop children's natural intelligence are *Anjang-anjangan*/*dadagangan* (make-believe trading) by making oil from leaves or noodles from yellow parasitic plants, toy car from Balinese orange's peels, *Engklek* using rocks, *Bola sodok* using bamboo, *Parise* made of bamboo, *Calung* made of bamboo, and *Agra/sepak takraw* made of rattan. These traditional games use natural objects made of plants, soil, rock, or sand. By creating games equipment from their immediate environment, children will get closer to nature.

6. TSG to develop children's spatial intelligence are role-playing, such can be found in the traditional game of *Anjang-anjangan*. This game encourages children to get to know spatial concepts and theatrical roles.

7. TSG to develop children's musical intelligence are *Ucang-ucang angge*, *Ambil-ambilan*, *Tari tempurung*, *Berbalas pantun*, *Wayang*, *Pur-pur sadapur*, and *Oray-orayan*. These games consist of singing or activities involving sounds.

It should be noted, however, that the categorization is not fixed or rigid. It is not uncommon for games listed under the category of emotional intelligence/spatial intelligence games, for instance, can be explored and used to train other intelligences.

Among the above TSG, the two that develop well in physical education are *Gala Asin* or *Gobak Sodor* and *Bebentengan*. These games are usually played as preliminary activity in the teaching and learning process of PE. It is not uncommon as well that these games become the main activity of PE because the movements involve mostly limb and feet and are beneficial to train and develop biomotor aspects, such as movement speed, limb muscle strength, and agility. These games are frequently used as a substitute for sprint as well as to gain physical fitness. Due to these reasons as well, current research on the field of the use of Indonesian TSG in physical education teaching and learning has focused on the two games, *Gala Asin* and *Bebentengan*. Research by undergraduate students of the Faculty of Sports and Health Education, UPI, namely by Baedowi

(2008), Tripujawati (2009), Sulistiowati (2009), and Lisyono (2014), for instance, focused on the traditional sport game of *Gala Asin* or *Gobak Sodor*. Meanwhile, Sunarko (2014) conducted research on the use of Indonesian traditional game called *Bebentengan* in the teaching and learning process of physical education. In addition, even though the two games are listed above under the category of games to develop emotional intelligence, basically like all other games, they can be used and explored to develop other intelligences. Elaboration of the two games, including their development in Indonesia, is given below.

1. TSG *Gala Asin*

Alternatively called *Gobak Sodor* or *Hadang*, this game is very popular in Jakarta. Nevertheless, there is no indication that this game originated from there. This game is played in almost all of the provinces in Indonesia, which probably explains its popularity to be used in PE in schools. Rural children often play this game at night when there is full moon (Uhamisastra, 2010: p. 74). This game is played by two groups consisting of three to five children. Each group should prevent or block (thus, *hadang*) the opponent group's members from successfully going back and forth passing an area predetermined in the game arena. The most important characteristics of this game are speed, agility, and resilience. Meanwhile, spiritually, the game contains the elements of perseverance, patience, cooperation, and sportsmanship.

2. TSG *Bebentengan*

As the name indicates, *benteng* that means fortress in English is inspired of past wartimes. The terms used in this game are prisoners, burning enemy's fortress, and the like. Despite the grand terms, this game is easy to play and involves many players. Similar to *Gala Asin*, this Traditional Sport Game is performed in almost all regions in Indonesia. The game is also played by two teams that have their own "fortress" made of a stack of rocks or red bricks. The aim is for one team to break the fortress of the other team. So, members of both teams should catch the opponent team members and prevent them from breaking their "fortress". The game is very popular; nonetheless, it is not clear where the game first originated from (Uhamisastra 2010: 74). The most observable characteristics of this game are speed, agility and resilience from the physical aspect, and perseverance, patience, cooperation, and sportsmanship from the spiritual dimension.

The Roles of Traditional Sport Games in Physical Education: Indonesian Context

Physical Education (PE) is a part of education process involving physical and sport activity designed and packaged to develop knowledge, attitude, and psychomotor of students so that they will have a healthy and dynamic lifestyle and able to meet the educational goals as a whole (Hendrayana, 2012: p. 3). So, PE is not only a decoration or ornament added to a school's curriculum; instead, it is designed and developed as an important part of education. Well-oriented PE will develop students' skills in their leisure time, create conducive activities to develop a healthy lifestyle, develop students' social life, and contribute to students' physical and mental health. Thus, PE is a process. PE in general helps children grow and develop according to the objectives of Indonesian national education, namely to be a complete (accomplished) human being. Meanwhile, Sallis and McKenzie (1991) argued that the most important function of contemporary PE is to prepare children for a lifetime of physical activity. Thus, the outcome of the teaching-learning process of PE is a physically active student who also has the intention to be active after leaving school.

To develop PE teaching and learning process, various supporting factors are needed, such as human resources, infrastructure, and appropriate and adequate methods and approaches. Currently, with the implementation of Curriculum 2013, various scientific approaches have been developed; they are, among others, Project-Based Learning, Problem-Based Learning, and Discovery Learning. There are abundant teaching materials and resources for PE that can be taught using the aforementioned scientific learning models. One of the most appropriate and suitable materials/resources is Traditional Sport Games (TSG). A question then arises, why TSG? In addition to games being an inextricable part of human life and needs, Traditional Sport Games serve various functions, such as biological/physical function (biomotor, psychological aspects), social function, educational function, and even social defense function. Fajar (2013) and Lisyono (2014) have proved in their research, for instance, that Traditional Sport Games (TSG) in general are highly beneficial for the teaching and learning process of physical education at the level of primary and secondary schools. Elaborated below are results of tracking and literature review that serve to track the development of Indonesian traditional sport games from time to time buttressed by the current research results in the field conducted by undergraduate students of the Faculty of Sports and Health Education, Indonesia University of Education.

In terms of biological/physical function, traditional sport games are frequently linked to their contributions to bio-physiological changes, not only from the perspective of physical fitness but also from the nature of human being. The physical movements involved in TSG are regarded by many theories as human needs, both as the

first tool and language of human beings when they get to know their environment and as the important element when they grow and develop as an organism, consisting of the whole entity of physical, mental, intellectual, and emotional dimensions. The research of Tripujawati (2009: p. 74) has proven that Indonesian Traditional Sport Games (TSG), specifically *Gala Asin/Gobak Sodor*, significantly contributed to physical fitness of elementary school students, with a value equal to 43.33%. Similar satisfying results have also been indicated by those of Baedowi (2008: pp. 55-60), in which his research demonstrated that the same traditional sport games, namely *Gala Asin/Gobak Sodor* had significant effect on the agility of male elementary school students with a value of 11.25 (greater than t-table (α =0.05) at 2.09). His research also showed that the effect of the TSG of *Gala Asin/Gobak Sodor* on the agility of female elementary school students was even more significant, namely as much as 13.80, which is greater than t-table (α =0.05) at 2.09 (Baedowi, 2006: p. 55-60). Another important study on the influence of TSG on the motoric dimension of students was carried out by Sunarko (2014). Focusing on *Bebentengan* Traditional Sport Game, Sunarko's research showed that the game had significant influence on the locomotor skills of elementary school students with a value equal to 29.5, and the average scores for pre-test and posttest are 56.50 and 86.00, respectively (Sunarko, 2014: pp. 68-72).

From the perspective of energy distribution theory, where human activity basically takes the form of movement, TSG can be seen as basic need, particularly as a means of distributing energy for children with excessive energy. It is through physical movements that children can distribute their energy surplus so that the equilibrium between their body and soul can be achieved. At a certain time, individual as living organism will be in disequilibrium, both because of desire and the metabolism in the form of food and oxygen intakes, so that the equilibrium should be continually restored. It is the drive to always achieve equilibrium that becomes the motivation to learn.

In addition, TSG is thought of as an attempt to tackle monotonous activities. It is also considered to be able to meet the needs to escape the routines of sports and restore physical fitness and health. Human beings are never satisfied with a monotonous life. They will forever desire entertainment to excite their lives and kill the time. This is driven as well by the nature of human beings that like to try new things and challenges. It is the inner drive to play that is important for the development of the civilization.

There are quite many cultures developing as a result of "just-for-fun activity" in channeling the need for enjoyment caused by human's excessive energy, rather than as a result of their direct response to their needs.

Opportunities and facilities are frequently created by human beings not because of their desire to create something useful, but is a result of fun activities in the forms of games manifested as an effort of meeting their interest to do physical activities. For example, the origin of ammunition was the formula to make firecrackers; electricity was found when its discoverer played with the kite just for fun; gas tube originated from the need for bicycle's tires (pumps); and animal domestication was begun with the interest to play with animals that can be petted, such as cats or dogs. When the benefits had been revealed, all the "just-for-fun activities" were improved, and the goals were changed to be used for their respective purposes accordingly.

Children in particular have the most energy surplus. They tend to be very active and eager to do physical activity. An experiment made by Sulistiowati (2009) showed how TSG is very useful in helping students transfer their energy surplus while preparing them to get ready for the teaching and learning process of PE. Her research proved that *Gala Asin/Gobak Sodor* TSG used for warming up had significant influence on the readiness of the body (resting and warm-up pulse rates) of students in the teaching and learning process of PE with a value equal to 65% (normal = 60%) (Sulistiowati 2009:77). In short, her experiment proved that TSG is useful to transfer students' energy surplus while preparing them for the teaching and learning process.

It is not exaggerating then to say that sport games are forms of physical activities, which are originally developed by human beings to channel energy surplus or to kill boredom over something monotonous, have a broad impact on the socio-cultural life of the respective community. Whether directly or indirectly, sport and game activities have taken part in accelerating the development of human civilization, for the channeling of interest to move the body triggers various related needs and challenges, either because of the dislike for remaining quiet, curiosity, or desire for exploration (Office of Ministry of Sports and Youth, 1991).

With regard to their social functions, sports and games are closely linked to Karl Groos' (1901) opinion saying that a game is a form of activity preparing children to be mature, namely by directing activity based on instinct towards one that is driven more by the needs of other aspects than instinct. With this statement, TSG can also be viewed as a social activity preparing the younger generation to be adults who are able to play their roles as members of the society. This argument means that TSG is a means of socialization both for children and adults, because getting involved in a game requires all of its players to at least interact. The interactions taking place during a game, particularly TSG, can be regarded as social interaction. Furthermore, in general

the form and shape of TSG developing in a certain community will reflect the socio-cultural life of the community. Hence, it can be said that physical development of a community is oriented at the development of physical skills and social attitudes required by the community.

The significant contribution of TSG towards the social dimension of children has also been observed and proved by the undergraduate researchers tracked in this research. Sunarko (2014, pp. 68-72), for instance, demonstrated in his research results that the TSG of *Bebentengan* had significant influence on the ability to cooperate of elementary school students with a value equal to 1.63 (the average between pre-test and posttest is from 2.81 to 4.44). It is clear then that TSG can encourage children to interact and socialize with other children. They are even demanded to be able to cooperate, a skill that requires many dimensions of students' social skills, such as commitment, patience, endurance, open-mindedness, etc.

In terms of educational function, Traditional Sport Games are effective media of education for the attempts of inheriting the legacy of cultural values and spirit of a community to the next generation. As has been explained above, when Traditional Sport Games are viewed from their social function, at the same time the inherent educational functions of the activity are observable, namely in relation to the efforts of preparing a child to be able to take his or her role in life, both at present and later when s/he becomes an adult. In an attempt of preparing the younger generation, it is implied that an individual is equipped with and demanded to be able to master certain skills, which in a broad sense can be called as educational efforts.

In this light, Fajar (2013) has demonstrated through his research that the implementation of TSG in PE teaching and learning for elementary school students could improve active learning time. In his four-stage experiment, Fajar showed that the elementary school students experienced improvement in their length of active learning time from the first to the last stage, with the first stage equal to 61.66%, the second stage equal to 48.95%, the third stage equal to 70.62%, and the fourth stage equal to 81.45% (2013: pp. 95-97). His research proved that using TSG in PE teaching and learning can motivate students to have longer active learning time because they can learn while still having fun.

Another important study on the influence of TSG on students' learning was conducted by Lisyono, who focused on how TSG influenced high/secondary school students' motivation to learn PE. His research

revealed that the Traditional Sport Game of *Gobak Sodor* had influence on increased learning motivation in physical education for high school students, with a value of 10.81%. The increased motivation was proven, among others, through an increase in the average scores of the students' posttest compared to their pretest scores, where the average score for their pretest was 227.16±11.96, and the average score of their posttest was 250.28±9.90 (Lisyono, 2014: pp. 42-50).

Finally, literature review and observation prove that with regard to the social security function, TSG can be seen as effective tools for social control, ultimately because sport activities are ones that are normally organized non-formally in the community. The presence of such non-formal institutions will certainly be able to facilitate children and teenagers from various social classes to channel their potentials and interest in the right direction according to the social norms of their community. On the other hand, the absence of these kinds of institutions in the community will bring the community members into a condition that is out of control, potential for creating tension and enmity, so that chaos or war among gangs will easily take place. It is these conditions that are currently encountered by Indonesia, as proven by a large number of brawl cases, chaos, student gang wars, and wars between members of a certain community with those of another community. Hence, it is necessary to revive community's sport movements in a format that is in line with the community's demands and rights, such as by providing and restoring community's rights of adequate public space to do socially organized and sport activities, which will be able to restore the social harmony of Indonesian society. This is where sports and games find their original functions in an attempt of restoring the necessary social order.

Conclusion and Recommendations

The literature review, observation, and tracking of undergraduate students' research results on Traditional Sport Games (TSG) and their impacts on the teaching and learning of physical education have proved that:

1. Indonesian Traditional Sport Games have significant influence on and contribution to physical fitness.

2. Indonesian Traditional Sport Games have significant influence on and contribution to biomotor aspects.

3. Indonesian Traditional Sport Games have significant influence on and contribution to several psychological and social dimensions.

4. Indonesian Traditional Games are very appropriate to be used in the teaching and learning of physical education, ultimately at the level of primary and secondary schools.

Considering the significant influences and contributions that TSG have on the teaching and learning of physical education, the writer strongly recommends physical education teachers to use TSG. It should be noted, however, that physical education teachers should be able to select TSG appropriate to the basic goals and the expected benefits. To maximize benefits of TSG in the teaching and learning process of PE, teachers should at least consider the four aspects as follows:

a. The TSG chosen should be quite simple in practice, with understandable rules and regulations for children.

b. The games should be interesting, allowing for children to be attracted by them. Interesting here is defined as the games being able to give fun to the involved students with a situation that reflects the more students involved the merrier.

c. The games used should involve as many children as possible at a certain time. It is better that all children are involved, instead of many cheering for a few.

d. Finally, the games should contain developmental elements useful for children in terms of developing the physical quality, movement quality, logical and reasoning quality; cultivating moral and sportsmanship that prioritizes honesty, equality, obedience to rules; and developing the skills of cooperation and other social skills.

It is also expected that the kinds of games used in the teaching and learning process of physical education will be more varied, not limited only to *Gala Asin/Gobak Sodor/Hadang* and *Bebentengan.* Teachers should be able to explore various other Indonesian Traditional Games. Similarly, future researchers are encouraged to conduct research on the appropriateness of other Indonesian Traditional Games than the two previously discussed.

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IMPROVING LECTURERS' PAEAGOGIC COMPETENCE
THROUGH THE IMPLEMENTATION OF LESSON STUDY IN FACULTY OF TEACHER
TRAINING AND EDUCATION
OF PAKUAN UNIVERSITY, INDONESIA

Eri Sarimanah

Indonesian Education and Literature Study Program

Faculty of Teacher Training and Education of Pakuan University, Indonesia

Jln. Pakuan mailbox 452 Bogor West Java Indonesia

E-mail: sarimanah.herty@gmail.com

Abstract: *This research is aimed at improving the lecturers of Faculty of Teacher Training and Education of Pakuan University paedagogic competence through the implementation of lesson study which covers learning management competence including developing chapter design and lesson design, media making, teaching and learning, evaluation, post evaluation follow-up and learning supervision.*

This research involves four study program. The method used in this research is qualitative descriptive. The data are collected through documentation, observation, interview and questionnaire. The data are analyzed descriptively to investigate the improvement of the lecturers' paedagogic competence in teaching through the implementation of lesson study.

Lesson study has been implemented for two years in Indonesian and Literature Education Study Program, English Education Study Program, Biology Education Study Program, and Primary Education Study Program. The findings show that there is an improvement of the lecturers paedagogic competence in developing chapter design and lesson design, developing material and designing media for learning (plan stage); running the lesson (do stage); and observing the lesson as well as evaluating and reflecting it (see stage). Besides, it is found the lecturers develop learning innovation to create students' active learning. The colleagality among the lecturers is also develop well through the implementation of lesson study. The questionnaire result also shows that the implementation of lesson study can make the student become autonomous learners.

Keywords: lecturers' competence. Paedagogic, lesson study

Introduction

Background of the Study

Faculty of Teacher Training and Education of Pakuan University always tries to achieve national education goal and fulfill global demand in order that the graduates able to compete with other graduates nationally and internationally through the improvement of learning quality. By the improvement of learning quality, it is expected that the national education goal can be achieved. One of the efforts to do it is through the improvement of the lecturers' pedagogic competence.

Lecturers' pedagogic competences are among others: 1) understanding learners' characteristics; 2) understanding learners' learning styles and learning difficulties; 30 facilitating the development learners' potency; 4) mastering the theory and the principles of educating learning; 5) developing the curriculum that triggers learners' involvement in learning; 6) designing educated learning; 7) doing educated learning; 8) evaluating the learning process and result.

However, the reality in the field shows first, there are variety of competence and lecturers' difficulty in planning the lesson such as making chapter design and lesson design. Second, in administering the learning process and delivering knowledge, the lecturers have not given optimum effort to give knowledge, skills and attitude to the students by involving them actively. Third, there is no accurate measurement to investigate the students' understanding of the materials and the lecturers' success in teaching and students' succeess in learning and students' learning autonomy. Fourth, the learning process is not relevant the studnts' need.

If those conditions continuously happen, it will result in the low quality of education which cover: 1) the lecturers' uncompetence in planning the lesson; 2) the lowness of learning autonomy and competence of the students in understanding the lecturer's explanation; 3) imperfection in building students' character; 4) students' low thinking capacity.

To anticipate those condition, the lecturers of Faculty of Teacher Training and Education of Pakuan university implement Lesson Study. It is one of the efforts to develop lecturers' quality and professionalism in facilitating the learning process. Lesson study is an activity that encourages a learning community, which consistently and sytematically does self revision individually and managerially. Thus, it is expected that by the implementation of Lesson Study the lecturers' pedadogical competence improved.

Focus of the Study
The study focuses on the effort in improving lecturers' pedagogic competence that covers ability to plan a lesson, to administer the students centered-based lesson, and to evaluate the learning process and the learning result through the implementation of Lesson Study. The learning components observed are the lecturers, the students, the materials, the method, the media and the evaluation.

Statement of the Problem
Based on the background of the study and research focus, the problem can be stated: "Is there an improvement of Faculty of Teacher Training and Education lecturers' pedagogic competence through the implementation of Lesson Study?"

Theoretical Foundation

The Nature of Lecturer's Pedagogic Competence
The development of science and technology gives impact to the way the lecturers teach. It also encourages them to always improve their competence in order that they are able to use updated material and teaching method that is appropriate with the present situation need and challenge. Thus, the lecturers need to improve their pedagogic competence.

In Indonesian Fundamental Law No. 14 Year 2005 about teacher and lecturer, it is stated that pedagogic competence is "*kemampuan mengelola pembelajaran peserta didik*" (the ability to manage learners' learning). Department of National Education (2004:9) defines this competence as "*kompetensi pengelolaan pembelajaran*" (learning management ompetence). This competence can be seen from the ability to plan the learning program, ability to interact with the learners and to manage learning, and aility to evaluate. The competence in planning the lesson according to Joni (1984:12) covers 1) planning the organisation of the learning materials, 2) planning learning management, 3) planning classroom management, 4) planning the use of media and learning resources, and 5) planning learners' learning assessment. Department of National Education (2004:9) sates that the competence of planning a lesson covers 1) ability to describe the goal, 2) ability to select the materials, 3) ability to organize the materials, 4) ability to decide learning strategy/method, 5) ability to decide learning resource and teaching aids, 6) ability to develop evaluation tool, 7) albility to decide evaluation technique, and 8) ability to manage time. Based on the description, designing a lesson is a leacturers' competence towards the activities that the learners should do during the learning process which include stating the goal, describing each lesson, planning the lesson, selecting different media and learning sources, and planning the evaluation based on the goal of learning.

Pedagogic competence is the ability that should be possessed by a lecturer related to the learners characteristics seen from different aspect such as physics, moral, social, culture, emotion, and intellect. Thus, lecturers' pedagogic competence can be described as the whole knowledge, skill and attitude reflected in a set of responsible smart actions possessed by a person whose profession is a teacher.

According to Gagne, there are various indicators showing the competence of a lecturers in teaching if they do the following roles:

1. Teacher as a planner who prepares everything that will be done in the classroom teaching (pre-teaching problems).;
2. Teacher as an organizer who creates situation, gives stimulus, moves and leads the learning process based on the plan, in which he plays a role as a resource, and as a wise leadership consultant who is democratic and humanistic during the teaching and learning process.
3. Teacher as an evaluator, who collects, analyzes, interprets, and assesses the success of learning process based on the stated criteria, in terms of the effectiveness of the process and the quality of the product.

Through good understanding about those roles, the lecturers will be able to conduct effective learning that can be seen if the lecturer can achieve the learning target. The learners are able to accept, understand, and apply well the materials delivered by the lecturer. In an effective learning the leacturer's role is very important, because he should know what the learners have already known, what they haven't known, and what they should know. It is expected that a lecturer uses creative and innovative learning method that will make the learners motivated to learn more.

Professional is a quality attitude of a member of a profession towards his profession and degree of their knowledge and expertise they have to do their job. (Surya, 2014:352). Professional teacher is a teacher who is competence and able to use his competence in creating a condition in which the teacher and the students interact to elaborate learning materials. It is also stated that a professional teacher is a teacher who are qualified in planning a lesson and administering the learning process in order to achieve expected specific attitude change.

Besides, teacher professionalism can be seen on teacher's creativity in organizing the learning materials. Teacher's skill in making learning media makes it possible for the students to interact and actively use the learning media. The teachers' competence in conducting the whole evaluation can be seen from both the process and the result by observing students' attitude, students' learning result, and students' skills. In conclusion, teacher professionalism can be reflected through his performance and attitude in doing his job.

The Nature of Lesson Study

Lesson study is a model of educator profession guidance through analysing learning collaboratively and continuously based on the principle of collegiality and mutual learning to develop learning community. (Hendayana, 2007:28-38) Lesson study guidance can be used as a teaching guidance model for a teacher or lecturer towards the students, and as an effort to improve teacher's quality and professionalism in facilitating a learning process.

As Lewis stated that if a teacher wants to improve a learning quality, one of the obvious ways is by collaborating with other teachers to design, observe and reflect learning. (Lewis, 2011: 2). Thus, Lesson Study is done in three stages: plan, do, see. The three stages belong to one cycle and is done continuously. In other words Lesson Study is a strategy to improve the quality of education that never ends (continuous improvement).

The improvement of lecturer's pedagogic competence through Lesson Study is done in bottom-up way because the development of learning is done by considering suggestion, criticism, and recommendation from the observers, which is synthesized collaboratively and continuously.

Research Finding and Discussion

The result of the research is based on document analysis, observation, and the analysis of the learning process. The research was started by investigating the learning activities done by the lecturers from four different study programs. The instruments used in the research are observational guide and questionnaire. The information is then synthesized to find out the need of lecturer's pedagogic competence in doing learning activity. The target is improving lecturer's pedagogic competence in each study program of Faculty of Teacher Training and Education of Pakuan University which is proven by analysis result.

To find out the effectiveness of Lesson Study program done in Faculty of Teacher Training and Education of Pakuan University, the researcher compares the condition before and after the implementation of Lesson Study. From the instruments used the researcher got comprehensive information about the situation and condition in the field, because the data are taken from quantitative and qualitative survey. Both are used in the survey before Lesson Study is implemented (baseline survey) and after Lesson Study is implemented (end-line survey) along the learning activities.

The improvement of the lecturers' pedagogic competence can be seen by teamwork in plan, do, see stages. Lesson design and chapter design are the products of the lecturers' competence in designing the lesson plan. Before Lesson Study was implemented there were no skills and products as a result of lesson planning design. The benefit of designing the lesson is that the lecturers have a guideline for administering a class which can be measured both its process and its product. The lecturers' has ability to plan a lesson. Based on observation result on plan activity, the lecturers agree that before learning is carried out, the lecturers identify the problems to focus on the problems or difficulties that are often faced by the students in particular learning materials.

Through Lesson Study the lecturers get used to work collaboratively with other lecturers in deciding learning scenario and learning media that will be used.

This activity is available since Lesson Study is applied. Before Lesson Study was carried out the lecturers worked alone; only a few of them who worked collaboratively with other lecturers who taught the same subject. Through Lesson Study there is an improvement in collaboration among the lecturers.

Based on observation result from the learning activity (Do), the lecturers it has the skill learning through Lesson Study, all teaching tools are prepared well. The lecturers strongly agree with Lesson Study-based learning. It can be concluded that the implementation of Lesson Study in the learning process shows the improvement of the lecturers' pedagogic competence, as well as the improvement of the students' learning motivation, learning strategy, and learning result.

In the implementation of Do stage it was found that teaching by being observed triggers the lecturers' creativity in producing learning model and media, Learning innovation can be achieved by many breakthough in learning model and media development as well as the Lesson Study-based research. The model lecturers feel satisfied in conducting Lesson Study. Besides, by conducting a learning reflection, the lecturers are expected to always improve and carry out better lesson. Thus, through Lesson Study giving real illustration in improving the leacturers' pedagogic competence. Motivating the lecturers to participate in doing Lesson Study to improve their pedagogic competence and improving the quality of learning

Through Lesson Study they find that the students' learning autonomy improved. Lesson Study can change their perception towards learning process that is open for suggestion and criticism. In conclusion, the observers respond positively to Lesson Study to improve the quality of learning. The students to be experienced that they are motivated to learn better. The mastery of the lesson with Lesson Study pattern makes the students participate actively in learning the lesson. The lecturing through Lesson Study the change of the students' attitude into a more positive one. The students are motivated to learn collaboratively, to be more responsible, and autonomous. Thus, through Lesson Study the students find their own strategy to learn the lesson.

Conclusion

Learning activity done through the implementation of Lesson Study is proven to improve lecturers' pedagogic competence in designing the lesson by collaborating with other lecturers and giving suggestions to each other in designing the lesson. Before Lesson Study was implemented the lecturers worked alone, but now they work with team so that they have many fruitful suggestions from other lecturers who become the observers. Lesson Study improves the quality of learning, especially through the improvement of lecturers' pedagogic competence in designing, administering, and evaluating the lesson. The implementation of Lesson Study in the class gives positive impact in producing the students who are skillful in learning. The expectation to produce the students who are smart, leading, competitive, and dignitive as expected by the government can be achieved through the implementation of Lesson Study.

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The implementation of Singapore mathematics in South Africa:
Lessons learned from classroom observations

Charmon Naroth
University of Johannesburg, PO Box 524, South Africa
cnaroth@gmail.com

Kakoma Luneta
University of Johannesburg, PO Box 524, South Africa
kluneta@uj.ac.za

Abstract: *This paper presents findings from classroom observations conducted in the Foundation Phase (grades 1 to 3) in a school in South Africa implementing the Singapore mathematics curriculum. The study explored how the Singapore mathematics curriculum can effectively be implemented in South Africa.*
The findings were that when teachers used the Singapore Mathematics textbooks to the letter they provided opportunities for the learners to develop a connected understanding of the mathematics; engage in intellectual challenge to enhance mathematical development; and to have access to the mathematics. However, the teachers seemed to provide learners with fewer opportunities to share mathematical ideas and they seldom used assessment formatively.
This paper suggests that implementation of the Singapore mathematics curriculum can be enhanced by using data gleaned from classroom observations and that professional development programmes for teachers need to target the specific instructional deficiencies that permeate from the observations.

Keywords: Singapore, professional development, mathematics instruction

BACKGROUND

Public concern about the inadequate mathematics knowledge and skills of learners in an increasingly technological society has drawn urgent attention to the mathematical literacy and numeracy competences of learners, particularly with regards to the demands that will be made on them when they leave the school system (Vithal, Adler & Keital, 2005). As a possible consequence of Singapore's exceptionally sound international test results, the implementation of Singapore Mathematics as an alternative curriculum has been gaining momentum (Scher 2010). In the participating school, the Singapore mathematics curriculum was chosen based on its sustained excellent results on the Trends in International Maths and Science Study (TIMSS) (Gonzales, Williams, Jocelyn, Roey, Kastberg & Brenwald, 2008). In this paper, when using the term "Singapore mathematics curriculum" we refer to the curriculum standards as outlined in the Singapore Primary Mathematics Syllabi, the teachers' guides, textbooks and learner workbooks used in many schools in Singapore, and the manipulatives (used for concrete representation of mathematical concepts).

However, numerous studies (Ball & Cohen, 1996; Boote, 2006; Boucke, 2008; Christou, Eliophotou-Menon & Philippou, 2004; Gehrke, Knapp, & Sirotnik, 1992) argue that curriculum materials represent merely one of a large number of possible influences on curriculum implementation. These studies concur that various factors impact on what occurs in the classroom, such as teachers' beliefs, knowledge, preferences, and their responses to what happens in the classroom; as well as the abilities of individual learners.

Chval, Grouws, Smith and Ziebarth (2006) and Leung et al. (2006) suggest that classroom observations are needed to examine more specific classroom practices. According to Blanton, Berenson, and Norwood (2001), linking teacher development to classroom practice can bring about changes to teachers' pedagogies. Luneta (2013) and Hill, Blunk, Charalambous, Lewis, Phelps, Sleep and Loewenberg Ball (2008) agree. Luneta (2013) discusses the "reflective model" that builds on teachers' own experiences and argues that teachers should become reflective practitioners. The teachers in this study participated in classroom observations as a means of identifying effective practices and challenges during the implementation of the Singapore mathematics curriculum.

THEORETICAL FRAMEWORK

There is a general agreement among a broad spectrum of curriculum scholars about what should be taking place in mathematics classrooms (Gehrke et al. 1992). In brief, the general consensus offers a view of curriculum that emphasises learners' active engagement in a broad range of mathematical topics, conceptual understanding of the mathematical ideas, underlying operations or algorithms, the ability to solve non routine mathematical problems, application of mathematics to real-world situations, and extended discussions of mathematical ideas (Anderson, 2005; Gehrke et al., 1992; Schoenfeld & Floden, 2014; Wachira, Pourdavood & Skitski, 2013).

Hsu (2013) and Kheong (2009) assert that Singapore mathematics is premised on a constructivist approach. According to Kheong (2009) the Singapore mathematics curriculum has evolved from a focus on conceptual learning and problem solving in the late 1980s to include inquiry based activities and a focus on creative and critical thinking in solving mathematical problems. This paper concurs with this view if one considers that a constructivist theory views the acquisition of knowledge as an active process, through individual construction and social interaction. Learning is centred on solving problems through inquiry and investigation and the use of a variety of resources (Handal, 2003; Jaworski, 1996; Mergel, 1998; Steffe, 1990; Wheatley & Bebout, 1990; Wood, Cobb & Yackel, 1991). The following extract from the Singapore Primary Mathematics Teaching and Learning Syllabus (MOE, 2012) corroborates this view: "…to encourage students to be inquisitive, the learning experiences must include opportunities where students discover mathematical results on their own. To support the development of collaborative and communication skills, students must be given opportunities to work together on a problem and present their ideas using appropriate mathematical language and methods".

Furthermore, the activities in the Singapore textbooks are built on a progression from concrete experience, through the use of manipulatives, to a pictorial stage and finally to the abstract level, known as the CPA approach (Ginsburg, Leinwand, Anstrom, & Pollock, 2005). The CPA approach and the emphasis on model drawing in Singapore mathematics textbooks is based on the work of Jerome Bruner who stressed that for learners to develop conceptual understanding of a concept they should be actively involved in their learning and move through three stages: enactive, iconic and symbolic (Looi, & Kho, 2007; Roddick & Spitzer, 2010; Wong & Lee, 2009). Bruner (2009) states, "what is most important for teaching basic concepts is that the child be helped to pass progressively from concrete thinking to the utilisation of more conceptually adequate modes of thought". Moreover, the Singapore mathematics books present mathematical concepts from various perspectives and uses pictures and illustrations to develop heuristics. The textbooks do not include considerable "repetition of the same content" (Ginsburg et al., 2005). The curriculum is focused and coherent, and follows a spiral organisation in which one layer of content is built on the next (Barton, Atweh, Borba, Gough, Keitel, Vistro-Yu and Vithal, 2008; Ginsburg et al. 2005; Soh 2008).

In the context of this research it would therefore make sense to observe and analyse the actions of the participating teachers against the background of these fundamental classroom practices. It is for this reason that we have chosen to use Schoenfeld's "Teaching for Robust Understanding in Mathematics (TRU Math) analytic scheme" (Schoenfeld & Floden 2014). The five dimensions of teaching outlined in the scheme, are aligned to current visions of mathematics teaching and learning as already discussed. According to Schoenfeld and Floden (2014), each of the five dimensions captures an essential component of "productive mathematics classrooms". Table 1 illustrates the five dimensions of the scheme, and each dimension is then discussed.

Dimension 1: The Mathematics
This dimension speaks to the ability of learners to make sense of the mathematics. It focuses on the question of whether or not learners experience mathematics as a coherent discipline; understand the meaning of the symbols used; and are able to derive their own procedures to solving problems, as opposed to, whether they experience the mathematics as a set of isolated facts and procedures to be memorised and applied. Schoenfeld & Floden (2014) concur with Stein, Grover, & Henningsen (1996) and the NRC's (1989) assertions that if learners are to experience mathematically rich instruction, they should be given opportunities to engage with important mathematics concepts and practices. They add that if instruction is geared towards sense making, and is coherent, connected and focused, learners develop "robust and regenerative" understanding and they develop "habits of mind" that enable them to effectively make use of mathematics. The importance of active engagement in mathematical problem solving and reasoning is also highlighted in this dimension.

Table 1: The five dimensions of mathematics classroom activity (Schoenfeld, 2014)

The Five Dimensions of Mathematically Powerful Classrooms:

The Mathematics	Cognitive Demand	Access to Mathematical Content	Agency, Authority, and Identity	Uses of Assessment
The extent to which the mathematics discussed is focused and coherent, and to which connections between procedures, concepts and contexts (where appropriate) are addressed and explained. Students should have opportunities to learn important mathematical content and practices, and to develop productive mathematical habits of mind.	The extent to which classroom interactions create and maintain an environment of productive intellectual challenge that is conducive to students' mathematical development. There is a happy medium between spoon-feeding mathematics in bite-sized pieces and having the challenges so large that students are lost at sea.	The extent to which classroom activity structures invite and support the active engagement of all of the students in the classroom with the core mathematics being addressed by the class. No matter how rich the mathematics being discussed, a classroom in which a small number of students get most of the "air time" is not equitable.	The extent to which students have opportunities to conjecture, explain, make mathematical arguments, and build on one another's ideas, in ways that contribute to their development of agency (the capacity and willingness to engage mathematically) and authority (recognition for being mathematically solid), resulting in positive identities as doers of mathematics.	The extent to which the teacher solicits student thinking and subsequent instruction responds to those ideas, by building on productive beginnings or addressing emerging misunderstandings. Powerful instruction "meets students where they are" and gives them opportunities to move forward.

Dimension 2: Cognitive Demand

Schoenfeld & Floden (2014) describe cognitive demand as "a happy medium between spoon-feeding mathematics in bite-sized pieces" and a challenge that is so beyond the learners' capability that they are "lost at sea". This idea is directly linked to Vygotsky's conception of scaffolding and the Zone of Proximal Development (ZPD) (Daniels, 2005). In order to allow learners to engage with the content, teachers should provide support and scaffolding without telling them what to do (Schoenfeld & Floden 2014). Thus, this dimension measures the extent to which classroom interactions create and maintain an environment of intellectual challenge that is suited to the learners' level of development.

Dimension 3: Access to Mathematical Content

This dimension measures the extent to which classroom activities support the involvement and engagement of all the learners with the mathematics content being addressed in the classroom. It highlights whether there is "uniform" or "differential" access to the mathematics being addressed – mathematics that is focused and coherent and within an environment that allows learners opportunities to construct their own understanding through productive struggle and sense-making. It focuses on "who is being considered, accommodated, engaged, and supported to engage in meaningful participation in the intellectual community of the classroom?" Schoenfeld and Floden (2014).

Dimension 4: Agency, Authority and Identity

"Agency" refers to the learners' capacity and willingness to engage mathematically; "Authority" is when learners receive recognition for being mathematically solid; and "Identity" has to do with the learners' sense of who they are mathematically. Learners' mathematical dispositions and identities stem directly from their experiences with mathematics, and influences the way in which they do mathematics. Many learners develop negative ideas about mathematics, such as, that they are "not good" at doing mathematics, or that "mathematics consists of rules and procedures that must be memorised", and so forth (Schoenfeld & Floden,

2014). Lampert (1990), Schoenfeld (1992) and Gehrke et al. (1992), also make this point. On the other hand, if their classroom experiences validate the fact that they are able to be mathematically productive and powerful, they will begin to see themselves as mathematical thinkers (Schoenfeld & Floden 2014). Schoenfeld & Floden (2014) make reference to the following suggestions by Resnick, O'connor, and Michaels (2007) which they call "talk moves" that teachers can employ: "Revoicing" the student's response; Asking students to restate someone else's reasoning; Asking students to apply their own reasoning to someone else's reasoning; Prompting students for further participation; Asking students to explicate their reasoning; Challenge or counter example: "Is this always true?"

Dimension 5: Uses of Assessment

Assessment in the context of this scheme refers to assessment that is used for formative purposes, as opposed to assessment used for summative or evaluative purposes. This dimension measures the extent to which the teacher solicits learners' thinking and then builds on this thinking and adapts their teaching to respond to those ideas. Schoenfeld and Floden (2014) and Naroth (2010) cite the work of Black et al. (2003) and Black and Wiliam (1998) respectively, who promoted the use of formative assessment, or "assessment for learning". Based on an extensive review of literature, they concluded that enhanced formative assessment is a common feature of various interventions that resulted in improved learner performance. Teachers gather evidence of their learners' progress through a range of activities, questioning, observation, and discussion and then use this evidence to adapt teaching strategies and classroom activities to meet the needs of learners and enhance learning (also posited by Stein, Engle, Smith, & Hughes (2008)).

PURPOSE

This paper reports on the findings from classroom observations that investigated the implementation of the Singapore Mathematics Curriculum (SMC) in the Foundation Phase (grade R to grade 3) in South Africa. The classroom observations presented an opportunity to identify the effective practices that the teachers incorporated into their instruction, and that are aligned to reform visions of mathematics teaching and learning. By the same token, it highlighted the challenges faced by the teachers as they implemented the curriculum, and informed suggestions for strategies to improve the teachers' instructional practices based on reform recommendations.

DATA COLLECTION AND ANALYSIS

Six Foundation Phase teachers and the learners in their classes were selected through "purposive sampling" (Babbie & Mouton, 2002; Leedy & Ormrod, 2005; Mason, 2002; Terre Blanche, Durrheim, & Painter, 2006). The small sample size could be regarded as a limitation as it limits the generalisability of the study. Ideally, the sample would have included a diverse group of dependent and independent schools. However, the aim of this study was to explore how the Singapore curriculum can be effectively implemented in the Foundation Phase; therefore a particular research site was required. According to Babbie and Mouton (2002) it is appropriate to select your sample on the basis of your own knowledge of the population, its elements and the nature of your research aims. A total of 21 lessons were observed over a period of 12 months. The lessons were audio-recorded in addition to extensive notes that were taken during the fieldwork. The audiotapes were transcribed, providing verbatim accounts of the teachers' and the learners' statements. The TRU Math (Teaching for Robust Understanding of Mathematics) classroom analysis scheme (Schoenfeld & Floden, 2014) was used as the observation protocol for classroom observations (see Table 1). Each of the five dimensions is coded separately. The rubric has separate sub-rubrics for different classroom activity structures (whole class, small group work, student presentations, and individual seat work). Scores of 1, 2 or 3 are assigned for each of these activity structures, and aggregated statistically. Table 2 provides an example of the criteria describing what performance looks like for a score of 1 for a particular classroom activity (whole class).

RESULTS

The graph below presents an overview of the scores achieved for the various dimensions and each score is discussed below:

Table 2: Excerpt of TRU MATH classroom analysis scheme (Schoenfeld & Floden, 2014)

	WHOLE CLASS ACTIVITIES: LAUNCH, TEACHER EXPOSITION, WHOLE CLASS DISCUSSION				
	1. The Mathematics	2. Cognitive Demand	3. Access to Mathematical Content	4. Agency, Authority and Identity	5. Uses of Assessment
1	Classroom activities are unfocused or skills-oriented, lacking opportunities for engagement in key practices such as reasoning and problem solving.	Classroom activities are structured so that students mostly apply memorised Procedures and/or work routine exercises.	There is differential access to or participation in the mathematical content, and no apparent effort to address this issue.	The teacher initiates conversations. Students' speech turns are short (one sentence or less), and constrained by what the teacher says or does.	Student reasoning is not actively surfaced or pursued; teacher actions are limited to corrective feedback or encouragement.
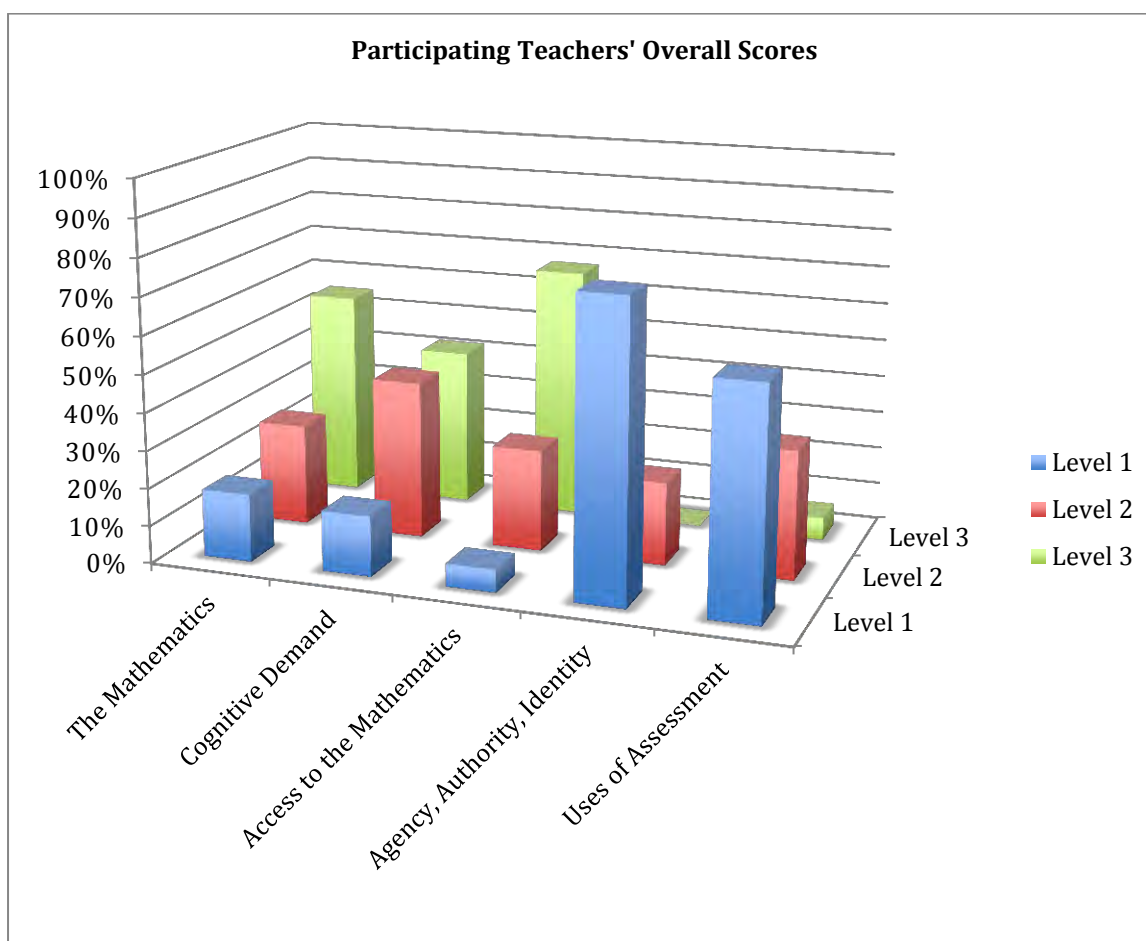
Graph 1: Participating teachers' overall scores based on the TRU Math scoring rubric

The Mathematics Dimension
In this dimension, a score of 1 was assigned in episodes where classroom practices were mainly skills-orientated; and mathematical procedures were taught without attention to the underlying conceptual knowledge. A score of 2 was assigned when classroom activities occasionally focused on connections between concepts and procedures. A score of three was allocated when thorough attention was given to linking procedures to their conceptual foundations and learners were asked to reason and make connections (Schoenfeld & Floden, 2014).

The participating teachers generally scored above average on the "Mathematics Dimension" when they were following the text as prescribed in the Singapore Mathematics Teachers Guides. During these episodes the teachers adopted a coherent and focused approach that integrated important mathematical ideas and emphasised the interrelationships between relevant concepts, as illustrated in the following example, which occurred during the second term in a grade 1 classroom taught by Teacher C. In this episode the lesson topic is "Subtraction Within 10 – Ways to subtract". The class had just finished with a counting activity as an introduction to the lesson, after which the teacher had written the problem "10 – 3" on the whiteboard.

TEACHER: Right, do not give me the answer. The sum is 10 minus 3. Now, what kind of sum is this here? What are we supposed to do in this sum, Amal? Okay, besides looking for the answer, first of all, what sum is it? Is it an addition sum or a subtraction sum?

AMAL: Subtraction.

TEACHER: Very good, subtraction, Clap the word subtraction.

LEARNERS: [while clapping 3 times] Sub-trac-tion.

TEACHER: Right, now what does subtraction mean? Tyreece?

TYREECE: To minus.

TEACHER: To minus. What else? We said minus, what else? Become smaller. Aareefah?

AREEFAH: Taking away.

TEACHER: Very good, taking away.

LEARNER: Counting backwards.

[The teacher draws a mind map on the whiteboard with all definitions of subtraction given by learners]

TEACHER: Very good, you remembered. Right, now look at our sum, 10 minus 3, equals? Now which one are we going to use here? Taking away? Counting backwards? Which one?

LEARNERS: Counting backwards.

TEACHER: Okay, let us count backwards. Put 10 fingers and you are going to count 3 backwards.

LEARNERS: 1, 2, 3.

TEACHER: So how many fingers are left?

LEARNERS: 7

TEACHERS: 7 fingers. Now if you are taking away from 10 blocks, how many will we take away?

LEARNERS: 3

TEACHER: Okay, show me you are taking away 3. Right, and how many do you have left? [Learners use unit cubes]

LEARNERS: 7

TEACHER: So what is the answer?

LEARNERS: 7

TEACHER: Yes. Right, I want you to put your blocks down. All blocks down, I will count to 3, on the floor. One, two, three. Right, let us look at the board. 10 minus 3 equals 7. We counted backwards and we took away 3. Now, from the sum here, which one is my whole number? Feroza at the back?

FEROZA: 10

TEACHER: My whole number is 10. What are my 2 part numbers, Abdulla?

[Teacher draws the sketch for "bonds"   as it is commonly used in the Singapore textbooks, as illustrated   below]:
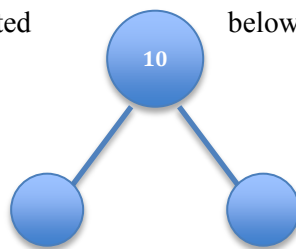
ABDULLAH: 3 and 7

TEACHER: 3 and 7. We say 3 and 7 are my part numbers. Part one and part two. How do we know it is our part numbers, Tyreece?

TYREECE: Because it is smaller

TEACHER: No. Diane?

DIANE: [no response]

TEACHER: Okay, we know it is our part number because we take 3 and we take 7, 3 plus 7 but we use the bigger number first. 7 plus 3 will give us how much?

LEARNER: 10

TEACHER: 10. Let us try it. Put 7 fingers, show me 7 fingers and add 3 more fingers. How many fingers all together?

LEARNERS: 10

TEACHER: So we know 10 is our whole number because we took the 2 parts, the 3 and the 7 and we added it together to give us our whole number that is?

LEARNERS: 10

TEACHER: That is 10. Right, let us do another one. Let us read this sum together.

[*The lesson continued with the learners solving various subtraction problems in pairs and presenting their solutions to the class while showing the various representations: number sentence; drawing circles and crossing out, or using manipulatives or their fingers; and then representing the bonds in a sketch. Thereafter, the teacher included various problems that have the minuend, subtrahend or the difference left out*]

In this lesson, the classroom activities focused on multiple methods of subtraction and this provided a "conceptual ladder" in order to help the learners to move, in a connected way, from where they are to more efficient methods. On the other hand, there were instances when teachers scored at level 1 or 2 for the "Mathematics Dimension". This was mainly during the launch or introductory phase of the lesson. All the teachers in the study had a well-established pattern of initiating their lessons with "counting activities" followed by a statement of the objectives of the lesson, and, in most cases, a review of the previous day's work. These "counting activities" were not included in the Singapore mathematics teachers' guides, but are of course standard practice in many mathematics classrooms. In these instances activities were mainly skills-oriented, with minimal connections between procedures and concepts.

Cognitive Demand Dimension

For this dimension, a score of 1 was assigned if a particular classroom activity or materials focused only on routine step-by-step procedures and repetitive exercises. If the materials or activities offered some opportunity for problem solving but the teacher removed the challenge by directing learners, then a score of 2 was assigned. A score of 3 was assigned when learners had the opportunity to think and solve problems, and the teacher provided scaffolds when needed but still left sufficient work and thinking for the learners to do (Schoenfeld & Floden, 2014).

The teachers in the study scored at varying levels during the different phases of the lessons observed. A general feature in the lessons, which reduced cognitive demand, was that the teachers often "spoon-fed" learners rather than allowing them to think and act for themselves. There were also many instances in which the teachers resorted to step-by-step demonstration before allowing the learners to do activities or solve problems by themselves, as is illustrated in the following episode that took place in a Grade R classroom in April. The episode begins after the class had completed their "counting activity" and the teacher had introduced the lesson by referring to the graph displayed on the display board (see Figure 1). A whole class discussion ensued about the work on graphs done in previous lessons. The teacher handed each learner their own work sheet and proceeded to call out the names of each animal or creature displayed on the work sheet as the learners looked at their worksheets and indicated whether they identified the particular animal on their charts.

TEACHER: Listen to me now, all of you need to listen. This is how you are going to do it. Shh, okay. Say for example, in this team there are how many of you?

LEARNERS: Two

TEACHER: Right so John will be counting the dinosaurs. So John, count the dinosaurs. So Mary, look at the chart. Mary you count them and then you both decide whether it is correct and then, what you're going to do?

MARY: Write it?

TEACHER: Write it?

MARY?   Colour the blocks

TEACHER: You will graph it

LEARNER: Graph it

TEACHER: So say for example if there are five dinosaurs on the chart. You will colour that many blocks. [Teacher demonstrates on chart on the display board] Then your partner will go and start counting the...

LEARNERS: Snakes

TEACHER: Snakes, and you both should help each other to count and then you both will colour the amount of blocks that you need to. You can do it any colour, I don't mind. Ready, steady, begin.

In this episode, the teacher could have left it to the learners to either explain what they would do or she could leave them to do it by themselves and then use it as an opportunity to do formative assessment of the knowledge they had gained from previous lessons on graphs and whether they could apply their knowledge to new contexts. By showing them what they have to do the teacher removed the opportunity for them to think for themselves and thus diminished the level of cognitive demand.

There were some instances in which the teachers created opportunities for the learners to struggle with mathematical ideas. There were a number of occasions observed over the course of the lesson observation period where teachers asked strategic questions to provide scaffolding to learners, or encouraged the use of manipulatives and other resources to support understanding.

Access to Mathematical Content Dimension
Generally, the teachers in the study engaged multiple methods of providing opportunity for learners to gain access to the mathematics during lessons. All the teachers made a concerted effort to call on various learners during classroom discussions. The teachers' actions supported the notion that everyone was expected to participate and contribute to classroom discussions. They made statements such as "Let's give her a chance" and "Raise your hand and don't shout out the answer" or "Did everyone get a turn?". During the "launch phase" of the lessons, the activities that learners were expected to engage in also increased their access to the mathematical content. For example, having all the learners use their number charts and point to the numbers they were counting or identify numbers on the chart; asking all the learners to wriggle their left and right arms and legs, rather than merely asking one learner to show left and right; and so forth. The teachers also always ensured that they discussed the prior knowledge required for learners to engage in the particular activity or solve a particular problem. The use of resources, such as enlarging pictures and graphs from the workbooks to use on the board was an excellent way of increasing access.

Furthermore, the concrete to pictorial to abstract (CPA) approach (Ginsburg, Leinwand, Anstrom & Pollock, 2005), and the various representations, pictures and illustrations used in the textbooks (as illustrated in Teacher C's subtraction lesson), supported understanding of mathematical concepts and increased access to the mathematical content. This is in accordance with Schoenfeld and Floden (2014:14) suggestions for supporting access to the mathematics as discussed in???

On the other hand, although the teachers always read through any written work assigned to the learners and discussed the task or problem at hand, it was necessary to remind them, during lesson study sessions, to always be cognisant of discussing foreign terminology in the textbooks and workbooks. The Singapore books contained certain terminology that was unfamiliar to learners, such as "prime minister" or the names of foods and fruits e.g. "durian" and "french fries". It also contained pictures of Singapore money. Although the books do not contain many foreign concepts, it was imperative that the teachers discuss problems and tasks that involved these contexts in order to increase access to the task and context at hand. Another area, in which the teachers in the study could improve in order to increase access to the mathematics, was to highlight various ways to think about and understand certain mathematical concepts.

Agency, Authority, and Identity Dimension

In this dimension, a score of 1 was assigned when classroom discussion was mainly teacher-directed and teacher focused. A score of 2 was assigned if learners had some opportunity to explain their thinking, but the teacher controlled the discussion and their ideas were not built upon. A score of 3 would indicate that the teacher utilised questioning, critique, connection, comparison, and/or extension to build on learners' mathematical ideas (Schoenfeld & Floden, 2014).

The teachers made some significant improvements over the course of the lesson observations in terms of inviting learners to enter into the learning community; re-engaging learners who were struggling; and helping learners to work together in small groups (Schoenfeld & Floden, 2014). After a workshop in which the teachers studied this work of Schoenfeld (2014) and they watched a video of teachers using "talk moves" (as discussed earlier in this section) in a mathematics class, the teachers made a concerted effort to incorporate these "talk moves" in their lessons. They particularly made an effort to encourage learners to explicate their reasoning.

However, the teachers in the study generally achieved at an average of level 1 for this dimension. With very few exceptions, classroom discussions were mainly initiated and controlled by the teachers. In the main, learners only contributed to discussion when called upon and in these instances their speech turns were short (as can be seen from the lesson excerpts above). There were some instances in which the teachers scored at level 2 for the "Agency, Authority and Identity" dimension. In these cases the teachers created opportunities for the learners to explain some of their thinking. However, they did not explore or build on the learners' ideas and instead "disposed" of the ideas by taking control of the discussion.

Uses of Assessment Dimension

Here a score of 1 was assigned when the teacher did not actively try to elicit the learners' reasoning, and when the teacher's actions were limited to corrective feedback or encouragement. A score of 2 was assigned when the teacher referred to the learner's thinking or to common mistakes, but did not build on these ideas to address challenges or to enhance understanding. A score of 3 was assigned when the teacher used the knowledge she had elicited from the learner and adapted the direction of class activities or discussions (Schoenfeld & Floden, 2014).

Again, the teachers scored on average at level 1 for the dimension "uses of assessment". They often had the tendency to "stick to the lesson plan" despite new situations and mathematical ideas that arose during class discussion. This can be seen in the following lesson excerpt from Teacher B's research lesson that formed part of the second lesson study cycle. The teacher was teaching a lesson on "counting backwards" in a Grade 1 class. The lesson study research team had planned for the launch phase to unfold as follows:

1.   Introduce lesson and explain objectives
2.   Teacher writes problem on the board, thereafter the teacher reads the problem aloud
3.   Classroom discussion takes place, to enable learners to understand the problem and vocabulary involved
4.   Allow learners (in pairs) to discuss the problem and the ways in which the problem can be solved
5.   The teacher selects learners to discuss how they would solve the problem

The following episode depicts an excerpt from the "launch phase" of the lesson:

TEACHER: Right, now I am going to read this to you and you are going to tell me what you understand from this. Fatima bought nine sweets from the tuck shop. During the lunch break, she ate 4. How many sweets does she have left? Right, Yasmeen, I do not want the answer, I want to know what does it mean. What does it mean?

YASMEEN: She ate 4 and 5 are left.

TEACHER: I do not want to know how many are left. I want to know what are we going to do over here? Okay, first tell me, she bought 9 sweets from the tuck shop. Are there any other numbers involved?

The learner (and many others according to my observations) had already solved the problem, but instead of building on this and adapting her instruction accordingly, the teacher was determined to conduct the lesson as planned. She continued to follow steps 1 to 5 on her lesson plan despite where the learners were at in that moment.

Another example of how the teachers did not use assessment formatively and how the learners' reasoning and contributions were not incorporated into the lesson was evident in Teacher C's lesson on subtraction discussed under dimension 1 "The Mathematics". It depicts how the teacher elicited the learner's reasoning but did not build on his ideas: The teacher had asked the learner, Tyreece, how he knew that it was the part numbers. The learner responded, "Because it is smaller" and the teacher simply responded, "No", because this was not the answer she was looking for. The learner understood part numbers as being smaller than the whole number, which is correct in the case of positive integers. The teacher could have built on this rather than pursue a specific answer. There were, on the other hand, many times when teachers made a concerted effort to elicit student thinking by asking learners to explain their reasoning, as discussed when referring to the "talk moves" the teachers used. However the teachers seldom used the information to shape classroom activities and direct discussion.

SUMMARY OF FINDINGS, CHALLEGES AND RECOMMENDATIONS
The fact that the teachers achieved a better score on the "mathematics" and "cognitive demand" dimensions when they followed the text suggests that the Singapore mathematics resources adopt a focused and coherent approach that integrates important mathematical ideas and concepts. This is in accordance with the findings of Ginsburg et al. (2005). However, the fact that they scored poorly on the "Agency, Authority, and Identity" and the "Uses of Assessment" dimensions supports the assertions by Remillard (2005) that the choices that teachers make in the classroom ultimately determine the learning and teaching outcomes, and that the curriculum materials are merely resources used in the implementation of the curriculum. Evidence of classroom episodes depicted how the teachers' beliefs, knowledge, preferences, and responses to what occur in the classroom impacts learning (Ball & Cohen, 1996; Christou et al., 2004; Gehrke et al., 1992).

Based on the scores that the teachers achieved for the first two dimensions, it seems reasonable to assume that if the teachers follow the text closely the learners would benefit from the focused and coherent approach contained in the Singapore mathematics textbooks. The challenges that the teachers experienced in terms of implementing all the dimensions for a mathematically powerful classroom as advocated by Schoenfeld and Floden (2014), are perhaps indicative of an affinity for traditional algorithms and a behaviorist paradigm, or perhaps a lack of comprehension of the need for conceptual understanding and reasoning skills prior to the

learning of standard algorithms. It also suggests that the teachers struggled to facilitate classroom discourse to support conceptual understanding. This would suggest a mismatch between the teachers' conceptions and the constructivist learning theory on which the Singapore mathematics curriculum is grounded (Hsu 2013:11; Kheong 2009)

Additionally, these findings suggest that if a school is implementing the Singapore mathematics curriculum for the first time it is important to conduct classroom observations to not only determine the degree of fidelity to the curriculum, but more importantly to identify and reinforce effective teaching practices;   as well as areas where development can improve instructional practices. The "Teaching for Robust Understanding in Mathematics (TRU Math) analytic scheme (Schoenfeld & Floden, 2014) is a useful classroom observation protocol that is aligned to reform visions of mathematics teaching and learning.

A summary of the findings; recommendations for implementation; the possible challenges that may arise; and recommendations for addressing these challenges are provided below:

Summary of the Findings

- The findings are consistent with literature studies (Barton et al. 2008:444; Ginsburg et al. 2005:17; Soh 2008:32) that propose that the instructional approach outlined in the Singapore textbooks is focused and coherent and integrates important mathematical ideas and concepts

- The findings suggest that by focusing instructional practice on all the dimensions of classroom activities that are identified in the literature as important, significant teaching and learning gains can be achieved

- The study identified various successful strategies that were employed by the participating teachers to increase access to the mathematics

Recommendations for Implementation

- A high degree of fidelity to the curriculum is essential – following the text closely supports a focused, coherent and integrated approach

- A comprehensive and holistic approach to instructional practice should be maintained, taking into account all the major types of classroom activities noted in the literature

- The following strategies may result in learners having increased access to the mathematics:

  - involving all learners in classroom activities and discussions

  - the use of manipulatives and resources

  - discussion of prior knowledge before introducing a new concept

  - discussion of foreign terminology and concepts found in the SM textbooks

Possible Challenges that could impact implementation

- Teachers' paradigm and conceptions of mathematics may not be aligned to the goals of the curriculum.

- Teacher's pedagogies may not be aligned to reform visions of mathematics teaching and learning. For example, teachers may not be skilled in facilitating classroom discourse and using assessment formatively to support learners' conceptual understanding.

- Inadequate content knowledge may impact how the teachers interpret the curriculum and textbooks. For example, the teachers may diminish access to the mathematics by not emphasising various ways to think about and understand mathematical concepts

Recommendations for addressing challenges

- Ongoing professional development that encourages collaborative sharing of practice and is linked to classroom practice. Professional development could incorporate the following:

  - ➢ Workshops aimed at improving teachers' pedagogical and content knowledge

  - ➢ Classroom observations to determine the degree of fidelity to the curriculum; identify and reinforce effective teaching practices; identify areas for development

    - ◻ Classroom observations should focus on all the important aspects of classroom practice that results in desired student outcomes, well grounded in the literature (the TRU Math analytic scheme (Schoenfeld & Floden 2014) is recommended

CONCLUDING REMARKS

Effective implementation of a curriculum is largely contingent on the instructional and learning activities that occur in the classroom. The findings presented here should not be regarded as prescriptive or rigid, nor can it be generalised across all contexts, as each school and each classroom and classroom community is unique in its own way. The data from this study provides insights that teachers can use to improve their classroom practice as they implement the Singapore mathematics curriculum. Moreover, the information gleaned from the descriptions of classroom practice for each dimension could assist school leaders and administrators to devise professional development programmes aimed at enhancing the instructional practices of mathematics teachers to embody reform visions of effective teaching processes and mathematically powerful learning environments.

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**School-Based In-Service Training in Rwanda
Assessing its Effectiveness for Teachers' Professional Development**

Kyoko Yoshikawa Iwasaki
PADECO Co., Ltd.
6-17-19 Shinbashi, Minatoku, Tokyo, Japan
kyoshikawa@padeco.co.jp

Ryuichi Sugiyama
PADECO Co., Ltd.
6-17-19 Shinbashi, Minatoku, Tokyo, Japan
rsugiyama@padeco.co.jp

Antoine Mutsinzi
Rwanda Education Board,
Remera, Kigali, Rwanda
mutsinzi2006@yahoo.fr

Yusuke Morita
Waseda University
2-579-15 Mikajima Tokorozawa, Saitama, Japan
ymorita@waseda.jp

Abstract: *In light of the expansion of basic education from 6 years to 9 years, School-Based In-service training (SBI) was introduced to lower secondary schools in Rwanda to fulfill increasing training needs of in-service teachers. Since SBI is new to Rwanda, there is a paucity of literature and evidence which show the benefits SBI brings to teachers and students. To explore possible benefits of SBI, questionnaire for 326 teachers was conducted. It also aims to assess SBI's influence on students' engagement, using the result of questionnaire for 478 students. The findings from the survey help identify characteristics of the school management which nurture SBI. They also suggest that communication among teachers fostered through SBI may be a contributing factor to the enhanced engagement of students. Therefore, the results provide support for SBI's potential for effective platform for teachers' professional development.*

Keywords: School-based In-service Training, teacher collaboration, collegiality

Introduction

Background

Rwanda expanded the basic education programme from six years to nine years in 2009. Currently primary schools are being transformed into either a 9-Year Basic Education School or 12-Year Basic Education School. This policy change contributed to the improvements of enrolment of lower secondary education. The Gross Enrolment Rate came up to 49.8% in 2013 (MINEDUC, 2014) from 20.7% in 2008. The rapid expansion of lower secondary education implies increasing training demand of lower secondary teachers. However, training opportunity provided for teachers is still limited.

To address these needs, the Rwanda Education Board (REB), an implementing agency of Ministry of Education (MINEDUC), has been promoting School-Based In-service training (SBI) since 2013 under the Project of Strengthening School-Based Collaborative Teacher Training (SBCT). The SBCT Project is performed in conjunction with the Japan International Cooperation Agency. The target group of the SBCT Project is in-service teachers who teach lower secondary students. A series of training and awareness raising activities have been conducted so that teachers can implement and sustain SBI activities to improve teaching and learning in classrooms.

Since SBI is new to Rwanda, there is a paucity of evidence and literature that support its benefits. This paper firstly reviews the existing literature on concept and benefits of collaborative learning activities of teachers at school. Then it explains the method and results of the survey which was conducted to explore the benefits of SBI by researching its influence on teachers and on students. Finally, based on the findings from the survey, it assesses the effectiveness of SBI as a platform for teachers' continuous professional development.

Literature Review

Concept of SBI. SBI has been widely implemented in various parts of the world. Historically, it has arisen in light of concerns and limitations of course-led professional development according to Craft (2002). Consequently, it is performed with following two sets of aims.

> "One set of aims is about achieving a better match of a professional development course to the needs and culture of a particular group of professionals. The second set of aims is about having some direct impact on practice." (Craft, 2002)

In UK, a major shift from higher education based training to school-based in-service programs dates back to 1980s following the recommendation made by James Report published in 1972 (Bridges, 1995). The report recommended promoting in-service trainings at schools as follows.

> "In-service training should begin in schools. It is here that learning and teaching take place, curricula and techniques are developed and needs and deficiencies revealed. Every school should regard the continued training of its teachers as an essential part of its task for which all members of staff share responsibility." (Department of Education and Science, 1972)

The principles of professional development activities at school level which can be interpreted from above Report, such as importance of school's ownership of SBI and needs-based approach, are still employed in various parts of the world (e.g. Boaduo, 2010; Takagi & Fujii, 2010). For example, in Ghana, where they have been implementing SBI since early 2000, definition of SBI also highlights these principles.

> "SBI is a type of in-service training which is organized at the school level by the teachers in a particular school. SBI is organized to solve some special needs or deficiencies identified by the teachers themselves or by lead teachers." (Ghana Education Service, 2008)

Rwanda employs similar definition to Ghanaian one. The concept of SBI introduced by SBCT Project is a custom-made training programme initiated by teachers themselves to solve teaching-learning related problems at their school (Rwanda Education Board, 2014).

Benefits of SBI. There has been a lot of research supporting the benefits of teacher professional collaboration at the school level. For example, OECD (2014) states that collaborative practices are "highly beneficial to teacher self-efficacy and job satisfaction". Researchers also point out that enhanced collaboration modifies teachers' instruction and classroom practice (Boram, McMahon, Stoll, Thomas, & Wallace, 2005; Shah, 2012), which leads to enhanced students' learning (McLaughlin and Talbert, 2006). Collaborating teachers are often better in coping with uncertainty, complexity and change and in driving innovation (Shah, 2012). Research also suggests that the benefits of the enhanced collegiality and collaboration will be extended to improved behavior, attitude and achievement of students (McLaughlin & Talbert, 2006; Boram et al., 2005; Shah, 2012; Goddard & Goddard, 2007).

However, major part of above mentioned research is based on data and experience drawn from the schools in countries in North America and Europe and in other industrialized nations. There has been little research on benefits of teacher collaboration in the Rwandan context, where teachers' work condition is essentially different from ones in the abovementioned countries.

Work condition of teachers in Rwanda. Among the limited literature available on teachers' work conditions in Rwanda, the World Bank (2011) reports that 80 % of lower secondary teachers teach 25-29 hours a week. It also points out that teachers lack adequate incentives, both pecuniary and non pecuniary. For example, they are paid

less than similarly qualified civil servants in the country (World Bank, 2011). Such work condition can influence teachers' perception of their role, for instance, work satisfaction among others, which is one of the interests of this research. This is why the benefits of teacher collaboration evidenced elsewhere may not be expected to the same extent in Rwanda.

Introduction and Implementation of SBI in Rwanda

Some schools in Rwanda had conducted school-based trainings before introduction of SBI. The Base-line Survey of SBCT Project revealed the situation of school-based trainings in Rwanda before introduction of SBI. According to the Report of the survey (Rwanda Education Board, 2013a), half of the sample schools implemented little or any school-based training by their own initiative. Even if schools had trainings by their own initiative, needs-based planning was not commonly practiced.

Therefore, for the schools to be able to plan and continuously implement their SBI according to their needs, induction workshops at district level were conducted. At the induction workshops, school leaders, Sector Education Officers (SEOs) and a District Education Officer (DEO) learn how to plan, implement, report and monitor SBI. After the District-level induction workshop, school leaders share what they learned at the workshop with teachers and then they plan SBI for the term. They are encouraged to analyze the result of the national exam of their school before they plan SBI, so that the SBI activities they plan are oriented towards the improvement of students' achievement. In planning SBI, they formulate SBI group which is a group of teachers who plan and implement SBI together. Each SBI group identifies teaching-learning related problems they have and plan SBI activities that help address these problems.

Consequently, there is a myriad of SBI activities that schools plan and implement. For example, lesson study, development of teaching learning materials, English training, sharing the results of training outside the school and comparison of textbooks are recognized to be conducted in schools in Rwanda.

In general, there is relatively little cost that schools should bear in implementing SBI since SBCT is encouraging schools to use resources available to plan their SBI. However, if schools need funding to implement SBI, they could use capitation grant, which is transferred directly to each school every year. According to Plan Rwanda (2013), 15 % of capitation grand generally goes toward strengthening capacity of teachers.

Teachers use their time available to plan and implement SBI. Therefore, implementation of SBI implies additional working hours for teachers in addition to the teaching hours discussed in the previous section. A comprehensive system which links achievement through continuous professional development and their promotion or salary has been lacking in Rwanda and the absence of such system may limit the motivation of teachers to participate in SBI activities.

For schools to be able to sustain SBI, awareness raising (distribution of newsletter and communication via SNS) and monitoring activities are implemented. At the end of each term, schools review their SBI activities during the term and report it to the SEO. The SEO then compiles the reports coming from schools in the sector and reports it to the DEO. The DEO next reports it to the REB so that they are informed of the challenges that the schools face in implementing SBI. It also enables REB to assess teachers' training needs which cannot be solved in the SBI.

Purpose

The purpose of this survey is to explore the possible correlation between SBI and teachers' perception regarding school management, communication and collaboration with colleagues, self-efficacy and work satisfaction. It also aims to determine any correlation between SBI and students' engagement in the class, which is one of the indicators of lesson quality in Rwanda. By doing so, the survey intends to detect whether the benefits of SBI researched elsewhere are realized in Rwanda and to verify the claim that SBI is an effective platform for professional development of teachers in Rwanda.

Method

Survey Schedule

The survey was conducted from July to October 2014. The project staff, comprised of both Rwandan and Japanese, visited schools occasionally during the period of the data collection.

Survey Instruments

Questionnaire for Teachers. The Questionnaire for Teachers asked questions that can be categorized into the following groups.

- Basic information (name, sex, years in service, etc.)
- Evaluation on school management
- Evaluation on the extent of communication and collaboration among teachers
- Evaluation on self-efficacy in teaching
- Work satisfaction

The Questionnaire used the Likert scale (1: Totally disagree, 7: Totally agree) to assess the respondents' perception. A higher score indicate stronger sense of agreement. The collected data was aggregated to make comparisons between schools with SBI and without. Two sets of samples from teachers in Schools with SBI and without were firstly tested for equality of variance. When the variances of two groups were unequal, Welch's t-test was applied.

Questionnaire for Students. Questionnaire for Students was conducted to assess how well students were engaged in the lessons. The extent of student engagement is one of the indicators to assess lesson quality in Rwanda, as is listed as one of three overall observation criteria in Classroom Observation Form (Rwanda Education Board, 2013b). However, evaluating students' engagement by observing numerous lessons which were being conducted by sample teachers using the Observation Form was not a realistic option. Therefore, Questionnaire for Students was used to assess the extent of their engagement.

To assess student engagement using Questionnaire for Students, Chapman's definition on student engagement was employed (Chapman, 2003). Chapman defines student engagement as "students' willingness to participate in routine school activities, such as attending class, submitting required work, and following teaches' directions in class."

In order to evaluate students' willingness, two questions were asked in the Questionnaire. Firstly, they were asked whether they liked or disliked a subject, based on the assumption that willingness can be measured by whether they like or dislike a subject. Secondly, they were asked whether they liked specific learning activities. From the Classroom Observation Form (2013), it can be understood that teachers are encouraged to engage students in various learning activities. For instance, teachers should encourage students to read, write and experiment, not simply just listening to lectures, in order to better facilitate their thinking and solidify their understanding. The Chi-squared test was applied in order to examine any statistical differences on like/disliked rates of each subject and learning activities.

Sample Size

Schools with SBI. Sample schools were selected from five districts where SBI was initially introduced from late 2013 to early 2014. Schools with lower secondary level that participated in district induction workshops were listed first. From the list, surveyors made telephone calls to the schools to ask whether they 1) participated in district-level induction workshop, 2) conducted school-level induction, 3) planned SBI and 4) implemented SBI activities. Schools which answered positive to all four questions were then randomly selected.

Schools without SBI. At the time of this survey, there were 13 districts which had not been introduced to SBI yet. Among these 13 districts, five target districts were randomly selected. Schools with lower secondary level which had similar conditions and environment to the sample schools with SBI were selected for comparison.

Number of samples

The data was drawn from 326 teachers from 43 schools with lower secondary level and 478 lower secondary students from the 50 schools in Rwanda. The total number of samples is shown in Table 1.

Table 1 Number of Samples

SBI	teachers		students	
	N	N(schools)	N	N(schools)
with	177	23	224	25
without	149	20	225	25
total	326	43	478	50

The teacher sample was consisted of 86 female, 234 male and 6 unknown. The female/male ratio of the teacher sample is approximately 26.3%. The figure is similar to the national female/male staff ratio of lower secondary schools (28.5%) (MINEDUC, 2014). Age distribution data for teachers at national level is not published, yet it follows similar trend to the one recorded in another survey (Rwanda Education Board, 2013a). Therefore, it is concluded that the respondents serve as a good sample of teachers in Rwanda.

The student sample was consisted of 235 female, 233 male and 10 unknown. The female/male ratio of the student sample is approximately 49.1%, which is similar to the national female/male lower secondary students ratio (46.2%) (MINEDUC, 2014). The number of students in each grade is almost equivalent as well. Therefore, the respondents serve as a good sample of students in Rwanda.

Limitation

This survey was designed to compare characteristics of teachers and students in schools with SBI and without. It means that any possible geographic traits were not taken into account in this survey. Furthermore, any indirect intervention on SBI was ignored. For instance, the SBCT Project has issued and delivered newsletters to all lower secondary schools in Rwanda and communicated with teachers via SNS. Thus, the schools where SBI was not formally introduced by district-level induction workshop may have an idea about SBI. However, this survey does not consider such indirect influences.

Results

Questionnaire for Teachers

Table 2 shows the results of the Questionnaire for Teachers. The Questionnaire for Teachers revealed that the scores for SBI schools were significantly higher in questions related to evaluation of school management, communication with colleagues and teachers' self-efficacy. However, it did not detect any significant differences in questions relating to work satisfaction.

In the category of evaluation of school management, there were three questions detected significant difference (Q1: $t(240.23)=2.72$, $p<.01$, Q2 : $t(286.86)=2.23$, $p<.05$, Q3: $t(292.94)=2.04$, $p<.05$) and four questions detected marginal difference (Q4: $t(317)=1.72$, $p<.10$, Q5 : $t(317)=1.65$, $p<.10$. Q6 : $t(314)=1.80$, $p<.10$, Q7 : $t(274.29)=1.89$, $p<.10$). The scores for schools with SBI were higher than those of schools without SBI. Interestingly, from the questions detected statistical or marginal difference, some keywords which characterize the management of the schools with SBI emerge, for example, openness, participation and involvement, clear values, achievement of plans, collaboration and cooperation.

In the category for communication and collaboration with colleagues, one question (Q12: $t(318)=2.47$, $p<.05$) detected significant difference and one question detected marginal difference (Q13 : $t(320)=1.81$, $p<.10$). Scores were higher for schools with SBI for both questions, which implicates that there is more communication among teachers to improve lessons in schools with SBI than schools without SBI.

In the category of teachers' self-efficacy, one question detected statistical difference, showing higher score for schools with SBI (Q19: $t(267.85)=2.37$, $p<.05$).

Table 2 Results of Questionnaire for Teachers

Question items	Average SD		
	SBI	No SBI	
Evaluation of School Management			
Q1 The school leaders encourage us to give some comments/ ideas to contribute school improvement.	6.35 0.86	6.00 1.32	**
Q2 School activities are proceeded as planned in my school.	6.02 0.95	5.76 1.13	*
Q3 There is cooperative system among different subjects in my school.	5.98 1.12	5.71 1.27	*
Q4 There are clear aims or objectives in my school.	6.18 0.86	5.99 1.07	+
Q5 The objectives and plans are achieved successfully in my school.	5.75 1.09	5.54 1.09	+
Q6 Results from national examination are analyzed by all teachers together.	6.18 1.30	5.92 1.29	+
Q7 The vision/mission of my school is shared within school community members.	5.90 0.98	5.66 1.23	+
Q8 The vision/mission of my school is/are clearly stated.	5.97 1.00	5.90 1.15	
Q9 There is atmosphere in my school to make challenges for new idea positively.	5.51 1.42	5.53 1.32	
Q10 Responsibilities are fairly distributed to the all members of the school community.	5.42 1.66	5.23 1.57	
Q11 My opinions contribute to the process of making decision in my school.	5.75 1.17	5.62 1.24	
Communication and collaboration with colleagues			
Q12 I use the feedback/advice given by my colleague to improve my teaching and learning process.	6.44 0.68	6.24 0.76	*
Q13 I give advice/consultation to my colleagues to improve their teaching.	5.96 1.00	5.74 1.19	+
Q14 I would like to have discussion with other teachers.	6.57 0.64	6.51 0.70	
Q15 I can freely discuss about classes (lessons) in my school.	6.24 1.08	6.32 0.83	
Q16 A teacher will be admired by other teacher(s) when he/she makes a good comment or opinion in my school.	5.89 1.17	5.81 1.06	
Q17 I enjoy working with my colleagues in my school.	6.63 0.67	6.55 0.71	
Q18 I accept comments/advice from anybody, regardless to their gender or age.	6.43 0.72	6.36 0.81	
Teachers' self-efficacy			
Q19 I know the points in which my students often make mistakes in advance.	6.13 0.80	5.88 1.04	*
Q20 I have enough subject knowledge to teach my students appropriately.	6.25 0.82	6.17 0.95	
Q21 I have correct subject knowledge to teach my students.	6.39 0.63	6.28 0.77	
Q22 I have enough teaching skills to teach my students.	6.15 0.96	6.14 0.91	
Q23 I have taught my students by using appropriate teaching skills.	6.15 0.72	6.15 0.76	
Q24 I have enough teaching skills to use teaching learning materials appropriately.	5.93 0.81	5.93 0.85	
Q25 I have known how to prepare the teaching learning materials which are in shortage.	5.82 0.96	5.77 1.15	
Q26 I have taught my students by using appropriate teaching learning materials.	5.97	5.84	

		0.92	0.91	
Q27	I can communicate with my students appropriately.	6.16 1.11	6.16 0.88	
Q28	I understand the objectives of my lessons when I teach.	6.40 1.22	6.48 0.95	
Q29	I can develop my students.	6.41 0.77	6.36 0.81	
Q30	I check my students' understandings during my lesson.	6.54 0.55	6.48 0.76	
Q31	I can explain my students' understandings after my lesson.	6.00 1.24	6.05 1.17	
Work satisfaction				
Q32	I will be pleasant when I carry out good lessons.	6.55 0.89	6.48 1.00	
Q33	I am proud of teaching profession.	6.23 1.17	6.18 1.18	
Q34	Teachers are respected by students.	5.58 1.41	5.32 1.40	
Q35	Teachers are respected by parents.	5.32 1.54	5.45 1.38	
Q36	Teachers are respected by community people.	5.09 1.65	4.88 1.74	
Q37	I want to continue teaching profession even if my task would become harder than now.	5.64 1.52	5.82 1.31	
Q38	I can explain the ideal image of the teacher I want to be.	6.28 0.84	6.23 0.88	

(**$p<.01$, *$p<.05$, +$p<.10$)

Questionnaire for Students

The Questionnaire for Students asked 1) favorite and disliked subjects and 2) favorite learning activities to assess students' willingness to participate in the lesson. Figure 1 below compares the like/disliked rates for each subject between students in schools with SBI and without. The students were asked whether they liked compulsory examinable subjects (English, Kinyarwanda, Mathematics, Physics, Biology, Chemistry, Geography, History and Entrepreneurship)

Like/disliked rates on each subject indicate that rates of students who liked each subject were higher in schools with SBI in most of the subjects, whereas rates of the students who disliked each subject tended to be higher in schools without SBI. Thus the result shows that the students in schools with SBI have more favorite and less disliked subjects.

The Chi-squared test was applied in order to examine any statistical differences on like/disliked rates of each subject respectively. There was a statistical difference observed between schools with SBI and without in students who liked Geography ($\chi^2(1)= 7.54$, $p<.01$). In addition, there was a marginal difference between schools with SBI and without in students who liked Mathematics ($\chi^2(1)= 2.77$, $p<.10$) and Chemistry ($\chi^2(1)= 3.15$, $p<.10$). Furthermore, there was a statistical difference between schools with SBI and without in students who disliked Biology ($\chi^2(1)= 8.56$, $p<.01$), Chemistry ($\chi^2(1)= 7.45$, $p<.01$) and Geography ($\chi^2(1)= 7.50$, $p<.01$). Marginal difference was observed in students who disliked History ($\chi^2(1)= 3.06$, $p<.10$).

The students were also asked about their favorite learning activities. The following nine learning activities were given to students to know if they liked such activities. They are the learning activities commonly observed in schools in Rwanda.
   a) A time when teacher explains about lesson and listen to it
   b) A time when teacher explains something other than lesson content and listen to it
   c) A time when I present my idea to others
   d) A time for reading textbook
   e) A time for doing experiment
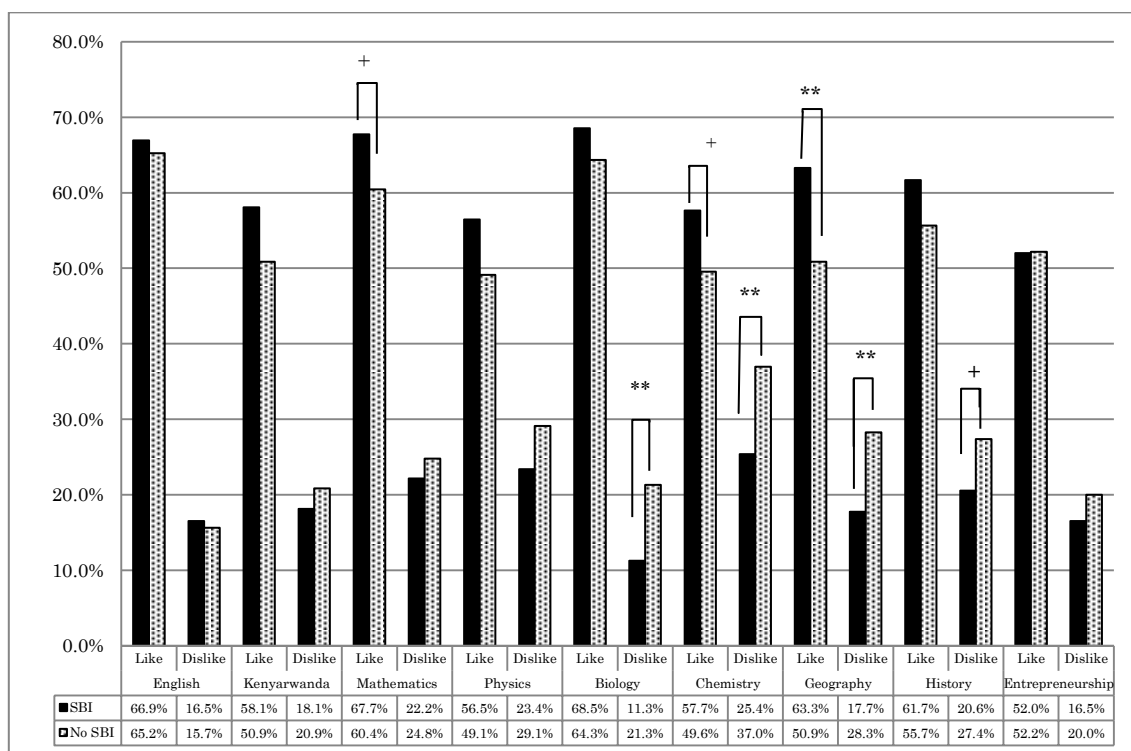
Figure 1 Students' Like/Disliked Rates in Each Subject (N=478)

(U-shape indicates statistical difference, **p<.01, +*p*<.10)**

f) A time for doing research
g) A time for practice exercise
h) A time for examination
i) A time for studying in outside of classroom

The responses were aggregated to understand if these learning activities accepted by students in schools with SBI and without.

As Figure 2 shows, only two out of nine activities ("a: A time when teacher explains about lesson and listen to it" and "g: A time for practice exercise") exceeded 50% in schools without SBI, whereas all except "b: A time when teacher explains something other than lesson content and listen to it" and "e: A time for doing experiment" was higher than 50 % in schools with SBI. Furthermore, all learning activities that were asked in the Questionnaire were more highly accepted in schools with SBI than schools without SBI. Among all, the result of the Chi-squared test indicates that six out of nine learning activities detected statistically significant difference between schools with SBI and without (c: $\chi^2(1)$= 7.73, *p*<.01, d: $\chi^2(1)$= 7.19, *p*<.01, f: $\chi^2(1)$= 13.67, *p*<.001, g: $\chi^2(1)$= 9.68, *p*<.01, h: $\chi^2(1)$= 17.06, *p*<.001, i: $\chi^2(1)$= 7.79, *p*<.01) and one activity detected marginal difference (b: $\chi^2(1)$= 2.70, *p*<.10). Thus the students in schools with SBI seemed to enjoy a variety of learning activities. In conclusion, students in schools with SBI showed more positive attitude towards learning than those in schools without SBI.

Discussion

From the questions which statistical differences were detected in the Questionnaire for Teachers, it can be understood that the schools with SBI are characterized by open and participatory management. Schools with SBI are more likely to have clear goals which are shared with school community members and achieved successfully. That is to say, such good management may be serving as a foundation which enables schools to initiate and sustain SBI.
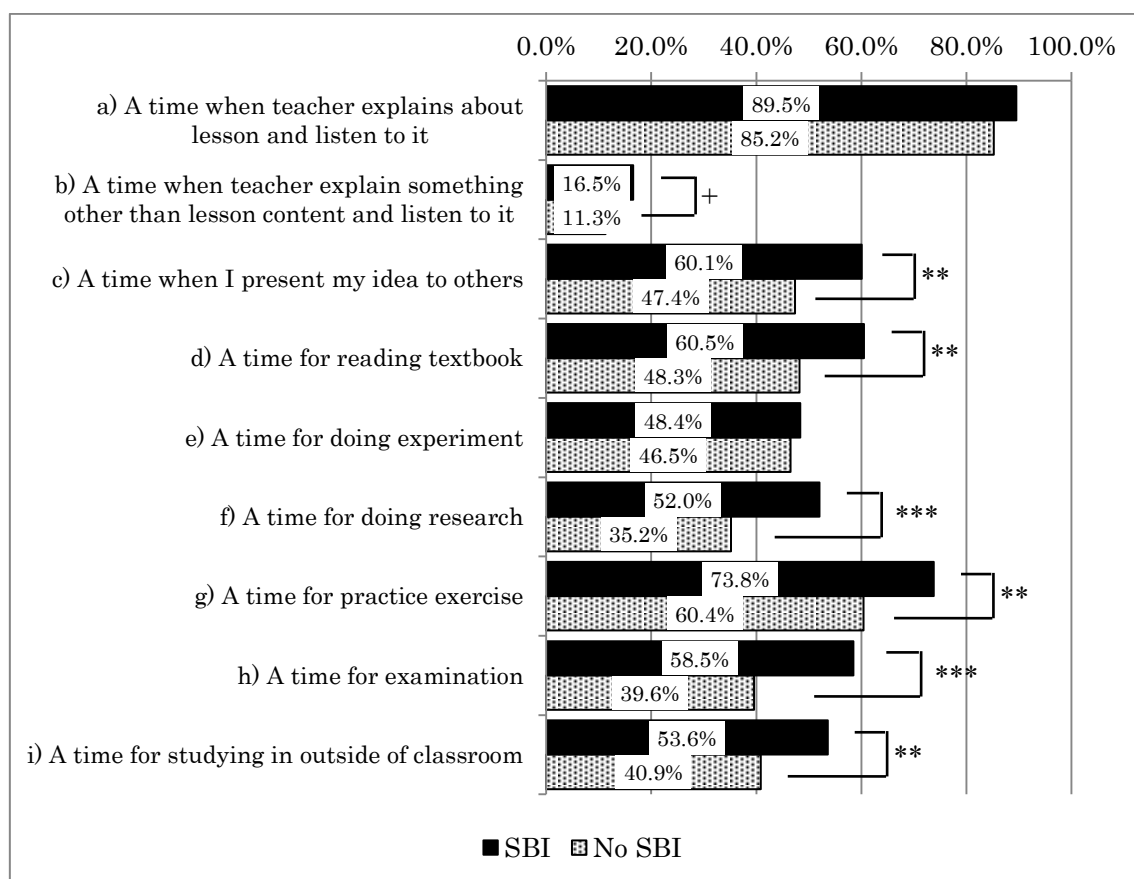
Figure 2 Rates of Favorite Learning Activities in Lessons (N=478)

(U-shape indicates statistical difference ***_p_<.001, **p<.01, +p<.10)

Intervention of the SBCT Project may have brought positive influence on school management too. Existence of a cooperative system among different subjects is another characteristic of schools with SBI. Possible explanation for this is because SBI groups formulated in the planning process of SBI often comprise of teachers of different subjects. Similarly, in the schools with SBI, teachers are more likely to analyze the results of the national exam as was encouraged by the SBCT project. This may eventually lead to teachers' greater collective responsibility of students' academic achievement, which is one of the keys of effective teacher collaboration according to Boram et al. (2005).

From the category of collaboration and communication with colleagues in Questionnaire for Teachers, it is observed that teachers in the schools with SBI are more likely to give feedback to their colleagues and use such feedback to improve instruction. It is presumed that this, in turn, helps teachers increase self-efficacy in teaching.

Results from the Questionnaire for Students suggest that teachers in schools with SBI are more successful in engaging students. As is reported as one of the impacts of teacher collaboration in other studies (e.g. Boram et al., 2006), classroom instruction may have been modified through SBI activity itself or communication among teachers enhanced by SBI. Modified instruction may be a contributing factor for better engagement of students in schools with SBI which is indicated by the result of the Questionnaire for Students. Therefore, the survey provides preliminary support for the claim that SBI is an effective platform for continuous professional development of teachers.

On the other hand, the survey did not convincingly establish a correlation between SBI implementation and teachers' work satisfaction, unlike studies conducted elsewhere (e.g. OECD 2014). Though teachers' commitment is reportedly higher than might be expected given poor pay (World Bank, 2011), positive effect of the SBI might not be able to override the hardship of the teaching profession in Rwanda.

Further studies are needed to assess SBI's possible influence on teachers' work satisfaction in the long term. Characteristics of SBI which contribute better student engagement and achievement would be another theme of future study.

Acknowledgement

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Implementation of Triad Feedback in Classroom Using Lesson Study and Open Approach

Sampan Thinwiangthong[1]
Center for Research in Mathematics Education, Khon Kaen University, Thailand,
Sampan@kku.ac.th

Maitree Inprasitha[2]
Center for Research in Mathematics Education, Khon Kaen University, Thailand,
Inprasitha_crme@kku.ac.th

Maitree Inprasitha[3]
Center for Research in Mathematics Education, Khon Kaen University, Thailand,
Inprasitha_crme@kku.ac.th

Abstract: *The Lesson Study (LS) and Open Approach (OA) were adapted and have been used for improving teaching and learning in mathematics classrooms in Thailand since 2002 (Inprasitha, 2011). In the context of classroom using LS and OA, Triad Feedback was synthesized by Thinwiangthong (2012) in order to be the framework for the study of Small-group Mathematical Communication (SMC) as an important learning process. This study implemented Triad Feedback in classrooms as part of the Students' Mathematical Higher Thinking Development Project in the Northeast of Thailand (Inprasitha, 2014), launched by the Center for Research in Mathematics Education. In case we want to improve the students' thinking, we need to improve the teachers' teaching. This study as a small research and a part had trying to improve those. The objective is to investigate 147 seventh-grade students' ability in using SMC for learning mathematics and their attitudes toward mathematics learning. The teaching experiment was used as the research methodology. A teaching approach workshop was organized to encourage students' SMC by involving 22 seventh-grade teachers from 5 project schools as participants. Data were collected by classroom video recording and a questionnaire survey. Qualitative data from video records was analyzed by Triad Feedback. Quantitative data was analyzed by basic statistics. The findings from all classrooms in this study showed that students were able to use SMC for learning mathematics. The teaching approach, i.e., think alone – think with peer – think in group, incorporated in the second phase of OA is the strategy to engage the students with opportunities to use SMC to learn mathematics. The students' attitudes toward mathematics learning were positive, which could result from reiteration of emotional experiences in SMC.*

Keywords: Triad Feedback, Lesson Study and Open Approach, Attitudes, Emotional Experience

Introduction

Thai education, as appraised by our nation and by international organizations, is still not very successful. In other words, the qualities do not truly correspond to the objectives, especially when compared to many other countries (Runjaroen, 2013). Solution of Thai education problems is complicated and troublesome. Although educational reform has been ongoing for over 10 years since its first Phase commencing in 1999 until the second phase in 2009, the educational qualities of the countries still could not be effectively improved (Siamwala et al., 2012). Failure of education reform in Thailand is reflected by the results of Thai students' proficiency scores both at the national and international levels. In the National Basic Education Test (O-Net) of 2013, the average scores of the 6th, 9th, and 12th graders were 41.95%, 25.45%, and 20.48%, respectively (The National Institute of Education Testing, 2014). The mathematics scores from the Trends in International Mathematics and Science Study (TIMSS) in 1995, 1999, 2007, and 2011 of Thai 8th-grade students were 522, 467, 441, and 427, respectively (TIMSS and PIRLS International Study Center, 2015). These figures show a gradual decrease of scores and students' ability. Additionally, Thai students' scores in the Programme for International Student Assessment (PISA) in 2003, 2006, 2009, and 2012 were lower than the international average scores for all mathematical contents included (Organisation for Economic Co-operation and Development, 2015). This proved that Thai

students' abilities in mathematics are still unsatisfactory and cannot meet with the expectation and objectives of the continual educational reform from 1999 until today.

The heart of educational reform is learning reform, and the heart of learning reform is a shift from the subject as the principle element to human spirit or to the learners, as the so-called term, "learners as the most important persons" (Wasee, 2000). The expectation of learning reform was reflected in the foundation education curriculum in 2001 and 2008 in which learners' learning processes were being focused on. However, even though this emphasis was expedited, most mathematics classrooms still did not concretely focus on learners' learning processes. This can be seen from Inprasitha (2006, 2007) who asserted that after the 1999 Educational Act was enacted, Thailand was put into an educational reform movement. Most school teachers have been attempting to improve their teaching practice. Unfortunately, they lacked any innovation to improve their everyday work. Most teachers still used a traditional teaching style focusing on coverage of contents, but they neglected to emphasize students' learning processes (Inprasitha, 2006, 2007). The teacher's role in traditional classrooms is to "provide clear, step-by-step demonstrations of each procedure, restate steps in response to student questions, provide adequate opportunities for students to practice the procedures, and offer specific corrective support when necessary" (Smith 1996). For education reform to become successful, innovations are required to improve traditional teaching styles, reshaping them into a new instructional approach that focuses on learners' learning processes.

The Lesson Study is accepted worldwide as the innovation to develop teachers' profession. It truly assists in improving teachers' teaching styles and learners' learning. Many researchers and educators from many countries mentioned the benefits of the Lesson Study. Isoda, Stephen, Ohara, & Miyakawa (2007) stated that "Lesson Study" (jugyou-kenkyu) came to be known around the world as a uniquely Japanese method of lesson improvement designed to facilitate the development of high quality lessons, and resulted in a Lesson Study boom in the industrialized nations (Isoda, et al., 2007). The Lesson Study, currently a topic of worldwide attention, refers to a process in which teachers progressively strive to improve their teaching methods by working with other teachers to examine and critique one another's teaching techniques (Baba, 2007). The Lesson Study is a cycle in which teachers work together to consider the long-term targets from the students and translate the targets into a research lesson. Then teachers cooperate to observe, discuss, and improve that lesson (Lewis, 2002). The Lesson Study was introduced in Thai mathematics classrooms in 2000s by Assistant Professor Maitree Inprasitha, the Faculty of Education, Khon Kaen University with a purpose to improve teachers' teaching approaches and students' learning (Inprasitha M, 2006, Inprasitha N, 2009, and Thinwiangthong, 2012).The Lesson Study approach has been incorporated with the Open Approach since 2002 until today. The three phases of LS model were: collaboratively design a research lesson; collaboratively observe the research lesson; and collaboratively discuss and reflect on the research lesson. Four phases of OA are: 1) Posing an open-ended problem, 2) Students' self learning, 3) Whole class discussion and comparison, and 4) Summing up by connecting students' emergent mathematical ideas (Inprasitha, 2011). The results of integration of the Lesson Study with the Open Approach in mathematics classrooms show that they were truly able to improve the teachers' instruction and learners' learning styles.

Classrooms where the Lesson Study and the Open Approach are incorporated in instruction focus on mathematics lessons since they make appropriate context for studying students' mathematical learning processes. Thinwiangthong (2012) studied Small-group Mathematical Communication (SMC) of the 7th graders in a classroom using the Lesson Study and the Open Approach. In his research, the theoretical framework of SMC called the Triad Feedback was synthesized in order to explain and analyze the components of SMC of the students. In addition, the teaching approach named the Open Approach was modified according to the concept of Inprasitha (2011). Here, sub-steps within the second phase of the Open Approach were set to promote students' SMC. This research was the fundamental work leading to the knowledge outcomes related to a theory of SMC and a teaching approach that enhances this kind of communications. The findings have been of great benefits for teachers and researchers who are interested in studying SMC as a learning process of students. Application of the research findings in classrooms is an important issue and more studies should be continued to extend the knowledge related to SMC and in developing mathematics teachers in terms of instruction that promote such communication. Students would be enabled to learn mathematics more meaningfully and have good attitudes towards mathematics learning.

Integrating the Lesson Study and the Open Approach in Mathematics Classrooms in Thailand Educators and researchers have shown enormous interest in the Lesson Study since the Third International Mathematics and Science Study (TIMSS, 1999). Some "existence proofs" now emerge where the teacher could use the Lesson Study to develop collaboration and content knowledge (Lewis, 2006). In Thailand, the Lesson Study, an innovative way for improving teaching and learning, consists of 3 important phases: collaboratively plan, do and see (Inprasitha, Pattanajak, & Tesarin, 2007). The Lesson Study has been integrated with the Open Approach for the purpose of instruction improvement (Loipha & Inprasitha, 2004). The Open Approach involves solving open-ended problems as the central theme, and hence has a rich potential for improving teaching and learning (Becker and Shimada, 1997). The three phases of LS model are: collaboratively design a research lesson; collaboratively observe the research lesson; and collaboratively discuss and reflect on the research lesson. For OA, there are four phases, namely: 1) posing an open-ended problem, 2) students' self learning, 3) whole class discussion and comparison, and 4) summing up by connecting students' emerging mathematical ideas (Inprasitha, 2011). In this research, the second phase of the Open Approach was split into three sub-steps to elicit SMC, including: problem-solving by oneself, problem-solving in pairs, and problem-solving in groups (Thinwiangthong, 2012). The integration of the Lesson Study and the Open Approach is illustrated in the following figure:
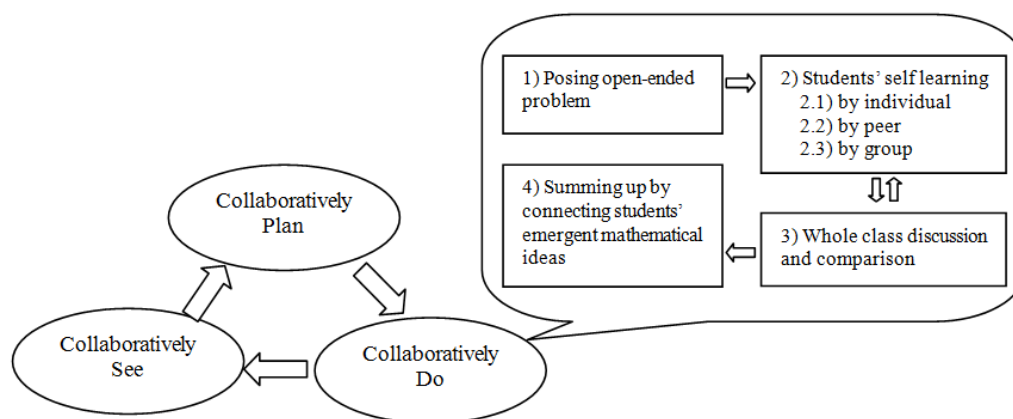
Figure 1: Integration of the Lesson Study and the Open Approach (Inprasitha, 2011) and setting 3 sub-steps in the 2nd phase of the Open Approach (Thinwiangthong, 2012)

Small-group Mathematical Communication (SMC)
Thinwiangthong (2011, 2012) synthesized the theoretical framework of Small-group Mathematical Communication, which was derived from integration of the small group theoretical framework of Cathcart, Samovar, & Henman (1996), the mathematical communication's theoretical framework of Emori (2005), and the emotional experiences' theoretical framework of Inprasitha (2001). SMC was defined as the communication which includes characteristics (i.e. rigorousness, economy and freedom) of mathematical communication in small-group working in which students have shared goal and meaning. The small group characteristics related to shared goal and shared meaning, mathematical communication related to rigorousness, economy and freedom, and mechanism behind occurrence of emotional experiences were brought together into consideration under the SMC theoretical framework. The different components of the theoretical framework are shown below:
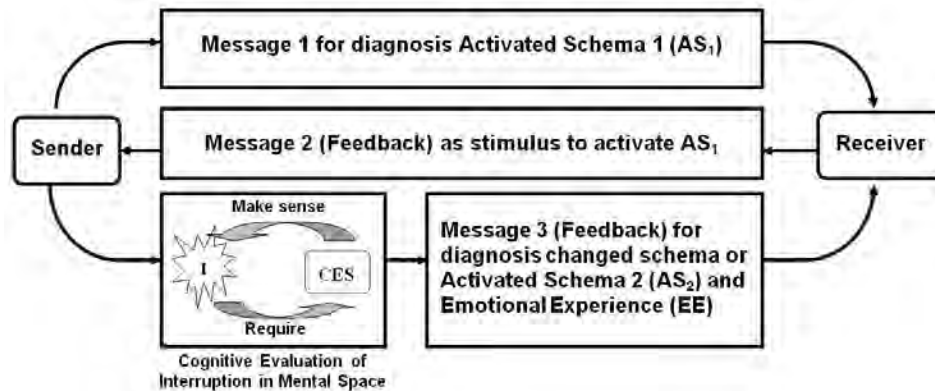
Figure 2: Triad Feedback modified from Dyad Feedback (Emori, 1993; 1997; 2005) and integrated with unit of analysis of Emotional Experience (Inprasitha, 2001)

1) Sender – When students are holding Small-group Mathematical Communication, one of the main components is the sender. In this research, the sender was referred to the student who presented a certain mathematical concept to other students in his group. This presentation took place while the students were trying to solve a mathematical problem.

2) Message 1 – This is an oral or written statement or certain behavior acted by the sender based on the schema of a certain topic needed to be conveyed to the receivers. The Schema Theory of Mandler (1984 cited in Inprasitha, 2001) stated that an action indicates an organization of behaviors and there is an activated schema (AS). Here, it means the sender sends a message, which is considered an action denoting Activated Schema 1 (AS1). That is, the sender has a schema of a topic. When the sender sends out Message 1, we are able to interpret the schema of the topic the sender has.

3) Receiver – The receiver is the student who interprets Message 1 sent by the sender. Interpretation of Message 1 makes Message 1 become meaningful to the receiver and stimulates the receiver to think about the meaning as well as give feedback to the sender. The response may be an oral or written statement or behavior acted by the receiver. This is referred to as Message 2.

4) Message 2 – is an oral or written statement or behavior acted by the receiver to respond to the sender and is referred to as the feedback. Its status is a stimulant of the schema (Activated Schema 1) of the sender.

5) Interruption (I) – is the situation after the sender receives the feedback or Message 2 from the receiver. The sender then interprets the feedback or Message 2 and finds that it is different from his own Activated Schema 1 (AS1). This finding is the situation in which the sender is facing the difference or Interruption (I).

6) Cognitive Evaluative Schema (CES) – Mandler (1984 cited in Inprasitha, 2001) stated that when a person faces an interruption (I), the person requires a Cognitive Evaluative Schema (CES) to make sense of the interruption. This cognitive evaluative schema can be considered from the reason the sender uses in interpreting the interruption or difference.

7) Message 3 – is the oral or written statement or behavior acted by the sender after he has used the cognitive evaluative schema (CES) to interpret the interruption (I). Then the sender adjusts the former Activated Schema 1 (AS1) into the new Activated Schema 2 (AS2). According to the theory of Mandler (1989, cited in Inprasitha, 2001), when a person has changed the schema, he also changes the quality of his emotional experience (EE). This means the emotional experience occurs within the person. In this research, when the sender changed his or her Activated Schema 2 (AS2), the sender also had emotional experience (EE).

8) Emotional Experience (EE) – in this research, emotional experience occurred after the sender used the Cognitive Evaluative Schema (CES) to interpret the interruption (I). Emotional Experience (EE) occurred in parallel with the change of schema (AS2) as a result of the interpretation of the interruption (I). The sender's Emotional Experience was revealed simultaneously with the sending of Message 3 by the sender. In this research, we used Message 3 which comprised an oral or written statement, facial expression, posture, voice, or other behaviors acted by the sender. These were analyzed in order to see the Activated Schema 2 (AS2) and the

Emotional Experience (EE) of the sender. Emotional Experience is revealed in the form of feelings such as excitement, astonishment, gladness, sadness, moodiness, tension, etc.

Research Method

This research was under the umbrella of the Students' Mathematical Higher Thinking Development Project in the Northeast of Thailand (Inprasitha, 2014) of the Center for Research in Mathematics Education, Faculty of Education, Khon Kaen University. This project was launched continuing from The Project of Mathematics Teacher Development by Lesson Study and Open Approach since 2006 (Inprasitha, 2014). In case we want to improve the students' thinking, we need to improve the teachers' teaching. This study as a small research and a part had trying to improve those. The study was conducted using the Teaching Experiment Method based on the concept of Steffe & Thomson (2000) and was aimed at improving the conventional mathematics classrooms into mathematics classrooms with innovations using the Open Approach focusing on students' learning processes. The details are shown below:

1) The target group: In this research, the target group comprised 22 mathematics teachers and 147 7th graders from 5 schools under the Students' Mathematical Higher Thinking Development Project in the Northeast of Thailand.

2) The research tools: The following tools were used in data collection: 7th grade lesson plans designed to enhance Small-group Mathematical Communication, a video recording machine, a photograph recorder. The framework for analyzing Small-group Mathematical Communication – Triad Feedback, was the tool used for data analysis.

3) Research procedures: This research was conducted primarily through the workshop of 22 target teachers on designing lesson plans for the 7th graders. During classrooms' intervention, the activities were recorded and photographs were taken covering 2 lesson plans and 5 classrooms. Next, 147 students under the study completed the questionnaire on their attitudes towards mathematics learning. Finally, the video clips were analyzed based on Triad Feedback whereas the questionnaire was analyzed in basic statistics.

Data Analysis

To meet the aim of research, data analysis focused on the students' learning process and attitudes toward mathematics learning. It was divided into two parts; the first being analysis of the video clips of classrooms learning via Small-group Mathematical Communication, and the second was the analysis of mathematics learning attitudes. The former was the qualitative analysis part based on the Triad Feedback of Thinwiangthong (2012), while the latter involved the quantitative analysis based on the basic statistical parameters including the means and standard deviations.

1) The qualitative analysis of data

Data analysis of this part was conducted with the video recorded (VDO analysis). Following is the example of the analysis of Small-group Mathematical Communication of the students in mathematics classrooms using the Triad Feedback analytical framework by Thinwiangthong (2012):

Analysis of Small-group Mathematical Communication

Lesson Topic: Algebraic Expressions

Lesson Title: How many magnets are there?

Problem Situation: The students are using magnets to put 28 of their pictures on the board, partially overlapping them and arranging them in a line. How do they find the number of magnets they need?
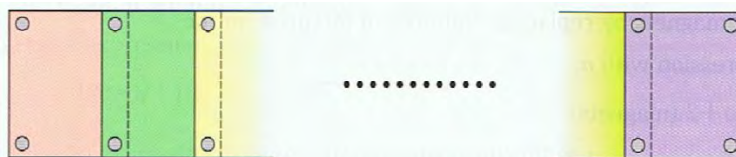
(Keirinkan, 2014)

After the teacher assigned the problem situation to the students, they tried to find the number of magnets by using as many ideas as possible. When some students got the answer they tried to compare their answers with their friends' answers, as can be seen in the following protocol: (S = Student, S1 = Student 1,…, S6 = Student 6)

Item 1	S1: (After calculating and got the answer of 56) Fifty six. How much have you got?	
Item 2	S2: Well, fifty six also.	Message 1
Item 3	S3: Fifty eight.	Message 2
Item 4	S4: Umm. Fifty six. I got fifty six.	
Item 5	S6: Well. It may not be the same.	
Item 6	S2: (Revising her own thinking) Two, four, six, eight, ten (Counting the number of magnet pieces) Two, four, six, eight, ten, two, four, six, eight, ten, two, four, six, eight, ten …..Fifty eight (I got fifty eight … smiling and scratching her head)	Message 3

Item 1   Item 2   Item 3
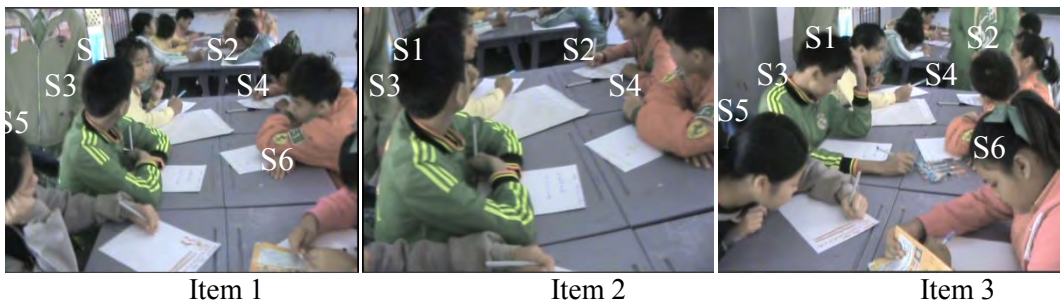
Figure 3: Schema change and emotional experience in SMC while solving the magnets problem

When analyzing the communication in the protocol, we found that S2 got the answer of 56 whereas S3 got 58. The statement made by S3, "Fifty eight" was sent to S2. S2 interpreted this and understood the answer of S3 as S3 wanted. After this, S2 revised her own method and her own answer, resulting in the change of answer from 56 to 58. Such communication involved the following characteristics: rigorousness, economy and freedom; and hence was considered the mathematical communication.

The characteristics of small groups showed that when the students had a shared goal in finding the number of magnets and when each student knew how to find the number of magnets, they discussed and exchanged ideas, leading to the shared meaning.

Considering this according to the Triad Feedback framework, we found that the statement of S2 in Item 2, "fifty six", showed that S2 had a schema related to the number of magnets which was fifty six. This is Activated Schema 1 (AS1).

The statement of S3 in Item 3, "Fifty eight" is Message 2, which is the feedback with impact on AS1 of S1.

The statement of S3 caused S2 to face an interruption (I). After this, he had to revise his method and his answer, which meant a cognitive evaluation in order to interpret the difference. This cognitive evaluation occurred in the mental space of S2. Later, S2 got the new answer of fifty eight. The revision and statement in Item 6, Two, four, six, eight, ten (Counting the number of magnet pieces) Two, four, six, eight, ten, two, four, six, eight, ten, two, four, six, eight, tem …..Fifty eight" is Message 3, revealing the changed schema of S2. Additionally, it showed the astonishing emotional experience.

2) *The quantitative analysis of data*
The analyzed results of the survey of attitudes of 147 students on mathematics learning are shown in the following table. These students had experience in mathematics learning in classrooms using the Lesson Study and the Open Approach under this research study.

Attitudes towards mathematics learning	$\bar{x}$	S.D.
In mathematics content		
1. Mathematics involves rules, formulas, principles, definitions, theories.	4.02	0.82
2. Mathematics has a single and fixed answer.	3.38	1.13
3. The important element of mathematics is to do a lot of exercises.	3.82	1.15
4. Mathematics is thinking and finding solution to a problem.	4.41	0.82
5. Mathematics has many answers, methods, and is flexible.	4.19	0.90
6. The important element of mathematics is the attempt to solve a problem using several methods.	4.33	0.93
In the feeling to mathematics		
7. It is boring to learn mathematics.	2.86	1.14
8. There is no excitement in mathematics learning.	2.82	1.08
9. Learning mathematics does not involve opinionating.	2.69	1.16
10. Learning mathematics is fun.	3.98	0.95
11. Learning mathematics is challenging.	3.90	0.97
12. Learning mathematics involves opinionating, enabling us to show what we think.	4.01	0.99
In the benefits of mathematics		
13. Mathematics doesn't enable us to think differently and be creative.	2.62	1.24
14. Mathematics is not related to every-day life.	2.27	1.20
15. Learning mathematics doesn't enhance progression in life.	2.43	1.38
16. Mathematics enables us to think differently and be creative.	4.03	0.96
17. Mathematics can be useful for every-day life.	4.31	0.93
18. Mathematics contributes to future occupation.	4.48	0.86

The table showing the analysis of the students' attitudes towards mathematics learning shows that in general, the students had positive attitudes in terms of mathematics content, feeling to mathematics and benefits of mathematics. In terms of content, most of the students agreed that mathematics is problem solving ($\bar{x}$ = 4.41). In the feeling to mathematics, most of the students agreed that mathematics allowed them to show their opinions and be explicit ($\bar{x}$ = 4.01). Finally, in terms of the benefits of mathematics, most thought that mathematics contributes to future occupation ($\bar{x}$ = 4.48).

Research Results, Discussion and Recommendation
The findings indicated that in all mathematics classrooms where the teachers used the approach to promote Small-group Mathematical Communication, the students performed Small-group Mathematical Communication as the learning process. This was particularly true in the second phase of the Open Approach in which three sub-steps were incorporated, namely problem-solving by oneself, problem-solving in pairs, and problem-solving in groups. This finding correlates to the Think-Pair-Share (TPS) activity of Kagan (1994). Such teaching approach is the strategy that enhances students in mathematics classrooms to use Small-group Mathematical Communication. It allows students the chance to think mathematically and exchange their thinking with the friends during pair-work activity and group-work activity. Students have a chance to talk, explain, discuss, and argue on a mathematical ideas arising in the class and hence the mathematical ideas is adjusted. Small-group Mathematical Communication as a complex communication is learning process which building up the higher thinking. Communication and collaboration skills draw in the learning and innovation skills within framework of 21st Century Student Outcomes (www.21stcenturyskills.org, 2015). Therefore the teaching approach that could encourage the students' Small-group Mathematical Communication is important treatment in engaging the students reach to higher thinking.
In addition, it was found that the students in the classrooms using the Lesson Study and the Open Approach had positive attitudes towards mathematics learning in terms of the content, feeling, and benefits of mathematics. Positive attitudes could be derived from the fact that students obtained positive emotional experiences in mathematics classrooms, which was also consistent until they became fond of mathematics, enjoyed learning mathematics, and saw the usefulness of mathematics. This corresponds to the concept of Underwood (2003) who

discussed that emotional experience is the formative base for attitudes, and attitude is the result of the pairing of an attitude object with a stimulus that elicits an emotional response. Besides, it correlates to the concept of Zan, Brown, Evans & Hannula (2006), namely, emotion is the most fundamental concept, and repeated experience of emotion may be seen as the basis for more stable attitudes. In contrast, classroom focusing on only drill, practice and memorizing lead the students to fall in boring feeling. It could build up the students' negative attitudes toward learning of mathematics. The good teachers have to concern the way of teaching that bring the students to learn mathematics through meaningful and enjoyment activities. Moreover, they should apply teaching approach for provoking the students' Small-group Mathematical Communication. It would be important teaching strategy in order to develop the students' higher thinking.

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THE ROLE OF TEACHER'S QUESTIONING INTO MATHEMATICAL PROBLEM SOLVING CLASSROOM

Kwanmuang Chatchumni
Education in Science and Technology, Khon Kaen University, Thailand,
kwanmuang.c@kkumail.com

Kiat Sangaroon
Department of Mathematics, Khon Kaen University, Thailand,
skiat@kku.ac.th

Somkuan Srichompoo
Center for Research in Mathematics Education, Khon Kaen University, Thailand,
srichompoo_crme@kku.ac.th

Abstract: *The improvement of teaching is a critical issue in current educational reforms within Thailand. Thailand has adopted Japanese Lesson Study and Open Approach into Thai mathematics classroom as a teacher professional development system since 2002 (Inprasitha, 2011).Questioning is a powerful instructional strategy and open-ended questions help students construct their own meaning for the mathematics they are studying (Literacy and Numeracy Secretariat, 2011).The aim of this research is to examine the role of teacher's questioning into mathematical problem solving classroom. Thus, it is suitable for using Open Approach as a teaching method. The results revealed that the role of teacher's questioning into mathematical problem solving classroom were as following in four steps of the Open Approach.*

Keyword: Teacher's Questioning, Mathematical Problem Solving, Open Approach

INTRODUCTION

Since the educational reform was implemented in Thailand in 1999, it emphasized on the instructional activity as well as measurement and evaluation according to the National Education Act 1999 with would focus on instructional activity of student-centered, and classroom of problem solving by oneself as well as constructing the knowledge from real environment for enhancing lifelong learning (National Education Commission, 1999). Although the National Education Act 1999 was announced to be used in order to be relevant to the National Destiny "for changing in learning process", was the beginning of curriculum change. Most of school teachers tried to develop their teaching. But, since they lacked of innovation for improving and developing their work. So, still used the traditional instructional model focusing on teaching to cover the content and overlook the students' learning process skill as well as desirable characteristic. The students' learning process skill and desirable characteristic would lead them to learn with understanding (Inprasitha, 2010). Besides, it was difficult to help the students to have their process skill by collaborating in facing the challenge of problem situation in order to reach guidelines for their answer (Nohda, 2000). Therefore, the educational management process needed to enhance the students to be able to develop naturally and fully in their potential. When the teachers had knowledge in various teaching techniques, they would be able to organize the content to be relevant to students' interest and aptitude. Various teaching methods were very important and necessary for teachers to know so that they would provide instructional management to be useful for their students, and teaching technique which the students were enthusiastic in learning and interested in learning that they would understand that lesson (Tipkong, 2002).

The Usage of Lesson Study and Open Approach in Classroom

Yoshida stated that the Lesson Study was professional learning process originated in Japan which help in developing both of the teachers' content knowledge and teaching knowledge. Japanese teachers implemented it continuously throughout their own profession in order to systematically investigate in teaching method, content, and curriculum using for teaching as well as the students' learning process and comprehension in order to accomplish the specified educational goal. In Thailand, the innovation of Lesson Study was adopted for teachers' teaching professional development as a working cycle collaborative work every week. There were 3 steps of Lesson Study (Inprasitha, 2011).

Step 1   collaboratively design research lesson.
Step 2   teaching and collaboratively observing the research lesson.
Step 3   collaboratively reflection on teaching practice.

The Open Approach was the mathematics teaching model emphasizing on problem solving process as a media for developing the students' knowledge and comprehension as well as thinking skill. The goal of Open Approach was to focus on every student to learn mathematics by one's own ability so that each student would be able to construct the mathematical performance by one's own learning process efficiently. Being started by various experiences with Open-ended Problems which were Mathematical Activities which were not focused on the answer. Many answers could be responded. Many problem solving processes could be performed. In addition, it could be developed into other problems further (Inprasitha et al., 2003).

In Thailand, the Open Approach was adapted for using in mathematics teaching. It was firstly used in 2002 with the fourth year internship students of Faculty of Education, Khon Kaen University. (The teacher production program was the 4 year-program) taken care by Assist. Prof. Dr. Maitree Inprasitha. The open-ended problems were used for constructing the mathematical activities in mathematics teaching being started at the schools in Khon Kaen Province, Thailand. The objective of learning and teaching by Open Approach, was to promote both of the students' creative activity, and their mathematical thinking while they were solving the problem simultaneously (Nohda, 2000).

The Open Approach was a strategy for instructional management which was included in the cycle of Lesson Study so that the students would be able to learn by themselves through 4 steps of problem solving (Inprasitha, 2011).

Phase 1 posing open-ended problem, the teacher assigned students the task or provided them difficult problem situation to be faced with. So, the teachers' problem would become the students' problem.

Phase 2 students' self-learning, each student/group of students used thinking or strategy they had learned before, as an instrument for solving the problem situation. They planned for problem solving until they could solve the problem. In this step, the teacher and observer would collect details from students' ideas. The teacher would rank order of students' ideas. Furthermore, the students' ideas would be presented in next step.

Phase 3 whole class discussion, each student/group of students presented their ideas. The teacher had to observe the classroom, collect the students' ideas, connect those ideas in order to conclude them, and collaborate in discussing and comparing them.

Phase 4 summarization through connecting students' mathematical ideas emerged in classroom, in this step, the teacher had to rank the order of students' ideas being presented by each student/group of students in order to connect the different ideas into conclusion, and expand into new structure of problem by themselves.
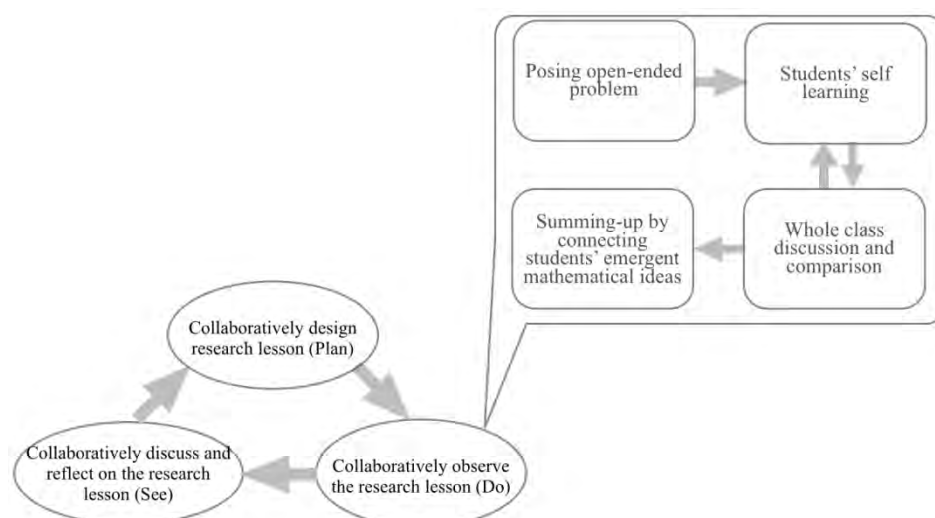
Figure 1. Four phases of the Open Approach incorporated into Lesson Study (Inprasitha, 2011).

Teacher's Questioning

The teachers' role played an important role in Polya's (1973) 5-step classroom management including: 1) Helping the Student, 2) Questions, recommendations, and mental operations. The teachers had to attempt to help their students efficiently by questioning as well as advising how to organize their thought, 3) Generality, 4) Common Sense, using the question as well as advice which were easy to understand, simple, and natural, 5) Teacher and student' imitation and practice .Two goals the teachers might have in viewing when the question was specified or students' advice. The first goal was to help the students to solve problem by themselves. The second one was to develop the students' ability which might lead to the potential problem solving by themselves. According to the teachers' context, it could be seen that the teachers' question and advice for their students, were important in being careful to perform which was a part of the cause for students to solve the problem by themselves.

Question Method was a teaching method focusing on the knowledge providing for students by questioning-answering. The teachers would use the question continuously. When the students answered, they had to think and obtain thought gradually until they could concluded by themselves (Tipkong, 2002). It was supported by the statement that the questioning was a strategy in efficient instruction. The Open-ended Question was related to one's thinking being embedded in expectation of curriculum, and learning objective. It would make the students be excited and enthusiastic by critical stimulation to bring the students' response and competency in constructing their meaning from what they had learned (Literacy and Numeracy Secretariat, 2011). NCTM (1999) also stated the goal of questioning in mathematics classroom as: 1) the support for students to work with the others in order to understand mathematics, 2) the support for students to be confident in judging something into mathematical accuracy, 3) the support for students in order to learn the mathematical reasoning, 4) the support for students to conjecture, create, and solve the problem, 5) the support for students in order to associate one's approach, and apply the mathematics.

According to Schoenfeld's (1992) study in "students' thinking while they were solving the unfamiliar mathematical problem, and group working in problem solving classroom, found that they would ask "What", "Why", and "How". While they were solving the problem in small group, questioning could make them try solve the problem. After reading the problem, they could enter the problem solving. Their Problem Solving behavior was similar to the scientist' problem solving very much. Therefore, the Teacher's Question played a major role in the context supporting the students to manage their thinking process in order to view the connection between their ideas and new understanding development which were constructed by them for being the guidelines for solving their problem by themselves. The approach for planning the good question, teachers as well as mathematician had to specify and cope with difference between the plan for good question, and the type of question being occurred continuously which would bring as well as enhance the students' thinking, and lead their mathematics to step further(Literacy and Numeracy Secretariat, 2011).

Questions to help students share their representations. (and show/describe/ demonstrate/represent) such as How have you shown your thinking (e.g., picture, model, number, sentence), How have you used math words to describe your experience?, How did you show it?

Questions to help students reflect on their work. (and analyze/compare/contrast/test/ survey/classify/sort/show/use/apply/model) such as What were you thinking when you made decisions or selected strategies to solve the problem?, What changes did you have to make to solve the problem?, How do you know? and How does knowing ____ help you to answer the questions ____?

Questions to help students share their feelings, attitudes or beliefs about mathematics. (and share/reflect/describe/compare/tell) such as What else would you like to find out about ____ ?, How do you feel about mathematics?, How do you feel about ____ ?, What does the math remind you of?, How can you describe math?

Questions to help students retell. (and tell/list/recite/name/find/describe/explain/ illustrate/summarize) such as How did you solve the problem?, What did you do?, What strategy did you use?, What did you learn today? and What do(es) ____ mean to you?

Questions to help students predict, invention or problem solve. (and create/plan/ design/predict/imagine/ devise/decide/defend/solve/debate) such as What would happen if ____ ?, How else might you have solved the problem?, What things in the classroom have these same shapes?, and How are adding and multiplying the same?

Mathematical Problem Solving

Schoenfeld's (1985, cited in Matree Inprasitha et al., 2003) Mathematical Problem Solving, administered in analyzing the students' learning process in mathematics by emphasizing on the analysis in students' problem solving style. Schoenfeld proposed that the awareness of thinking, was a process for controlling or coping by oneself regarding to the existed knowing resource in Mathematical Problem Solving. It affected the students' competency in Mathematics Problem Solving in the operation level that they could consider the awareness in thinking during individual's major decision making while they were solving the problem.

Schoenfeld (1985) classified one's behavior in problem solving process into 6 episodes including: reading, analysis, exploration, planning, implementation, and verification. Inprasitha et al. (2003) defined the meaning of 6 episodes in problem solving process that "If the students expressed their problem solving process from 4 episodes up, showed that the students' problem solving process in mathematics are various. In addition, it also indicated that the students were aware of their own learning process in 6 episodes including: reading, analysis, exploration, planning, implementation, and verification.

METHODOLOGY

This research was conducted with participants were 30 students from eleven-graders that studying at Satrirachinuthit School, UdonThani Province, Thailand in second terms, academic year 2014. This research taught by seven lesson plans in probabilities that include three types of question-What? How? Why? based on Schoenfeld (1992) and Inprasitha et al. (2003). The data of this research were collected by recording on audio- and video-tape on mathematical problem solving classroom. Protocol Analysis was used as an instrument for data analysis. The audio tape recording the students' behavior was deciphered from video tape into the statement and organized into protocol by the researcher based on step of instructional management called Open Approach. Data were analyzed based on four steps of the Open Approach are: 1) Posing open-ended problem, 2) Students' self learning, 3) Whole class discussion and comparison, and 4) Summing- up by connecting students' emergent mathematical ideas. The questions leading to Mathematical Problem Solving, were administered (Literacy and Numeracy Secretariat, 2011) as framework of question analysis. Furthermore, Schoenfeld' s (1985) problem solving behavior was used as the analysis of students' Mathematical Problem Solving Behavior.

RESULTS

For data analysis, the researcher used the method in video tape analysis and Analytic Description so that the details of questioning details would be seen. The example of data analysis findings were as follows:

| **Lesson Plan for 11 Grade**
Date, time, and place: 28th January 2015, 10.20 – 11.15 a.m, Grade 11 (Satrirachinuthit School)
Problem situation on Countion and Adding Rlue: The students find the total number of methods which Chappuis would select to wear t-shirt, and explain their ideas. |
Figure 2. Picture for problem situation. |

After the teacher put the problem situations, she asked the students to read the problem situation and introduction. Then, the she asked the students question in comprehension of problem situation. In addition, she asked the technique to be used in problem solving as the following protocols:

27	Teacher:	How would Chappuis find to wear t-shirt?
28	Student1:	3, 5
29	Student2:	Number 3
30	Student3:	5, 3
33	Teacher:	What knowledge we would use for solving this problem?
34	Student:	(silent)
36	Teacher:	After you read the introduction, what would you want to find?

| 37 | Student: | Find the total number of method to wear t-shirt. |

The first step of Open Approach, Posing open-ended problem, when the occurred questions were analyzed, the students' problem solving was occurred. According to framework in answering the Question of Literacy and Numeracy Secretariat (2011), and framework of Schoenfeld's (1985) Problem Solving analysis, found that in item27 teacher asked "How would Chappuis find to wear t-shirt?" as "How" question (How did you solve the problem?) in order to help students retell and item28, 29, 30 student1 answered "3, 5", student2 answered "Number3" and student3 answered "5, 3" show that they explored the picture of the problem situation as exploration behavior. In item33 teacher asked "What knowledge we would use for solving this problem?" as "What" question (What strategy did you use?) in order to help students retell. In item36 teacher asked "After you read the introduction, what would you want to find?" as "What" question (What would happen?) in order to help students predict, invention or problem solve and item37 student answered "Find the total number of method to wear t-shirt." show that they read the problem situation as reading behavior. After the teacher presented the problem situation, the teacher asked the students to collaborate in solving the problem in group. Moreover, the teacher stimulated the students by question as the following protocols:

124	Teacher:	What would be the number of methods Chappuis would use?
125	Student6:	21 methods
126	Teacher:	What is this?
127	Student:	Bracket.
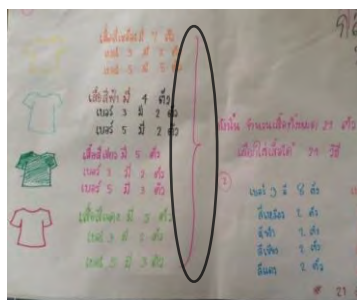
Figure 3. Bracket from Student's idea in circle.

128	Teacher:	What does it represent?
129	Student2, 3, 4:	All.
130	Student4:	Total of 21 t-shirts, 21 methods.
132	Teacher:	Oh, what do you want to do?
133	Student:	Make it to total.
140	Teacher:	Are there other method?
141	Student6:	Number would be determined.

In second step of Open Approach, Students' self learning, found that in item124 teacher asked "What would be the number of methods Chappuis would use?" as "What" question (What would happen?) in order to help students predict, invention or problem solve and in item125 student6 answered "21 methods" show that they solved problem and got answer as implementation behavior. In item126 teacher asked "What is this?" as "What" question (What does it mean to you?) in order to help students retell and in item127 student answered "Bracket" show that they solved problem and got answer by using the bracket as implementation behavior. In item128 teacher asked "What does it represent?" as "What" question in order to help the students share their representations and in item129, 130 student2, 3, 4 answered "All" and student4 answered "Total of 21 t-shirts, 21 methods" show that they understood the meaning of the bracket as verification behavior. In item132 teacher asked "Oh, what do you want to do?" as "What" question in order to help students predict, invention or problem solve and in item133 student answered "Make it to total" show that they understood what they did as verification behavior.

After the teacher asked students to collaborate in group problem solving as well as self learning, the teacher asked students in each group to present their ideas as well as similarity and difference in each idea as following protocol:

173   Teacher: How do we find the total methods?
174   Student6:   We find 2 methods. First, we find the color of t-shirt. Then, we separate the number. There are 7 yellow t-shirts, Number 3of 2t-shirts, Number 5 of 5 t-shirts. There are 4 blue t-shirts, Number 3 of t-shirts. There are 5 green t-shirts, Number 3 of 2 t-shirts, Number 5 of 3 t-shirts. There are 5 red t-shirts, Number 3 of 2 t-shirts, Number 5 of 3 t-shirts. Therefore, total of 21 methods.
175   Teacher: Anything else? Besides this method, are there any more methods?
176   Student6:   The another one: Method 2. We would find from the Number of t-shirt. There are total of 8 t-shirts of Number 3. There are 4 colors. There are 2 yellow t-shirt, 2 blue t-shirts, 2 green t-shirts, and 2 red t-shirts. There are total of 13 t-shirts of Number 5. There are 5 yellow t-shirts, 2 blue t-shirts, 3 green t-shirts, and 3 red t-shirts. There are total of 21 methods.
177   Teacher: Why do we classify by color at the beginning?
178   Student6:   We classify into color because it is easy to do such as the yellow t-shirt included Number 3 and Number 5, it would be easier to classify.
179   Teacher: So, I would write your ideas on black board. What did you already do?
180   Student2:   Classify the color.
181   Student2:   Classify the t-shirt.
182   Teacher: Anything else you could do?
183   Student: The shirt row, and strip.
184   Teacher: What I saw at the beginning, what did you tell me?
185   Student2:   Count it.
186   Teacher: How did you count it?
187   Student3:   1 2 3 4 …
188   Teacher: How many methods do we have?
189   Student: 5

In third step of Open Approach, Whole class discussion and comparison, found that in item173 teacher asked "How do we find the total methods?" as "How" question (How did you solve the problem?) in order to help students retell and in item174 student6 answered "We find 2 methods…Therefore, total of 21 methods." show that they could explain their idea as verification behavior. In item177 teacher asked "Why do we classify by color at the beginning?" as "Why" question in order to help students reflect on their work and in item178 student6 answered "We classify into color because it is easy to do such as the yellow t-shirt included Number 3 and Number 5, it would be easier to classify." show that they understood their ideas as verification behavior. In item182 teacher asked "Anything else you could do?" as "What" question (What would happen?) in order to help students predict, invention or problem solve and in item183 student answered "The shirt row, and strip." show that they understood their ideas as verification behavior. In item184 teacher asked "What I saw at the beginning, what did you tell me?" as "What" question in order to help students retell and in item185 student2 answered "Count it" show that they known basic idea as verification behavior. In item186 teacher asked "How did you count it?" as "How" question (How did you show it?) in order to help students share their representations and in item187 student3 answered "1 2 3 4 …" show that they could count pictures as verification behavior.

After the teacher ask the students to present their ideas as well as discuss the ideas. The teacher and students collaborate in concluding the ideas they obtained as following protocols:

190   Teacher: Looking at these 5 methods, let's consider which one is similar, which one is different?
191   Teacher: What would the similar one have in common?
192   Student3:   The color of t-shirt.
193   Teacher: Anything else?
194   Student4:   Number.
195   Student3:   The row of shirt, and the strip of shirt.
206   Teacher: How the classification of color, number, row of shirt, and strip of shirt would be different from counting?
207   Student3:   Let me know that there is this color. But, it is different number or the same number but different color.

208	Student6:	It is conditioned.
214	Teacher:	Why do we classify by color? Why don't we take different method?
215	Student4:	If so much shirt, it takes long time.
235	Teacher:	Today, what did we learn?
236	Student2:	Classification.
237	Student3:	Addition.

In last step of Open Approach, Summing-up by connecting students' emergent mathematical ideas, found that in item193 teacher asked "Anything else?" as "What" question (What else?) in order to help students to share their feelings, attitudes or beliefs about mathematics and in item194, 195 student4 answered "Number" student3 answered "The row of shirt, and the strip of shirt" show that they understood their ideas as verification behavior. In item206 teacher asked "How the classification of color, number, row of shirt, and strip of shirt would be different from counting?" as "How" question (How do you classify?) in order to help students reflect on their work and in item207, 208 student3 answered "Let me know that there is this color. But, it is different number or the same number but different color." student6 answered "It is conditioned." show that they understood their ideas as verification behavior. In item214 teacher asked "Why do we classify by color? Why don't we take different method?" as "Why" question (Why did you do?) in order to help students retell and in item215 student4 answered "If so much shirt, it takes long time." show that they understood their ideas as verification behavior. In item235 teacher asked "Today, what did we learn?" as "What" question in order to help students retell and in item236, 237 student2 answered "Classification" student3 answered "Addition" show that they learnt today as verification behavior.

CONCLUSIONS
The results revealed that the role of teacher's questioning into mathematical problem solving classroom were as followings; 1) to help students share their representations in second and third steps of the Open Approach, 2) to help students reflect on their work in third and fourth steps of the Open Approach, 3) to help students share their feelings, attitudes or beliefs about mathematics in fourth steps of the Open Approach, 4) to help students retell in first, second, third and fourth steps of the Open Approach, and 5) to help students predict, invent or problem solve in first and second steps of the Open Approach.

The teachers' role played is an important. Especially, questioning teaching method can helps students to solve problems on their own and students had problem solving behaviors that demonstrates students' learning process. Furthermore, using Open Approach as teaching method in conjunction with question method will help support classroom as mathematical problem solving classroom.

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STUDENTS' ALGEBRAIC THINKING IN CLASSROOM USING LESSON STUDY AND OPEN APPROACH

Worajit Tippanet[1]
Education in Sciences and Technology, Khon Kaen University, Thailand
Pong.2803@gmail.com

Sampan Thinwiangthong[2]
Center for Research in Mathematics Education, Khon Kaen University, Thailand
Sampan@kku.ac.th

Abstract: *This study aimed to explore students' algebraic thinking in classroom using lesson Study and Open Approach. Algebra has been a problematic in school mathematics, while being one of the essential parts of mathematics to grasp if one wishes to learn and understand mathematics (R.C. Lins, 1992: p.1). The aim of open-approach teaching is to foster their mathematical thinking in problem solving simultaneously. It allows them to cultivate mathematical intelligence (Nohda, 2000). For this study, the students were taught by following 4 steps of Open Approach as a teaching method (Inprasitha, 2011). The data of classroom video and students' written works were analyzed based on Level of Algebraization (Ake et al., 2013). The results revealed that the level of students' algebraic thinking in 4 steps of Open Approach.*

Keywords: Algebraic Thinking, Algebraization, Lesson Study, Open Approach

INTRODUCTION

Since the educational reform was performed in Thailand in 1999, it was emphasized on instructional activity as well as measurement and evaluation according to the National Education Act 1999 focusing on the student-centered and classroom focusing on problem solving by oneself, knowledge construction from real environment for lifelong learning (National Education Commission, 1999). It was supported by OCED\PISA focusing on the use of former mathematics learning experience on various contexts for enhancing he lifelong learning (The Institute for the Promotion of Science and Technology (IPST), 2011), the understanding in mathematics for preparing then youth's readiness to live in modern society, the increased   proportion of problem as well as situation being found in the present and in professional context, required the mathematics understanding, reasoning, and instrument before they would be able to comprehend fully and cope with the problem (OECD, 2013). The evaluative findings of Program for International Student Assessment: PISA, the measurement and evaluation paying attention to problem solving in real life, the mathematics score level of Thailand was in the last order compared to the whole group of OCED and Asian (OCED, 2010; 2013). Moreover, the trend of Thai education with mathematics from PISA 2000 to PISA 2012, in overall, was likely to lower down although the score was better in PISA 2012. Specifically, the answer of content elated to the Change and Correspondent which required one's skill in solving the equation in algebra learning substance, only 17.30%m of Thai students could answer correctly whereas in China-Hongkong 62.21% of students could answer correctly (The Institute for the Promotion of Science and Technology (IPST), 2009). Since mathematics learning in algebraic learning substance, was an important issue for being considered because the algebra was both of instrument for developing the algebra itself for problem solving as well as equations with model, and the algebra was also necessary for mathematics in different parts (Ake et.al., 2013: p.1).

Most of school teachers tried to improve their own teaching. But, it was a pity!. Those teachers still lacked of different innovations for improving their teaching being performed in the present. As a result, most of them still used traditional instructional model focusing on informing the content which would overlook to inform the students to use learning process by themselves (Inprasitha, 2006). The Lesson Study was related to the teacher collaboration in designing, testing, and improving the sequence of lesson which would spend their time in mathematical topics by designing the students to learn through construction of new thinking methods which were based on their former experience. In addition, the design of problem situation which would be able to use in order to show the related principle as well as reflect the students' learning methods they might respond to those new experiences (David Tall, 2008). The Open Approach was initiated in Japan in 1970. During 1971 and 1976, the Japanese Researchers implemented into sets or packages of research and development project under the evaluative method in Higher-order of thinking in mathematics by using the

open-ended problem (Becker and Shimada, 1997 cited in Inprasitha, 2006). Thailand has adopted the innovation of Lesson Study since 2004, and adapted the Open Approach into the teaching method in Lesson Study Process (Inprasitha, 2010). The open-ended problem situation was the situation enhancing the students' creative activity as well as mathematical thinking simultaneously while they were solving the problem. Furthermore, the open-ended problem situation also provided opportunity for students to search for confidently as well as be able to expand their mathematical problem solving, and promote each student's creative activity in instruction (Inprasitha, 2003). In general, algebra would be seen in "generalized arithmetic" and walk by in the form of number in order to reach the approach that: Why do children have problem with algebra? We should begin by viewing their experience before providing the steps of algebraic instruction, different experiences from many years regarding to the arithmetic under the construction for students' ideas in counting and number (David Tall, 1992). The Algebraic Thinking was the students' ability in using their thinking process in explaining, proofing, or indicating the evidence for comprehension in algebraic problem situation (Nacha, 2011).

Lesson Study and Open Approach

Nohda (2000) stated that the objective of Open Approach was to promote the students' creative activity as well as the students' mathematical approach in solving the problem to be simultaneously occurred. In other words, both of students' activity, and their mathematical approach had to be completely implemented. The teaching method in mathematics emphasizing on the students' participation in activity using the open-ended problem, consisted of 4 teaching steps based on Inprasitha's (2011) approach including: 1) posing open-ended problem: in this step, the teacher assigned work task for students or provided the difficult situation the students had to face by themselves. Therefore, the problem situation posed by teacher would be the students' problem, 2) the students' self-learning: in this step the students would apply different ideas or strategies they had learned before as the instruments or tools to solve the problem situation. They had plan for their work as well as problem solving whereas the teacher and observer would collect data in details and rank the order of their students' ideas in order to present the ideas in next session, 3) the whole class discussion: in this step, the students would present their own ideas and the teacher would observe the classroom as well as collect the students' ideas and associate the students' ideas in sequence in order to compare with the whole class' ideas, and 4) the summarization through connecting students' mathematical idea: in this step, the teacher would rank the order of mathematical ideas being occurred in each group of students through the connection of students' different ideas for being used as conclusions as well as expansion of ideas for constructing the new problems by students themselves.
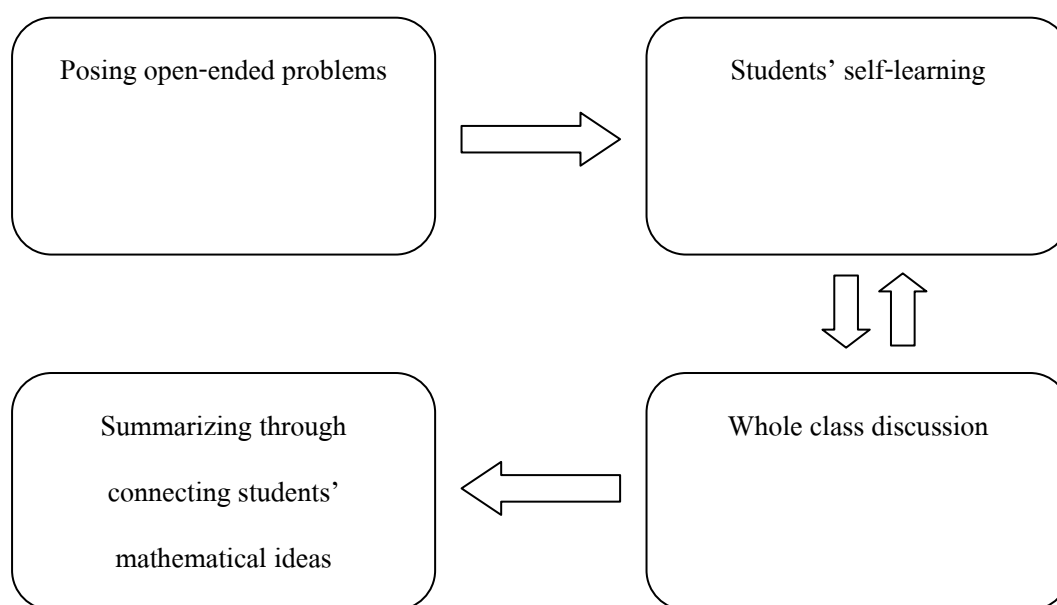
Figure 1: The teaching steps of Open Approach (Inprasitha, 2011)

Inprasitha (2010) adapted the Lesson Study in Thai Schools being started by 3 basic steps including:

1) collaboratively design research lesson, in this step, the Lesson Study Team would use mathematical textbook in Thailand including the objective learning unit as well as content analysis and learning process, conjecturing of students' ideas in connecting the mathematical ideas from students' conjecturing, and designing the open-ended problem and instructional media, 2) teaching and collaboratively observing the research lesson, in this step, the teacher as a teamwork of Lesson Study would provide teaching based on 4 steps of Inprasitha's (2011) approach. The Lesson Study Team collected data being occurred in classroom, and 3) collaboratively reflection on teaching practiceย, the Lesson Study Team would consult regarding to the collected evidence and what they had observed whether they would be as being conjectured from step of collaborative planning in knowledge management as well as emphasizing on reflection in propriety of open-ended problem, and instructional media, characteristic of Lesson Study would be implemented by combining with the Open Approach which was a teaching method in Lesson Study Process. The four steps of Open Approach as instructional approach including: 1) Posing open-ended problem, 2) the students' self-learning, 3) Whole class discussion and comparison, and 4) Summarization through connecting students' mathematical ideas emerged in the classroom, shown in Figure 2:
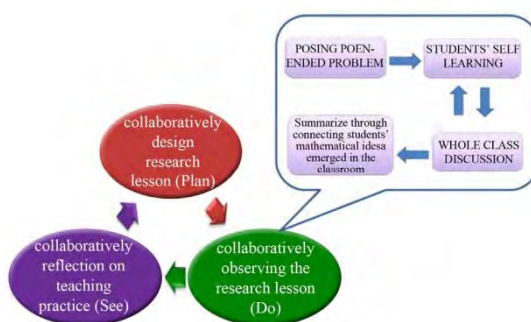
Figure 2. An adaptive feature of Lesson Study in Thailand (Inprasitha, 2010).

2) Stated as the above, it could be seen that Lesson Study and Open Approach based on Inprasitha' s (2010) approach could enhance the students' mathematical ideas in problem solving to be occurred simultaneously.   In other word, the students' mathematical ideas had to be fully implemented.

Levels of Algebraization

A Framework for level students' Algebraic Thinking referred to the boundary using for explaining the students' thinking level while they were facing the algebraic situation in "Sequence, Relationship, and Graph" by classifying the students' Algebraic Thinking level into 4 levels as level 0, 1, 2, and 3 respectively. In this context, we explained the characteristic of practice in finding the solution of mathematical problem. We considered the
 Algebraization Level by using these Algebraizations, as the framework between 0 level of Algebraization, and there would be total of 4 levels in considering the mathematical activity.   The framework of Algebraization Levels (Ake, Godino, Gonzato & Wilhelm, 2013) 0 level of Algebraization was determined, the students knew objective of problem situation broadly which was obvious in its nature, were able to write the basic words in solving the problem situation, saw basic relationship of the number, explained the things by using symbols which cited the unknown value or gesturing for communicating the language related with the students' thought. In this level, the students were not able to think as Generalization, level 1 of Algebraization. The students knew objective of problem situation and implemented to solve those problems. They could find the value specified by problem situation in the structure, relationship, thinking process, and characteristic using for problem solving which were limited in concrete level. In this level, the students were not able to think as generalization. Level 2 of Algebraization, the students knew objective of problem situation as well as implemented to solve those problems. The students created representation or variable of unstable being connected with the structure of problem situation. They saw relationship of representation or variable in the equation of $Ax \pm B = yC \pm D$ .However, they use only representation or variable written in relationship

existed in general pattern. They didn't write in mathematical model. For level 3 of Algebraization, the students saw the relationship of representation or variable obtained from level 2 of Algebraization they had constructed. The changes of representation or variable. Would indicate the maintenance of balance. The determination of value in specified problem situation, obtained by solving the equation of $y = f(x)$.

METHODOLOGY

The objective of this research was to survey the Algebraic Thinking Level of students using Lesson Study and Open Approach through qualitative research focusing on Protocol Analysis. The target group of this study included 12 Matayomsuksa 1 Students of Khon Kaen University Demonstration School (Faculty of Education) Secondary School, Khon Kaen Province. The researcher collected 9 lesson plans of Change and Correspondence by implementing the teaching through Open Approach of Inprasitha (2011), analyzing the students' Algebraic Thinking based on Ake et al. 's (2013) conceptual framework. Data to be analyzed included the Protocol of instructional activity based on 4 steps of Open Approach, still picture obtained from the students' learning, and data as their written work performed during they were solving the problem. The research methodology focused on the protocol analysis. The participants of this study were 12 students from seven-graders at Demonstration School of Khon Kaen University. The data were collected by video tape recording of 9 lessons on Change and Correspondence. These lessons were taught by following 4 steps of Open Approach as a teaching method (Inprasitha, 2011). The researcher participated in as a member of Lesson Study Team in order to collaborate in designing the Lesson Plan, Classroom Observation, and Performance Reflection. The details of implementation were as follows:

1) Collaboratively design research lesson, the collaborative plan writing was performed by the Lesson Study Team every Thursday at Khon Kaen University Demonstration School (Faculty of Education), by 1 teacher, 1 observer, 1 researcher, 2 co-researchers, under control of the school director and experts of Center for Research in Mathematics Education (CRME). They collaborated in constructing the open-ended problem emphasizing on the students' thinking, conjecturing the students' ideas, and preparing the instructional media. In this step, the Lesson Study Team designed problem situations using in research titled "Change and Correspondence" which the video-tape recording would be performed.

2) Teaching and collaboratively observing the research lesson, the teacher used the developed Lesson Plan in classroom teaching observed by member of Lesson Study Team. The objective was the students' response on open-ended problem, communication in verbal, writing, and gesture for trying to explain their ideas of Algebraic Thinking. In this step, the video tape, audio-tape, and still picture were recorded in order to use in protocol analysis further. The data of classroom video and students' written works were analyzed based on level of Algebraization (Ake et al., 2013).

3) The collaboratively reflection on teaching practice, in this step, the Lesson Study Team would be implemented every Thursday before starting to write the lesson plan next time. The issue to be discussed was the students' response on the open-ended problem. The students' ideas such as speaking, writing, and gesture to communicate their attempt to explain their ideas regarding to Algebraic Thinking such as their representation for explaining what they understood in Algebra as well as their feeling. The discussion aimed to improve the lesson. In this step, the video-tape of classroom activity would be recorded. The data of classroom video and students' written works were analyzed based on Level of Algebraization (Ake et al., 2013).

RESULTS

The researcher would like to present the sample of data analysis for showing the details of survey in Algebraic Thinking Level of students using Lesson Study and Open Approach as follows: **Data analysis from classroom observation participation in lesson plan 4/9** titled "Proportion 1" the objective of this period was to write equation to show that relevance of 2 quantities.

According to the discussion of Item24, S1 said that ***"If time increases then joss stick height will decrease"***. Students had tried to search what they have seen in the picture and explain how it was changing. It was when the time had changed, the joss stick's height had been reducing. Students then did not explain the relationship between horizontal quantity and vertical quantity clearly. However, students had understanding towards the objective of the situated problem. After that, teacher let students explain more about the saying in Item25 whether there is more time where they had told it was increasing. Item26, S2 said that ***"0 to 10 and then to***

20". From Item26 has shown that students explained their classmate's concept relating to the vertical quantity in ways that if the time passed, the vertical quantity values from 0 to 10 then go 20 depending on the changing

The step the teachers posing open-ended problem

Situation: In a ceremony worshiping the ancestors of the Chinese New Year festival that have burning joss stick to commemorate the ancestors. At that moment, Cheng noticed the change of joss stick and show in the table.
Questions: Consider that changing numbers of the table.
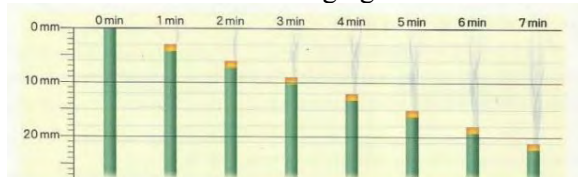
เวลา (นาที)	0	1	2	3	4	5	6	7
ความยาวรูปที่ถูกเผาไหม้ (มิลลิเมตร)	0	3	6	9	12	15	18	21

In the step in posing the open-ended problem situation, the teacher put the picture of joss stick that changed with the time and students discuss about the picture. During time Group 1 had Algebraic Thinking. When the Protocol was analyzed in Algebraization Levels, the analysis findings were as follows:

(Item 24) S1	:	If time increases then joss stick height will decrease.
(Item 25) Teacher	:	Your friend said "If time increases then joss stick height will decrease ", What's increased?
(Item 26) S2	:	0 to 10 and then to 20
(Item 27) Teacher	:	Ah, what is it?
(Item 28) S2	:	The distance of the top of the stick.
(Item 29) Teacher	:	How is joss stick?
(Item 30) S2	:	Joss stick decreased.
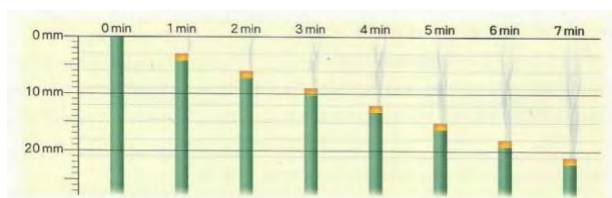
of duration. In item30, S2 said that **"Joss stick decreased"**. Form Item30, students had seen the primary relationship of two mutual changing quantities. The expression of message showed that students'thought was still ambiguous to explain in algebra and they couldn't think as Generalization. Aforementioned, it could be seen that the group 1 had Level 0 of Algebraization based on Ake et al.'s (2013) framework.
After Group 1 found relevance of time and the joss stick height changing. Then teacher asked students that "If the time pass each minute, how is joss stick?". One of the students wrote the table of both of quantities had common change but not in generalization. After that Group 1 had Algebraic Thinking again. When the Protocol was analyzed in Algebraization Levels, the analysis findings were as follows:

(Item 50) S1	:	The remaining equation. (S1 filled 3x as the generalization answer in the table)

| (Item 51) Teacher | : | Anyting else? What would you write? |
| (Item 52) S2 | : | (S2 wrote y=3x.) |
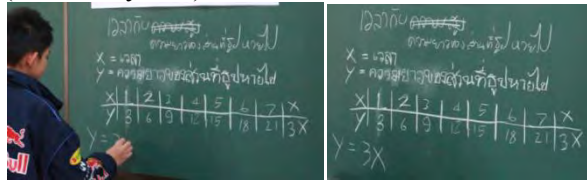
According to the discussion of Item50, S1 stated that *"The remaining equation"*. After teacher let S1 wrote his/her expression concept, S1 continued to write in the table that the other group has already written down. "If the time were any x, the value of y harmoniously to x is 3x" (as picture in Item50 was shown). Therefore, S1 knew the objective of the problem and had resolved those problems. Students created the variable that related to uncertain thing and connect to the structure of the problem. In Item52, S2 wrote the expression clearly that *"S2 wrote y=3x"*. Nonetheless, students used only the variable that was in form of general relation which s/he had not written in a mathematic form. Aforementioned, it could be seen that the group 1 had Level 2 of Algebraization based on Ake et al.'s (2013) framework.

Self-learning Step

Group 1: Students wrote the table of the relevance in worksheet and teacher asked students that "How did the numbers in the table at the blackboard change?". In this step Group 1 had Algebraic Thinking. When the Protocol was analyzed in Algebraization Levels, the analysis findings were as follows:

(Item 15) S1	:	When the time passed in each minute then joss stick will be burnt and the joss stick height will decrease by 3 millimeters.
(Item 16) S4	:	Are the height decreases by 1 minute?
(Item 17) S2	:	Yes, the joss stick height will decrease by 3 mm.

According to the discussion of Item15, S1 said *"When the time passed in each minute then joss stick will be burnt and the joss stick height will decrease by 3 millimeters"*. In item15, students resolved the problem by expressing the language to explain according to the objective of the situated problem. From Item16, S4 said *"Are the height decreases by 1 minute?"* and Item27 S2 said *"Yes, the joss stick height will decrease by 3 mm"*. In item16 and 17, students explained how the structure and the qualification related to each other. Thinking process and a qualification used in solving problem still restricted in the concrete level in order to show that when the time passed 1 minute, the height was reducing 3 millimeters. They couldn't think as Generalization. Aforementioned, it could be seen that the group 1 had Level 1 of Algebraization based on Ake et al.'s (2013) framework.

Group 2: Students solved the problem by themselves, discussed and concluded that in 1 minute, the joss stick decreased 3 mm. After that the students discussed about variables that represent unknown and wrote the relevance of the variables in the table form. In this step Group 2 had Algebraic Thinking. When the Protocol was analyzed in Algebraization Levels, the analysis findings were as follows:

| (Item 11) S5 | : | 0, 1, 2 ... Where is the end? (S5 wrote 0, 1, 2, …, 7 in the table) |

| (Item 12) S8 | : | 7 and then x. |

| (Item 13) S6 | : | 0, 3, 6, 9, 12, 15, 18, 21 |
| (Item 14) S5 | : | (S5 wrote 0, 3, 6, …, 21 in the table) |
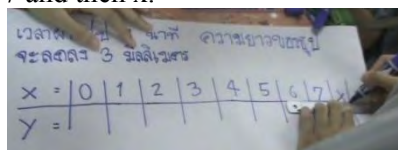
(Item 15) S8   :   And then y=3x and end.

According to the discussion of item11, S5 said that *"0, 1, 2 ... Where is the end?"* and in item12 S8 said *"7 and then x"*. In Item11 and 12, after students created the variable, students specified x value become compensated some part of the time in order to consider it simply. Students decided to let x value 0, 1, 2, 3, 4, 5, 7, x from the set of number. Students attempted to think in general case which is any time from Item13 S6 said *"0, 3, 6, 9, 12, 15, 18, and 21"*. In item13, when S5 wrote x value in the table, S6 told S5 to fill y value in the table as well. S6 filled these following numbers 0, 3, 6, 9, 12, 15, 18, 21, 3x. Therefore, students had tried to create the variable that relate to unknown value or some known from the whole. Students connected to the problem structure that x value had become something else. Y value they got was from a multiplication of 3 so that they got 3x as in the duration of any x. From Item15, S8 said *"And then y=3x and end"*. In item15, students had seen the connection between the variable expression written in a general form and they did not write in a mathematic form. Aforementioned, it could be seen that the group 2 had Level 2 of Algebraization based on Ake et al.'s (2013) framework.

     Group 3: Students solved the problem by themselves, discussed and wrote their ideas. In this step Group 3 had Algebraic Thinking. When the Protocol was analyzed in Algebraization Levels, the analysis findings were as follows:

(Item 1) S11   :   (Students created the representation and wrote them ideas in worksheet.)

(Students wrote relavance of x and y in the table and equation form.)

(Item 2) Teacher   :   Are you finished? How relevance in the table is?
(Item 3) S12   :   Minute times 3.
(Item 4) Teacher   :   Which is minute?
(Item 5) S12   :   x
(Item 6) Teacher   :   Umm, x is minute. Then, What it multiplies?

(Item 7) S12   :   3
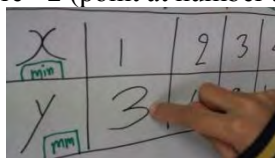
From Item1, students wrote a group concept down on their group work handout. They created the variable and the table to show the created-variable relation in a table form and in expression form is y=3x. Teacher then asked them how the expression related to the situated problem. From item2, teacher asked how the table related to those they had mentioned. From item3, S12 said *"Minute times 3"*. In item3, students explained about the relationship between x and y in the table that y value is from multiplication of 3. To sum up, students understood the relationship of time and the height reduction. Nonetheless, students not yet connect between x and y of how they relate to each other. In item4, teacher asked students which one is a minute. From item5, S12 said *"x"*. In item5, students created a connection of a created variable to explain the structure of situated problem. So, students saw the relationship of variable or the expression variable of x and y to explain every value of x. However, students used only one variable to write in a general form not in a mathematic form. Aforementioned, it could be seen that the group 3 had Level 2 of Algebraization based on Ake et al.'s (2013) framework.

In addition Group 3 found the set of numbers in the table that show the relevance of numbers. So Group 3 had Algebraic Thinking again. When the Protocol was analyzed in Algebraization Levels, the analysis findings were as follows:

(Item 31) S11   :   Look at here   (point at x=1 and y=4) it adds 2
                                                   (point at x=2 and y=6) it adds 4
                                                   (point at x=3 and y=9) it adds 6
                                  it increases by 2.
(Item 32) S12   :   How?
(Item 33) S11   :   Look at here +2 (point at number 3 in the table)
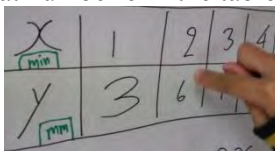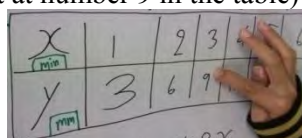
+4 (point at number 6 in the table)

+6 (point at number 9 in the table)

From item31, S11 said *"Look at here, it adds 2, it adds 4 and it adds 6, it increases by 2"*. In item31, students determined the basic value that showing the connection of two quantities corresponding to the situated problem. From item33, S11 explained their thought indicated that x=1, y will be found from adding twice of 1 and x=2, y will be from 2 adding until 4, x=3, y will be found from adding 3 until 6. Finally, from item31 and 33, students had seen the primary relationship of two quantities that has mutual changing. There is an explanation using symbol to deliver any quantity which those values are the result of the operation in case of x=1, 2 and 3. The language related to what students think and was ambiguous to explain and they couldn't think as Generalization. Aforementioned, it could be seen that the group 3 had Level 0 of Algebraization based on Ake et al.'s (2013) framework.
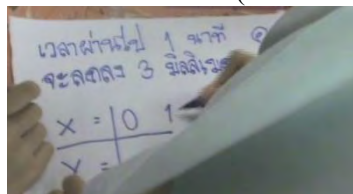
CONCLUSIONS

The results revealed that the levels of students' algebraic thinking in 4 steps of Open Approach were as follows:

     1) Posing open-ended problem, the students in group 1 had Algebraic Thinking in Level 0 and the students in group 1 had Algebraic Thinking in Level 2 based on Ake et al.'s (2013) conceptual framework.

2) Students' self-learning, the students in group 3 had Algebraic Thinking in Level 0, the students in group 1 had Algebraic Thinking in Level 1 and the students in group 2 and 3 had Algebraic Thinking in Level 2 based on Ake et al.'s (2013) conceptual framework.

3) Whole class discussion and comparison, the students in group 3 had Algebraic Thinking in Level 1 and the students in group 1 and 3 had Algebraic Thinking in Level 2 based on Ake et al.'s (2013) conceptual framework.

4) Summing-up by connecting students' emergent mathematical ideas, no students had Algebraic Thinking.

Mathematics classroom innovated by Open Approach and Lesson Study provide students with rich opportunities for learning through thinking including Algebraic thinking.

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An Exploration of EFL Vocabulary Learning Strategies
of Undergraduate Students at a State University in Thailand

Thanakorn Thongprayoon
Language Center, International College for Sustainability Studies,
Srinakharinwirot University,
114 Sukhunvit 23, Wattana, Bangkok, Thailand 10110
thanakorn@g.swu.ac.th

Patthaya Punyaporn
Language Center, International College for Sustainability Studies,
Srinakharinwirot University,
114 Sukhunvit 23, Wattana, Bangkok, Thailand 10110
patthaya@g.swu.ac.th

Abstract: *This study aimed to explore the vocabulary learning strategies (VLS) employed by undergraduate students at a state university in Thailand, and to compare the vocabulary learning strategies employed by higher and lower English proficiency students. The subjects were 300 undergraduate students enrolling two different foundation English courses following their English proficiency level during the first academic year 2013. A questionnaire which included VLS based on Schmitt's (1997) and was adapted from Cheung (2004) taxonomy was distributed. Follow-up semi-structured interviews were carried out with 50 students probing their reasons for their preferences in choosing the use of VLS. Descriptive Statistics were used to analyze the use of VLS and referential statistics of F-test was applied to test the use of VLS of the two different subject groups. The results of the study revealed that the most frequent VLS used was Using smartphone application or Online dictionary to get the meaning of the words. The least frequent VLS used was grouping words together with storyline or mind-mapping.*

Keywords: vocabulary learning strategies, English as a Foreign Language (EFL), Undergraduate Students, a State University in Thailand

Background and the importance of the study

English is the prioritized foreign language taught as general education subject at all universities in Thailand. Actually, the instruction of English starts at kindergarten or lower primary levels. At this state university, Thailand, all regular undergraduate students are required to enroll at least two English courses as compulsory courses (SWU 121-122) for those with lower English proficiency level or SWU 123-124 for those with higher English proficiency level) depending on their English proficiency levels shown in the entrance examination scores. In class, the students are provided with exposure to English, and the elements of grammar and vocabulary as well as the language skills of listening, speaking, reading and writing are all integrated and taught. All compulsory English courses are provided by Language Center. And the courses are conducted by Thai or native English speaking teachers. Each class consists of 30-40 students. It normally lasts four hours, and it occurs once a week. Extracurricular English activities and life-long learning through computer assisted language learning are also incorporated into the course.

Research in EFL vocabulary learning and its relationship to language skills has gained much interest within the field of investigation in second language acquisition. Also, the recognition of the role of vocabulary in language learning has also continued to increase in recent years. From the researchers' observations and discussions with other institutional colleagues, teaching grammatical rules, phonological structures have been focused during the past experiences. Learners are assumed that once they have learned the structural frames and the grammatical rules, they will then be able to fill in the lexical items as needed. Hence, vocabulary learning strategies are of interest in researching.

From the point of view, this study will explore the use of vocabulary learning strategies among undergraduate students as English as Foreign Language (EFL) learners a state university. The results were preliminary findings of the vocabulary learning employed by these EFL learners.

Research Questions
1) What vocabulary learning strategies are used by undergraduate students?
2) Are the strategies employed by higher English proficiency students different from the strategies employed by lower English proficiency students? And how?

Research Objectives
1) To study the vocabulary learning strategies which are employed by undergraduate students
2) To compare the vocabulary learning strategies employed by higher and lower English proficiency students

Research context
The subjects selected through simple random sampling technique were undergraduate students at a state university in Thailand enrolling two different foundation English courses which were SWU 121 (English for Effective Communication 1) and SWU 123 (English for International Communication 1) in the first academic year 2013. Those two courses were run by the Language Center.

Literature Review

The Importance of Vocabulary
Vocabulary learning is a salient factor which plays a significant role in second language learning. If the learners have insufficient vocabulary knowledge, it will lead to difficulties in learning the language. The more the second language learners know what the meanings of the words are, the more they can understand the text. To support this, many scholars investigated their studies about how the vocabulary knowledge affects second language learning. Daneman (1988) asserted that the main factors in reading a context are vocabulary learning and words information. Martin-Chang & Gould (2008) also ascertained that vocabulary knowledge helps language learning improvement. Moreover, Sener (2009) asserted that "vocabulary is central to language and of critical importance to the typical language learner".

Language Learning Strategies
In order to achieve in language learning, there are a large number of researchers investigated which language learning strategies the students used so as to help them learn second language successfully and efficiently. Oxford (2003) defined language learning strategies as "specific actions taken by the learners to make learning easier, faster, more enjoyable, more self-directed, more effective and more transferable to new situations". Many researchers are in an attempt to propose a framework of wide range category of language learning strategies (LLS). O'Malley and Chamot (1990) categorized language learning strategies into three types: metacognitive strategies, cognitive strategies, and social/affective strategies whereas Oxford (1990) classified language learning strategies into two types which are Direct strategies and Indirect strategies. In addition, Direct strategies are also divided into three sub classes: memory strategies, cognitive strategies, and compensation strategies. Indirect strategies can be classified into three sub classes: metacognitive strategies, affective strategies, and social strategies. Gu and Johnson (1996) proposed two main categories of vocabulary learning strategies which are metacognitive regulation and cognitive strategies. Furthermore, it can be categorized into six subcategories which are guessing, using a dictionary, note-taking, rehearsal, encoding, and activating.

Vocabulary Language Learning (VLS)
In accordance with a number of researchers (Wenden and Rubin 1987; O'Malley and Chamot, 1990; Oxford, 1990 and Schmitt, 1997) indicated that language Learning Strategies (LLS) and Vocabulary learning strategies(VLS) inevitably intertwined and VLS form a sub-class of framework for language learning strategies and for this reason are applicable to a wide variety of language learning (LL) tasks, sighting from the more remote ones, such as vocabulary, pronunciation and grammar to integrative tasks such as reading comprehension and oral communication.

This is highlighted by Schmitt (1997) who distinguished vocabulary learning strategies into two main groups of strategies: 1) Discovery strategies: Strategies that are used by learners to discover learning of words; 2)

Consolidation strategies: a word is consolidated once it has been encountered. He categorized vocabulary learning strategies into five sub-categories:

       1) Determination strategies: they are individual learning strategies (Schmitt, 1997).

       2) Social strategies: they are learners learn new words through interaction with others (Schmitt, 1997).

       3) Memory strategies: they are strategies, whereby learners link their learning of new words to mental processing by associating their existing or background knowledge with the new words (Schmitt, 1997).

       4) Cognitive strategies: they are strategies that do not engage learners in mental processing but is more mechanical means (Schmitt, 1997) and

       5) Metacognitive strategies: they are strategies related to processes involved in monitoring, decision-making, and evaluation of one's progress (Schmitt, 1997).

Gu and Johnson (1996) developed a categorization of vocabulary learning strategies that are beliefs about vocabulary learning, metacognitive regulation, guessing strategies, dictionary strategies, note-taking strategies, memory strategies (rehearsal), memory strategies (encoding) and activation strategies.

The study was aimed at the investigation of vocabulary learning strategies employed by undergraduate students focusing on five main categories based on Schmitt's (1997) taxonomy which were as follows: Determination strategies (DET), Social strategies (SOC), Memory strategies (MEM), Cognitive strategies (COG), and Metacognitive strategies (MET).

Research on Vocabulary Learning Strategies

Over the last two decades, there have been many studies in relation to vocabulary learning strategies and many researchers developed the wide range of their studies in various aspects (Oxford,1990; O'Malley and Chamot, 1990; Schmitt, 1997; Wu, 2005; Asgari and Mustapha, 2011; Zhang and Li, 2011; Kalajahhi and Pourshahian, 2012; Waldvogel, 2013

Wu (2005) explored the vocabulary learning strategies adopted by 303 Taiwanese EFL students by demonstrating the strategies they used, their perceptions of the helpfulness of these strategies, the helpfulness ratings of the strategies, and whether the patterns of strategy use change for students of different age groups by mostly using Schmitt's study (1997). The results showed that the use of electronic dictionaries, bilingual dictionaries, and guessing from context are the most popular strategies shared by students from different age groups.

Asgari and Mustapha (2011) investigated the type of vocabulary learning strategies used by Malaysian ESL students majoring at Teaching English as a Second Language (TESL) by using open-ended interview with ten students at the Faculty of Education Studies in University Putra Malaysia. The results showed that memory, determination, metacognitive strategies are popular strategies which the learners mostly used.

With regard to the studies in vocabulary learning strategies in Thailand, there are a number of ample evidence that Thai teachers attempted to conduct their research in different aspects (Intaraprasert, 2004; Krajangsirisin, 2001; Muensorn, 2007, Siriwan, 2007; Riankamol, 2008, Komol and Sripetpun, 2011). For instance, Tassana-Ngam (2005) found that training Thai EFL university students in using five vocabulary learning strategies (dictionary work, keyword method, semantic context, grouping and semantic mapping) improved their ability to learn English words and enhanced awareness of how to learn vocabulary. Komol and Sripetpun (2011) conducted their research about English vocabulary learning strategies used by 192 second-year university students at Prince of Songkhla University (PSU). The findings showed that determination strategies was the most frequently used strategies while social strategies were less often used by all subjects. In addition, the relationship between vocabulary learning strategy use and vocabulary size score is also existed.

Research Methodology

1) Content: Study of vocabulary learning strategies of undergraduate students at a state university and their opinions towards vocabulary learning

2) Population and subjects:

Population: undergraduate students at Srinakharinwirot University who were enrolling for Foundation English Courses in Semester 1 of Academic Year 2013

Subject for Pilot Study: 80 students of a lower and a higher proficiency students sections were selected through simple random sampling technique. They were given with the questionnaire. And 5 students from each section were voluntarily selected to participate in semi-structured group interviews.

Subjects were selected by Simple Random Sampling technique. 150 students were from lower proficiency students sections and another 150 students were from higher proficiency students sections. There were 300 students in total to answer the questionnaire. 50 students were voluntarily selected to participate in semi-structured group interviews. For classroom observation, four classes of four sections were observed by the authors as non-participant observers. And each lesson was about reading and presenting new vocabulary.

Research Instruments
Questionnaire
The questionnaire consisted of five parts; Part 1 Research project introduction and directions, Part 2 Subject's demographic information, Part 3 Opinion towards the importance of vocabulary and strategies using 5-point Likert's scale, Part 4 Vocabulary learning strategies using 5-point Likert's scale, and Part 5 Problems when learning or dealing with new words/phrases using open-ended questions.

Semi-structured Interview
The semi-structured group interviews were given to subjects who voluntarily intended to join in. Each interviews consisted of five to eight subjects, and the authors were the interviewers. The questions included the importance of vocabulary and strategies, vocabulary learning strategies, and problems when learning or dealing with new words/phrases.

Field note for classroom observations
The field note for classroom observations was aimed at collecting lesson topic and summary of the lesson content, teaching materials and learning exercises, and written record of vocabulary learning strategies.

Data Collection
Vocabulary learning strategies were collected through the use of the questionnaire and follow-up semi-structured interviews. And the classroom observations of the use of vocabulary learning strategies were done.

Data Analysis
Descriptive Statistics including percentage, mean, Standard Deviation were used to analyze the use of vocabulary learning strategies. The referential statistics of t-test was applied to test the use of vocabulary learning strategies of the two different subject groups through SPSS.

Results of the study
The total number of the participants was 148. The majority of the participants were female 76 (51.40%), whereas the number of the male participants was 72 (48.60%). The average age was 19-year-old and the average year that they have studied English was 13 years. They were all informed that the study was for research purposes only and they were assured that their identities would be kept anonymous.

Table 1 showed the number of SWU 123 students who held grade B was 42(28.40%), B+ was 41 (27.70%), A was 31 (20.90%), C+ was 27(18.20%), and C was 6 (4.10%) respectively.

The participants comprised 150 students. The majority of the participants were male 91 (60.70%), whereas the number of the female participants was 59 (39.30%). The results indicated that the participants' mean age was 19 years old and the average year that they have studied English was 14 years.

According to the table 2, it can be seen that the number of SWU 121 students who held grade C+ was 46 (30.70%), C was 43 (28.70%), B was 26 (17.30%), D was 20 (13.30%), D was 12 (8%), A was 2 (1.30%), and B+ was 1 (0.70%) respectively.

Table 1. The percentage of SWU 123 students' grade

Grade	Number	Percentage
A	31	20.90
B+	41	27.70
B	42	28.40
C+	27	18.20
C	6	4.10
No answer	1	0.70
Total	**148**	**100.00**

Table 2. The percentage of SWU 121 students' grade

Grade	Number	Percentage
A	2	1.30
B+	1	.70
B	26	17.30
C+	46	30.70
C	43	28.70
D+	20	13.30
D	12	8.00
Total	**150**	**100.00**

Table 3. The Mean and Standard Deviation of VLS used by SWU 123 students

Item	Vocabulary Learning Strategies	Mean ($\overline{X}$)	SD.	Frequency
1	I repeatedly say the word in my mind.	3.35	1.360	sometimes
2	I repeatedly spell the word in my mind.	3.28	.856	sometimes
3	I repeatedly say the word aloud.	3.05	.946	sometimes
4	I repeatedly write the word.	3.25	1.009	sometimes
5	I analyze the word by breaking it into sound segments.	2.99	1.088	sometimes
6	I analyze the word by breaking it into meaningful parts.	3.60	1.061	often

7	I link the word to a visual image in my mind.	3.66	1.04	often
8	I link the word to another English word with similar sound.	3.35	1.43	sometimes
9	I link the word to a Thai word with similar sound.	3.02	1.133	sometimes
10	I use sound and meaning associations.	3.51	1.007	often
11	I group words together with storyline or mindmap.	2.97	1.507	sometimes
12	I remember the sentence in which the word is used.	3.49	.972	often
13	I remember the new word together with the context where the new word occurs.	3.55	.913	often
14	I make up my own sentences using the new word.	3.08	1.130	sometimes
15	I try to use newly learned words in imaginary situations in my mind.	3.55	1.064	often
16	I remember words by doing dictations.	3.51	1.066	often
17	I remember words by doing group work activities in class.	3.43	.970	often
18	I remember words by doing a project.	3.28	.990	sometimes
19	I analyze the part of speech of the new word.	3.64	.926	often
20	I analyze the affixes and roots of the new word.	3.84	.934	often
21	I check for the meaning of new English word by using English-English dictionary.	3.70	1.028	often
22	I check for the meaning of new English word by using English-Thai dictionary.	4.06	.942	often
23	I analyze any available pictures or gestures to guess the word.	3.55	.914	often
24	I guess the meaning of the new word from the story.	4.09	.773	often
25	I use a dictionary to check the words.	4.17	.868	often
26	I ask the teacher for the new word's synonym.	3.25	.961	sometimes
27	I ask the teacher for a synonym, paraphrase and translation.	3.32	.983	sometimes
28	I ask classmates for meaning of the word.	3.78	.973	often
29	I use smart phone application/ online dictionary to help me get the meaning of the words.	4.51	.760	always
	Vocabulary Learning Strategies	**3.51**	**.522**	**often**

Table 3 displayed the mean frequency of VLS frequently used by the SWU 123 students. Results revealed that the most popular VLS that they frequently used was item 29, which is
"I use smart phone application/ online dictionary to help me get the meaning of the words."
(MEAN= 4.51, SD = .760), whereas the least popular VLS was item 11, which is "I group words together with storyline or mind-mapping" (MEAN = 2.97, SD = 1.507) as rated by SWU 123 students.

Table 4. Mean and standard deviation of VLS that the SWU 121 employed

Item		Mean ($\overline{X}$)	SD.	Frequency
1	I repeatedly say the word in my mind.	3.16	.752	sometimes
2	I repeatedly spell the word in my mind.	3.15	.847	sometimes
3	I repeatedly say the word aloud.	3.02	.839	sometimes
4	I repeatedly write the word.	3.00	.859	sometimes
5	I analyze the word by breaking it into sound segments.	2.82	1.659	sometimes
6	I analyze the word by breaking it into meaningful parts.	3.18	1.326	sometimes
7	I link the word to a visual image in my mind.	3.48	.888	often
8	I link the word to another English word with similar sound.	3.29	1.343	sometimes
9	I link the word to a Thai word with similar sound.	3.33	.916	sometimes
10	I use sound and meaning associations.	3.17	1.333	sometimes
11	I group words together with storyline or mindmap.	2.76	1.350	sometimes
12	I remember the sentence in which the word is used.	3.18	1.326	sometimes
13	I remember the new word together with the context where the new word occurs.	3.07	1.645	sometimes
14	I make up my own sentences using the new word.	2.86	1.269	sometimes
15	I try to use newly learned words in imaginary situations in my mind.	3.39	1.310	sometimes
16	I remember words by doing dictations.	3.48	.967	often
17	I remember words by doing group work activities in class.	3.49	.792	often
18	I remember words by doing a project.	3.23	.913	sometimes
19	I analyze the part of speech of the new word.	3.32	.805	sometimes
20	I analyze the affixes and roots of the new word.	3.27	.939	sometimes
21	I check for the meaning of new English word by using English-English dictionary.	3.49	1.110	often
22	I check for the meaning of new English word by using	4.01	.927	often

	English-Thai dictionary.			
23	I analyze any available pictures or gestures to guess the word.	3.55	.856	often
24	I guess the meaning of the new word from the story.	3.72	.852	often
25	I use a dictionary to check the words.	4.02	.871	often
26	I ask the teacher for the new word's synonym.	3.26	.886	sometimes
27	I ask the teacher for a synonym, paraphrase and translation.	3.19	.847	sometimes
28	I ask classmates for meaning of the word.	3.67	.909	often
29	I use smart phone application/ online dictionary to help me get the meaning of the words.	4.17	.961	often
	Vocabulary Learning Strategies	**3.59**	**.731**	**often**

Table 4 shows the means, standard deviations, and frequency level of the VLS frequently used and most useful VLS, as rated by the SWU121 students. Results revealed that the most popular VLS that they frequently used was item 29, which is "I use smart phone application/ online dictionary to help me get the meaning of the words."(MEAN= 4.17, SD = .961), whereas the least popular VLS was item 11, which is "I group words together with storyline or mind-mapping." (MEAN = 2.76, SD = 1.350) as rated by SWU 121students.

Table 5. Correlation between the vocabulary learning strategy use and the different grades
that the SWU 123 students received

VLS used by SWU 123 students	Sum of Squares (SS)	df	Mean Square (MS)	F-test	Sig.
Between Groups	2.884	5	.577	2.204	.057
Within Groups	37.155	142	.262		
Total	**40.039**	**147**			

Table 6: Correlation between the vocabulary learning strategy use and the different grade
that the SWU 121 students received

VLS used by SWU121 students	Sum of Squares (SS)	df	Mean Square (MS)	F-test	Sig.
Between Groups	.811	5	.162	.579	.716
Within Groups	40.384	144	.280		
Total	**41.195**	**149**			

It can be seen from the above table 5 and 6 that there was no statistically significant difference between the VLS that they used and the different grades that they received.

Table 7 Comparison of vocabulary strategies used by students of different levels of English proficiency

Strategies	Descriptions	Frequency SWU 123	Frequency SWU 121
COG	1. I repeatedly say the word in my mind.	sometimes	sometimes
COG	2. I repeatedly spell the word in my mind.	sometimes	sometimes
COG	3. I repeatedly say the word aloud.	sometimes	sometimes
COG	4. I repeatedly write the word.	sometimes	sometimes
DET	5. I analyze the word by breaking it into sound segments.	sometimes	sometimes
DET	6. I analyze the word by breaking it into meaningful parts.	often	sometimes
MEM	7. I link the word to a visual image in my mind.	often	often
MEM	8. I link the word to another English word with similar sound.	sometimes	sometimes
MEM	9. I link the word to a Thai word with similar sound.	sometimes	sometimes
MEM	10. I use sound and meaning associations.	often	sometimes
MEM	11. I group words together with storyline or mind-mapping.	sometimes	sometimes
MEM	12. I remember the sentence in which the word is used.	often	sometimes
MEM	13. I remember the new word together with the context where the new word occurs.	often	sometimes
DET	14. I make up my own sentences using the new word.	sometimes	sometimes
MEM	15. I try to use newly learned words in imaginary situations in my mind.	often	sometimes
MET	16. I remember words by doing dictations.	often	often
MEM	17. I remember words by doing group work activities in class.	often	often
COG	18. I remember words by doing a project.	sometimes	sometimes
DET	19. I analyze the part of speech of the new word.	often	sometimes
DET	20. I analyze the affixes and roots of the new word.	often	sometimes

DET	21. I check for the meaning of new English word by using English-English dictionary.	often	often
DET	22. I check for the meaning of new English word by using English-Thai dictionary.	often	often
DET	23. I analyze any available pictures or gestures to guess the word.	often	often
DET	24. I guess the meaning of the new word from the story.	often	often
SOC	25. I use a dictionary to check the words.	often	often
SOC	26. I ask the teacher for the new word's synonym.	sometimes	sometimes
SOC	27. I ask the teacher for a synonym, paraphrase and translation.	sometimes	sometimes
SOC	28. I ask classmates for meaning of the word.	often	often
DET	29. I use smart phone application/ online dictionary to help me get the meaning of the words.	always	often
	Vocabulary Learning Strategies	**often**	**often**

Most useful vocabulary strategies

All the subjects stated that VLS item 29 was very helpful to remember new words easily. The comments from some students were already provided as shown below:

> *"The smartphone is quite essential tool for me because I can learn English through favorite song, watching VDO from Youtube, or even playing games online. If I find that I cannot understand the unfamiliar words while playing games, I can use dictionary online immediately. Actually, it is a good opportunity to learn new vocabulary without asking people around me and I can remember the meaning of new words automatically."*

Items 25: I use a dictionary to check the words.
Items 22: I check for the meaning of new English word by using English-Thai dictionary.
The students agree that they often use English - Thai dictionary help them find out the meaning of the unfamiliar words as they think that bilingual dictionary is very useful for them and it makes them understand the words easily. For example, one of the students shared her experience of checking for the meaning of new English words by using English - Thai dictionary:

> *"It happens when I read comic books or English Journal. I really like to use English- Thai dictionary to search for the meaning of the difficult words. Furthermore, when I watch movies with English subtitles and I do not really understand the difficult words, I often use dictionary to check the meaning."*

Item 24: I guess the meaning of the new word from the story.
The students said that they often guess the meaning of unfamiliar word when they have to read long academic journals as they need to reduce time consuming. For instance, one of the students expressed his idea on guessing meaning from the story.
> *"When I have to read for academic purposes, I have to read the English articles quickly so I tend to skip the difficult words and guess meaning of that words from the context. Sometimes I try to make a guess by using my knowledge about prefixes and suffixes which I find it very useful, if I have enough time, I can possibly use dictionary in order to check the meaning of those words."*

Discussions

Based on the findings of this study, it has answered the first research question, what vocabulary learning strategies are used by undergraduate students at a state university, the data indicated that the most top five frequently used strategies by higher proficiency students (SWU 123) were as follows: 1) I use smart phone application/ online dictionary to help me get the meaning of the words; 2) I use a dictionary to check the words; 3) I check for the meaning of new English word by using English-Thai dictionary; 4) I guess the meaning of the new word from the story; and 5) I analyze the affixes and roots of the new word. According to Schmitt's (1997) taxonomy, all those strategies mentioned above can be categorized as determination strategies which asserted that they tend to be individual learning students. Similarly, the most top five frequently used strategies by lower proficiency students (SWU 121) were as follows: 1) I use smart phone application/ online dictionary to help me get the meaning of the words., 2) I use a dictionary to check the words; 3) I check for the meaning of new English word by using English-Thai dictionary; 4) I guess the meaning of the new word from the story; and 5) I ask classmates for meaning of the word. All those four items belonged to determination strategies, except the last items belonged to social strategies.

To answer the research question 2 asking whether the strategies employed by high English proficiency students different from the strategies employed by lower English proficiency students, the results of this study obviously revealed that the most popular strategies that they both used in order to facilitate vocabulary learning is determination strategy which one cannot be surprised finding out that modern technology plays a significant role in the technological world. Smartphone becomes their good buddies and they use them as useful tools to find out the meaning of the new vocabulary and reduce time- consuming. Furthermore, they seek immediate information and it can benefit their learning in the classroom. With reference to the Schmitt(1997)'s taxonomy, the most popular strategies employed by higher and lower proficiency students belonged to determination strategies which was consistent with the finding of some previous studies on vocabulary learning strategies (Komol&Sripetpun,2011 ; Wu, 2005; Mustafa, 2010; Nosidlak, 2013). However, the result of the investigation of vocabulary learning strategies can be different from country to country as shown in the previous studies; for example, Salamzadeh and Ahour (2014) found that poor Iranian high school students preferred to use cognitive strategies than other strategies. Lip (2009) investigated the most frequently used and most useful vocabulary language learning strategies among Chinese EFL postsecondary students in Hong Kong and found that the most frequently used was cognitive strategies for repeating the words in their mind. In consequence of this result, Lip (2009) noted that it might come from the cultural influence of Confucianism, considering effort and perseverance. In addition, Asgari (2011) found that the popular vocabulary learning strategies used by Malaysian ESL students at University Putra Malaysia are related to memory, determination and metacognitive strategies. Based on those results mentioned, it is supported by Oxford (2003) that "Vocabulary is not explicitly taught in most language classes".

By comparison, the result about the least VLS frequently used by higher and lower proficiency students cannot be avoided discussing. As shown in table 3 and 4, the least VLS frequently used by both student groups is mind-mapping. This finding showed that the participants in this study were unaware of memory strategies, especially using mind mapping to find out the meaning of words. Based on Schmitt's (1997) taxonomy, mind mapping belonged to memory strategies which is considerably important for students in regard to encouraging self-directed learning and they can use mind-mapping as the effective way to scaffolding their vocabulary learning. This is highlighted by Buzan (1993), who posits that mind-mapping is "an expression of Radiant Thinking and is therefore a function of the human mind," and "a powerful graphic techniques which provides a universal key to unlocking the potential of the brain". Besides, he also insisted that "a mind-mapping is a colorful, visual form of note- taking that can be worked on by one person or a team of people. At its heart is a central idea or image. This is then explored by means of branches representing main ideas, which all connect to this central idea as cited in Hariri (2013). With the definition of mind-mapping, teachers should introduce or get the students trained on how to use mind-mapping in order to create better understanding on vocabulary learning and it is the effective way to enhance vocabulary skill in language learning.

Future studies on vocabulary learning strategies can be explored more in different aspects such as culture, gender differences, teacher's role or individual differences to broaden knowledge about vocabulary learning

strategies in depths and it can be useful as it could be crucial evidence for the teachers who need to improve and apply their teaching methods in the classroom.

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Thai Undergraduates' Attitudes and Practices towards "Thai Chatspeak"; A Broken Language, or Just a Fad?

Thanakorn Thongprayoon
Language Center, International College for Sustainability Studies,
Srinakharinwirot University,
114 Sukhunvit 23, Wattana, Bangkok, Thailand 10110
thanakorn@g.swu.ac.th

Abstract: *This study aimed at exploring 200 Thai undergraduates' attitudes and practices towards Thai chatspeak through questionnaires, and semi-structured group interviews. The findings indicated that most subjects practiced Thai chatspeak regularly with companions. Females tended to use more polite Thai chatspeak. Ten patterns of Thai chatspeak were derived from stated practices. There was at least a functional purpose in each pattern, for example, to save time, and to reduce the level of impoliteness by adding or dropping out one or two alphabets from toise vulgar word form. Both female and male reported that Thai chatspeak was a fad of new language variety. However, males tended to think about fun and creativity whereas females tended to think about the results and appropriateness. Deploying Thai chatspeak in informal communication was acceptable as long as it was understandable, and creating new forms of Thai chatspeak was considered creative.*

Keywords: Thai chatspeak, attitudes and practices towards Thai chatspeak, Thai undergraduates

Justification of the study

In sociolinguistics perspective, a variety is a form of a language used by speakers of that language. This may include dialects, accents, registers, styles or other sociolinguistic variation, as well as the standard language variety itself (Meecham and Rees-Miller, 2001). It is also explained that variation at the level of the lexicon, such as slang and argot, is often considered in relation to particular styles or levels of formality or registers, but such uses are sometimes discussed as varieties themselves (Meecham and Rees-Miller, 2001). Language variation can be seen as a regret of a fact concerning language as language change (Wardhaugh, 1994). In the real world, there is no single language to be used by all.

Thailand has its own national and standard language known as Thai, and also there are variations of the language used by a variety of native Thai speakers with different context as well as purposes. In particular, language represents national identity and reflects localized and unique characteristics of language users. It is undeniable that languages change over time (Holmes, 2008; and Montgomery, 2008). So does Thai, as it is presently and widely known that Thai people have their own way deploying English language called Thinglish, or Thenglish, or Thailish. It is a wide discussion that the development and spread of English as world Englishes, of the internet and cyber world, and of the mass media has an impact on Thai society very much. As a result, either a slight or radical change of Thai language is concerned during the past years and it is currently a case of controversy in Thai society whether the language use employed by Thai new generation in chatspeak as a Thai variety via new media, such as, electronic chatting programs, weblogs, mobile phones, and so on, is considered a change to broken language or just a fad. Additionally, one of my colleagues is worried about this situation of Thai chatspeak as she found that a significant number of her students consciously used a Thai variety as chatspeak style on the essay assignments. Whereas, there are arguments stating that it is just a phenomenon of a trend used in informal communication among teenagers and their peers. And it frequently happens in spoken rather than in written language.

According to the definition of chatspeak through new media, chatspeak refers to an informal pattern of conversational language through new media. In this study, therefore, Thai chatspeak refers to an informal or non-standard form of Thai language used in spoken and written communication through new media, such as, electronic chatting programs, weblogs, mobile phones, and other electronic social networking programs. According to Oxford advanced learner's dictionary (Hornby, 2003) ; *attitude* refers to the way that people think

and feel about somebody or something, the way that they behave towards somebody or something that show how they think and feel. In short, attitude refers to the opinion of someone towards something which defines his or her predisposition in a favorable or unfavorable manner.

There is an acknowledgement that people react to different linguistic usages regarding gender (Wardhaugh, 1994). Women use some words that men do not use or use somewhat differently. Women are likely to be precise and careful in using the language in general, or they take more care in articulation (Wardhaugh, 1994). Moreover, women tend to employ a wider range of language patterns.

As Thai teenagers are considered next generations of Thai language users, a full of attentions and concerns have been paid to the use of Thai chatspeak in daily lives and in formal settings of this group of speakers. Their practice of Thai chatspeak may be derived from their attitude or vice versa. Also, Thai language represents Thai nation, it is undoubtedly intriguing to investigate their attitudes and practices towards the employment of Thai chatspeak in formal and informal communication. The results of the study will either recover Thai teenagers' practices and attitudes towards Thai chatspeak employed on new media. Hopefully, the study raised the respondents' awareness on Thai language as a national identity.

Objectives
1. To study the practices of Thai chatspeak of adolescent native Thai speakers
2. To explore the attitudes towards the use of Thai chatspeak of adolescent native Thai speakers

RQs
1. What are the practices of Thai chatspeak of adolescent native Thai speakers? And how different are they?
2. What are the attitudes towards the use of Thai chatspeak of adolescent native Thai speakers?

Methods
The study employed a combination of quantitative and qualitative approaches.
Subjects
The subjects of this study were 200 subjects studying at a university in Bangkok. They were selected through simple random sampling technique to represent adolescent native Thai speakers. The subjects were 100 male and 100 female students studying in different years, majors, and programs.

Research instruments
Questionnaire
The questionnaire was prepared to discover the subjects' 1) personal information, 2) actual practices of Thai chatspeak, and 3) the attitudes towards the use of Thai chatspeak. All respondents were given a paper questionnaire. It was written in Thai language and consisted of three main parts; 1) Personal information collecting data on gender and education, 2) Actual practices of Thai chatspeak investigating frequency of use of Thai chatspeak in daily life situations, and examples of frequent Thai chatspeak words or phrases used, and 3) Attitudes towards the use of Thai chatspeak investigating attitude towards the use of Thai chatspeak. The 5-point rating scale of statements concerning 1) the use of Thai chatspeak both in formal and informal situations, and 2) the opinion whether the use of Thai chaspeak is considered A) the cause of broken language, or B) a fad. The rating scale was marked 1to 5, and each number represents strongly agree, agree, not sure, disagree, and strongly disagree respectively.

Semi-structured group interview
The 15-minute group interviews were set up after giving questionnaires to 20 respondents who were willing to take the interviews as a follow-up tool to collect more data on attitudes and practices. Each group interview consisted of at least two respondents with the same gender. The researcher was the interviewer. The semi-structured interviews with guided questions were listed for the interviewer. The interviews were audio recorded and field-noted by the researcher.

Data analysis
Personal information, attitude, and practices from questionnaires were codified, and apparently presented in percentage and mean scores. Audio recordings were replayed, not fully transcribed, and noted salient issues about the attitudes and practices towards the use of Thai chatspeaks. The interview data were to compliment the data from questionnaires.

Results and Discussion
The data obtained from the questionnaires and semi-structured group interviews were presented and interpreted in two sections. In the first section, the subjects' personal information and the actual practice of the internet were narrated. In the second section, practices of the internet and Thai chatspeak, together with attitudes towards Thai chatspeak which were derived from both the questionnaires and group interviews were presented.

About the subjects' practice of the internet, a very high majority of the subjects used the internet every day (85 % in both groups; 90 % female, and 80 % male). And the majority used the Internet every day and most females (almost 35 %) went on line seven to twelve hours a day, while most males (almost 45 %) used the internet three to six hours a day. Surprisingly, there are a number of the subjects (more than 20 % of females and more than 10 % of males) using the internet more than 12 hours a day. Data from the interviews provides a clear reason why those Thai subjects spent such long hours being on line. They mentioned that they possessed a smart phone that allowed them accessibility to the internet all day. And the air time fee was charged as a monthly rate, in other word, it provided unlimited hours of internet accessing.

It is clear and salient that Chatting with friends through the internet was the major use among the subjects. However, Emailing was a frequent reason why the subjects used the internet. The way the subjects use Thai chatspeak and it illustrates that generally they tended to be careful about spelling and used correct Thai with some combination of Thai chatspeak. Having a look at gender differences, half Thai male subjects were careful about spelling and used all correct Thai whereas only 30 % of Thai female subjects did so. Female tended to use more Thai chatspeak rather than male did in this study.

From the collection of Thai chatspeak through questionnaire, subjects listed enough loads of words and phrases to study. As Thai subjects remarked during the interview of the reason why they deployed Thai chatspeak when communicating through new media, words and phrases of Thai chatspeak - employed by Thai subjects in this study - were induced and categorized into ten patterns of use as shown below.

Table 1. Patterns of stated Thai chatspeak words and phrases used

Patterns of use	words or phrases by Thai female subjects	words or phrases by Thai male subjects
I. Transformation of vowels to make longer sound as indicated in ไม่ได้ /mai dai/ and ม่ายด้าย /maai daai/, ไปไหน /pai nhai/ ปายหนาย /paai nhaai/	ม่าย ร้าก อ่า ก้อ มะด้าย ม่ายอ่ะ ร้ากนะเด็กโง่ โหน่ย ก้อด้าย	มะอาวๅว ม่าย อ่า ป๋าว ร้าก ค้าบ คราย
II. Transformation of vowels to make shorter sound as indicated in ไม่ได้ /mai dai/ and ม่ายด้าย /maai daai/, ไปไหน /pai nhai/ ปายหนาย /paai nhaai/	มั่ก	คัย ปัย มั่ก
III. Addition of ending letters, for example, เซ็ง or เบื่อ refer to bored or boring เซ็งงงงงง or เบื่ออออออออ refer to extremely bored or boring	กรีสสสส	ค้าบบบ คร้าบบบ
IV. Misspelling of the word and mismatching	เมพขิงขิง	เดี๋ยว กิ้

the tone, but the meaning conveyed is understandable, for example, เดี๋ยว ก้อ		
V. Changing of spellings, for example, *from* น */n/ to* ล */l/* as shown in ''ไปไหนกัน'' /pai nhai *gun*/ and ไปไหนกัล /pai nhai *gul*/	เขิล	ขอบคุง
VI. Spoken to be written in order to make it more real, for example, แงแง /ngare ngare/ refers to a crying noise, อ่ะดิ่ /a di/ refers to ''Isn't it? or Right?''	อืม ป๊ะ อิอิ แป๋ว กรีสสสส ชิมิ จุบุ งะ แงแง อ่ะดิ่ อ่ะป๊ะ	ก๊าก แง ๆ แป๋ว เหอ ๆ อืม งึม อิอิ คิคิ เหอ ๆ จุ๊บ ๆ อืม งึม
VII. Addition of another alphabet to make it more polite	กรู, คริคริ	เครื่อง โคด เมริง, กรู
VIII. Cut out at least an alphabet particularly ร */r/*, or cut out one syllable to make it easier to write		คับ บายดี ไม
IX. A combination of two patterns		คราย
X. Others; English words to be written in Thai, words from TV commercials		บาย ฉึก ฉึก

The subjects were asked to fill in the questionnaires with their frequent Thai chatspeak words and phrases. Some were able to make long lists particularly males, while females seemed to make shorter lists. The most frequent Thai chatspeak among Thai female subjects was ม่าย /maii/ which means no, or not. The most frequent Thai chatspeak among Thai female subjects was เหอ ๆ /her her/ which was an imitation noise of a laugh in Thai. It is pronounced as a repetition of the same sound like ฮ่า ๆ / ha ha/.

Of the words and phrases observed, it was noticeable that males employed a number of impolite words or vernacular form while it did not occur in the females' list. Those impolite words were โคด /koad/ and กรู /groo/. Actually, these two words were originally considered rude words. They could be used among friends. Interestingly, the spelling of these two words was adjusted in order to reduce the degree of impoliteness and made those words a bit friendlier to recipients and it showed the degree of closeness between the sender and receiver. A group of the Thai male subjects stated their practice of these impolite words in Thai chatspeak as follows;

"I always use the term กรู /groo/ which means I or me, and เมริง /mearng/ which means you with some adjustments of the spelling system. When writing or posting a message on Facebook, that message may need to be a bit polite as my message would be sent to others, not to my friends only"

"I tend to add ร /r/ into those impolite words to mean less assertive and impolite. Sometimes I make the sound of the impolite words longer such as from สัตว์ /sad/ into สาด /sard/ which means animal (a rude word for scolding at someone we do not like, but it is acceptable among friends.)."

"My friends and I use Thai chatspeak in written form rather than in spoken form. We use written form to represent sounds in spoken form, such as, มะอาววว /ma aoow/ which is derived from ไม่เอา /mai aow/ (means no need). Standard form could not represent real spoken sound when it is written, so Thai chatspeak is useful in this way.

The use of Pattern 1 and Pattern 3 above were about giving extra meaning and the users needed to type the words longer than usual. It was considered an emphasis of the word and to show a higher degree of feeling or give a real deep feeling. They did this neither a purpose of time saving nor being convenient as they needed to type more letters.

The use of Pattern 4 by Thai male subjects was a clear purpose why the users employed the particular pattern. They would like to save time when typing by not having to press SHIFT button on the key board.

> "*When I do chatting with a group of friends in the same window, I need to be very quick in typing in. Using the desktop computer or a laptop is a lot easier when I need a quick type, but I am not able to type all correctly and quickly with the keyboard on the phone. I think others would apply this technique.*"

They also stated that some time whenever they chatted via mobile phone, there was a limitation of the size of the key board embracing a misspelling and it was a wasting time deleting that misspelling and typing it again. They mentioned that the sentence with that kind of misspellings was understandable, so it was not necessary to re-type. This led to the practical use of Pattern 4.

The use of Pattern 2 by Thai subjects in this study was ambiguous that it was neither a time saving nor an addition of meaning. But data derived from the interviews showed that the changing of spellings would allow creativity and fun occur in the dialogs as in the quotes of two males below;

> "*I sometimes change the spellings with the intention of being more fun and creative during my chat with friends and I believe that it is ok and easy to understand.*"

> "*Spelling is not much important in informal writing and setting as the on line chatting is. We are teenagers who need some fun, not being a serious learner all the time as we are in class. Chatting with friends with different kinds of spellings is acceptable among us. Yes, it is fun and creative.*"

A high majority of both Thai male and female subjects used the above mentioned Thai chatspeak when they chatted on line with friends. They also employed those Thai chatspeak to send short messages and when they played on line games. No report on a use of Thai chatspeak when writing a diary. Looking at the differences between genders, a very high majority of Thai male subjects (70 %) tended to employ those Thai chatspeak via chat programs with friends and another 30 % used those Thai chatspeak when sending short messages. Whereas half of Thai female subjects used the above mentioned Thai chatspeak during their on line chatting.

The interview data also leaned towards the use of mobile phones which allowed them to easily access on line chatting programs as well as short message service. This can be a result of competitive promotions originating from telecommunication operators.

The reasons why the subjects use Thai chatspeak was that it was easy to type. However, about 10 % of the sample stated that they used Thai chatspeak because they did not know the correct forms. Having a focus on gender, more than one third of the female stated that they used Thai chatspeak because it was easy to type. About one fourth of female stated that Thai chat speak was a trend or fashion and about 20 % of them also stated that Thai chatspeak could express feelings. About one third of Thai male subjects also stated that Thai chatspeak was easy to type and can express feelings. In contrast, only about 10% of male thought that Thai chatspeak was a trend and it showed creativity.

The data from the interviews, two Thai male subjects stated their opinions that using Thai chatspeak was considered creativity.

> "*I think Thai chatspeak is ok and creative. Thai chatspeak represents my own self quite well as some time I need to write messages to friends on facebook. It shows creativity and modernity.*"

"I used to think about new words or phrases about Thai chaspeak with a groups of friends. We ended up with some new ones and I think it is cool and fun, and shows that we are creative. And I believe that there will be more and more new Thai chatspeak words and phrase to come."

Thai female subjects agreed among their group in the group interview that Thai chatspeak represented their age and identity of the group.

The subjects were asked during the interview sessions to specify the reason why they employed or did not employed Thai chatspeak in formal situations. It was found that 19 out of 20 never used Thai chatspeak in their school assignments or in formal situations. There was only one female mentioned that she did not realize that she applied Thai chatspeak in her writing until the teacher gave her a written feedback. Unconscious use of Thai chatspeak may arise in formal writing when that person practices Thai chatspeak very often. Having a look back at her personal use of the internet and Thai chatspeak, she spent more than 12 hours on line per day and she mainly communicates with her companions via chatting programs and emailing.

But two senior females raised the issue of suitability of using Thai at work since they were getting to work soon.

"I am thinking that using Thai chatspeak very often, it will not be good if I get used to its forms. I am afraid I will use it when I am at work."

"In the workplace, it might be so different from school settings that I may not professional if I use Thai chatspeak in my work writing."

These two excerpts confirmed that women are always more conscious than men of socially preferred usages as Wardhaugh (1994) stated. Other reasons specified by females why Thai chatspeak was not used in their formal situations were that it was not acceptable in education domain, it lacked respectfulness to the recipients, it showed unprofessionalism and being uneducated. One mentioned that employing Thai chatspeak in school assignments would lead to test failure as it would annoy the teacher. Another female undergraduate stated that she felt annoyed when facing someone using Thai chatspeak to seniority. About the reasons specified by males, it is concluded that they did not use Thai chatspeak in formal situations but they used with friends. It showed that the writer may not know the standard forms and they think that they know what to write and say out correctly.

All these reasons could represent how different females think about employing the language. Young women adults tend to think about others, suitability, respectfulness, and face, while young men adults tended to talk about self, friends and group identity.

Thai subjects' attitudes towards Thai chatspeak
It was found that the majority of both Thai female and male subjects agreed that Thai chatspeak represents modernity and creativity. In descending order of percentage, Thai male subjects agreed, were not sure, and strongly disagreed to the statement. While Thai female subjects agreed, were not sure, and strongly disagreed to the statement. From the results, Thai male and female subjects had quite the same attitudes that Thai chatspeak represents modernity. In summary, the subjects had different attitudes towards the future and the effect of Thai chatspeak use.

Conclusions
From the findings of words and phrases of Thai chatspeak, employed by the subjects in this study, were induced and summarized into *ten patterns of Thai chatspeak use*. The use of Pattern 1 and Pattern 3 above are about giving extra meaning and the users need to type the words longer than usual. It is considered an emphasis of the word and to show a higher degree of feeling or give a real deep feeling. They did this neither a purpose of time saving nor being convenient as they needed to type more letters. The use of Pattern 2 was a clear purpose why the users

employed the particular pattern. They would like to save time when typing by not having to press SHIFT button on the key board.

They also stated that some time whenever they chatted via mobile phone, there was a limitation of the size of the key board embracing a misspelling and it was a wasting time deleting that defect and typing it again. They mentioned that the sentence with that kind of misspellings was understandable, so it was not necessary to re-type. This led to the practical use of Pattern 3.

The use of Pattern 2 in this study was salient that it was neither a time saving nor an addition of meaning. But data derived from the interviews showed that the changing of spellings would allow creativity and fun occurred in the dialogs.

In conclusion about the practice of Thai chatspeak of Thai undergraudtes, they employed a variety of language patterns to serve a wide range of purposes as indicated above. As it is said by Coulmas (2005) that women and men choose their words differently, the study also confirmed that quote as the employment of Thai female subjects was different from Thai male subjects. Moreover, the study noticed a difference in the practice of impoliteness through the more frequent use of Thai chatspeak employed by Thai male subjects in this study. This point of view confirmed that women tended to use more polite and conscious words rather than men (Wardhaugh, 1994). Another issue was Thai male subjects tended to use a wider variety of Thai chatspeak rather than Thai female subjects did in this study as it agreed with Holmes (2003 and 2008) that women tended to use more standard forms and men to use more vernacular forms.

As quoted by Boardman (2005), "chatspeak is used in writing in order to minimize space-bound and save time for group communication via new media", this study disconfirmed it and collected a wider range of chatspeak practice as shown in the previous section. With an advance of technology and telecommunication nowadays, the use of Thai chatspeak was a quick spread in Thai society among Thai speakers, particularly Thai teenagers and young adults as they spent many hours accessing to the internet.

This study aimed at discovering Thai subjects' attitudes towards the use of Thai chatspeak through a questionnaire and group interview. It was found that Thai female and male subjects had the same attitude of agreement about 1) the representation of modernity by using Thai chatspeak, 2) Thai chatspeak evolved new style of language, 3) Thai chatspeak made group understanding, 4) using Thai chatspeak was acceptable in informal communication.

They disagreed in the same points of view about using Thai chatspeak in school assignments and using Thai chatspeak in formal situations, but slightly had the same disagreement about feeling annoyed when facing someone using Thai chatspeak. This was due to the reality of their actual practice of their own. Both Thai female and male subjects were not sure mostly about the future effect, and the future existence of Thai chatspeak. However, a higher percentage of females tended to be not sure than males. Both Thai female and male subjects had the same attitude that Thai chatspeak could express similarly to spoken language while the correct form cannot.

In the interviews, Thai male subjects mentioned that they knew Thai correct forms well, but they would feel happier and had more fun chatting with friends using Thai chatspeak in informal contexts, not in education domain. Thai female subjects mostly pointed out about the use of Thai chatspeak in formal domains as it would lead to look less professional and academic. It showed a lack of respectfulness to the readers or listeners.

In conclusion about the difference of Thai female and male subjects' attitudes towards Thai chatspeak was that males tended to think about fun and creativity while females tended to think about the result and the appropriateness of the use of Thai chatspeak. And both females and males in this study did not think that their practice of Thai chatspeak was the major cause of Thai language decay or change. They believed that it was just a

fad of new variety of language that had been appeared to change over time. They mentioned a number of new Thai words and phrases they heard when they were younger and those words were rarely used or even disappeared later on.

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ASSESSMENT OF STUDENTS' MATHEMATICAL UNDERSTANDING OF ALGEBRA IN CLASSROOM USING OPEN APPROACH.

Prasit Tongsan

Education in Sciences and Technology, Khon Kaen University, Thailand

Prasit@kkumail.com

Sampan Thinwiangthong

Center for Research in Mathematics Education, Khon Kaen University, Thailand

Sampan@kku.ac.th

Abstract: *Students' learning with understanding could enable students to think and solve problems in multiple ways (Perkin, 1994). Writing is thus recognized as integral tools in developing and assessing mathematical understanding (Bishop, 1988). The purpose of this study is to assess tenth-grade students' mathematical understanding of algebra in classroom using Open Approach. The study employed the qualitative research methodology by focusing on students' written works analysis and analytic description. The target group consisted of 6 tenth-grade students from Sarakhampittayakhom School, Muang-District, Mahasarakham Province during the 2014 year. The data were collected by video recording of 5 lessons on algebra in tenth-grade. The lessons were taught by following 4 phases of Open Approach (Inprasitha, 2011) and designed work sheet as an assessment tool for assessing students' mathematical understanding by following APOS theory (Dubinsky & McDonald, 2001). The data of students' written works occurring in 2nd and 3rd phases were analyzed by APOS analytic framework (Dubinsky & McDonald, 2001). The results of study showed that all of students could express their mathematical understanding of algebra in Action level by writing answer from calculation case by case and Process level by writing some relation of quantities in problem situation on the work sheet. Some of students could show their mathematical understanding of algebra in Object level by writing equation from relation of quantities met before and Schema level by writing multiple representation, i.e. line graph and bar graph, relate to the equation. In addition, the findings showed that, at each level of the descending order as follows. 1) Action level 2) Process level 3) Object level and 4) Schema level*

Keywords: Assessment, Mathematical Understanding, Open Approach

Introduction

Regards to the context of learning management, the assessment is an essential factor of learning-teaching process (Kaur & Eric,2011). The learning assessment is (supposed) to be done beyond just using the testing items at the end; only to check how well the students can perform under the conditions of the test.(National Council of Teachers of Mathematics[NCTM],2000). The traditional evaluation emphasizes merely on ranking marks or grades. Yet nowadays the education aims to encourage learners to take role as knowledge constructivists being able to apply the knowledge in real life: thinking, doing and solving problems. The assessment needs to go further than "testing" and "grading" (Sunee Klainil,Preecharn Detsri: and Amplika Pramojanee,2007). It's obvious that a teacher use not only a test to measure the students learning at the end of process, but also different ways to assess and improve their learning continuously and consistently in a classroom.

In the secondary-school classroom they weigh most of the time on teaching-learning algebra and the runner after is geometry.(National Council of Teachers of Mathematics[NCTM],2000). Algebra is the study of relation between quantity and symbol, simulation and changes. The essential goals of learning algebra in school level are (1) students understand forms of relation and functions, (2) can present and analyze mathematical conditions and structures by using algebra symbols, (3) can use mathematical simulation pattern as the tools to present and to understand the quantity relations and can analyze the changes of different contexts (National Council of Teachers Mathematics [NCTM], 2000). This is relevant to The Basic Education Core Curriculum 2008 stating what contents the students are supposed to learn according to the algebra strand including pattern, relation, function,

set, operation of set, reasoning, term, equations, system of equations, inequality, graph, arithmetic sequence, geometric sequence, arithmetic series, geometric series (Education Ministry,2008).

According to the assessment of Thai students' mathematical understanding of PISA 2009, the finding are the content they gained lowest score or hardly got score at all was about algebra. Thai students have been gaining such a very low scoring in the algebra strand. Comparing the test outcome of PISA 2006 with PISA 2009, we found they are not different. It's obvious that algebra content is difficult for Thai students (The Institute of Science and Technology Teaching Promotion,2010). It's convinced that the algebra strand which has main proportion and important role in learning mathematics in the secondary school level. Moreover it's that necessary subject for learners to apply in higher mathematical studies. Yet according to PISA project, algebra is tough and complicate for Thai students.

Since 2002 Open Approach has been brought into Thailand and applied in teaching-learning mathematics with the 4th year teacher training students, Education Faculty, KhonKaen University by using Open-ended problem to create mathematical learning activities in some school in KhonKaen province (Inprasitha,2007). Teaching with Open Approach aims to encourage all learners to learn mathematics via one's own power and potential, to be able to create and develop his/her own mathematical work as well as his/her own learning process to higher quantity. Beside, that, the approach is suitable to study the students mathematical learning process as it can activate them to think diversely, to draw interest and curious to solve problem in a while the teacher who uses Open Approach extremely needs big effort to understand the student's thinking as much as possible (Mitree Inprasitha and Suludda Loifa,2004). Each student has freedom to do and to think whatever to progress in solving one's own problem, depending on his/her ability, interest and emotion. Furthemore, the Open Approach can help each student develop oneself in mathematical intelligence while doing various mathematical thinking activities in the classroom (Mitree Inprasitha and his team,2003). As a result, the Open Approach can encourage the students' mathematical learning to think diversely and provide opportunities for them to learn according to one's own ability and freedom to find different ways of solving a problem, which can activate the students to learn mathematics with understanding. Therefore the researcher get interested in studying "the assessment of students' mathematical understanding of algebra in classroom using Open Approach".

Assessment

The consistent assessment in classroom is exactly important, as it leads towards achieving objective of learning management (Miyauchi, 2010) and it needs to be a routine work in classroom learning activities (NCTM, 1989,2000 mentioned in Preecha Kruewan and Mitree Inprasitha, 2005). The Office of Academic and Education Commission, Ministry of Education Thailand defines that "assessment" is a process of collecting data, interpreting, recording and using the data about the students' answers included in their works or tasks reflecting what they have learned, what they are able to do and how to do next, with various ways and tools (The Office of Academic and Education Commission, Ministry of Education Thailand, 2011). Robinson & Bartletl (1993) proposed that assessment is a process of attempt to understand ways of doing activities of the students' understanding in the process, interaction and application of their understanding. Assessment is not just a final step of Instructional management but inversely it also is the beginning to improve the students' learning and it must be must be more than using merely a test to measure the students' learning at the end of the learning activity.

Open Approach

Inprasitha (2010) stated that Open Approach was used a teaching approach together 4 steps as following:
1) Posing open-ended problem
2) Students' self learning
3) Whole class discussion and comparison
4) Summarization through connecting students' mathematical ideas emerged in the classroom

The 4 steps of Open Approach used in teaching – learning mathematics were show as the picture below:
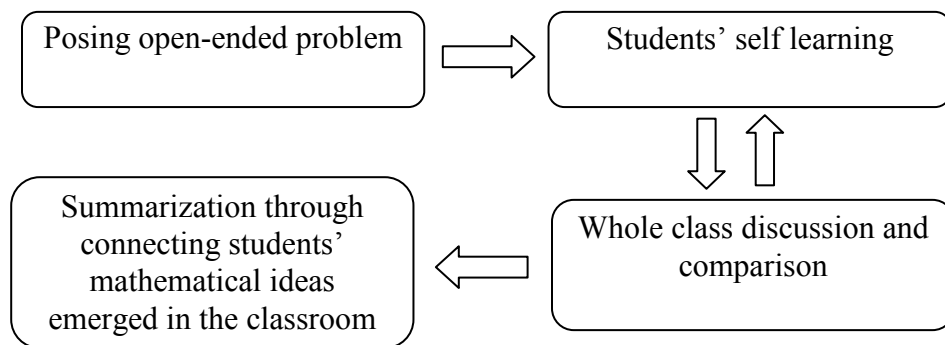
Picture 1: Steps of Open Approach as Teaching Approach (Inprasitha, 2010)

The 4 steps Open Approach includes the following details:

Step 1 Posing open-ended problem

The teacher poses an open-ended problem to the whole class. Then the students are asked with questions which can confuse some of them at the very beginning of using this approach because they are not accustomed to the using mathematical terms like characteristic, relation, method, ways, as responding to the problem.

Step2 students' self-learning

The students do solving the problem individually or do it together in groups with no interference from the teacher, who is supposed to merely observe the ideas emerging in the classroom. The Open Approach emphasizes at the individual student's thinking process, allowing each to express his/her idea through his/her own understanding. So the teacher must be careful to avoid directing and controlling the students' thinking including 2 parts: (1) individual work (2) whole-class discussion

Step3 Whole-class discussion and comparison

Each student presents his/her own idea at the front of the classroom. The teacher observes and arranges the presented ideas ranking from general simple ideas to more different and complicate ones. This is an essential part for students to record the response to the problem or the way of solving the problem for both individual work and group work later. It is helpful and convenient way getting the students to record information in notebooks or worksheets. Also the teacher can collect and use these for both individual and group learning assessment.

Step 4 Summarization through connecting students' mathematical ideas emerged in the classroom:

The teacher together with the students summarize the emerged ideas to connect with the lesson content by writing individual work or group work on the board so that everyone can see. The teacher should collect every student's suggestion though some are similar or repetitive. The students should be encouraged or supported whether their works match or can be grouped with other students' ideas or not. Even though some suggestions are not correct or incomplete, the teacher should give advice with an appropriate way, and extend the student's idea with the ideas of the other students in the class. While the students are summarizing ideas, the teacher should catch a certain issue leading to the summarization. Thus, when the teacher gather and explain the students' ideas, he must specifically rearrange those ideas and then summarizes what have been learned and prepare to pass on to the next lesson.

Mathematical understanding

National council of teacher of mathematics (2000) has proposed that students must learn mathematics with understanding. The students who learn by memorizing, formula, law, theory or processes without understanding are not able to apply knowledge. The students who learn with understanding would be able to think and solve problem in various ways (Perkin, 1993). Dubinsky & McDonald (2001) introduced APOS Theory that divide mathematical understanding into 3 levels:

1) *Action Level*: it is the understanding from responding to external stimulation. The students with limited mathematical understanding at this level have ability to perform after the given condition or calculating steps orderly. Respectively step by step. Therefore they can have action with both physical and abstract objects according to the given method.

2) *Process Level*: it is the understanding originated when the students can develop their action understanding level, or do several times of calculating until able to use their understanding to construct meaning from measurement , calculation or action of or calculation. Moreover the students can explain, reflex or think backwardly. That calculating way with no need to do step by step.

3) *Object Level*: this comes from properly collaborating the process so as to be a part of the schema being able to construct mathematical concepts at higher level, or to bring into use for solving more complicate problem. It can be said it's the students 'ability to use their knowledge and understanding in creating new concept. The multiple process level are properly linked will be part of the *Schema*.

Methodology
Target Group:
The research target group consisted of the tenth grade students in semester 2 of 2014 academic year, Sarakhampittayakhom School, Muang District, Mahasarakham Province. There were 6 students (or 3 pairs) reelected by the researcher on the basis of their ability to explain ideas from mathematical problem solving. The researcher, as their teacher too, considered their behavior while solving problem and each one's work sheets in the classroom.

Data Collecting:
The researcher and 4 researcher assistants created the tools for collecting data, they developed five learning lesson plans of Open Approach. Each plan had worksheets developed for the target students waiting task according to the frame of APOS theory (Dubinsky & McDonal,2001) supervised by the expert of Open Approach from the mathematical Research Center , Education Faculty, Khon Kaen University .
The researcher and 4 researcher assistants collected data together with the 6 tenth-grade students in the second semester of 2014 academic year, Sarakhampittayakom School, Muang Distict, Mahasarakham Province. The researcher as the teacher conducting the teaching-learning activity using The Open Approach. The target students did activities in the whole process of 5 lesson plans was thoroughly recorded in video tape. The researcher assistant No.1, No.2 and No.3 recorded the target students' activities from the beginning to the end of the Open Approach the assistant No.4 video-taped the whole – class learning-teaching activities from the beginning till the end of the whole 5 learning lesson plans.
The researcher collected data from the students' works and data from the video tape to make protocols gaining from 3 pairs target students 'problem solving activities through the Open Approach. There were 15 protocols (3 pairs and 5 plans) for data analysis.

Data Analysis
The researcher used qualitative analysis by the researcher and the research assistants under the frame of APOS theory (Dubinsky & McDonald, 2001), and using protocols from the video-tape recording while the target students were salving problems. Both groups of data were analyzed for assessing the student 'mathematical understanding by using APOS theory (Dubinsky & McDonal, 2001)
The researcher presented of data analysis illustrating the assessment of the students 'mathematical understanding of Algebra in the classroom using the Open Approach as following;

1) Data Analysis from learning management, lesson plan NO.1; the activity "Charyl Chappuis's salary" including the situational problem as in the following illustration.

Picture 2: Situational problem in learning lesson plan NO.1 Activity Charyl Chappuis's Situational Problem

Worksheet "Charyl Chappuis's Salary"

Charyl Chappuis gets 700,000 Bath salary from his Football Club and he gets extra money of 5% each month from the total sale of his T-shirts.

Directions:

1. Please show ways of thinking and find the right answer as follows

The teacher managed learning activity in the lesson plan NO.1 with The Open Approach. The students' writing works from doing the activity "Charyl Chappuis's Salary" were analyzed for the mathematical understanding level. The analytical outcomes were the following:

Action Level

According to Mill's writing, she wrote the situation problem and the condition from this item as Mill wrote down "Chappuis gets salary 700,000 ฿, Thus money from T-shirt sale = 50,000 ฿". The later line she wrote "Chappuis has total T-shirt sale $= \frac{5}{100} \times ? = 50{,}000$" as a equation, then found the answer by writing how she calculated in the designed space for "calculating action." Regarding to her writing, it clearly shows that Mill used the condition given in the situation for her calculation step by step, reflexing her action understanding level.

Process Level
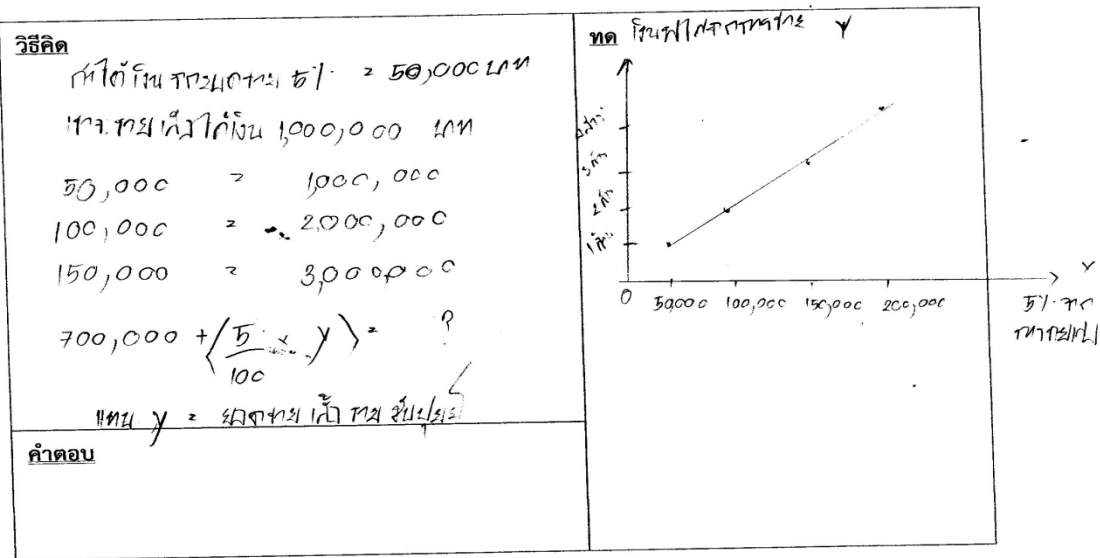
Regarding to the writhing, Mill explained about the condition from the situational problem, comparing the condition 5% of T-shirt Sale total explaining "if he receives money from the total sale of T-shirts 5% = 50,000 ฿ he must sale T-shirt = 1,000,000 ฿". Then she wrote the 5% commission money related to the total of T-shirt sale: 2,000,000 and 3,000,000 ฿ and later wrote $700,000 + \frac{5}{100} \times y =?$ replacing y as Total of T-shirt. This writhing work reflexes the way of thinking developed from the previous repetitive calculating until she could see the mathematical relation and were able calculate and get the answer from the relation. That is the Process Level.

Object Level
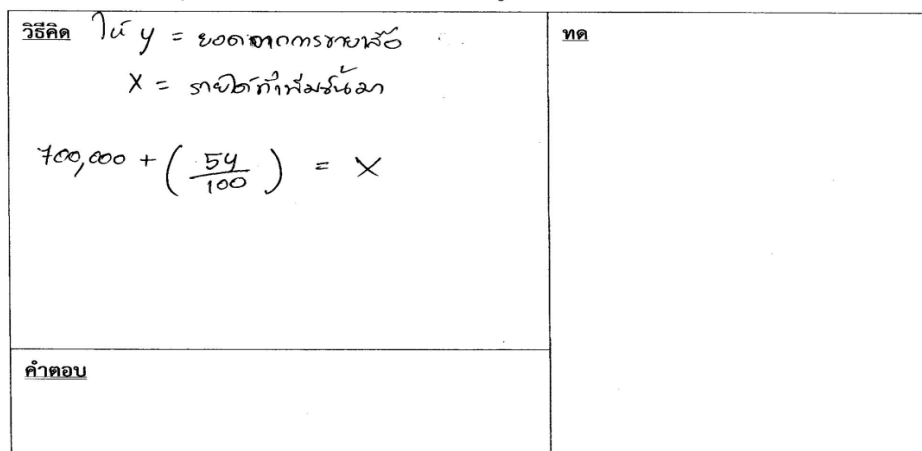
Regarding to Mill 's writing, the wrote equation as $700,000 + \frac{5y}{100} = x$ explaining x and y that x = Total money of T-shirt sale, y = extra money, which is a brief mathematical writing not as long description as she did in the previous item. Obviously Mill could have seen the relation of the problem solving. Now that she could see the general relation so well that she could write it into equation, writing x instead ? used in the Process Level. Since x in the previous direction shows that Mill used her process-understanding with such a proper connection that she could build up the general relation. Such is the Object Level.

Schema Level
Learning Activity "Folding Paper (continued)"
Learning Lesson Plan 4 by using the following situational problem illustrated below:

<table>
<tr><td colspan="3" align="center"><u>Worksheet "Folding Paper (continued)"</u></td></tr>
<tr><td colspan="3">Situation: Folding Paper (continued)
"The relations from folding paper in the lest class"</td></tr>
<tr><td align="center">No. of Folding Time</td><td colspan="2" align="center">Number of boxes emerged from the folding (y)</td></tr>
<tr><td align="center">1</td><td align="center">2</td><td align="center">2^1</td></tr>
<tr><td align="center">2</td><td align="center">4</td><td align="center">2^2</td></tr>
<tr><td align="center">3</td><td align="center">8</td><td align="center">2^3</td></tr>
<tr><td align="center">4</td><td align="center">16</td><td align="center">2^4</td></tr>
<tr><td align="center">5</td><td align="center">32</td><td align="center">2^5</td></tr>
<tr><td align="center">⋮</td><td align="center">⋮</td><td align="center">⋮</td></tr>
<tr><td align="center">x</td><td align="center">$\underbrace{2 \times 2 \times 2 \times \ldots \times 2}_{x \text{ ตัว}}$</td><td align="center">$2^x$</td></tr>
</table>

or $\boxed{\mathbf{y = 2^x}}$

Picture 3: Situational Problem in Lesson Plan 4.
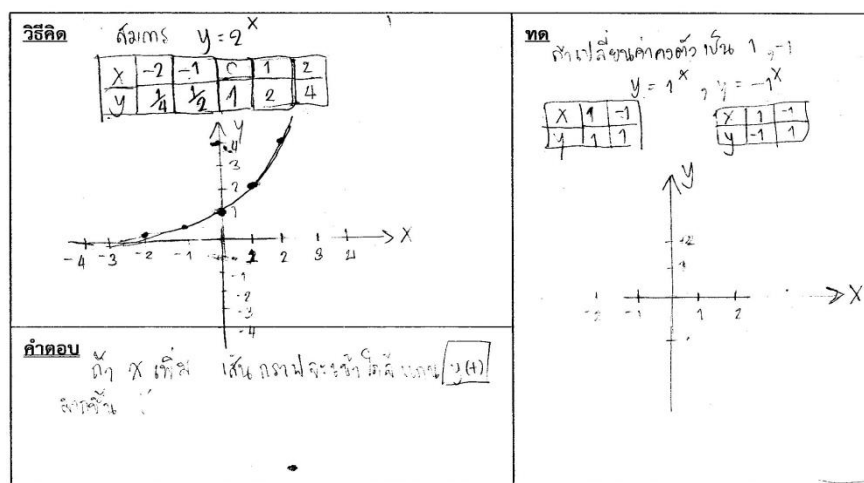
Regarding to Nooker's writing, summarizing the emerged relations by writing graphs, It can be seen that Nooker wrote the relation in form of a table telling the relation between variable x and y supporting her writing graph where she also explained that "If x increases, the graph will go closer to the line y." In the designed space for calculating (the right box) Nooker presented 2 tables of relation comparing the changes of constant with the writing as "If change the constant to 1, -1" and present her effort with the graph below. Such means that Nooker tried to build a mathematical concept in a higher level and to solve a more complicated problem as well by using the relation she had learned before from the previous item. That is, she applied the process understanding to solve a more complicated problem as well as to make a conceptual thinking. She could express the schema level.

Conclusions and discussions

The results of study showed that all of students could express their mathematical understanding of algebra in *Action level* by writing answer from calculation case by case and *Process level* by writing some relation of quantities in problem situation on the work sheet. Some of students could show their mathematical understanding of algebra in *Object level* by writing equation from relation of quantities met before and *Schema level* by writing multiple representation, i.e. line graph and bar graph, relate to the equation. In addition, the findings showed that, at each level of the descending order as follows. 1) *Action level* 2) *Process level* 3) *Object level* and 4) *Schema level*

According to the findings, it's obviously convinced that the students' mathematical understanding in the classroom using The Open Approach could be assessed through their writing responses in the properly designed worksheets for each situational open-ended problem in each learning management plan. However, some students couldn't express their understanding clearly in their writing in Object level and some in Schema level, but looking over the Problem Solving Protocols together with the students' incomplete writings, the research could see their attempt to express their understanding at those levels. This is partly because of their own writing ability to explain the mathematical ways or steps which were complicated and abstract and partly because of their misunderstanding on the situation problem.

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Zambian teachers' professional discussions in lesson study:
a case study in mathematics in Central Province

Nagisa Nakawa

Tokyo Future University, 34-12, Senju-Akebono Cho, Adachi Ward, Tokyo, Japan nakawa-nagisa@tokyomirai.ac.jp

Abstract: *The purpose of the study is to investigate what sort of mathematical discussions teachers shared in the reflective session of lesson study for grade 3 at the primary level. It also discusses what factors influence the content of the discussion as a case study in the Central Province of Zambia. The qualitative analysis of the reflective session, utilising the cognitive aspect of the framework of TEDS-M (Döhrmann et al., 2012), reveals that primary school teachers discussed Mathematics Pedagogical Contents and Mathematics Contents, especially on the scene of understanding the meaning of multiplication. The facilitators successfully created the environment where some teachers presented their misunderstanding, so that the participants were able to confirm their conceptual understanding of multiplication in the session. The study showed that the key for success of lesson study is the way how facilitators handle the discussion and how teachers are actively involved in the discussion.*

Keywords: Multiplication, Lesson study, Pedagogical content knowledge, Professional development

Introduction

Teachers' professional growth is one of the significant concerns to accomplish the quality mathematics education in Zambia. Zambia Ministry of Education and Science, Vocational Training and Early Education (MOES) implemented the project of lesson study in 2005 in collaboration with Japanese International Cooperation Agency (JICA). Since then, lesson study has been implemented in a large number of primary and secondary schools including some colleges in the country. Nowadays, the quantitative development of lesson study is significantly remarked and the challenging is the qualitative aspect.

A few studies pointed out the difficulties of developing Zambian teachers' professional growth. Ishii (2011) examined the effectiveness of lesson study. He concluded that the reflective session offered a chance for teachers to develop teaching technique. He, however, mentioned that teachers did not consider the way how students learned. Kinone (2011) also reported that two experienced primary school teachers rarely taught problem solving or discussions. Nakawa (2015) mentioned that teachers rarely discussed mathematical contents when they reflected their lessons.

A few studies also mentioned the possibility and challenges of lesson study in Zambia. Banda (2007) emphasised that lesson study helped the management skills of educational stakeholders as well as lesson observation skills. However, he pointed out the negative attitude that teachers have and insufficient skills of teachers and facilitators for the constructive critiques in lesson study (Banda, 2007). JICA (2012) reported that lesson study contributed teachers' professional development. Moreover, it helped improving students' academic performance. Baba & Nakai (2011) mentioned that the positive impact on teachers' professional development. Ishii (2015) analysed a mathematics lesson study activity as a case study and concluded that teachers can improve general pedagogy such as the method of group activity for a short term but it seems difficult to improve their content knowledge for a relatively long term.

As the country put an emphasis on quality development of lesson study, it is necessary to delineate the reality of lesson study and identify what kind of mathematics related contents they are discussing for better lessons.

Therefore, the research questions of this article are the following two:
・What kind of discussions on mathematical contents can lesson study offer?
・What factors influence these discussions occur?

Theoretical Background Lesson study

The aim of lesson study is to improve teaching and learning in the classroom (Banda, 2007). Lesson study is also a collaboration-based teacher professional development (Fernenandez & Yosida, 2008; Stigler & Hiebert, 1999). Although lesson study has a relatively long history in Japan, it remains fresh to other countries outside Japan (Murata, 2011). Some studies (e.g. Meyer & Wilkerson, 2011; Hart & Carriere, 2011; Olson, et al. 2011) argued the implementation of lesson study in the U.S. and tackled the issues of what evidence can be identified when lesson study can work effectively. Hart, et al. (2011) documented the positive changes of teachers and the challenges for the better practices.

In the Sub-Saharan African countries, lesson study has been officially implemented by top-down approach, which was not always a similar way of implementation occurred in Japan. In SMASTE (Strengthening of Mathematics, Science and Technology Education) School Based Continuing Professional Development Project (SMASTE-SBCPD), lesson study has been spread out to Zambia under the initiative of MOES in collaboration with Japanese International Cooperation Agency (JICA). In the project, lesson study started in Central Province in 2005 at first and expanded gradually to the whole country. Its historical changes and development is well explained in Banda (2007) and Baba & Nakai (2011). Currently, Strengthening Teachers' Performance and Skills through School-based Continuing Professional Development Project has been conducted for better quality of lesson study throughout the country.

The Zambian lesson study cycle is implemented as follows:

Step 1: Defining problems or challenge Step
Step 2: Collaboratively planning the lesson
Step 3: Implementing demo-lesson
Step 4: Discuss the lesson and the reflection is effect Step
Step 5: Revise the lesson
Step 6: Teach the revised lesson
Step 7: Discuss the lesson and reflect again Step 8: Reflections compiled and shared

(Ministry of Education, 2007, p. 4)

The cycle of lesson study in Zambia is not exactly same as the Japanese lesson study. After discussing and reflecting lesson, teachers conduct the revised lesson, discuss and reflect it.

Mathematics teachers competencies

Teachers' competencies are intensively discussed in mathematics teacher education worldwide (Döhrmann et al., 2012). Shulman (1986) pointed out Pedagogical Content Knowledge (PCK) as combined knowledge on understanding of students' learning, contents and pedagogy for teaching in education. Hill et al. (2008) extended PCK into mathematics education, classifying Mathematical knowledge for teaching (MKT). Döhrmann et al. (2012) showed the conceptual model of mathematics teachers' professional competencies in Teacher Education and Development Study in Mathematics (TEDS-M) as shown in Figure 1.
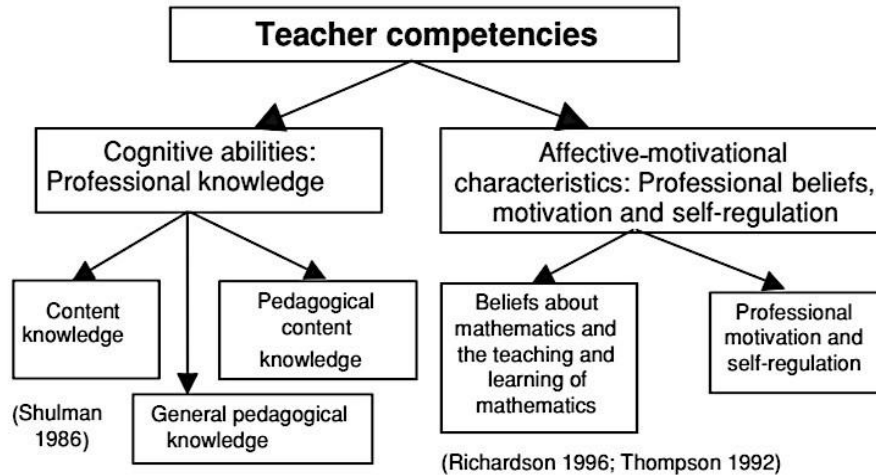
(Döhrmann et al., 2012)
Figure 1. Conceptual model of mathematics teachers' professional competencies in TEDS-M

TEDS-M regards Mathematics Content Knowledge (MCK), Mathematics Pedagogical Content Knowledge (MPCK) and General Pedagogical Knowledge (GPK) as crucial cognitive components of mathematics teachers' professional competencies (Döhrmann et al., 2012). Figure 1 classifies teacher competencies into these cognitive abilities and affective-motivational characteristics: professional beliefs, motivation and self-regulation.

Teachers' professional development has also been an issue to argue in the African context for decades (Baba & Nakai, 2011; 2009; Walker, 1994; Wright, 1988). Some studies found it difficult for teachers to develop their subject matter knowledge in mathematics in lesson study conducted in Zambia (Kanbara, 2014; Ishii, 2015). Other studies also mentioned the challenge of the narrow teachers' views to mathematics lessons and students' learning. Nakawa (2015) analysed that two teachers showed drastic development of GPK in her action research. However, the challenge remains the development of teachers' MCK and MPCK. Qualitative analysis on four teachers' reflection by Kinone (2013) also concluded that their reflections are mainly on how to make their students memorise and use formulas shown in textbooks. He concluded that Zambian teachers' MCK and MPCK are not satisfactory. Therefore, it is crucial to find a way how we should improve their competencies in mathematics through lesson study.

METHODOLOGY

Lesson study was conducted in a primary school in Serenje, a semi-urban town in the Central Province of Zambia. The town was included in the first project site; therefore, teachers were relatively familiar with lesson study activities, compared with other regions. Moreover, two facilitators of lesson study, who belong to MOES, have a rich experience of lesson study. They assisted their discussions of lesson study.

The number of the participating teachers was fourteen from four different schools in total: six grade 2 teachers, six grade 3 teachers and two senior teachers. At first, the group had a workshop to discuss the difficulty of teaching and learning multiplication and investigate the alternative ways from textbooks to improve students' learning on the first day. Teachers conducted two lessons in grade 2 and 3 classes on the second day. After the lessons, the group had two reflective sessions for each lesson on the same day. Due to time shortage, the group did not follow the usual way of lesson study. They completed the reflective discussion in 'Step 4: Discuss the lesson and the reflection is effect'.

The purpose of lesson study was to improve the understanding and skills of 1-digit multiplication for lower-grade students and to produce alternative ways of counting by finger. The previous study showed that Zambian students frequently used their fingers to count to 1-digit multiplication. Their frequent counting hinders more advanced

questions to answer when they go to upper grades (Nakawa, 2013). All the teachers shared this information in the planning.

In the planning, teachers decided to develop two mathematics lessons to make use of a 25 dot sheet and 100 dot sheet for grade 2 and 3 as shown in Figure 2 & 3 (cf: Wittmann & Müller, 2012a; 2012b). Students were expected to understand the meaning of multiplication, to group the dots using the chart, and to add up these groups to answer 1-digit multiplication. The article attentively focuses on the case of grade 3, while the result of the discussion for grade 2 was discussed in Nakawa (in press).
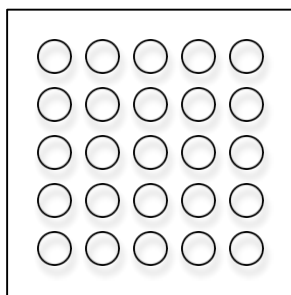
Figure 2: 25-dot sheet. (cf: Wittmann & Müller, 2012a; 2012b)
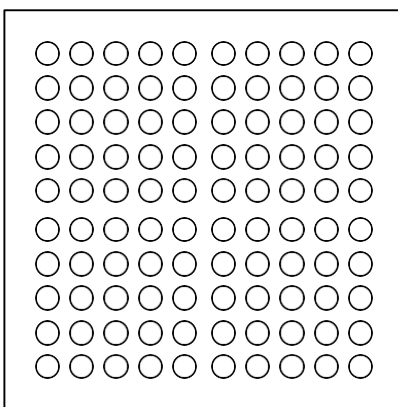
Figure 3: 100-dot sheet. (cf: Wittmann & Müller, 2012a; 2012b)

In the part of introduction for grade 3 lesson, teacher asked students what operative sings they know in order to introduce multiplication. After the question, she showed the meaning of multiplication in demonstration, taking three students with two books in front. In the development of the lesson, she introduced the 100-dot sheet and confirmed that the sheet consists of four 25-dot sheets. Teacher decided to use the 25-dot sheet for 3x4 and 5x2, as she thought that it seemed challenging to use the 100-dot sheet in the beginning. At last, she let students use the 100-dot sheet to solve 6x6.

The data obtained was analysed qualitatively in order to capture what sort of mathematical discussions participant teachers had in the process of their reflective session. Lessons and reflective sessions were audio-recorded, and the analysis was conducted in the following three stages. In the first stage, the author transcribed all the data. In the second stage, she attentively divided the conversations into semantic clusters. In the third stage, following the framework of TEDS-M's teachers' competencies except for the affective-motivational characteristics in the model, the author attentively hand-coded to the transcriptions based on categories of Mathematics Contents (MC), Mathematics Pedagogical Contents (MPC) and General Pedagogy (GP). Each cluster was named after the summary of the discussion, and more than categories are labelled in one cluster, if necessary. In the final stage, the author checked the accuracy of the clusters and codes.

Results and discussions

The content of the reflective discussion of the grade 3 lesson was classified in Table 1.

Table 1: The result of analysis

S/N of cluster	Contents	No. of coding About MC	Speaker	No. of coding About MPC	Speaker	No. of coding About GP	Speaker
1	Listening a facilitator's short story	0	-	0	-	0	-
2	Making sure the intention of a teacher's question observed in class	0	-	1	T & L	0	-
3	Talking about the importance of asking a question 'Why?'	0	-	1	F	1	F
4	Confirming the intention of a teacher's act observed in class	0	-	0	-	1	T & F
5	Reflecting the lesson by the demonstrator	0	-	1	T	0	-
6	Discussing the teaching in the introduction of the lesson	0	-	1	T & F	0	-
7	Discussing understanding the difference between 3x4 and 4x3	2	T & F	2	T & F	0	-
8	Closing the reflective session	0	-	0	-	0	-
	Total	2		6		2	

(T: Teacher, F: Facilitator)

In the reflective session, there were eight semantic clusters. It also shows the number of sub- clusters of the contents regarding MC, MPC and GP in each cluster. MC-related discussions were only recognised in no. 7. MPC-related discussions were found in no. 2, 3, 5, 6 and 7. No. 3 and 4 had GP-related discussions. This implies that both of the reflective sessions for grade 2 and 3 held mathematics-related discussions (See Nakawa, in press). The intensive discussion can be identified in no. 7 as two MC- and MPC-related discussions were identified. Therefore, I would like to focus on the scene in no.7.

Explaining the meaning of multiplication by teachers

In no. 7, at first, a facilitator asked teachers to explain the difference of the meaning between 3x4 and 4x3 using a 25-dot sheet. The meaning of mathematical sentences in multiplication and its importance was shared in the planning sessions. However, in fact, it brought a confusion in students' learning in class. Two teachers came to the front and wrote '3x4 =12' and '4x3=12'. After that, another teacher came and explained. They, however, looked confused with the meaning of numbers as they kept silent and repeated the same thing. The protocol below shows how teachers discussed.

Speaker	Conversation
F1	Okay, you, and you, madam senior teacher, forget about this, let me answer that question. Madam A, you come and group for us. (Writing something on board)
Ts	Laugh
F1	**Madam A, come and group it for us, 3 times 4, and madam senior teacher, come and group for us, 4 multiplied by 3. Ah, at first, let her finish,**
T1	By four? So we have three groups of four, three by four, so there are supposed to be, this, three by four.
F1	This is like four, fours, right? So 4, so there is supposed to be 8, 12.
R	Can you use this?
R1	Madam, yeah, use this. Here is a maker also.
T2	4 by 3, before making a group, I have to make an emphasis on what I observed on this bottom, even when you got this, you have to make sure that we have taught this much, because the way I observed it, some pupils were counting, quite right, they start 1, 2, 3, 4 but coming to the next number, they started with the second marble, so it's better for us to emphasise on the, this, (writing), so here it is four by (writing)
F1	So what answer did you find there?
T2	It's twelve.
F1	Sorry?
T2	Twelve.
F1	What else do you find?
Ts	Twelve
F1	So now how do you explain to the children?
T3	I think you have to tell them that, if you have, since it's 3x4, there supposed to be 4 groups and in each group, there supposed to 3 members of marbles. For the other one,
F1	Why should we explain both ways in English? Since the answers are all 12,
T3	Sir, maybe I got confused, maybe, it's expressions.
F1	Use your eyes, everyone is seeing this. Come here.
T3	There are four marbles in each group, The first one, 3, it can be confusing to them, so that you explain to them that they might not be different as the groups, but it's… How can you… (thinking)
T3	Maybe you can tell them, the first number is the number of the group, the first number is the number of groups,
F1	And then?
T3	Then, the second number is telling us the number of marbles, the first number that we use,
Ts	(Laugh)
F1	Yeah, that, yourself, Yes, go ahead. I am a pupil now I want to find out. You tell me, so that I can see the relationship that you are talking about.
T3	**So if you know the first number, it's telling us the number of groups,** (silent)
F1	So come!
T3	(Laughing and coming to the front)
F1	We are now in the class and children.
T3	Okay, we have this number here, ah, I will say, this number here is the
F1	You, Mrs.?
T3	Mrs. B, this number here is telling us the number of groups,
F1	Which groups?
T3	This, 3
F1	There are 3,
T3	Yes
Ts	(Laugh)
F2	No, explain, what is, what you, what they have grouping, And not necessarily, what they have grouped, just, those, mathematical sentences are lost they explained.
T3	**Okay, I will say, this number (3 in 4 x 3) is telling us the number of marbles in each group, so, in each group, they are three marbles, there are three marbles, we have four groups,**
Ts	(Laugh) Yeah!
F2	No, come, come, madam (everyone is laughing)
F2	Madam, you were saying this is standing for groups of marbles, three groups, and each one of this group have four marble.
T3	**Yeah, there are four groups of three marbles,**
F2	Oh, you have changed.
Ts	(Silence)
F2	Which one are you going for?
F1	What does it mean?
T3	**This (indicating 3 in 3x4) is telling us the 3 is telling us the numbers of marbles in each group, ah, and this 4 is telling us the number of groups,**
F2	Are you sure?
T3	Yes (Going back to seat)

(Note: T1, T2 and T3: Teacher, Ts: Teachers, F1 and F2: Facilitators, R: Researcher)

In the protocol, T2's explanation was not very clear. T3's explanation was mathematically correct for 4x3, however, she ended with reversing the meaning for 3x4. Thus, the protocol shows that they were not able to connect the meaning between the diagram and mathematical entences. Moreover, it implies that they were not conscious with the order of multiplication and meaning before the lesson study. Next, T2 was asked to explain how 3x4 and 4x3 are written in grouping. She wrote on the board as shown in Figure 4.
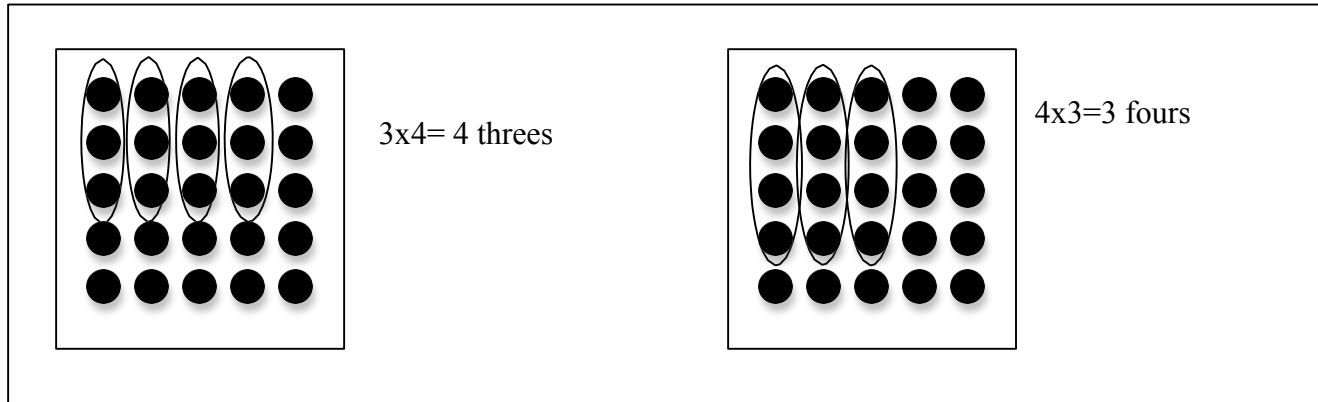
Figure 4: A teacher's explanation of the difference between 3x4 and 4x3

Afterward, the other teacher explained '3x4= 3 fours' and '4x3= 4 threes' using the two diagrams. This indicates that the discussion in no. 7 would be fruitful for the participants because the confusion would make teachers' unstable understanding definite. Moreover, the two different opinions from teachers offered a mathematically important discussion. The meaningful discussions were brought by a question from a facilitator.

Other MPC- and GP-related discussions

Apart from the discussion in no. 7, there are also MPC- and GP-related discussions observed in Table 1. As for MPC-related discussions, it was confirmed that all of the discussions started from a facilitator's question. In no. 2, a facilitator commented that a question from teacher 'What signs do we use?' was too broad for students to answer. In no. 3, he described the importance of posing 'Why?' in mathematics learning. In no.5, teacher described how she used the two charts when the facilitator let her explain how the lesson went on. She reflected that it was difficult for students to understand the way to use a 100-dot chart, so she decided to go back to use a 25-dot chart. In no. 6, the facilitator questioned the connection between the activity in the introduction and the main task. The teacher admitted that she did not succeed in introduction.

Regarding GP-related discussions, in no. 3, the other facilitator explained the importance of 'Why?' questions. In no. 4, teacher was asked to answer why she let students clap in class. Thus, all of them arose from facilitators. It can be said that the quality of discussions depends on facilitators' views toward mathematics lessons.

Factors of occurring MC and MPC-related discussions

The above result indicates that the existence of facilitators and their competencies could be a key for the success of lesson study. Especially, the discussion occurred in no. 7 started from a direction by facilitator: 'Madam A, come and group it for us, 3 times 4, and madam senior teacher, come and group for us, 4 multiplied by 3'. He intended to reveal and improve teachers' unstable understanding of the meaning of multiplication. It was valuable that they shared their misunderstanding and errors in the discussion. The participatory discussion in this case seemed effective for them to deepen the understanding of mathematical conception, despite the fact that the same facilitators did lecture-style reflection of the grade 2 lesson in the same lesson study (Nakawa, in press). In addition, the contribution by participants impacted their understanding. Thus, it is vital that facilitators

successfully form an environment in the reflective session in which teachers comfortably discuss their opinions in this case.

The remaining challenges are two things. At first, MC-related discussions did not often occur, although they were identified. Secondly, there are no scenes of discussions of children's learning as it was observed in the discussion of the grade 2 lesson (Nakawa, in press). This means that the facilitators as well as teachers did not assess children's learning for the lesson. It could be the first step for them to discuss mathematical issues with the group, and then as the next step, it may be an issue of how they should connect these mathematical issues and students' better learning in their discussion. Thus, the possibility of making the setting of an appropriate environment would determine the success of teachers' learning in lesson study.

Zambia's lesson study has implemented for ten years. Academic debates such as the case study in the article should be accumulated for better quality of lesson study in different regions in the country.

Acknowledgement

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Challenging professional learning: An inquiry into school-based lesson study in Indonesian primary education

Tatang Suratno[1]
Indonesia University of Education at Serang Campus. Jl. Ciracas No. 18,
Serang 42116 Banten, Indonesia.
ts@upi.edu

Abstract: *This article addresses the complexity of promoting 'Lesson Study' in Indonesian primary school. By employing dialogic and narrative inquiry as core activity, we examine our experiences regarding learning, teaching and professional learning. Drawing on the written narratives, the author analyses the plotlines representing practicing teacher, school leader and teacher educator in figuring out the emerging landscape of professional learning knowledge in and through school-based lesson study. Specific attention is given to understand of designing a lesson, which elucidates the processes: 1) 'teacher becomes student again when studying the teaching material to be taught'; 2) 'teacher imaginatively interacts with her students'; and 3) 'teacher draws the storyline of the lesson'. The author argues that educators' stories of lesson study constitute both professional learning and practitioner inquiry. It enables educators to address and clarify tensions, questions and comprehensions about their ways of knowing and learning. In addition, this article also discusses the challenges and future directions of 'research with teacher' in Indonesia.*

Keywords: lesson study, narrative inquiry, reflective practice, professional learning knowledge.

Introduction

That afternoon in early 2012, my phone rang. Mr. Tatang apologized because he said he did not pick up my call. He was giving a workshop on Lesson Study in one of the private schools in Bandung. I was taken aback because I did not feel I contacted him. He was also surprised because that I was trying to call him. In an instant, Mr. Tatang expressed his interest to visit GagasCeria Primary School.
We periodically collaborated with Mr. Tatang and his team, Mr. Didi and Mr. Endang. They invited us to do a research study by focusing on empowering teachers' thinking. I believe teachers are also researchers; they identify and solve their own problems and continuously make improvements. Such skills will sharpen the mindset of teachers in designing, implementing and reflecting on their daily works. (Excerpt edited from Harahap, 2014).

Starting in 2010, I began to introduce lesson study at primary school level. I worked closely with teachers from two private primary schools in Jakarta, capital city of Indonesia. At the time, I focused on improving teachers' ability in designing lesson by applying the notion of pedagogical content knowledge (Suratno, 2010). To some extent, these initial projects have engaged teachers in meaningful reflective practice. However, a change in school policy and leadership made the follow-up of the school-based lesson study in those schools became uncertain.

The scene above illustrates other attempts in establishing a school-based professional learning. Before I came to GagasCeria, I was promoting lesson study in another primary school. At the outset, my focus was engaging teachers in reflective practice and I left the lesson planning to be conducted by the teachers. By facilitating lesson observation and post-lesson discussion, I assumed it would be meaningful for teachers to design their own lessons. However, shortly after Harahap called, the lesson study was challenged by the teachers. They felt burdened by the preparation and discomfort of being criticized without significant support in lesson planning.

One would simply conclude that school leaders have significant role in leading professional learning, as well as promoting teachers' motivation and commitment to involve in it. However, when I reflected, I recognized several problems experienced by teachers and school leaders during their interaction in lesson study.

This narrative inquiry (Clandinin and Connelly, 2000; Clandinin et al., 2006) is based on an effort to harness lesson study within the realm of school-university partnership (Suryadi and Suratno, 2014). It addresses the stories to live by as they unfolded by plotlines represented by a teacher educator (Didi Suryadi, 2014); a principal (Fisianty Harahap, 2014), and a teacher (Jaenudin, 2014) from which we could learn how professional learning stories were interrupted or shifted. By listening to their voices, we might come to understand their thought, feelings and emotions as they engage in lesson study. Specific attention is given to the ways they become responsive to the complexity of lesson study and how it awakens them to question their professional practices.

Harahap strongly believes that establishing professional learning is to empower the education professionals in scrutinizing their own practice in order to make incremental improvement. Through such inquiry, we address and attend to what Clandinin *et al.* (2006) called as personal practical knowledge as to map out the knowledge of professional learning and schooling in the context of lesson study.

Addressing lesson study as professional learning

The lesson study activities that I have attended since sixteen years ago have provided me with a great many valuable lessons. The sequence of *Plan-Do-See,* which is at the core of these activities, is perceived in various ways by the Indonesian education community. Diverse views reflect the meaning of the long experience of how the process of school education and teacher education is at work in this country. That is what shapes the beliefs of educators concerning plenty of things such as the nature of teaching, content, learning as well as our identity as educators, and character of students.
Various processes within Lesson Study encourage paradigm shift of teaching and learning. However, without the presence of certain framework, it often leads to disorientation. At least, that is what I felt and made me curious to explore a range of issues related to educators and their professional practices. (Excerpt edited from Suryadi, 2014).

Indonesian educators are familiar with lesson study since a decade ago (Suratno, 2012). Through technical assistance from a team of Japanese experts, Indonesian lesson study was established centering on the idea of university-school partnership at secondary education level. Teachers worked together, both at professional network and school-based level, to prepare, implement and reflect on classroom practices. Ones would argue that lesson study enhances teachers' professionalism (Hendayana*et al*., 2007). However, in my experience, it is not always the case.

My observation (Suratno, 2013) revealed that lesson study practitioners often situated themselves within the puzzling games of teaching practice, teaching supervision and teacher performance assessment. I often heard teachers' resistance to lesson study: it was time consuming, exhaustive, required a solid team work, and demanded full support from educational experts, local authorities and school leaders. I perceived that many teachers conceived lesson study as a 'teaching show' to fulfil aspects outside the very nature of professional learning and collaborative inquiry. This has led me to ask why so many professional development projects have gone to different directions than they were projected to. It is likely that as the project ends, teachers returned to their previous practices. It is questionable whether such projects were really empowering or disempowering teachers.

Suryadi's stories above resonate with Harahap's belief depicted in previous section. There is a strong linkage between professional learning and practitioner inquiry. In this stance, we underlined the potential of reflective practice by means of interrogating the context, the nature of the problem, and the anticipated value of such reflection towards what is reflected on and for what purpose (Loughran, 2002). In doing so, we are engaging in the mental processes of structuring and restructuring our experience by questioning our professional performance.

We gradually set up a collaborative project based on the premise that as educator, we are essentially a lifelong learners and inquirers as well as designers and creators of educational knowledge (Suratno, 2014) . Accordingly,

it underlines the importance of independently shaping and reshaping our existing knowledge, beliefs, actions and practices. Initially, we developed the framework for reflective practices and instruments to probe into our professional world.

Inspired by the idea of triangular relationship of didactic triangle of teacher-content-student (Kansanen, 2003; Brousseau, 2002) and practical knowledge of Japanese teachers, we formulated what we called Didactical Design Research (DDR) (Suryadi, 2010; 2013). It constitutes three levels of critical reflection (Suratno, 2014; Suryadi, 2014). First, reflection *for* action is undertaken by a teacher before conducting a lesson. Teachers make curriculum content analysis and map out possible students' learning obstacles and trajectories. Second, reflection *in* action situates teacher to analyze his/her practice by addressing the actual students' learning progression. Third, reflection *of* action conducted during post-lesson discussion invites teachers to be involved in argumentative dialogue retrospectively. These constitute the cyclical nature of critical reflective practice. In addition, we also consider the complexity of the lesson in which a teacher should balance the aspects of unity (of classroom interaction), coherence (logical sequence of interaction) and flexibility (dealing with students' learning obstacles and trajectories).

Harnessing school-based lesson study

In the beginning of 2013, Mr Suryadi guided a rather different form of workshop. He did not give many explanations, but rather posed plenty of questions. First thing he asked was, "What is mathematics?" Some teachers said mathematics is about arithmetic and communication. Mr. Suryadi neither confirmed nor denied. Instead, he asked, "What are you actually doing when counting and communicating?" Immediately, he asked a similar line of question, "What is learning and how to learn math?" Then another question, "What is to teach and how to teach math?" To be honest, we were hit by confusion during that session. Even some of the teachers commented, "After a long time of teaching, this is the first time being asked what is math, what is learning and what is teaching?"
Later I was told that such series of questions is useful to reflect on teachers' belief systems. If a teacher believes that mathematics is arithmetic then likely s/he will teach counting. Mr. Suryadi also discussed the essence of learning. In his view, we need to reflect on, for example, what is meant by joyful learning? That question led us to interpret the meaning of the name of our school (Gagas: Idea, Ceria: Joyful). What kinds of expression represent what it means? He advised us to find the answers from the expressions on the students. The discussion really awaked my awareness about the identity of this school. (Excerpt edited from Harahap, 2014).

The school implemented a self-directed lesson study since 2009. Based on articles regarding lesson study, school leaders developed the lesson study protocols, such as making positive comments and focusing on problems with solutions. Initially, it was difficult to find one that would become a model teacher and to promote teachers' collaborative works. They were afraid of being observed and criticized. In 2011, the school leaders believed the potential of lesson study and made it a policy from which it became the key axis of curriculum analysis, professional development and performance appraisal. Through Lesson Study Week, all teachers had to open their class once a year. Nevertheless, some teachers responded the policy differently.

When I visited the school with my Japanese colleagues in March 2012, I noticed that teachers and school leaders were commenting on the model teacher's teaching actions. Hence, I showed them pictures of some students and commented towards their learning experience. Similarly, a Japanese colleague explicated his analysis about cases of students' learning. Another Japanese colleague commented that students seemed to enjoy the lesson and could complete the mathematics tasks, although she was not sure whether they understood the nature of mathematics.

In the follow-up, we perceived that our comments had changed the existing rhythm of lesson study, as well as teaching-learning practices, in this school. Together with school leaders and teacher leaders, we composed a strategy to improve lesson study practices. In addition to providing teachers with new protocol (what they learned

from/as students) and framework (DDR), we also considered the way we facilitated professional learning based on our views about the dimensions of critical reflective practice.

The above scene mirrors our strategy in engaging teachers experiencing DDR framework and lesson study protocol. Through typical Socratic questioning we aimed at attending teachers' belief system. We intentionally engaged teachers to question their practices through the process we called 'repersonalization'. By doing so, teachers interpreted the content, e.g. mathematical concept, to be taught on their own while predicting and anticipating possible students' responses, particularly their typical learning obstacles. We believed that when a teacher has experienced the twists and turns of students' learning by positioning themselves as students, s/he would have better understanding in structuring a lesson that foster students' learning potential.

We expected that by conducting in-depth analysis it would encourage teachers' collaborative inquiry, particularly in plan session. Indeed, we intentionally started with fostering teachers' ability in designing the lesson. Ones would learn less from such a hasty preparation. Our intention also mirrored the recurrent problems in teaching: what constitutes a powerful lesson design?

Challenging lesson design

In a lesson study activity, I was designated to become a model teacher. I was assisted by a team to design the lesson of the circumference of a circle in the sixth grade. We expected students to find the formula by comparing the circumference of a circle to its diameter. With these activities, students are directed to find the value of Pi (π). We did not want students to just memorize the value or formula alone.
Through group activities, students would measure the circumference of a circle by wrapping the thread to the object that has a circular surface, while its diameter is measured directly using a ruler. Through the experiment, the students would find that the comparison value is fixed (3.14), and discover that the circumference of a circle to its diameter depends on the value of π as a constant factor.
There was a lengthy discussion of preparation. We identified objects that have a circular surface to measure their circumference and diameter. Various ideas and justification emerged. Some were proposing to use a used glass bottle, coin and the stem of a marker. Measurement of the diameter of a glass bottle would be confusing due to differences in the size of its base and lid. A coin likewise created a challenge. Its diameter measurement produced fractions. In fact, division is not the main thing being studied. I was worried the students would run out of energy for it. I wanted them to focus on formulating the circumference of a circle. I was perplexed. What objects are round in shape (surface) whose diameter and circumference are easy to measure? Finally, we made a circle that has a diameter of 5 cm, 6 cm, and 10 cm on the students' worksheet. Concerning such an idea, one team member commented that division with 6 will still be difficult for students. It will lead to endless apportionment.
We agreed with circles whose diameters are 5 cm, 10 cm, and 20 cm. To measure its circumference, the student would follow the line of the circle with a thread and its diameter would be measured using a ruler. When we tried it, a difficulty arose when wrapping it with the thread. However, we believed that students would be able to handle it. We wondered whether the students could come up with ideas to solve it like the way we did? (Excerpt edited from Jaenudin, 2014).

There is, indeed, no perfect lesson, yet there are rooms for improvement. From the beginning of the lesson, Jaenudin had to deal with students' learning obstacles as predicted. In practice, he patiently arranged the students' learning trajectories. He did it by asking appropriate questions and providing directions and giving guidance and instruction. In his reflection, Jaenudin (2014) asserted that: 1) he should be attentive to students' ability in measurement because it will affect the calculation results for the value of Pi (π); 2) he should recognize students' abilities in arithmetic, including the inverse forms. It would help him considering how he encouraged students in order to be able to construct the formula. If they lack the skill, students would need considerable help from the teacher. Conversely, if teacher is not patient enough, s/he will directly give the formula; and 3) he should also pay attention to students' conception of circle itself. Students should understand what it is and how to shape it.

All successful lessons start with good preparation. Hence, designing a lesson demands rigorous considerations. From Jaenudin's stories, we learned about how teacher comes to understand and becomes attentive to the complexities of teaching and learning. Jaenudin attended these puzzling moments as he and his team undertook the key processes in which: 1) teachers 'become' student again when studying the teaching material; 2) teachers 'imaginatively interact' with students; and 3) teachers attempt to draw vividly the 'storyline' of the lesson. By addressing teachers' stories, we learned how emerging practices promote lesson study as both professional learning and teacher collaborative inquiry. More importantly we learned the processes of lesson design as articulated by Jaenudin's personal practical knowledge.

Jaenudin's stories challenged the practices of lesson planning that commonly conducted by Indonesian teachers as identified by a team of Japanese experts (IDCJ, 2011). First, the unaligned formulation of students competencies and the objective of the lesson. Teachers find it difficult to determine the expected students' ability that underpins the overall arrangement of the topic taught. Second, the abstract description of classroom activity due to the teachers' inability to conceive their students' learning expression and expectation. Hence, lesson planning became just a recipe for their action. Third, superficial evaluation in which teachers often administered test at the end of the lesson to score their students. It might hinder teachers to thoroughly make sense of their students' learning progression.

My reflection to Jaenudin's stories revealed the inherent challenges in lesson planning. The problems were rooted from improper analysis of content (lesson) being taught. Consequently, most teachers relied too much to textbook which was inappropriate for their class. In addition, there is an assumption that a good lesson is conducted as it was planned. These issues might distract teachers and made them inattentive to their students' interest and needs. Teachers tend to transmit knowledge instead of promoting construction of understanding.

Inquiring the landscape of professional learning

Conducting lesson study as a means of transforming school culture is like putting together pieces of a puzzle. The picture is formed gradually. Often times, the fragments are not yet available. I wonder which fragments will be revealed later.
All teachers know that the school's vision is to mold students who are conscious of learning, but how is it implemented in everyday tasks? Are teachers aware, for example, students who are not engaged in learning activities, reflects students unawareness of learning? When students give up upon encountering difficult task, how should teacher respond? Is the teacher bothered when finding that students did not say anything when poses a difficulties? Is that not a sign that s/he does not yet fully understand him/herself? Similar things usually escaped from our reflection sessions. Typically, we focused on general stimuli that make students interested, engaged or bored. We rarely discussed the specifics appropriate response to be given if teacher encounter situations that clearly do not lead to the realization of the school vision. (Excerpt edited from Harahap, 2014).

I come to believe that professional learning through lesson study is naturally a collaborative inquiry into our own learning and understanding. In the above illustration, Harahap outlines key questions in reflective practice which realize not only the content of teacher reflection but also the way we, as researchers and practitioners, construct our professional identity. It resonates with Jaenudin's story which implies the way he become enthusiastic about mathematics lesson and found his inspiration as he did repersonalization together with his fellow teachers. As researchers, we also need to employ such repersonalization when interacting with participants in research setting. We have touched our belief system articulated in the form of personal practical knowledge.

Considering lesson study as tool for transforming school culture suggests the need to orchestrate the connecting milieu of teachers' personal practical knowledge into professional knowledge of schooling. Harahap experience reveals the multilayered reflective practice in a school-based lesson study, ranging from school vision to the mission of each teacher. It mirrors the landscape of school-based professional learning in which connection

between inner-outer circles is of paramount importance. The outer circle might be focusing on the environment, behaviour or competence that influence one's learning, whereas the inner circle might be about exploring one's belief, identity and mission (Korthagen and Vasalos, 2005).

Our work has focused on touching our belief system with hope that it would further embody our identity and mission as education professionals. From various plotlines discussed in this paper, we can learn a process of becoming: getting inspiration and sensing meaning and significance to our work and lives in implementing school-based lesson study. In doing so, we not only dealt with the content and stages of critical reflection but also attended to various aspects of emotional, moral and even micro political dimensions of teaching and schooling. Harahap's experience below illuminates the landscape of school-based lesson study:

I have been grateful that the awareness and sharing of why and for what we need to change begins to form. We were inevitably facing numerous challenges. In early stages, for instance, much had to be done, especially in formulating the goals and providing a variety of supporting resources. The concern was to form a working team and develop a working device. This was done to ensure that the process would be meaningful so that teachers felt the need, not simply to execute a task or a project. When the community networks began to grow, various viewpoints emerged. On one hand, differing viewpoints helped clarify direction and purpose, but at the same time, they could lead to confusion, especially for teachers. In such situations, we were led to believe that a particular viewpoint was superior to others. So, how do we establish the expected beliefs of teachers? This is where I need to involve teachers in reflections and dialogues to ascertain what is underway in support of the vision of the school. That is what will boost self-confidence. Despite influences from outside, we should be able to sort out what is relevant to be applied. (Excerpt edited from Harahap, 2014).

Inquiring the landscape of professional learning invites a power struggle among researchers, school leaders and teachers. The main challenge is to create a culture of togetherness and equality among them for inviting a productive learning. In addition, the nature of reflective practice in lesson study also invites researchers to become reflexive on their research project. For researchers, these considerations underline the importance of inquiring and growing 'with' teachers. My experience has shown that if we are unable to address such relational atmosphere and reflexivity, a different influence might exert on teachers' interests and engagement with professional learning and collaborative inquiry. From the outset, researching and harnessing professional learning in the context of school-based lesson study is coming to understand and learn from each other as to foster our own learning and understanding. It invites us to attend to the next challenge we are keen to learn from this kind of dialogic inquiry.

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Awareness, Perspectives and Practices on the Multifaceted Educational Pedagogies in Don Mariano Marcos Memorial State University, Philippines

Jomar L. Aban
Don Mariano Marcos Memorial State University – North La Union Campus,
DMMMSU-NLUC Sapilang, Bacnotan, La Union, Philippines,
jomar_d2@yahoo.com

Jenilyn L. Aban
Don Mariano Marcos Memorial State University – North La Union Campus,
DMMMSU-NLUC Sapilang, Bacnotan, La Union, Philippines,
jenilyn.aban@gmail.com

Rosita P. Abubo
Don Mariano Marcos Memorial State University – North La Union Campus,
DMMMSU-NLUC Sapilang, Bacnotan, La Union, Philippines,
roseabubo@yahoo.com

Criselda G. Sario
Don Mariano Marcos Memorial State University – North La Union Campus,
DMMMSU-NLUC Sapilang, Bacnotan, La Union, Philippines,
criselda.sario@yahoo.com

Abstract: *The Don Mariano Marcos Memorial State University (DMMMSU), a premier state university in Northern Philippines has become very vigilant in developing their teaching manpower competencies. The academe has constantly monitored multi-faceted educational pedagogies. The research aimed to understand the awareness, perspectives and practices of instructors regarding the academe's educational pedagogies. It was found that respondents have high awareness and practice of lecture method over other educational pedagogies. Age, educational attainment, hours of seminars attended, and frequency of access to web and journals played a significant role in their awareness to different educational pedagogies. Regardless of how the respondents were grouped, it can be concluded that they have positive perspective towards the utilization of the different educational pedagogies. Although not statistically significant, it is ironic that, as they attain higher degree and longer teaching experience, they seem to utilize fewer pedagogies, which may be due to selective exposure of instructors.*

Keywords: DMMMSU, educational pedagogy, cooperative learning, lecture method

Introduction

Rationale of the Study

Collegiate education in the Philippines has become diverse, plural and generally accessible since the American regime. Although growth of higher education in the Philippines is inevitable, its development is frenetic. Its diversity brought about heterogeneous quality outcomes which necessitated the Commission of Higher Education to initiate improvement programmes through accreditation system in higher education (Arcelo, 2003). In relation to this, the Don Mariano Marcos Memorial State University (DMMMSU), a premier state university in the north has become very vigilant in developing their teaching manpower competencies particularly in the field of instruction.

In terms of collegiate instruction, it has to be noted that both the instructors and the students are the stakeholders. Thus, when evaluating the efficiency and effectiveness of different educational pedagogies, these two

stakeholders must be recognized. First, the instructors: Instructors are very different from one another. Some instructors have been teaching for decades or so and some are just beginning to set their feet flat on the teaching profession. Accompanied by these differences, instructors also have varying sorts of educational pedagogies. Some instructors prefer to do lecture method. Some often encourage their students to be involved in classroom activities. Others often require students to submit projects and research outputs by the end of the semester. In relation to this, some instructional strategies flourish and others flounder. The fate of these instructional strategies depend on their effectiveness which can be measured in terms of students' grades, attentiveness, interests, outputs and outcomes on a given subject matter. It is therefore essential to have much awareness on the instructors' primary and alternative educational pedagogy, as well as identify their beliefs and extent of practice to these educational pedagogies to determine their effectiveness on the field of instruction.

Second, the students: Instructional strategies determine the approach a teacher may take to achieve the learning objectives of a particular course or subject matter. These methods used by teachers create learning environments and specify the nature of activity in which the teacher and learner will be involved during the lesson. According to Saskatchewan (1988), "What children learn depends not only on what they are taught but also how they are taught, their development level, and their interests and experiences.... These beliefs require that much closer attention be paid to the methods chosen for presenting material..." Saskatchewan (2001) added that "the last decades of research in human learning have presented new insights into the ways that learners are active in constructing their own understanding. Constructivist learning theories have shown the limitations of viewing 'learning' as something we can 'give' to students that they will 'receive' or learn in exactly the same form, at exactly the given time."

Don Mariano Marcos Memorial State University, a premier university in the north caters diverse kinds of students. Students who might have come from different sectors such as those who are rich or poor, those who came from private and public schools, those who have complete and broken family, and those who are determined to finish their students versus those who are happy-go-lucky. Nevertheless, with the institution's qualification screening and standard, everybody is accepted without any discriminatory factors. In this regard, teachers of DMMMSU must be prepared to cater this diversity of learners.

We can describe the three obvious elements in the pursuit of this research: awareness, perspectives, and practice. **Awareness** pertains to the awareness of both instructors and students to the different educational pedagogies. Instructors' and students' **perspectives** will be a discussion of the beliefs, motivation, and perspectives of college faculty members and students. Lastly, instructional **practice** will describe the instructional practices of college instructors and how students perceive such practice by their instructors.

Theoretical and Conceptual Framework

There have been many critics of the "standard lecture" in all subjects and the College of Education is not an exception. We might look at the issue "why not to use alternative educational pedagogies" in another perspective. First, we don't know how aware the College of Education instructors are about alternate, student-centered educational pedagogies. We also don't know how these alternate, student-centered educational pedagogies align with the existing attitudes and beliefs of the instructors. Likewise, we know a little about the adoption rates of these alternative strategies (Andersen, 2011).

In the innovation-decision process, the process of putting an educational pedagogy into practice would begin with the acquisition of awareness about that pedagogy. Initially, the instructor gains initial knowledge of an educational pedagogy, forms an attitude about it, and then makes a decision whether to practice it or not (Rogers, 2003). Without the initial acquisition of awareness, the innovation-decision process would not push through. Furthermore, throughout the innovation-decision process, there are agents of change such as the colleagues, administrators, the tenure, the age, the resources available, and other professional development activities.

In terms of the awareness of the educational pedagogies of instructors, there are instances that they would just consciously ignore a certain educational pedagogy due to selective exposure or selective perception. In selective exposure, the instructors only pay attention to the messages which are aligned to their existing beliefs or attitudes. For instance, an instructor that believes in the efficacy of the lecture method would intentionally not attend conferences on student-centered teaching. On the other hand, selective perception means the tendency of an instructor's own interpretation of their existing attitudes and beliefs. For example, a lecture-believer instructor might view a cooperative-learning utilized classroom as poorly-managed lecture classroom (Rogers, 2003).

Furthermore, there are chances that instructors' teaching gets problematic in terms of low student-learning assessments. This may seem negative to the instructor but may open up ways to the reception of the instructor to new educational pedagogies. At the same time, it is also possible that these new educational pedagogies lead to needs. For example, when an instructor became aware of an educational pedagogy in a conference (or something that he/she discovered in the internet), it might create desire for him/her to change the way that he/she teaches to suit that new pedagogy (Rogers, 2003).

The Six Educational Pedagogies

This section briefly elucidates the six educational pedagogies which were analyzed in this study. **Cooperative learning** is a student-centered educational pedagogy where the class is divided into groups wherein they are allowed to discuss the general class topic in their respective groups and participate in a class discussion later on. **Inquiry-based learning** is a student-centered educational pedagogy where the instructor gives a general overview of the topic in class and then exposes the key ideas by asking questions to the students. If the instructor is not satisfied with the student's answer, he/she would either ask the student to elaborate or he/she gives additional information regarding the student's answer. **Lecture method** is a traditional teacher-centered approach where the instructor is the sole giver of information and the class just listens attentively until the class period is over. The instructor may ask few questions but majority of the class time is consumed by his/her lecture. **Mastery learning** is a subject-centered approach where the instructor makes sure that the students have fully understood the current topic before they proceed to the next topic in their course syllabus. **Learning with emphasis on communication skills** is a student-centered pedagogy wherein the instructor discusses the main class topic but focuses on the ability of the learners to deliver their answer whenever he/she asks question. The instructor is concerned not only on the key concepts of the discussion but also to the students' grammar, pronunciation, fluency and delivery of answer. **Project-based method** is a student-centered educational pedagogy which allows students to come up with an output at the end of the school term based on the guidelines required by the instructor. This can be a research output, a term paper, or an innovation.

Statement of the Problem

The purpose of this research is to collect sufficient data and analyze it to understand the awareness, perspectives and practices of respondents in the DMMMSU regarding the different educational pedagogies in the college. The research questions are designed to answer this goal:

1) What is the level of awareness of the respondents on the different educational pedagogy?
2) Is there a significant difference in the level of awareness when respondents are grouped according to the following demographic data:
   a)   Age;
   b)   Highest educational attainment;
   c)   Length of Service;
   d)   Trainings attended related to educational pedagogy; and
   e)   Access to web, journals and books?
3) What are the respondents' perspectives towards the use of different educational pedagogy?
4) Is there a significant difference in the perspectives of respondents when they are grouped according to the aforementioned demographic data?
5) What are the respondents' extents of practice on the different instructional strategies?
6) Is there a significant difference in the extent of practice when the respondents are grouped according to the aforementioned demographic data?

Scope and Delimitation

Due to the complexity of factors that affect different educational pedagogy, the study is only limited to six widely used educational pedagogy: (a) cooperative learning, (b) inquiry-based learning, (c) lecture method, (d) mastery learning, (e) learning with emphasis on communication skills, and (f) project-based method. The respondents are only restricted to the major stakeholders that are affected by different educational pedagogies, the students instructors.

Significance of the Study

Educational pedagogies in collegiate instruction determine the success of an existing college, institute or division. Understanding the awareness, perspectives and instructional practices of instructors allow us to understand if an awareness of an instructional strategy together with a favorable perspectives towards it results in "practice" or adoption of the said innovation. Likewise, it will also help us understand if there is still a need to improve the awareness capacities of instructors in the different educational pedagogy, through seminars and information-drives. In addition, it may also look into the effect of such instructional strategies to the GPA of students, how and to what extent these teaching efforts could affect the grade and level of performance of students.

Methodology

Research Method and Design

With the use of the survey questionnaire, supplemented with descriptive method of investigation, the study has employed a quantitative and descriptive research design. The main point of the quantitative research method is that measurement is valid, reliable and can be generalized with its clear anticipation of cause and effect (Cassel & Symon, 1999). At the same time, descriptive method is also best fitted to be combined with the quantitative method because it involves analyzing, interpreting and elucidating empirical data gathered to give due explanation to numerical figures obtained. The study has also included some forms of comparison and correlational relationships between existing independent and dependent variables encompassed in the study.

Sampling Technique

According to Ellen (n.d.), when it is not possible to study an entire population, a smaller sample is taken using a random sampling technique. Slovin's formula allows a researcher to sample the population with a desired degree of accuracy. It gives the researcher an idea of how large his sample size needs to be to ensure a reasonable accuracy of results. Slovin's formula is computed as:

$$n = N / (1 + N(e^2))$$

Where:
n = Number of samples
N = Total population
e = Error tolerance (where e = 0.05)

On this study, a structured survey questionnaire was used as the main tool for gathering most of the information. There were a total of 265 respondents, 250 were students and 15 were instructors. The Slovin's formula was used to guarantee that the samples taken will represent the entire instructor population of DMMMSU. The distributions of respondents were based on their specialization or major and the year level of students that they are teaching.

Validity and Reliability Testing

The survey instrument in this study was adapted from the research conducted by Andersen (2011). The research questionnaire used by Andersen (2011) was build using several, well-studied instruments including: *Approaches to Teaching Inventory* (Prosser et al., 2005), *Experience of Teaching Questionnaire* (Trigwell et al., 2005), and the *2008 Survey of Physics Instructors* (Henderson et al., 2008). Based on the matter by which the survey questionnaire was built and how it was previously used, the validity of the survey questionnaire is assumed. To determine the reliability of the questionnaire twenty (20) respondents were asked to answer after which the data were subjected to comparison.

Data and Statistical Analysis

To determine the level of awareness, the percent (%) of correct answers per respondent was determined. Item analysis was done to determine the specific aspects where the respondents' are aware and also where they lack awareness. The percent (%) of correct answer will be interpreted as shown below:

Percent (%) Correct Answer	Descriptive Interpretation
76 – 100	Highly aware
51 – 75	Moderately aware
26 – 50	Fairly aware
0 – 25	Not aware

The respondents' perspectives are measured in a scale of 1 being the lowest and 4 being the highest. A low perspective indicates a negative attitude towards a certain educational pedagogy and a high perspective shows a positive attitude. These perspectives were analyzed using weighted mean. The means were interpreted using the following scale:

Mean Scale	Descriptive Interpretation
3.25 – 4.00	Strongly Agree
2.50 – 3.24	Agree
1.76 – 2.49	Disagree
1.00 – 1.75	Strongly Disagree

The respondents' practices are measured in a scale of 1 being the lowest and 4 being the highest. A low practice indicates that the respondents utilize a certain educational pedagogy less frequently and a high practice shows that an educational pedagogy is utilized more frequently. These practices were analyzed using weighted mean. The means were interpreted using the following scale:

Mean Scale	Descriptive Interpretation
3.25 – 4.00	Always
2.50 – 3.24	Sometimes
1.76 – 2.49	Seldom
1.00 – 1.75	Never

In order to give meaning to the data collected, appropriate statistical tools were used in the study especially in determining the significant differences among the mean variables in the study. To determine the significant difference in the level of awareness of respondents when they are grouped according to their demographic data, the T-test and ANOVA (one factor) were used. In addition, in conjunction with ANOVA, when there is significant difference on the sample groups, the Tukey's test was used to find means that are significantly different from each other.

To determine the significant difference in the perspectives and extent of practice of the different educational pedagogy when they are grouped according to the aforementioned demographic data, the two-way ANOVA was used. Also, in conjunction with ANOVA, when there is significant difference on the sample groups, the Tukey's test was used to find means that are significantly different from each other. The T-test and the two-way ANOVA were calculated through the help of the Data Analysis ToolPak of Microsoft Excel. The ANOVA (one factor) and the Tukey's test were computed through the aid of the Megastat software installed in Microsoft Excel.   All tests of significance were made with alpha value of 0.05.

Results and Discussions

Table 1 shows the awareness of respondents on the different educational pedagogies. In general, instructor respondents are found to be more aware (77%) of the six different educational pedagogies than student respondents (58%). This implies that the instructors are highly aware of the six educational pedagogies. On the other hand, the students are moderately aware of the different pedagogies. It can also be gleaned from the table that the respondents are highly aware of the lecture method only. The respondents are moderately aware of the

rest of the different educational pedagogies. This table implies that students awareness must be enhance by the instructors which can later be useful to them as future instructors.

Table 1. Awareness of respondents on the different educational pedagogies.

Teaching Strategies	Respondents		Mean Average	Inter-pretation
	Instructor	Students		
Cooperative Learning	83%	64%	74%	MA
Inquiry-based Learning	68%	45%	57%	MA
Lecture Method	82%	70%	76%	HA
Mastery Learning	73%	65%	69%	MA
Learning with Emphasis on Communication Skills	87%	52%	69%	MA
Project-based Method	71%	51%	61%	MA
TOTAL	77%	58%	68%	MA

MA – moderately aware
HA – highly aware

Table 2. Perspectives of the respondents on the different educational pedagogies.

Teaching Strategies	Respondents		Mean Average	Inter-pretation
	Instructors	**Students**		
Cooperative Learning	3.11	2.90	3.00	Agree
Inquiry-based Learning	2.94	2.85	2.90	Agree
Lecture Method	2.94	2.88	2.91	Agree
Mastery Learning	2.51	2.84	2.68	Agree
Learning with Emphasis on Communication Skills	2.61	2.90	2.76	Agree
Project-based Method	2.85	2.89	2.87	Agree
TOTAL	**2.83**	**2.88**	**2.85**	**Agree**

Table 2 shows the perspectives of the respondents on the different educational pedagogies. It can be seen from the table that the highest mean average is 3.00 for cooperative learning and the lowest mean average is 2.68 for mastery learning. It can also be seen in the table the students have more positive insight to the different educational pedagogies with a mean of 2.88 compared to only 2.83 from the instructors. It can also be interpreted that the respondents have a positive attitude towards all the teaching strategies.

Table 3 shows the practice or the perception of practice by the respondents on the different teaching strategies. It can be observed from the table that the highest mean average is 3.38 for lecture method and the lowest is 2.83 for mastery learning. We can interpret from the table the lecture method is always used and the rest of the other teaching strategies are sometimes used.

Table 4 shows the awareness, perspectives and initiatives of the respondents when they are grouped according to age. It can be gleaned from the table that respondents from age brackets 41-50 (85%) and 51> (82%) are significantly more aware than those from the younger age bracket. The awareness of age group 21-30 (62%) is comparable to the age group 31-40 (60%) but such group is significantly more aware than the age group <20 (58%) which is the youngest age bracket. This means that age is a significant factor in knowledge acquisition of the different educational pedagogies wherein older instructors seem to know more educational pedagogies which

could have been acquired through their years of experience in the academe. In terms of the respondents' perspectives, it can be noted that the results are comparable which indicates that the respondents all agree that the different educational pedagogies can enhance learning in the classroom. Furthermore, in terms of the practice, it seems that those respondents under the age group 51 and above to have the least mean (2.92) which might show that their utilization of the different educational pedagogies have diminished, however, this data is not statistically significant to the other age groups.

Table 3. Practices (for instructors) and perception of practice (for students) by the respondents on the different educational pedagogies.

Teaching Strategies	Respondents		Mean Average	Inter-pretation
	Instructors	Students		
Cooperative Learning	3.19	3.24	3.22	Sometimes
Inquiry-based Learning	3.13	3.18	3.16	Sometimes
Lecture Method	3.41	3.34	3.38	Always
Mastery Learning	2.55	3.11	2.83	Sometimes
Learning with Emphasis on Communication Skills	2.85	3.20	3.037	Sometimes
Project-based Method	3.05	3.13	3.09	Sometimes
TOTAL	**3.03**	**3.20**	**3.12**	**Sometimes**

Table 4. Awareness, perspectives and practices of respondents on the different educational pedagogies as grouped according to age.

Age	Mean	F-value	P-value	Decision	Remarks
Awareness					
1 (<20)	58% a				
2 (21-30)	62% b				
3 (31-40)	60% ab	9.16	6.11E-07	Reject Ho	There is significant difference.
4 (41-50)	85% c				
5 (51>)	82% c				
Perspectives					
1 (<20)	2.88a				
2 (21-30)	2.85a				
3 (31-40)	2.85a	0.41	0.80	Accept Ho	There is no significant difference.
4 (41-50)	2.76a				
5 (51>)	2.86a				
Practices					
1 (<20)	3.19a				
2 (21-30)	3.21a				
3 (31-40)	3.33a	2.30	0.09	Accept Ho	There is no significant difference.
4 (41-50)	3.03a				
5 (51>)	2.92a				

**All means followed by common letter are not significantly different at 0.05 level

Table 5. Awareness, perspectives, and practices of respondents on the different educational pedagogies as grouped according to length of teaching experience (LTE).

LTE	Mean	F-value	P-value	Decision	Remarks
Awareness					
1 (<5 years)	78% a				
2 (6-10 years)	78% a				
3 (11-15 years)	70% a	0.94	0.48	Accept Ho	There is no significant difference.
4 (16-20 years)	75% a				
5 (20> years)	82% a				
Perspectives					
1 (<5 years)	2.79a				
2 (6-10 years)	2.84a				
3 (11-15 years)	3.07a	1.97	0.14	Accept Ho	There is no significant difference.
4 (16-20 years)	2.67a				
5 (20> years)	2.69a				
Practices					
1 (<5 years)	3.00a				
2 (6-10 years)	3.00a				
3 (11-15 years)	3.22a	1.25	0.32	Accept Ho	There is no significant difference.
4 (16-20 years)	3.33a				
5 (20> years)	2.82a				

**All means followed by common letter are not significantly different at 0.05 level

Table 5 shows the awareness, perspectives and practices of respondents on the different educational pedagogies as grouped according to length of teaching experience. It can be gleaned from the table that there seems to be a difference in the awareness of the respondents on the different educational pedagogies since those with the longest teaching experience (20 years and above) got a mean of 82% which is the highest among the other age groups, however, statistical analysis shows no significant difference. Likewise, there seems to be a difference in the practices of the respondents where those with the longest teaching experience (20 years and above) have the least mean of 2.82 which we might presume that they only utilize one or two of the six educational pedagogies, however, statistics again show that they are not significantly different from other groups.
The same table above shows the perspectives of the respondents on the different educational pedagogies. The results show that regardless of their length of teaching experience, they all have a positive perspective on the six educational pedagogies.
Table 6 shows the awareness of respondents according to highest educational attainment. It can be gleaned from the table that the undergraduate respondents or those who have not finished a degree yet have the lowest awareness with mean of 58% which is significantly lower than those who already have finished a degree, whether it is a BS degree (77%), an MS degree (75%) or a PhD degree (80%). This means that the educational attainment of respondents play a significant role in the awareness of respondents in the different educational pedagogies. Student respondents are those under the undergraduate category have the lowest mean and are considered moderately aware of the different educational pedagogies. It is therefore the role of the instructors to educate them in order for them to gain knowledge which they can later utilize when they pursue their career as future instructors. In terms of the perspectives of the respondents it was found that the results are comparable and that the respondents generally agree or have a generally positive attitude towards the different educational pedagogies. Same table above shows the practices of the different instructional pedagogies. It may seem ironic that those with

an MS and a PhD degree have the lowest mean of 2.95 which might mean that they seem to prefer fewer variety of educational pedagogies, however, statistically speaking; they are comparable to the rest of the other groups. Table 7 shows the awareness, perspectives and practices of respondents on the different educational pedagogies as grouped according to the number of hours of seminars attended. It can be gleaned from the table that respondents that have the greatest number of hours of seminars attended (>50 hours) have the highest awareness which is significantly higher than the other groups. Attending seminars, conferences and fora and often required by the Commission on Higher Education for professional growth and development. Such activities give the attendees the chance to acquire new knowledge pertaining to the theme of a certain conference, seminar or fora. As far as this study is concerned, it has showed how important it is for instructors as well as students to attend academic seminars. In relation to this research, it shows that attending seminars greatly increase the knowledge of participants regarding various educational pedagogies which is helpful because once that knowledge is acquired; it may sooner or later be utilized by the concerned individual. Ironically, the same table above has proven otherwise, since the perspectives and initiatives of respondents on the different educational pedagogies does not show any significant differences which means that regardless of the number of seminars that the respondents were able to attend, they still have comparable positive attitudes towards the different educational pedagogies and also has comparable utilization of the different educational pedagogies.

Table 8 shows the awareness, perspectives and practices of respondents on the different educational pedagogies as grouped according to frequency of access to web, journals and books. It can be seen from the table above that those with very frequent access to web, journals and books have the greatest awareness (71%) of the different educational pedagogies which is significantly higher to those with moderate (58%) and limited (59%) access. However it is comparable to those with frequent access (62%) to web, journals and books. This indicates that in order to diversify our knowledge to the different educational pedagogies, students and instructors need to have substantial access to the internet, journals as well as up-to-date books in the library. This has been a common problem to several academic institutions particularly in some developing countries wherein some educational

Table 6. Awareness, perspectives, and practices of respondents on the different educational pedagogies as grouped according to highest educational attainment (HEA).

HEA	Mean	F-value	P-value	Decision	Remarks
Awareness					
1 (under-graduate)	58% a				
1 (BS)	77% b	24.43	5.76E-14	Reject Ho	There is significant difference
2 (MS)	76% b				
3 (PhD)	80% b				
Perspectives					
1 (under-graduate)	2.88a				
2 (BS)	3.08a	2.98	0.06	Accept Ho	No significant difference
3 (MS)	2.77a				
4 (PhD)	2.69a				
Practices					
1 (under-graduate)	3.20a				
1 (BS)	3.26a	1.75	0.194	Accept Ho	No significant difference
2 (MS)	2.95a				
3 (PhD)	2.95a				

**All means followed by common letter are not significantly different at 0.05 level

institutions have insufficient resources which can be utilized by both students and instructors which might have affected their awareness to various educational pedagogies. On the other hand, it can be seen from the same table above the perspectives and initiatives of the respondents were not statistically significant when they are grouped according to their access to the web, journals, and books.

Table 7. Awareness, perspectives and practices of respondents on the different educational pedagogies as grouped according to no. of hours of seminars attended (NHSA).

NHSA	Mean	F-value	P-value	Decision	Remarks
Awareness					
1 (<10 hours)	58% a				
2 (11-20 hours)	60% a				
3 (31-40 hours)	63% a	8.94155	8.84E-07	Reject Ho	There is significant difference.
4 (41-50 hours)	58% a				
5 (> 50 hours)	77% b				
Perspectives					
1 (<10 hours)	2.87a				
2 (11-20 hours)	2.92a				
3 (31-40 hours)	2.86a	1.14	0.37	Accept Ho	There is no significant difference.
4 (41-50 hours)	2.76a				
5 (> 50 hours)	2.86a				
Initiatives					
1 (<10 hours)	3.22a				
2 (11-20 hours)	3.08a				
3 (31-40 hours)	3.39a	2.70	0.10	Accept Ho	There is no significant difference.
4 (41-50 hours)	3.13a				
5 (> 50 hours)	3.05a				

**All means followed by common letter are not significantly different at 0.05 level

Conclusions

This study utilized a quantitative descriptive way using a structured questionnaire to analyze the awareness, perspectives and initiatives of instructors and students to the six educational pedagogies namely: cooperative learning, inquiry-based learning, lecture method, mastery learning, learning with emphasis to communication skills, and project-based method. It was found that the College of Education is not an exception to the high awareness and practice of lecture method over the other alternative student-centered educational pedagogies even at this modern era of learning and education.

Age, highest educational attainment, number of hours of seminars attended, and frequency of access to web, journals and books played a significant role in the awareness of respondents to the different educational pedagogies wherein the greater the age, the higher the educational attainment, the more number of hours of seminars attended, and the higher the frequency of access, significantly increases the awareness of the respondents. In general, faculty development improves as an instructor ages, such as his/her educational attainment, the increase in the number of hours of the seminars that he/she has attended and his/her frequency to access to the internet, journals and books. In relation to this, many forms of faculty development target the awareness which is the first step of the innovation-decision process of a certain educational pedagogy, and without this initial step, the process would not proceed. These are then considered agents of change to increase an instructor's awareness about a new educational pedagogy as well as their persuasion to use it. This awareness is

important because there are many instances that student-learning and student-assessment become problematic if and when only lecture method is utilized.

Table 8. Awareness, perspectives and practices of respondents on the different educational pedagogy as grouped according to frequency of access to web, journals and books (FAWJB).

FAWJB	Mean	F-value	P-value	Decision	Remarks
Awareness					
1 (limited)	59% a				
2 (moderate)	58% a	5.97	0.000131	Reject Ho	There is significant difference.
3 (frequent)	62% ab				
4 (very frequent)	71% b				
Perspectives					
1 (limited)	2.90a				
2 (moderate)	2.86a	9.06	0.06	Accept Ho	There is no significant difference.
3 (frequent)	2.97a				
4 (very frequent)	2.81a				
Initiatives					
1 (limited)	3.20a				
2 (moderate)	3.20a	3.92	0.20	Accept Ho	There is no significant difference.
3 (frequent)	3.27a				
4 (very frequent)	3.13a				

**All means followed by common letter are not significantly different at 0.05 level

Regardless of how the respondents were grouped, it can be concluded that they have positive perspective towards the utilization of the different educational pedagogies. However, it is somehow interesting to note that as the respondents age, as they attain higher educational degree, as they acquire longer teaching experience, there seems to be a decrease in their practice of the different educational pedagogies, or in other words, they seem to utilize just one or two of the six pedagogies. This may be due to the selective exposure of instructors where they only pay attention to their existing beliefs or attitudes towards certain educational pedagogies which they believe are efficient for utilization. This is however, not conclusive since the data were interpreted as not statistically significant to the other groups.

The gap between the awareness, perspectives and practice seem to be unclear and the link cannot be clearly established. However, it is very evident that some respondents have moderate awareness to various educational pedagogies. Although respondents indicated that they have positive attitude towards certain educational pedagogies and they seem to be utilizing it, these perceptions and practices still seem to be questionable because of their moderate level of awareness.

Recommendations

Since age, highest educational attainment, number of hours of seminars attended, and frequency of access to web, journals and books played a significant role in the awareness of respondents to the different educational pedagogies, it is highly recommended that (1) for students, they need to attend more seminars, and they need to have more sufficient access to web, journals, and books to increase their level of knowledge and awareness to various educational pedagogies. (2) For instructors, they need to achieve higher education, likewise attend more seminars and must have more access to the web, to journals and to books. This is highly recommended since awareness to new educational pedagogies is the first step of the innovation-decision process particularly because

there are many instances where student-learning and student-assessment become problematic if and when only one or two educational pedagogies is known and is utilized by the instructor.

The link between awareness, perspectives and initiatives cannot be clearly established because there were not significant differences in terms of the perspectives and practices of the respondents on the different educational pedagogies. This is probably due to the low number of instructor respondents in the study. It is therefore highly recommended that future similar research be conducted which will not only involve the faculty in the College of Education but the entire faculty of the Don Mariano Marcos Memorial State University.

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Cambodian Student Competencies in Chemistry
at Lower Secondary School examined by TIMSS 2011 Standards

Seng SET

National Institute of Education, Norodom Blvd, corner of Independence Monument,
Daun Penh, Phnom Penh, Cambodia
setseng2004@yahoo.com

Sovanna SIENG

National Institute of Education, Norodom Blvd, corner of Independence Monument,
Daun Penh, Phnom Penh, Cambodia
siengsovannanie@gmail.com

Masakazu KITA

Faculty of Education, Okayama University, Okayama 700-8530, Japan
kitam@cc.okayama-u.ac.jp

Abstract: *This study investigates Cambodian student competencies in chemistry at lower secondary level by using the TIMSS 2011 standards. There were 3014 students in eighth grade of lower secondary schools of Cambodia participated in the research. Their results are then compared with the achievement of students from Japan, Thailand, Malaysia and Indonesia on the same TIMSS items. It is found that the achievement of Cambodian students is comparable to most of its regional neighbors, but is much lower than that of Japan and the ASEAN and international averages. The study discusses the findings and identifies key challenges for the current Cambodian context.*

Keywords: Chemistry content domain, cognitive domain, lower secondary school, Cambodia, ASEAN

Introduction

Cambodia will face increasing regional competition when ASEAN integration becomes a reality in 2015. Its competitive status will depend greatly on the capacity of its human resources. Numerous reports have described the lack of relevant knowledge and skills of graduates from the Cambodian school system. Yet there is little reliable quantitative data to support these claims. Especially, there is little subject specific, comparative data that might indicate Cambodia's regional competitive status.

Science education plays an important role in the development of critical citizens in a rapidly changing technological society (Ginns& Watters, 1995; Watters & Ginns, 2000). McGinn and Roth (1999) emphasize that by well-organized science education, citizens can have a greater understanding of natural and scientific phenomena, and can develop skills to solve challenges they may encounter in daily life.

Chemistry is widely considered to be a central discipline among the sciences as it closely studies matter, energy and their interactions in the phenomena of our everyday lives. Understanding chemistry can help to explain changes in matter as well as many phenomena in nature (Mann, 2011).

Unfortunately, Cambodia has never participated in an international assessment such as Trends in International Mathematics and Science Study (TIMSS) or Programme for International Student Assessment (PISA) before, whereas several of her regional neighbors have (TIMSS, 2013; PISA, 2013). Consequently, this investigation aims to describe Cambodian students' competency in chemistry at lower secondary level through the use of internationally recognized TIMSS test items in both concept and cognitive domains, and compares them with Japan and other regional countries such as Thailand, Malaysia and Indonesia.

Research Purpose

Giving the above context, this research aims to explore Cambodian lower secondary school students' competencies in chemistry by using TIMSS-2011 standard items. Here, the competencies are referring to the

ability of students to understand the chemistry concept domain and scientific cognitive domain. The research raises the following investigative questions:

1. To what extent do lower secondary school students in Cambodia understand the chemistry concept domain?
2. How well do Cambodian lower secondary school students perform on the three components of the cognitive domain; knowing, reasoning and applying scientific knowledge?
3. What differences in performance are there between Cambodian students and those of the ASEAN countries, Japan and the international averages?

Background
The Cambodian Context
Cambodia is one of the least developed countries in the world. It experienced civil war for several decades during the 1970s to 1990s, the most serious being from 1975 to 1979 in which numerous educational resources, both human and material, were destroyed. Since then, the education system in Cambodia has been reformed several times under the support of various educational projects from foreign countries (UNESCO, 1991; Clayton, 1997; Chantha, 2013) yet the system remains in a weakened state with an undertrained and underpaid workforce, inadequate curriculum and wide-spread cheating on high-stakes exams that demotivates students for learning.

In the current educational system in Cambodia, Chemistry is introduced in grade 7 of lower secondary school together with other science discipline such as Physics, Biology and Earth Science. They are presented as separate sections of the same book and not as integrated science. The textbook is the only curriculum document provided by the Ministry of Education Youth and Sport (MoEYS) and there is a shortage of other teaching materials, so it is virtually the only teaching resource available for teachers. At this level, chemistry is only taught for 1 to 2 periods per week throughout grades 7 to 9 shared with other science subjects (MoEYS, 2004). Although several attempts have been made to reform the education system in Cambodia, several researchers have shown that science education in Cambodian is still in much need of improvement. A research conducted by Maeda showed surprisingly that the students of Royal University of Phnom Penh specialized in chemistry had low performance on science items for lower secondary standard by TIMSS (Maeda, 2003). According to Maeda, Pen, Set, Kita & Sieng (2006), the quality of chemistry education, as well as science education in Cambodia is facing three key issues: (1) shortage of appropriate educational content since most is too abstract, has little practical work, many theoretical concepts and few links to everyday application, (2) insufficient teaching and learning materials that encourages teachers to teach students mostly by rote lecturing following what is written in the textbook without providing students with real scientific observation and, (3) lack of qualified, trained teachers. The research shows that many teachers have had little or no experience in science practical work, as they have never been trained in the pre-service teacher-training program at teacher training centers. A baseline survey conducted by the Japanese, Cambodian Science Teacher Education Project, (STEPSAM2), also reported that science trainers from teacher training centers for primary and lower secondary school as well as their trainees, who become lower secondary teachers, demonstrated poor scientific knowledge and weak scientific thinking or few science process skills (STEPSAM2, 2009). Recent research by Walle, Uon, Cnudde and Keo (2010) and Chantha, (2013) has shown similar results.

The Nature of Chemistry
Many researchers have found that chemistry is one of the most difficult subjects for students because it includes a number of abstract concepts that are difficult to understand (Gabel and Bunce, 1994; Griffiths, 1994; Bucat and Fensham, 1995; Garnett, and Hackling, 1995; Hans, Annettte and Allan, 2007; Rahayu and Kita, 2010). According to Johnstone (2000), the difficulties may be related to human learning as well as the nature of the subject itself.

The subject of chemistry comprises different kinds of concepts compared to others. Johnstone (1982, 1991&2000) describes three levels of chemistry concepts for learners; the macro and tangible, the submicro atomic and molecular, and the representational use of symbols and mathematics. In the case of the macro level, it is possible to have direct concept formation, as in the case, for instance, of recognizing metals and non-metals, acids and bases, flammable substances, etc. In the case, however, of concepts like elements or compounds, molecules, atoms, or electrons, bonding types, these involve the submicro level and are very difficult concepts for students. Furthermore, to interpret and express the phenomenon of chemical change, scientific symbols and

mathematics are used. Therefore, learners need to gradually build up their basic knowledge of these three main component concepts in order to able to understand chemistry.

TIMSS

TIMSS is an internationally comparative assessment dedicated to improving teaching and learning in mathematics and science for students around the world. By carrying out evaluations every four years since 1995 at the fourth and eighth grades, TIMSS provides data about trends in mathematics and science achievement of students around the world over time. In 2011, there are nationally representative samples of students from 63 countries and 14 benchmarking entities (regional jurisdictions of countries, such as states) participated in TIMSS. Two dimensions have been developed by TIMSS science assessment teams; (1) a content dimension specifying the domains or subject matter to be assessed within science; and (2) a cognitive dimension specifying the domains or thinking processes expected of students as they engage with the science content. The domain of knowing scientific knowledge is the knowledge of relevant science facts, information, tools, and procedures, while applying scientific knowledge refers to the use of knowledge in real situations and problem solving. Lastly, reasoning scientific knowledge is the skill of drawing conclusions with appropriate evidence based on inductive and deductive reasoning as well as the investigation of cause and effect (TIMSS, 2013).

The cognitive domain is an area of study that focuses on the processes and the qualitative results of the study as well as the ability to apply intelligence. Cognitive domain is well-known as one of Bloom's taxonomy learning domains commonly used to describe a student's intellectual development. According to Bandura (1989), a major function of thought is to enable people to predict the occurrence of events and to create the means of exercising control over those that affect their daily life, and this requires cognitive processing. In order to do this, people must draw on their state of knowledge to generate hypotheses and apply a process to solve the problem. According to Hanus, Hamilton & Russell (2008), there are six categories in the cognitive domain, namely knowledge, comprehension, application, analysis, synthesis and evaluation. He refers to knowledge as a cognitive continuum that begins with students' recall and recognition of a concept, while comprehension is the ability to translate or to interpret the concept. He refers to application as the ability of students to apply the knowledge that they comprehend. Analysis and synthesis he explains as the ability of students to analyze situations involving their knowledge and to synthesize the knowledge into new organizations. Finally, students need evaluation skills to evaluate the knowledge area to judge the value of materials and methods for a given purpose.

Methodology

Research Materials

The study used only question items developed by TIMSS in 2011 for eighth grade. Among the 217 assessment items for all science areas, the author selected all 18 items that related to chemistry. Among the items selected, 13 were multiple-choice questions where students could select an option that would best represent a particular concept, and 5 items were constructed response questions where students could write an appropriate explanation.

As seen in Table 1, the items covered 3 topic areas in the chemistry concept domain, namely the properties of matter, classification and composition of matter and chemical change. They were also classified into 3 categories of cognitive domain; knowing, applying and reasoning scientific knowledge. Two among the 18 items were worth 2 marks, while the others were 1 mark questions; therefore the full score was 20.

Table 1. Question items for chemistry collected from TIMSS 2011

Question Items	Question ID	Topic Area(Concept Domain)	Cognitive Domain	Maximum Scores
1	S032156	Properties of matter	Reasoning	1
2	S032056	Chemical change	Applying	1
3	S052152	Classification and composition of matter	Applying	1
4	S052136	Classification and composition of matter	Reasoning	1
5	S052046	Chemical change	Knowing	1
6	S052254	Properties of matter	Reasoning	1

7	S042076	Classification and composition of matter	Knowing	1
8	S042306	Classification and composition of matter	Knowing	1
9	S042100	Chemical change	Knowing	2
10	S032502	Classification and composition of matter	Applying	1
11	S032679	Chemical change	Applying	1
12	S042073	Classification and composition of matter	Knowing	1
13	S042095	Properties of matter	Knowing	1
14	S042112	Chemical change	Knowing	1
15	S042063	Classification and composition of matter	Applying	1
16	S042305	Classification and composition of matter	Applying	2
17	S032579	Classification and composition of matter	Applying	1
18	S032570	Classification and composition of matter	Reasoning	1

The detailed question items are available from TIMSS 2011 website (http://timss.bc.edu/timss2011/).

The items were translated into Khmer language and checked by our colleagues, chemistry lecturers of National Institute of Education, several times to make sure that the translated items could be understood properly by students. Then, the translated question items were used with two classes of eighth grade students as a pilot. Students in the pilot study didn't raise any questions related to the translated items, so it was assumed that the translated questions were suitable for use with Cambodian students.

Sample and Data Collection
Following the TIMSS framework, eight grade Cambodian students were asked to participate in the research at the end of their school year from June to July, 2013. They were selected randomly from 1 to 2 classes from 34 public schools across 17 provinces/cities out of 25 throughout Cambodia, in which 1 school in town (city) and 1 school in district were collected for each province. There were 3014 students (690 were female) in total who participated in the research. The participating students were given 1 hour to write answers on the TIMSS test papers in classrooms and supervised strictly and no cheating of any type was allowed.
The collected questionnaires were marked following the instruction of correction guide by TIMSS. For multiple-choice questions students were given one mark if they chose the correct answer and zero if they chose the wrong one. In the case of constructed response questions students were given one or two marks based on their use of correct key terms to express their answers.
Data from Japan, Thailand, Malaysia and Indonesia, were collected by the author from the TIMSS 2011 database, which had already been statistically adjusted and reported the students' achievement as average percentages. These data were used directly to compare with Cambodian students' achievement. Moreover, the ASEAN average is calculated from the average of ASEAN countries which participated in TIMSS 2011, namely Thailand, Malaysia, Indonesia and Singapore, and plus this Cambodia data. However, Singapore will not be raised to discuss in the comparison by country, because it is already found as a top performance in the TIMSS similar to Japan. Therefore, the discussion will compare solely between Cambodia, Thailand, Indonesia and Malaysia where the educational situation is considered to be similar as they are all the developing countries in the region.

Data Analysis
The students' scores obtained on the test were analyzed quantitatively using Microsoft EXCEL to calculate the average number of students who gave the correct answers and SPSS (PASW Statistics 18, version 18.0.0) to run for descriptive statistics and T-test. The data collected from Cambodia, was then compared with the secondary data of Japan, Thailand, Malaysia and Indonesia collected from TIMSS 2011 results and differences in achievement between countries in terms of concept and cognitive domains were identified.

Results and Discussion

The discussion of the research finding is focused on two main areas as mentioned in the research questions. First, students' overall understanding of the chemistry concept domain is discussed, followed by general patterns for each topic area introduced in the assessment test, namely, properties of matter, classification and composition of matter, and chemical change. Second, the discussion focuses on students' performances in the cognitive domain. Here, three student competencies are considered; the abilities of knowing, applying and reasoning scientific knowledge. For each discussion, a comparison is made between the Cambodian students' achievement and that of Japan, Thailand, Malaysia and Indonesia as well as the ASEAN and international averages.

Students' Understanding of Content Domain

The results also show that there was not a significant difference in performance between male students (N=613, M (Mean scores)=6.34, SD=3.044) and female students (N=690, M=6.44, SD=2.873); p=0.537>0.05. On the other hand, the students from the districts (N=655, M=6.56, SD=2.971) seemed perform the test slightly better than those from the towns (N=649, M=6.28, SD=2.928); p=0.043<0.05. However, their mean scores did not show big difference. This indicates that the students have received the similar teaching and learning opportunity in Cambodian schools in terms of curriculum, contents and materials as well as the way of learning in the classroom.

Figure 1 shows the number of students in percentage that responded the correct answer by item comparing amongst Cambodia, Japan, Thailand, Malaysia, Indonesia and the ASEAN and International averages. The results show that, with the exception of Japan, the students from participating countries performed lower on the TIMSS assessment test than the ASEAN and international averages. Less than 50% of the students from the countries involved gave the correct answers to most of the test items. Cambodian student's achievement was comparable to those of Thailand, Malaysia and Indonesia, however, they were all still below the ASEAN and international averages.
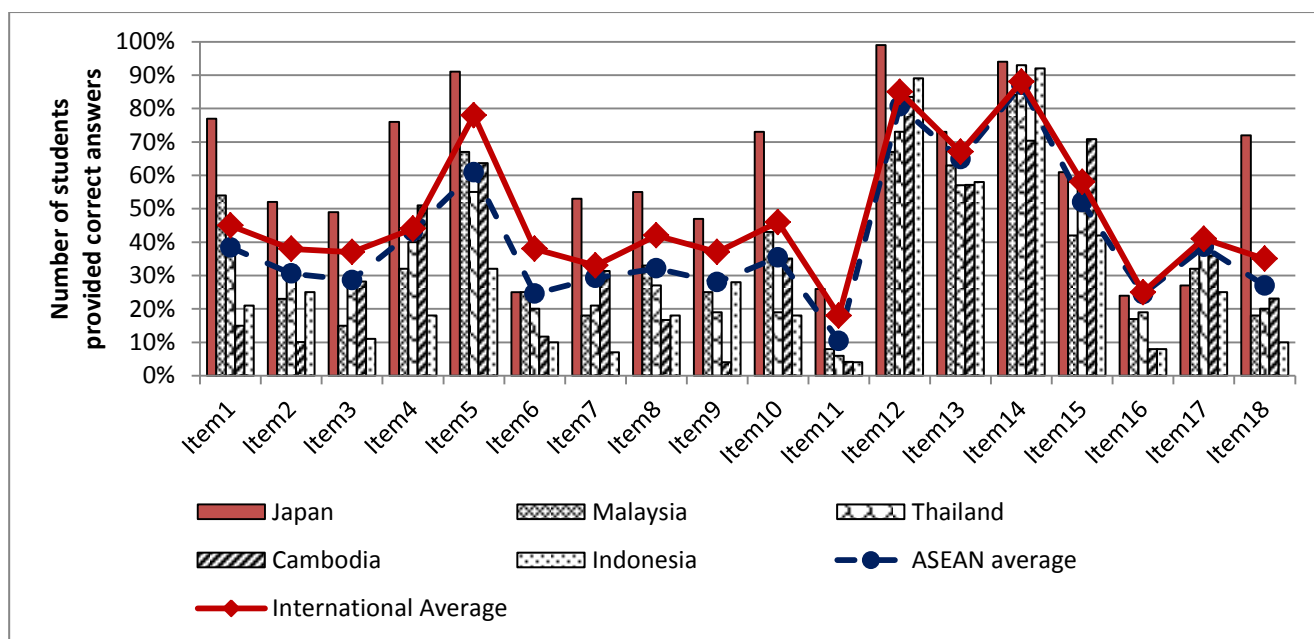
Figure 1. Number of students from ASEAN countries and Japan performed the correct answer by question item compared to ASEAN and International Average

Table 2 shows the number of Cambodian students, on average, who responded with the correct answers amongst the 18 question items in total compared to those of Japanese, Thai, Malaysian, Indonesian students, as well as the ASEAN and international averages. The number of Cambodian students who were able to understand the concepts of chemistry presented by the TIMSS items was only 34.42%, much below 50%, while the TIMSS 2011 result was 59.67% for Japanese students, 40.90% for the ASEAN and 47.50% for the international average. However, the results show that Cambodian students (34.42%) performed somewhat better than Indonesians (27.89%), though slightly below Thai (36.83%) and Malaysian students (36.94%).

Japanese students showed the top performance among the comparison countries and were even higher than the international average.

Table 2.Number of Cambodian students that performed correct answers to the 18 items compared to regional countries, Japan, ASEAN and International.

Countries	Minimum Number (%)	Maximum Number (%)	Average Number (%)
Cambodia	4.00	83.00	34.42
Thailand	6.00	93.00	36.83
Malaysia	8.00	84.00	36.94
Indonesia	4.00	92.00	27.89
ASEAN	5.50	88.00	40.90
International	18.00	88.00	47.50
Japan	24.00	99.00	59.67

Properties of Matter

The three items (items No.1, 6 and 13 as shown in Table 1), which were all multiple-choice questions, were designed to investigate the students' understanding of this concept. As seen in Table 3, many Cambodian students could not respond with the correct answers on the test. Only 27.94% of the students in average, which was the smallest number amongst the comparison countries could understand the concept of properties of matter as presented by the TIMSS items. Even though this number was slightly below Indonesia (29.67%), this result was clearly below Japan, Thailand and Malaysia as well as the ASEAN and the International averages.

Table 3. Number of Cambodian students that performed correct answers to the topic area of the properties of matter compared to regional countries, Japan, ASEAN and International in averages.

Countries	Minimum Number (%)	Maximum Number (%)	Average Number (%)
Cambodia	12.00	57.00	27.94
Thailand	20.00	57.00	37.67
Malaysia	25.00	63.00	47.33
Indonesia	10.00	58.00	29.67
ASEAN	25.00	65.00	42.67
International	38.00	67.00	50.00
Japan	25.00	77.00	58.33

Classification and Composition of Matter

The ten question items were designed to test understanding of classification and composition of matter. Among those, eight items (items No. 3, 4, 8, 10, 12, 15, 16 and 17) were multiple-choice questions and two items (items No. 7 and 18) were constructed response questions. In this topic area, Cambodian students showed slightly better understanding than those of Thailand, Malaysia and Indonesia. However, the number was still below 50% and still below the Japanese, ASEAN and international averages. As seen from Table 4, 38.36% of Cambodian students gave the correct answer to the question items in this topic area while 34.40%, 31.70% and 24.60% of students for Thailand, Malaysia and Indonesia respectively. In this concept category, Japan was still at the top number and even higher than the ASEAN and international averages.

Table 4. Number of Cambodian students that responded correct answers to the topic area of the classification and composition of matter compared to regional countries, Japan, ASEAN and International in averages.

Countries	Minimum Number (%)	Maximum Number (%)	Average Number (%)
Cambodia	8.00	83.00	38.36
Thailand	19.00	73.00	34.40
Malaysia	15.00	67.00	31.70
Indonesia	7.00	89.00	24.60
ASEAN	24.00	81.00	39.10
International	25.00	85.00	44.60
Japan	24.00	99.00	58.90

Table 5. Number of Cambodian students that responded correct answers to the topic area of the chemical change compared to regional countries, Japan ASEAN and International in averages.

Countries	Minimum Number (%)	Maximum Number (%)	Average Number (%)
Cambodia	4.00	70.00	30.43
Thailand	6.00	93.00	41.20
Malaysia	8.00	84.00	41.40
Indonesia	4.00	92.00	36.20
ASEAN	10.00	87.00	43.40
International	18.00	88.00	51.80
Japan	26.00	94.00	62.00

Chemical Change

The five questions items were designed to assess students' understanding of the concept of chemical change. Among those questions, two were multiple-choice questions (items No. 5 and 14), while the other three were constructed response questions, which require students to write answers (items No. 2, 9 and 11). Cambodian students continued to show low achievement in the concept of chemical change. As shown in Table 5, only 30.43% of the students could understand and give correct answers in this topic area. This is again the smallest number amongst the comparison countries and was below the ASEAN (43.40%) and international averages (51.80%), while Japan was still at the top number and higher than the international average. The summary of Cambodian students' achievement amongst the three concept areas in the content domain compared with ASEAN and the international averages is shown in Figure 2.
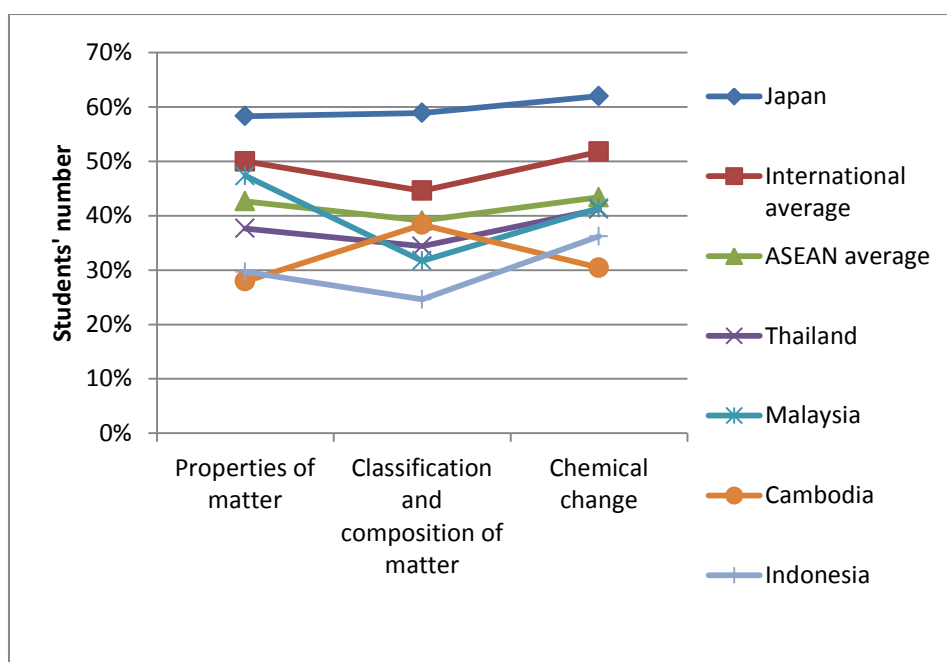
Figure 2. Summary of students' achievement in the content domain
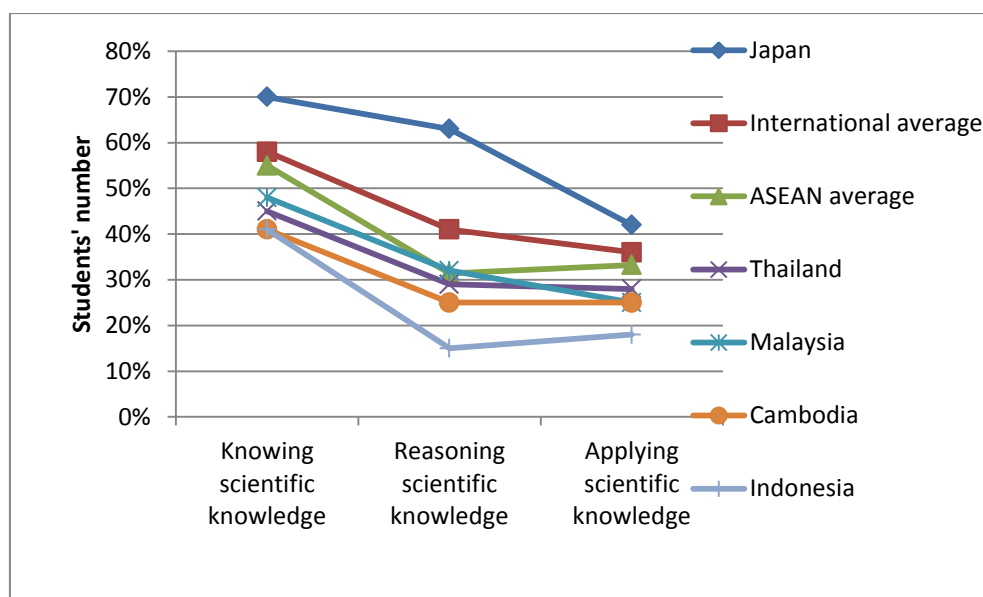
Figure 3. Summary of students' achievement in the cognitive domain

Students' performances in the Cognitive Domain

In general, the performance in the cognitive domain of students in all comparison countries followed the same pattern, as seen in Figure 3, and this was reflected in the ASEAN and the international averages. the highest achievement was in knowing scientific knowledge, followed by reasoning and then applying scientific knowledge. Amongst these countries, Japanese students displayed the highest ability in all cognitive domains, and ranked even higher than the international and ASEAN averages. The achievement of other countries was in decreasing order, Malaysia, Thailand, Cambodia and Indonesia.

Knowing Scientific Knowledge

The seven question items on the assessment test (items No. 5, 7, 8, 9, 12 and 13) were designed to measure the extent of students' knowing scientific knowledge as shown in Table 1. Cambodian students' knowledge in science was below the comparison countries and the ASEAN and international averages. From Table 6, Cambodian and Indonesian students have similar weaknesses in this cognitive domain as only 46.67 % of Cambodian students and 46.29% of Indonesian students could respond with correct answers, while Japanese, Malaysian and Thai students had 73.14%, 51.00% and 49.29% respectively.

Table 6. Number of Cambodian student performed well in knowing scientific knowledge compared to regional countries, Japan, ASEAN and International.

Countries	Minimum Number (%)	Maximum Number (%)	Average (%)
Cambodia	4.00	83.00	46.67
Thailand	19.00	93.00	49.29
Malaysia	18.00	84.00	51.00
Indonesia	7.00	92.00	46.29
ASEAN	28.00	87.00	54.71
International	33.00	88.00	61.43
Japan	47.00	99.00	73.14

Reasoning Scientific Knowledge

Four question items (item No. 1, 4, 6 and 18) were included in the test to understand the students' skills in reasoning scientific knowledge. One of the item was a constructed response question (item No. 18). As seen in Table 7, only 25.19% of Cambodian students could give appropriate reasons for the scientific concepts presented in the test. Although this was slightly higher than the Indonesia, it was lower than other regional countries, Thailand and Malaysia as well as the ASEAN average. Compared to Japan and the international average, Cambodia was even further behind.

Table 7. Number of Cambodian student performed well in reasoning scientific knowledge compared to regional countries, Japan, ASEAN and International.

Countries	Minimum Number (%)	Maximum Number (%)	Average Number (%)
Cambodia	12.00	51.00	25.19
Thailand	20.00	40.00	29.00
Malaysia	18.00	54.00	32.25
Indonesia	10.00	21.00	14.75
ASEAN	25.00	43.00	33.25
International	35.00	45.00	40.50
Japan	25.00	77.00	62.50

Applying Scientific Knowledge

Seven question items were presented to assess the skills of applying scientific knowledge (items No. 2, 3, 10, 11, 15, 16 and 17), in which two (items No. 2 and 11) were constructed response questions, as seen in Table 1. In this skill domain, Cambodian students' performance was similar to regional comparison countries. They performed slightly better than Indonesian and Malaysian students, but were slightly below Thai students as seen in Table 8. However, this result was again below the ASEAN and international averages and Japan.

Table 8. Number of Cambodian student performed well in applying scientific knowledge compared to regional countries, Japan, ASEAN and International.

Countries	Minimum Number (%)	Maximum Number (%)	Mean Number (%)
Cambodia	4.00	71.00	27.46
Thailand	6.00	59.00	28.86
Malaysia	8.00	43.00	25.71
Indonesia	4.00	25.00	19.00
ASEAN	10.00	52.00	31.43
International	18.00	58.00	37.57
Japan	24.00	73.00	44.57

Implication for Cambodia

In general, Cambodian student showed similar performance in chemistry competency amongst males and females as well as towns and districts. However, their achievement was low compared to that of the regional comparison countries on the TIMSS assessment items. Only Indonesia was lower in both concept and cognitive domains. Cambodian students were significantly below the ASEAN and the international average in both content and cognitive domains. The following is a discussion of the implications of the research results for the current Cambodian science education context. The discussion focuses on the greatest weaknesses of Cambodian student achievement in each domain in order to magnify the problems in the current Cambodian education context.

The Content domain

As shown in the research results in the content domain, Cambodian students achieved an overall third position amongst the four regional comparison countries, behind those of Malaysia and Thailand, and above Indonesia. Cambodian students achieved below the ASEAN and international averages and significantly behind those of Japan. In the specific content areas, Cambodian students showed better than average achievement in the Classification and Composition of Matter, scoring higher than all its regional neighbors (Figure 2), but still lower than the ASEAN and international averages and Japan. However, Cambodian students scored lowest in the region in the areas of Properties of Matter and Chemical Change.

For instance, in the concept area of the properties of matter, only a few Cambodian students could respond with the correct answers to the assigned items (No. 1, 6 and 13), as shown in Figure 1. Question item No.1 assesses the students' understanding of the change in solubility of sugar with temperature by asking them to choose an appropriate solubility graph. Only 15% of students who participated in the test could explain that the dissolved amount of sugar in water increased when the temperature increased. In the case of question item No. 6, which requires students to select the property of water that has the most effect on splitting a rock into two pieces, only 12% of them could choose the correct statement, "water expanding when it freezes." Question item No. 13 asks the students to choose the correct term used to describe the process that occurs when ammonia solution is added

to a red colored solution of vinegar until the color disappears. The 57% of Cambodian students could choose the right answer explaining that this process is called "neutralization", and this result is similar to the students from regional countries like Thailand, Malaysia and Indonesia.

It should be noted that the concept of properties of matter exists in the current Cambodian lower secondary school curriculum from 7th grade throughout to 8th grade (MoEYS, 2011& 2013). But the concept of solubility of matter in water is described very briefly, only as a definition in Grade 8, and the change in solubility is never shown graphically. Therefore, the students may have had difficulty understanding the meaning of the scientific data expressed in the graph. Similarly, the properties of water are also discussed in both the 7th and 8th Grade textbooks. However, the content focuses on the changes of water between solid, liquid and gas states, the water cycle and water composition, while the concept of the volume of water expanding when it becomes solid (ice) is not discussed. Therefore, the power of water to break a stone into small pieces by volume expansion when it freezes, as described in the test, is not a familiar one with Cambodian students. Moreover, the concept of acid-base is not introduced in 7th nor 8th grades, but in the 9th grade (MoEYS, 2012) and the changes in color of acid-base indicators, as described in the test item, is not discussed until the upper secondary level in 11th grade. Therefore, it might be difficult for Cambodian students to understand these concepts.

While Cambodian student achievement was relatively better than regional comparison countries in the concept area of the classification and composition of matter, they had lower performance in the concept area of chemical change. Less than 10 % of the students answered correctly to the three question items among the five in the area of chemical change. The three questions are items, No. 2, 9 and 11, as seen in Figure 2, are constructed response questions. The question item No. 2 requires students to write an explanation of the reason why a balloon inflates when sodium bicarbonate is mixed with vinegar. Only 10% of the students could write an appropriate explanation by using correct terms such as "the balloon inflates because of the carbon dioxide gas or gas is released from the reaction between the sodium bicarbonate and the vinegar." In the case of questions No. 9 and 11, only 4% Cambodian students could give correct answers to each. This is a very low performance. The question item No. 9 asks students to describe two pieces of evidence that could be observed when a chemical reaction is taking place, while question No. 11 asks students to give evidence to show that energy is released during a chemical reaction.

The content covered in these test items is more practical and not simply recall of knowledge. Looking at the content in the Cambodian textbooks, the concept of chemical change is introduced from 7th grade through 8th grade. However, only a few chemical reactions are discussed theoretically and abstractly, such as burning a candle or charcoal, combustion of some metals like copper and magnesium, reaction of iron powder and sulfur powder, and the reaction of hydrogen with oxygen. The discussion also has little linkage with daily life and materials. There is neither the reaction of vinegar with carbonate, nor any discussion of the release or absorption of heat from the reaction. Moreover, Cambodian students have little or no opportunity to observe chemical change phenomena in the classroom as already mentioned from a previous survey in the introduction and background of this paper. Therefore, the question items in this concept area are again beyond the Cambodian students' capacity and are not familiar to them. This may help to explain their low achievement in this conceptual area.

Following the above discussion, it can be seen that the chemistry content in the current Cambodian curriculum and textbooks does not meet an international assessment level, as assessed by TIMSS, especially the topic area of properties of matter and chemical change. Much of the content in TIMSS does not exist in the Cambodian textbooks at this level. This finding is in accordance with previous research which has reported that the current Cambodian science curriculum and textbooks are lacking in content and links with familiar materials and real phenomena in daily life, and also that the content which is present is too theoretical and abstract (Morimoto, & Maeda, 2002; Maeda, Pen, Set, Kita &Sieng, 2006; Sieng. Atsushi & Takeshi, 2006; Buccella, Ozturk&Pritt, 2013; Thlang, 2013 and NIE, 2013).

The cognitive domain

As seen in Figure 3, Cambodian students have lower performance in the cognitive domain than regional countries Thailand and Malaysia, though slightly higher than Indonesian students. The largest differences in cognitive skills between Cambodian students and their regional counterparts were in applying and reasoning scientific knowledge. This result is significant because these two skills are very important to develop students' scientific process skills. Harlen (1999) and Karsli & Sahin (2009) suggest that both students and educators need science process skill to understand and interpret the natural phenomena surrounding them, because scientific

processes are inseparable from the conceptual understanding involved in learning and applying scientific knowledge. However, these skills appear to be relatively low in the current generation of Cambodian students. The question items assigned to assess the students' competencies in the areas of applying and reasoning scientific knowledge are not only based on knowledge, but more on practice. Students who have been exposed to practical work in science are more likely to be able to answer correctly on this kind of test items. For instance, question item No. 1 asks students to choose the most reasonable graph to express the change in solubility of sugar in water with temperature; No. 2 asks students to write an explanation giving the reason why a balloon inflates; Item No. 11 asks students to describe evidence that could be observed when a chemical reaction releases heat; Item No. 16 asks students to apply the concepts of element, compound and mixture to everyday materials such as air, salt, sugar, gold, sea water and helium; and item No. 18 asks students to write an appropriate sentence to tell how to identify matter as a metal.

Students would have difficulty answering such questions unless they were familiar with scientific observations through real experiment or demonstration in the science classroom, which is rare in Cambodia. It is therefore not so surprising that on average only 25.19% and 27.46% of Cambodian students respectively, demonstrated adequate skills of reasoning and applying scientific knowledge, as seen in Table 7 and 8. Although the differences between regional countries seem small in this domain, they are still significantly below the ASEAN and International averages as well as Japan.

These results clearly imply that the current science education in Cambodia does not promote enough the students' scientific skills in the classroom. They might be influenced by several factors in the current Cambodian context as reviewed by the previous researches, such as lack of appropriate teaching content, teaching and learning materials and science teacher competency.

Following these findings, it can be recommended that science education in Cambodia should pay increased attention to the reform of science content and ways of teaching together with available teaching materials in order to encourage and provide students with enough opportunities to explore scientific practical work in classroom. At the same time, the competency improvement of science teacher should also be more concentrated through offering in service training program to strengthen them with science content, practical work and effective science teaching skills. Therefore, the students would have more opportunity to practice their scientific skills and analysis skills to interpret unfamiliar problems or phenomenon by using their knowledge to provide an appropriate scientific explanation. Murphy & McCormick (1997) suggest that practice is the key to developing good problem solving skills which can sharpen many scientific skills at the same time, such as the skills of observation, questioning, data collection, data analysis, data interpretation, reasoning, drawing conclusions and so on. Besides real practice in science lessons like experiments or demonstrations, several effective teaching methods and materials can also be used to help students to visualize abstract theory. For example Huddle, White, and Rogers (2000) suggested the use of teaching models to draw students from scientific misconception in South Africa, and Sanger and Greenbowe (2000) suggested the use of computer animations depicting chemical reactions at the molecular level to construct students' visual understanding of chemistry.

Acknowledgment

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**The impact of teacher leadership practices on school management
in public secondary schools in Nigeria**

Olutola Olujuwon,

Dept of Education Leadership and Management (South Africa)
University of Johannesburg, Johannesburg
cenduserve@yahoo.com

Juliet Perumal

Dept of Education Leadership and Management (South Africa)
University of Johannesburg, Johannesburg
julietp@uj.ac.za

Abstract: *This qualitative multiple case study investigated the impact of teacher leadership practices in enhancing school leadership in the context of Nigerian public secondary schools. It discusses the positive impact the practice of teacher leadership has on stakeholders and how it enhances school leadership. Participants included nine teachers, three principals, vice-principals and an educational administrator in an Educational District in Lagos, Nigeria. Data for the study was generated through semi-structured interviews and documentary analysis. The study revealed that the practice of teacher leadership would enhance peace in the community and leaves teachers feeling professionally. The net effect is that teacher leadership improves progress in the school. In addition, it will reduce the workload of the principal and enhance teacher experience in leadership which help in achieving educational goals. The study recommends promoting teacher leadership in an environment of trust, harmony and solidarity. The study contributes to recognising teacher leadership as an important practice in schools.*

Introduction

Teachers are important players in influencing student achievement. They seal the gap in students' achievement (Fakeye, 2012). Teachers' prolonged engagement with students enables them to exert influence on character formation and socialisation of students (Oduolowu, 2009). Thus, teacher knowledge of students enables them to show dedication, empathy, team-sprit to their students and their work (Stronge, 2007). Literature has shown that as leaders, teachers are recognised first as expert teachers, who spend the majority of their time in the classroom but take on leadership roles, assisting in administration and managerial processes in a school system (Harris & Muijs, 2005; Harris & Lambert, 2003).

Murphy (2005) contend that teacher leadership is about raising teachers' sense of empowerment, expanding teachers' professional status and supporting local autonomy, so that teachers can realise their professional worth. Angelle and Schmid (2007) regard teacher leadership as a vehicle for implementing school reform and it requires commitment from all members of the school community. As a result, teacher leadership could be categorised as encompassing administrative, collaborative, pedagogical and research roles. In Nigerian context, the administrative teacher leadership roles include participation in staff meetings, Parents-Teacher Association meetings or serving on school committees or being a departmental head, a union representative or as advisor to students clubs and societies (Post-Primary Teaching Service Commission, PP-TESCOM, 2003).

Collaboratively, teachers are expected to work with colleagues to create a collaborative culture to improve teaching and learning in schools (Zeichner, 2003).

Pedagogically, teacher's roles include teaching of students, selection of textbooks and instructional materials, implementing the curriculum, providing feedback to colleagues, modelling lessons or to analysing students' work (Okebukola, 1997; Schiavo, Miller, Busey, King, 2010). Teacher leaders' research roles include "helping to redesign schools, mentoring of colleagues, engaging in problem solving at the school level and providing professional growth activities for colleagues" (Wasley, 1991:4-6). The above has shown that teacher leadership helps in school improvement and helps teachers improve on their professional practice which helps students and the community to progress. In the context of Nigeria, in spite of teacher's contributions to development, the status of teaching is low when compared to other professions and teaching is often used as a gateway into other professions (Adelabu, 2005).In addition, there is a low societal perception of teachers as leaders which robs them of their identity (Ijaiya, 2010). Furthermore, teachers are collectively oppressed in their professional lives and in society through words and actions that deride their identity and weighs heavily on their professional identity (Davis, 2008). Perumal (2013) contend that identity is both transformational and transformative and that individual teachers need to revalue, negotiate and re-construct their respective identities. This will enable teachers to inculcate in learners the right types of values and attitudes such as respect for human dignity, the rule of law, equity, social justice, tolerance and responsibility (Perumal, 2014). Against this background, this study attempted to answer the question: What impact does teacher leadership have in Nigerian secondary schools?

Literature review

Teacher leadership is seen as a form of leadership beyond headship or formal positions (Grant, 2005). It is regarded as the means by which "credible teachers exercise formal or informal influence over supervisors, colleagues and members of the school community through collaborative relationships that improve teaching and learning practices" (Poerkert, 2012). Similarly, it refers to teachers becoming aware of and taking up informal and formal leadership roles in the classroom and beyond in areas of whole school development and community involvement. Furthermore, teacher leadership is about "courage, risk taking, perseverance, trust and enthusiasm within the culture of transparency and mutual learning' (Grant, 2006:529). The following excerpt below lends asserts that:

> Teacher leadership refers to teachers' individual agency, often with reference to classroom management and pedagogy but in some cases referring to wider collegial influence with colleagues, with curriculum development policy making within or across schools. As well as being cast as an individual activity. Teacher leadership may also refer to groups or teams of teachers with a leadership remit for aspects of policy or practice (Bangs & MacBeath, 2012:331).

Literature has shown that teacher leadership benefits schools directly by supporting the organisational structure and the culture of building which supports increased pupils learning. Also that it leads to improved professional learning for colleagues and teachers themselves (Poerkert, 2012). In literature, there are factors identified that supports the practice of teacher leadership in schools and this include, support from the principal, collaboration among stakeholders, professional development of teachers, trust and school culture (Harris & Muijs, 2003).

Studies have shown that school organisational conditions such as participative decision-making, teaming, teacher collaboration, as well as an open climate and transformational leadership can foster teachers' professional learning in schools (Silns, Mulford & Zarins, 2002, Leithwood & Louis, 1998). Similarly, the research of Ezera-Lusena (2010) proved that building better cooperation, communication and trust, as well as establishing better school culture, increases the level of school personnel involvement and participation in school management processes. Therefore, available empirical research on teacher leadership, illustrates its

potential as a successful school reform strategy that can improve teaching and learning as well as benefits the stakeholders (Poekert, 2012).

In spite of the positive impacts of teacher leadership on stakeholders, there are several obstacles identified in literature that can hinder the practice of teacher leadership. The obstacles could be due to teachers' health, commitment to religious and family issues, administrators withholding information or unwillingness on the part of a teacher to take up leadership issues, regarding it as an additional responsibility (Zinn, 1997). In addition, Literature has shown that the top-down leadership approach, hierarchical and bureaucracy inherent in public schools tend to isolate teachers from each other and from administration (Ash & Persall, 2000).

In a study carried out in Western Cape in South Africa, Villiers de and Pretorius (2012) indicated that barriers to teacher leadership include lack of open communication, participation and collegiality as these can hinder the emergence and enhancement of teacher leadership. In a similar study, carried out in seven schools in Maine, United States, Fairman & Mackenzie (2012) found that teachers are reluctant being regarded as "leaders" and do not want to take on formal titles of leadership but prefer working through informal channels and effect change. In a related study in Zimbabwean schools, Zikhali and Perumal (2014) found a high level of mistrust in leadership in schools when male school heads do not want to be led by female school heads. This agrees with Naidoo and Perumal's (2014:810) study "that stereotypical cultural expectations and prejudicial beliefs have restricted women's opportunities to lead in schools". In a related research, Edward and Perumal (2014:6009) found that "within rural contexts where patriarchal traditions and perspectives of leadership exist, the role of the school principal is typically associated with stereotypical male leadership traits".

These obstacles identified limit the practice of teacher leadership in schools. There is need to remove these obstacles and replaced with culture of collaboration, trust, professional development and networking in schools. This will enable teachers to share their ideas and skills with colleagues in schools. Teachers on their part must be adventurous and not resists change but must align their personal considerations with their commitment to the teaching profession (Perumal, 2015). The review of literature has shown that the practice of teacher leadership in Nigerian secondary schools will improve school development and enhance student outcomes as well as increase teachers' expertise.

Research Design

This was a qualitative multiple case study that explored the impact of teacher leaders practices in five urban public senior secondary schools in Education District V in Lagos, Nigeria. Creswell (2009) contends that qualitative methods enables researcher to collect data in the field at the site where participants experience the problem and have face to face interactions with them in their natural setting over a period of time. In the study, participants were purposeful selected with the aim to achieve equity of representation based on the criteria of the participants' years of teaching experience, seniority, qualification, current leadership positions and their willingness to participate in the study. The selection process involved a sensitisation session about the research with the participants. The participants were experienced and professional male and female certified members of Teachers Registration Council of Nigeria. All of the participants hold leadership positions, such as the position of a Tutor-General/ Permanent Secretary (TGPS), principal, vice-principal, head of department, year tutor and union representative. In addition, eleven of the participants had more than twenty years of teaching experience and four of them had been in leadership positions for more than ten years. The participants comprised of nine teachers, three principals, three vice principals and an educational administrator form Educational District V. This helps the researcher to understand the problem and the research questions (Creswell, 2009).

The selected schools are deliberately distributed around EDV and they are true representation of public senior secondary schools in Lagos State because they provide typical characteristics of emphasis on principal as solitary leaders in schools (Egwu, 2009). Data for the study were gathered through semi-structured interviews and documentary analysis. This helped to provide a better understanding on the impact of teacher leadership

practices in schools. The interviews were one-hour long at locations convenient for the participants such as the school sites during the participants free periods and after schools hours in an eight month period.

The interview questions reveal issues much about teachers' perception on the challenges they faced in schools; the various policies on school leadership and its impact on teachers as well as the impact of teacher leadership in Nigeria senior secondary schools on teachers, the school itself, students and the community. Data from semi-structured interviews were audio taped and then transcribed verbatim in order to enhance the validity and reliability of the study. Data was presented using direct quotes and comments of participants and analyzed using content analysis and discourse analysis. This enables me to compress many text words of participants into fewer content categories based on explicit rules of coding" as well as understand the interaction of the literal meaning of language of people in their day-to-day activities (Shaw & Bailey, 2009; Stemler, 2002). As suggested by Miles and Huberman (1994), I used the three interrelating processes of data reduction, data display and data verification as this enable me to do the inductive category of coding and a simultaneous comparison of all units of meaning across categories which formed the themes of the research.

To conduct the study, approval was obtained from the Faculty of Education's Ethics Committee of the University of Johannesburg and the Education District V in Lagos, Nigeria. Also, approval was obtained from the principals of the five public schools as well as the consent of teachers as participants. Pseudonyms were used to protect the identities of the participants and the schools. The five schools were funded and established by the Lagos State Government in urban areas of Education District V and are located far from each other. The locations of the study schools shows that one of the school is situated in a military facility; two are in a residential estates; another one is situated within the vicinity of the two seaports in Lagos and the last one is situated close to a major highway in Lagos. Data from the semi-structured interviews and policy documents were categorised into major themes. These themes cohered around the impact of teacher leadership on stakeholders in Nigerian public secondary schools.

Impact of teacher leadership on the teacher

It leads to fulfilment on the part of the teacher

Fulfilment refers to satisfaction derived from an activity which could be regarded as achievement or progress of an individual or a school. This is one of the basic things in life that human beings longed for in their human endeavour. In the school system, teachers have feelings of fulfilment seeing their students graduate or when they achieve something remarkable in life. Bayo a teacher interviewed show that the impact of teacher leadership brings joy to the teacher and makes him/her fulfilled as this does not come cheap. Bayo states that: *Joy is always the benefit. This joy doesn't come easy. But if you are the committed type who also sees the job he does as part of him, there is now way that joy won't come to you naturally.*

Bayo's view is supported by Orji another teacher interviewed. Orji commented that: *Yes, to the teacher, the teacher will be happy and the leaders themselves will be happy as this has brought about development in the school.* The excerpt from Orji show that both the teacher and the leaders will be happy based on the progress recorded in the school. Similarly, Ade another teacher explained the feelings of relatedness of teachers to their students, as leaders of tomorrow and their contributions to the life of these students. Ade noted that: *For the teachers, it is the enjoyment and fulfilment you derive for moulding lives that will become responsible citizens in future that remain your greatest achievement.*

Massarawa, another teacher interviewed highlight internal peace and a secured future as benefits of teacher leadership. Massarrawa states that: *I have peace of mind that I'm going to see the future leaders that I've built: So as a teacher, I'm very comfortable with it.*

The above excerpts from participants highlight the positive and significant impact of teacher leadership in their life and the way it enhances their self worth and development. However, the two-factor theory of Frederick Herzberg, have identified factors that could make a staff to be satisfied or dissatisfied which could influence people's behaviour and performances in the work place. The satisfiers' factors include; recognition,

personal growth and advancement, sense of achievement, responsibility and the nature of the work while company policy and administration, salary, working conditions, inter-personal relationship and quality of supervision may make staff not to be fulfilled in their work (Mullins, 2007).

It leads to experience

This refers to knowledge or skills acquired as a result of schooling or on the job training. Teachers' skills, knowledge and competencies are necessary for the realisation of educational improvement and goals (National Policy on Education, (NPE), 2004). One of the participants highlights the significance of experience to an individual. Butter describes how teacher leadership allows the teacher to acquire experience which is permanent and thus can be transferred by the teacher to any other human endeavour; as a result of earlier roles carried out in the school. Butter comments that:

> The benefits are many. Number one ah...ah a teacher leadership role to teacher is that the moment you play your role as expected, you gain more experience. You acquire more experience. And experience you acquire will live with you forever, we are…the experience we gain as a teacher leader helps us to transfer it to the community or any human endeavour the teacher may find himself/herself.

> Experience they say is the best teacher that is why in schools, teachers are expected to be competent, proficient in their subject delivery and at all times be abreast of the latest knowledge in their area of professional practice. This will enable them to impact the right knowledge and attitudes into students as future leaders. Literature has shown that teachers become leaders through the mastery of subject matter (Bennis, 2009).

It creates more teacher leaders

The practice of teacher leadership enables more teachers into leadership roles. This shows that when leadership is distributed it provides leadership for more teachers. Boladale one of the participants explain that: *The benefit to the teacher is that it will create more teacher leaders.*

Literatures have shown that teachers must extend their influence beyond classrooms to school leadership activities (Taylor, Webb & Jones, 2004; Ash & Persall, 2000). This will enable them to implement educational change in a comprehensive manner based on their daily relationships and interactions with students (Darling-Hammond, 1999; Boyd & Mcgee, 1995). Similarly, the demands for improved school leadership and achievement of learning outcomes have made educators to advocate for multiple leaders in school leadership (Barth, 2001; Spillane, 2006). Thus, Eshiet (2005) argue that one of the benefits of teacher leadership is that it will make the principal to recognize teachers as leaders as well as partners in school leadership.

Impact of teacher leadership on the community

It is expected that there will be a symbiotic relationship between the school and the host community. Section 21 of the Lagos State Post-Primary Teaching Service Law (LSPPTSL) of 2005 mandates schools to maintain cordial and healthy relationship with their host community as well as understanding their culture and its characteristics. Eight of the study participants describe the impact of teacher leadership on the host community. Bayo, a teacher interviewed noted that the community looks up to the teacher as a leader and the academic progress in the school will make the community to accord respect to the teacher. Bayo explain that: *Since the community is looking up to you as leaders. If as a teacher, the school you handled well, it progresses and the members of the community see their children attending the school doing well academically, the community will respect and be happy with the teacher.*

Orji buttressed Bayo's views that teachers' achievement in the school will be publicised and it will make both the government and the community to be happy based on the progress of the school. Orji mentions that: *The community, the community will look at us because whatever we achieve, whatever good thing we achieved*

will be publicised. And then ehh the government will always check it out and you know, and then they will be happy, the community will be happy that ehh their support, for us, is not wasted.

Similarly, Ade a teacher is of the view that, it will enhance peace and progress in the community as the community depends on its future leaders. Ade observed that:

> To the community, where a community has decent peace, it goes a long way in having a criminal free, socially stable environment: That community progresses more than others. To the students, as future leaders, the community depends on them, two, if you have a crop of disciplined students in a community, they will make progress communally wherever they are.

Loveth, a teacher noted that if teachers do their work, there is overall benefit for the community and the nation. Loveth explained that: *The community will also benefit because students are the future leaders of the community. If the students are well led from the beginning they will be good leaders. Overall, the country and the economy will be better for it.*

> Massarrawa, one of the teachers explain further that: If teachers played their role in imbibing good qualities in the students who on their own are leaders, the community will progress and have peace. Massarawa comment that:

> To the community…to the community just as you have said, the community where the role is being played, the community too will have peace because they are also a leader in their own part. So the community will grow with one mind and there will be focus. There will be development in the community and things will work in the community, no doubt about that.

In addition, Winners a teacher's view is hinged on the recognition on the impact of the work teacher have done in the community could result in a position to be given to the teacher: *Then to the community, if they need any counsellor to be recognized in the community, since they already known you, and you know them, they too will recognize you. They can give you like a post in the community.*

Participants recall the significant impact of teacher leadership in the areas of peace, stability, responsibility, recognition that is accrued to the community and teachers themselves. Schools with good performance in academics or sports will automatically be known for such feats. Cooper, Kotval-K, Kotval and Mullin (2014) state that school community relationships have been recognised as a valuable contribution to both the academic and the host communities.

Impact of teacher leadership on schools

The aim of education amongst others is to improve student learning outcomes which are vital to economic and national development. Existing research reflect that the effective leadership and management influence students' outcome (Leithwood, Louis, Anderson & Wahlstrom, 2004). This is consistent with the findings of Robinson, Lloyd & Rowe (2008) and Water, Marzano & McNulty (2005) that leadership improves students' learning outcomes. In the study, eight similar responses from participants' highlights the impact of teacher leadership in schools which are about giving the school a positive image based on the achievements and by extension will also give teachers recognition. Orji a teacher states that: *The school will have better name ehh a name that other schools don't have for their achievements.* Similarly, Ade another teacher noted that: *it gives the school a good image. Besides, the school will be reputed for high standard.* This view is supported by Loveth that: *the school will be well known with its good name especially in the area of performance and every parent will want their children to be enrolled there.* In addition, Butter, a teacher affirms that: the *name of the school will move far and wide.*
Furthermore, Winners a teacher explained that: *And to the school itself, the school will have eh…eh at least…in some schools, they normally give awards at the end of every session. You yourself you will be awarded and the school will recognize you and if there is anything that is coming from the district, they will be able to pinpoint you out.* Clark, a participant added that: *Teacher leadership is beneficial to the school*

itself, if the students come out in flying colours, it's a great achievement for the school, not only in academics, cultural, debates and so on. It will uplift the name of the school.

The excerpts illustrate how teacher leadership promotes the image of the school and by extension the teachers. It aligns with the study of York-Barr and Duke's (2004:288) that teacher leadership promotes "continuous improvement of teaching and learning…with the result being increased achievement for every pupil". This is also consistent with the findings of Leithwood, Day, Sammons, Harris and Hopkins (2006) on how leadership influences learning through setting of directives by articulating a vision for shared organisational purposes, setting high expectations and monitoring performances. Also, by developing people through creating and stimulating opportunities as well as in providing models of effective practice and individual support. Above all, by redesigning the organisation thereby strengthening the culture of the school and modifying organisational structures and practices. This agrees with Olujuwon and Perumal's (2014:1054) study that the professional, administrative and social roles of teachers within and outside the school enhance school educational outcomes. These is needed to achieve the shared vision of effective teaching and learning.

Teacher leadership impact on students

Teacher leadership have impacts on students' performance as well as on their lives and future decisions (Gourneau, 2005). Harrison and Killion (2007) argue that the wide range roles of teachers is to support school improvement and student success; whether these roles are assigned formally or shared informally, they build the entire school capacity to improve. This aligns with Ovando (1996) assertions that "engaging in leadership positively affects teachers' ability to innovate the classroom which in turn leads to students' performance". Three study participants describe the impact of teacher leadership on students. Orji remarked that: *The students will be very, very happy with their results, also that their school is not lagging behind among other schools.* Similarly, Ade states that: *The students will communally make progress wherever they find themselves.* In addition, Njoku explain that: *It will make the students to co-operate with their teachers.*

The responses confirm joy, happiness and progress as the benefits of teacher leadership to students. This supports the findings of Silns and Mulford (2002) that student outcomes are more likely to improve where teacher leadership practices exists in the school community and where teachers are empowered in areas of importance to them. However, three of the participants highlight conditions that could make teacher leadership have impacts on students. Saida explained that: *if teachers do their work well, of course it will reflect on the performance of the students which would enable them gain admission to higher institutions or to secure a job.* Similarly, Clark, states that: *When they have a good leader, it gives them confidence, self-confidence. So the students benefit a lot.* Loveth, comments that: *If the students are well led from the beginning, they will be good leaders.*

The excerpts show that teachers must have sound knowledge of their subject matter and be able to select appropriate and adequate facts in the planning and delivery of lessons. It also means keeping abreast of the latest knowledge in their area of professional practice as well as being a good role model to the students. This is consistent with the findings of Fakeye (2012:2) that there is a high correlation between what teachers know and what they teach.

Discussions

The study explored the impact of teacher leadership practices in Nigerian public secondary schools. The study revealed the significant impact of teacher leadership practices on the teacher, the school, the community and the students themselves as well as enhancing school leadership. Teacher leadership makes teachers to be fulfilled in their career and thus enhance academic progress for the students, the school and the community. All these enhance efficient administration, co-operation, mentoring and school improvement. It affirms the belief that teacher leadership leads to school improvement and improves student's learning outcomes (Childs-Bowen,Moller & Scrivner, 2000).

The finding is significant as it reveals the impact accrued based on teacher leadership practices in schools in enhancing school improvement and students outcomes. It creates more leadership positions and makes work easier through distribution of roles in the school. In addition, it creates experience for teachers through learning on the job and enhances harmonious and peaceful co-existence between the school and the community. Similarly, it boosts teacher's job satisfaction, their morale as well as creating opportunities for professional growth in their career development. The above discussions have shown that teacher leadership practices must be embraced in Nigerian public secondary schools due to its positive impact on stakeholders. Establishing the school of leadership for aspiring leaders in schools will go a long way in enhancing teacher leadership in schools.

Conclusion

The study showed the impact of teacher leadership on stakeholders in Nigeria senior secondary schools. The findings revealed that teacher leadership practices promote peace, co-operation between teachers and the community. It makes teachers to be fulfilled in their professional duty as well as in harnessing their skills as leaders in schools through various leadership roles undertaken. Teacher leadership as best practices in school leadership should be promoted as it enhances school improvement and student outcomes. The obstacles identified in literature such as the hierarchical and bureaucratic structures in schools, school culture, the lack of school leadership expertise for those assuming leadership positions in public secondary schools as well as teachers' poor health, commitment to religious and family issues, administrators withholding information and unwillingness on the part of a teacher to take up leadership issues that affects the practice of teacher leadership in schools must be removed. This will enhance teachers' professional development, educational goals as well as students' outcomes. The study has shown that teacher leadership promotes collaboration, co-operation and positive attitude in achieving educational goals.

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Secondary school teaching practice in formative assessment

of students learning outcomes in Russia

Elza Pecheritsa,

Tomsk Regional Teachers Professional Retraining Institute, Russia

inostr@edu.tomsk.ru

Abstract: *In light of calls to improve learning and teaching within secondary education in Russia, this paper explores the possibilities of Teachers re-training professional institutions to promote formative assessment in teaching practice. This study responds to critical gaps in current research on formative assessment practice which could limit successful implementation of this practice within secondary school classroom context. The study applies a socio cultural perspective of learning to interpret the analysis of formative assessment in regional practice. The study has implications for future researchers investigating formative assessment practice and also for practitioners interested in implementing formative assessment. It can be interesting for policy makers evaluating the effectiveness of teachers' instructional practice.*

Assessment itself and its relationship with learning are important topics in education. Many countries promote formative assessment as a fundamental approach to education reform and during the last twenty‑five years a number of researches have focused on the impact of formative assessment practice on student learning outcomes (OECD, 2005; Hattie, J., & Timperely, H. 2007; Marzano, R. J., & Kendall, J.S. 2007; Thompson, M., & Wiliam, D. 2008; Moss, C. M., & Brookhart, S. M. 2009; Popham, 2009 Leahy, S., & Wiliam, D., 2012). However, these research studies are mainly restricted to the western countries while research on the practice of school based formative assessment in Russia is still lacking. The results from international large‑scale assessments have raised concerns about educational quality in Russia. For instance, the performance of 15‑year‑old Russian students on PISA has been consistently below that of their peers from developed countries. They mostly have demonstrated acquisition of conceptual knowledge and theories, not the application of that knowledge in order to solve real‑life problems. These challenging results pushed education authorities of the Russian Federation to take steps.

The national Ministry of Education of Russia conducted international comparative projects and research related to school effectiveness and school improvement. It helped Russian educators to analyze and benchmark student assessment policies and systems around the world, with the goal of promoting stronger assessment systems to improve education quality. We can name Russian researchers contributed in reforms to large‑scale assessments, examinations, and classroom assessment activities: the concepts of self-assessment by Amonashvily (1984), level assessment approach by Romanov (2001), reform of the country's unified state

examination by Bolotov (2008), classroom assessment approach by Pinskaya (2010). Their works have identified formative assessment as the driving force for reforms in Russian education.

Then, in the first decade of the twenty‑first century the educational reform policy in Russia put an aim to encourage assessment technologies to develop students' life-long learning skills and improve teaching. Previously, Russia did not have country‑level standardized examinations to certify students at the end of secondary education and select them into tertiary education. Instead, it had secondary school examinations and university entrance examinations that were led by each institution separately. In order to overcome these problems the Unified State Examination (USE) was gradually introduced after extensive piloting (2001) and since 2009, it has been implemented nationwide. A wider range of assessment formats is used to test problem solving skills. For example, oral questions, multiple‑choice questions, short answer questions (which require students to write a word combination or a number), and extended‑response questions (which require students to write an essay or explain their reasoning or state a personal point of view).

Another illustration of changes is new Federal state educational standard for secondary (complete) general education of the Russian Federation (2011) claimed the lifelong learning as the key principle of teaching and articulated the requirements to the intended student learning outcomes (personal, transdisciplinary and subject-specific) aiming the teachers to develop student universal learning actions (ability to learn). The intended student learning outcomes for the core curriculum should: (1) ensure the consistency between the requirements of the Standard, the educational process and the assessment of the learning outcomes of the core curriculum; (2) provide content-focused and criterion-referenced foundation for a system of assessment determining the quality of student learning across the core curriculum, in accordance with the Standard's requirements. The Standard's requirements to the learning outcomes of the core curriculum determine content-focused criteria and norms as the basis for the assessment of student learning outcomes across the core curriculum, and for performance evaluation of teachers and educational institutions. These requirements address age differences and individual characteristics of learners going through the stage of secondary general education, including educational needs of students with disabilities and emphasize the importance of this stage for pursuing further education in professional educational institutions, professional career and successful socialization.

But, unless teachers understand the underlying mechanisms that are supposed to cause the intended effects, they don't know how students can achieve the required learning outcomes. As well as they come into collision with the problem of how to assess these learning outcomes in real teaching practice. Although there is a great need to push innovation further and to sustain them longer, introduction of formative assessment into teaching practice on all levels of education in Russia remains a growing problem. In reality, theoretical formative approaches to teaching and assessment often resonate with practitioners due to the fact that the concept is misunderstood by most teachers. In other words, formative assessment assumes skills that teachers do not usually possess in the amount needed to assure success. Undoubtedly, teachers need ongoing professional development and support in fostering not only better instructional skills but also formative assessment skills.

What are the main practical barriers to the use of formative assessment in Russian schools?

In the first place, there is a problem of traditional assessment system. Teachers currently grade students using a scale system that has been highly criticized. The system was established in 1937 and applies to both formative and summative assessments. Since that time regulations a 5-point mark is converted into the scales of: "Excellent" (5), "Good" (4), "Satisfactory" (3), "Unsatisfactory" (2), "Fail"(1). Pedagogical community realizes the weaknesses of this system. In fact, the effective range of the scale is reduced to 3-5 points while 2 and 1 grades do not work. Another problem of this assessment system is the lack of transparency, together with the subjectivity of assessment criteria and procedures. Moreover, the information provided by these grades is scant for a student to understand his/her progress and improve their "learning to learn" skills. Consequently, it reduces some students' motivation for education, self-education and lifelong learning.

Equally, important barrier is a strong teachers' belief that they were best positioned to judge about students achievements. Due to it, the next complexity for teachers is implementing of assessment techniques which build students' skills at peer-assessment and self-assessment and develop a range of effective learning strategies. Teachers argue that these techniques require time, dedication, creativity and difficult to implement in the big class size. One more problem is that teachers lack the necessary skills to make formative judgments about students, they felt short with respect to planning the next instructional steps to make better progress.

Then, it fails to use explicit criteria to judge student learning. The teachers in Russian schools have strong difficulties with use of criterion‑referenced assessments during a lesson, where assessment criteria linked to learning standards are explicit, known, and agreed upon in advance by teachers and students.

Another great weakness is that, traditionally, teachers used grading student performance leading students to compare themselves against others (ego-involvement) rather than to focus on the difficulties in the task and on making efforts to improve (task-involvement). In such circumstances there was little attention to interpretations in terms of what to do to help students' further learning.

The processes described above demonstrate, that formative assessment will stay a promising theory without a trained teacher. Hence, teachers in Russia still require training effective instruction in the scope of formative assessment purposes: clearly communicating learning goals, allowing teaching to be based on students' level of understanding, providing students with feedback that scaffolds learning, raising students' ownership of their learning process through increased metacognition. Changing culture of teaching with formative assessment takes times, training, and resources, in that case, teachers' professional development in pre‑ and in‑ service teacher training institutions is a critical point to overcome resistance to change.

Working in Tomsk Regional Teachers Professional Re-training Institute we have a particular interest and responsibility to promote and support the practice of formative assessment in regional context. Additionally, the results of our previous review illuminate that most secondary school teachers of Tomsk region do not possess formative strategies among their

assessment repertoires. We have noted that the barriers for implementing formative assessment take place because of the two main gaps:

- Teachers realize that traditional 'marking' assessment system is not the answer to improving academic achievements of their students and believe in the effectiveness of formative assessment, but they have fears that it is too resource-intensive and time-consuming to be practical.
- While it is possible for teachers to get some general knowledge on formative assessment on professional training courses, it is not always easy to put these optimistic assessment ideas into their regular classroom practice.

Focusing on these contradictions the research question of our study was formulated:
How formative assessment should be adapted to secondary school teaching practice to improve students' learning outcomes?

Purposes of the research
To answer this question we define the following purposes:
- to explore theoretical and practical aspects to reveal how formative assessment practice works in real classrooms;
- to identify the most effective way of teacher training in formative assessment;
- to reveal the most important attributes of formative assessment practice.

Theoretical framework
On the basis of the sociocultural theoretical orientation associated with Vygotsky (1978), Lave and Wenger (1991), Rogoff, B. (1995), Torrance, H., and J. Pryor. 2001, Black and Wiliam (2006), Fishman and Golub (2007), Pinskaya M, Ulanovskaya (2012) we have studied the role of formative assessment in learning in the secondary school context which supported our identification of the key issues of teaching on formative assessment learning outcomes (1) classroom procedures should encourage learning and assessment (2) learning targets and creating assessments aligned to targets should be articulated both teacher and students, (3) the strategies should identify learning gaps and find the ways to bridge them. Taking into account the belief that if we are in a hurry to help teachers improve their practice, we should hasten slowly, we put the following principles into teacher guidance structure: small steps, support and accountability. The term 'formative assessment' is not common in the assessment literature. In this review, it is to be interpreted as encompassing all those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify teaching and learning activities in which they are engaged. Instructional scaffolding may include skill modeling, initializing and maintaining interest and motivation, and simplifying problems to a level that the student understands (Wood, Bruner, & Ross, 1976; Roehler, L. R., & Cantlon, D. J. 1997).

To answer the questions of *classroom policies and procedures that encourage learning* and assessment as a tool for learning, we use findings on inspiration teaching style promoted by Pikan (2008); the concept of individual student's style of learning activity by Galeeva (2005). In contrast with authoritarian, indifferent or laissez-faire styles of teaching, which set out insuperable barriers to student-teacher involvement, teachers see the benefits of positive, kind

and supportive relationship with students. Under these circumstances a teacher begins to realize that a facilitator model teaching style is much more fruitful for inspiration and motivation students to learn better. Additionally, our personal teaching experience provides the evidence that inspiration teaching style is a starting point for effective formative assessment.

The problem of *articulating learning targets and creating assessments aligned to targets* addressed us to explore the model of backward design lesson plan Wiggins, G., & McTighe, J. (1998). According to this concept, to serve a formative purpose, any instructional activity should allow teachers to uncover the way students think about what is being taught and that can be used to promote improvements in students' learning. A teacher should help students clarify the goals of learning, their progress toward such goals, and what they need to do to reach the goals. Hence, specifying concrete objectives for student learning helps to determine the kinds of teaching and learning activities will be used in class, while those activities to define how to check whether the learning objectives have been accomplished.

The third item of *the strategies to identify learning gaps and to bridge them* was identified by examining the 'zone of proximal development' (ZPD) concept, taken from Vygotsky (1978), when teacher and pupil are working jointly to ensure that the pupil reaches a learning goal. Internationally known Russian scientist Lev Vygotsky is considered a seminal thinker in psychology, and much of his work is still being discovered and explored today. We have implemented the key issues for our research from Vygotsky theory to be analyzed by teachers, as follows, teaching without taking into account what students already understand and what they still need to work on is fruitless. It is important to understand how to locate and use each student's ZPD can help educators plan more targeted instruction for the whole class, small groups, and each individual. Ultimately, aligning classroom teaching strategies to students' ZPDs can help teachers more effectively guide all students toward achieving learning goals. During implementing formative assessment a teacher should remember that students are most receptive to instruction within their ZPD because it represents the next logical step in their ongoing skill development. That is why instruction should therefore be targeted somewhere in between, offering tasks that are above the child's intellectual level, but not too far above it. This would enable students to build on current knowledge in order to advance in their learning.

Methods

The objective of this research was to investigate formative assessment in secondary school teaching practice to improve students' learning in Russia, where historically, assessment and grading have been used to measure the success of students or schools compared with other students or schools to place them in rank order. The study employed a qualitative research method and involved the use of instruments such as interviews, document analysis and unobtrusive classroom observations to collect the relevant data in the classrooms of Tomsk region. The project was two years experiment, piloted in 2012 placed in 7 secondary schools with the population of 9 teachers and 630 students studied the foreign language course, the age of students was 9-14 years old.

The aim of the first stage of the experiment was to ascertain current situation with assessment in educational process. The main research question was how traditional system of assessment works to improve students learning. Every experimental teacher chose for study two groups of

students (control and experimental) and while teaching with traditional assessment, used methods of classroom observations during one month. Finally they interviewed students to get opinions about their learning. The students have responded to the current educational system by focusing on "rewards," also known as "grades" or "class ranking". It elicited negative responses in students who were struggling academically. The survey allowed to note that the students, received negative assessment data felt hopeless and thought that he or she was a failure. Then, we conveyed the analysis of teachers' instructional materials which stressed the problem of lesson planning.

Due to these challenges the second stage started with the introduction formative assessment into practice. Its aim was to examine *small steps, support and accountability principles*. We adopted them to structure our work with teachers. *Small steps principle* led us to provide teachers with the key strategies – how to organize a lesson according to formative assessment approach. We focused on cyclical approach and identified plan backward design of the lesson as the most effective for formative assessment and adopted the WIP-PEA lesson plan model is adapted from the work of Hunter, Madeline (1982). It represents a continuous teaching cycle Warm-up, Introduction, Presentation, Practice, Evaluation, Application, in which each learning concept builds on the previous one, serving as an instructional roadmap for instructors. Teachers were taught that formative assessment follows from the objectives. The concept of this design holds that the instructor must begin with the end in mind what the student should be able to know, understand, or do. Then, map backward from the desired result to the current time and the students' current ability/skill levels to determine the best way to reach the performance goal.

The use of this kind of lesson design demonstrated some of its benefits. The implementation of cyclical approach allowed teachers to assess prior knowledge, provide a broad overview of the content to be taught, introduce vocabulary, teach content, check comprehension, combine the content and vocabulary through guided practice, evaluate student performance, and provide an application activity.

Furthermore, the experimental teachers were trained to implement a measurement system which required a new scale to describe learning levels, based on Bloom's concept that espouses the use of assessments to gauge students' progress toward mastering of learning goal (Bloom, Hastings&Madaus, 1971). There was emphasis in their training on the use Bloom's Taxonomy to evaluate assessments. Bloom's Taxonomy (listed in order from lower level cognitive skills to higher level cognitive skills) is as follows: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, 1975). Thus, a ten‑point scale describing five levels of knowledge acquisition, from Remembering - 1 (*poor*) to Creating - 10 (*excellent*), was introduced. Accordingly, student knowledge acquisition ranged from recognition and memorization of factual information to the application of theoretical knowledge to practical, non‑routine situations. It pushed students to move from achieving learning outcomes of the basic level to learning tasks of advanced level (Analysing, Evaluating).

In designing ways of supporting the implementation of formative assessment in experimental schools, we adopted the concept of teacher learning community. By this we mean, that while making teachers accountable for developing their practice, also provide support to do this. We examined the following structure: during an academic year teachers participated in four

training full-day and half-day workshops and three guided teaching practice of formative assessment in their real experimental classrooms. Then, those teachers were observed throughout the course of the year. Their curriculum and lesson plans were also examined to determine the extent that formative assessment strategies had been used in instruction planning.

In most cases, teachers articulated, that the frequency of workshops was enough in terms of reporting back on their own experiences, taking new ideas and providing support to others. According to the weakest aspects of teachers practice we included in the teacher training program necessary components on formative assessment concept. For example, to answer teachers' questions of how students internalize learning goals and strategies, to what extent students can establish individual learning goals, or the matter of the most effective approaches to teaching the skills of peer- and self-assessment. It helped experimental teachers to shape formative assessment strategies as planned activities, purposefully implemented to gather evidence of learning. This experimental practice let us identify four essential elements of formative assessment: (1) identifying the learning gap, (2) feedback, (3) student involvement, and (4) learning progression (Bailey, A.L., & Heritage, M., 2008).

Results and conclusions

We have conducted research examining the problem of adaptation of formative assessment to secondary school teaching practice to improve students' learning outcomes. To accomplish this goal we intended to explore and build a more balanced assessment approach to our state accountability models, incorporating formative assessment into experimental teachers' strategic design. While there remains much more work to be done to integrate research of formative assessment in secondary school, there are now some findings of our theoretical and empirical work.

Thus, according to the first purpose of our study on the basis of theoretical and practical analyses we have developed curriculum guidelines for secondary school teachers in more systematic integration of formative assessment. Although the research literature offered multiple, sometimes conflicting, definitions of formative assessment and approaches to its implementation, our experimental work showed evidence for a stronger definition of *formative assessment as a systematic process in which teachers use various tools and strategies to determine what students know, indentify gaps in understanding, and modify their instruction to improve learning*. We identified several methodological issues concurred that formative assessment assists learning progression to intended learning outcomes as carefully sequenced set of building blocks that must master a route to a more distant curricular aim. The building blocks consist of subskills and bodies of enabling knowledge. If the learning targets are clearly defined, students will be on a continual movement toward these targets, gathering skills and knowledge along the way. All these findings, when considered together, identified particular areas to reinforce effective teaching by means of improving assessment practices.

In effect, we have used a combination of constructive approach to resolving problems in balancing the Vygotsky theory of ZPD as a strategy and backward lesson planning as a tactics. The study collected data through teacher self-evaluation, interviews of staff and students, and classroom observations. Teachers responding to our survey noted the progress in the development of standards-based assessment of students learning outcomes indicated that

students under these circumstances changed more in a positive direction on gaining achievements than those participating in traditional 'marking' assessment. While participation in our experiment the teachers concluded that the system of assessment should allow to check achieved level against requirements minimum on the subject. In that case, it is important to take the compulsory minimum/level for all students as a starting point. By means of that, a student can fix the level of understanding the matter and see further perspective to be achieved. Then, it motivates him/her not to agree with achieved 'so-so' level of knowledge on a studied issue, but pushes a student to take higher level, hence, to learn better. Thus, those schools which plan to use formative assessment should equip teachers with the required knowledge of how to work in the students' zone of proximal development and skills of backward lesson planning which strengthen teachers to organize effective instruction and assessment.

The second purpose related to the professional development of teachers. With the call for need to improve and redesign how our current teachers learn about assessment we have developed curriculum guidelines to assist teachers in more systematic integration of formative assessment. We have concluded that teacher training system on formative assessment should integrate three key components: *introductory professional development* (the theoretical framework and research, practical strategies and techniques), *on-going meetings* in teacher learning community (report on progress, discuss, plan for future changes), *on-going support* in adaptation of a measurement system (year 2-3 workshops, ancillary materials). Significant insights were obtained from the findings of this study, which may be generalized to other schools. The experimental teachers now advocate the idea that it is not possible to introduce formative assessment without some radical change in classroom pedagogy. Most teachers agreed that *formative assessment* is a continuing cyclic process in which information about pupils' ideas and skills informs on-going teaching and helps learners' active engagement in learning. It involves the collection of evidence about learning as it takes place, the interpretation of that evidence in terms of progress towards the goals of the work, the identification of appropriate next steps and decisions about how to take them. Therefore, it helps to ensure progression in learning, regulates the teaching and learning processes to ensure learning with understanding, by providing feedback to both teacher and student.

For the third purpose, our study identified that assessment strategies should be closely related to teaching and learning. Formative assessment of secondary education students' performances should become integral parts of the instructional cycle. Together with feedback provided by the teacher and peers in order to help the students assess their strengths and weaknesses, identifying areas of needed growth and mobilizing current capacity. Examining why formative assessment has a positive effect of on students' academic performance and improvement will further help educators implement innovations and instructional methods more effectively. In analyzing studies conducted on students we have concluded that helping students to see assessment as a process for self-improvement can aid in productive the desired formative effect. Formative assessment practice engage students in reaching their full potential and closing their own achievement gaps. Hence, the students from experimental groups indicated that the new way of lesson design and assessment helped them to feel safe to

take risks and make mistakes while learning, thus, to reveal what they do and do not understand and be able to gain learning outcomes.

As shown above, our research helped us to analyze how well different strategies worked and determine the most important attributes of formative assessment in secondary school: clarification of terms and misperceptions; clearly communicating learning goals; instruction based on students' current level of understanding; feedback that scaffolds learning.

Although applying formative assessment approaches systemically across schools is a big challenge for Russian educational system, our study adds to the empirical background by presenting teachers assessment tools and the model of professional learning to build assessment capabilities. It created opportunities for teachers to innovate, and provided guidelines and strategies to facilitate formative assessment practice in secondary classroom in Russia. We hope that the lessons of our experience will be of benefit to the central policy makers in different countries in building their own national assessments systems as a part of supportive teaching pedagogy.

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Teacher Education Research, Politics and Policy
- from Japanese Perspective

IWATA, Yasuyuki

Tokyo Gakugei University

Abstract: *In recent Japan, we have experienced several major changes of teacher education, such as teachers' license renewal system, professional graduate school for teacher education, explosion or deregulation of teacher education providers (particularly for those of primary education teachers) and so on. However, effects of these changes are partial and there are little effective images of teacher education improvement as a whole. Since post-war education reform from 1940s, there has been a continuous confusion between 'Oriental' image of Japanese teachers and universities providing teacher education in Japan based on 'Occidental' model.*
In addition, introduction of market theory into education in Japan has been remarkably increasing after the high growth. These kinds of marketizations are threatening teachers' identities in Japan.
Facing on these situations, teacher education researchers in Japan are trying to study by various methods and some of them are making international collaboration for seeking the solutions.

Issues on Teacher Education Reform in Recent Japan

Major Changes

In Japan, we have experienced three major changes about teachers and teacher education in recent 10 years – deregulation, new type of professional graduate school for teacher education and license renewal system. These new policies are introduced through the arguments of the Central Council of Education (CCE), an advisory committee to the Minister.

Among these changes, both of the latter two have aims to enhance teachers' quality through strengthening present system. New type of professional graduate schools of teacher education are established in Japan from 2008. Some of these graduate schools are providing good programme for teacher education with 'collaboration between theory and practice' as their curricula core, but total amount of new teachers from these graduate schools is less than a thousand per year. These new type of professional graduate schools also have a aim to upgrade teachers' basic status from Bachelor level to Master of Education level, but their effects have been only partial at this point. Teachers' license renewal system has been introduced since 2009, some of the seminars for renewal have good contents and many teachers say they are effective and useful. But there are also many systematic defects. For example, every teacher has to participate in a kind of 'renewal seminar' every 10 years from 2009, but only 30 hours of 'renewal seminar' are obliged for renewal. In addition, there are no common standard for renewal examination.

On the other hand, some policies based on 'deregulation' concept have also been introduced. For example, government control for the total quantity of primary teacher education providers has been abolished on 2005 and then more and more new providers have been established [Table 1].

[Table 1] Explosion of Primary Teacher Education Providers

Types of Providers	1955	2000	2009
National Universities	48	51	51
Municipal Universities	0	3	2
Private Universities	4	39	144
Total	52	93	197

MEXT Statistics

This 'deregulation' policy has caused more 'over-production' of license holders than before without any effective way of nation-wide quality assurance system.

As mentioned above, Japanese new policies for teacher education in recent years are accumulation of partial improvement. Each policy has a kind of good point, but there are no ground design.

Political Solutions in Confusion (1): Deregulation or Re-regulation?

In this sense, teacher education policies in recent Japan seem to be in confusion. This kind of confusion has a political root. Experiencing the two turns of political power both in 2009 and 2012, policies related to teacher education in Japan seem to be considerably in confusion. At the CCE report under Democratic Party of Japan (DPJ), a direction was announced to improve quality by setting the basic qualification of teacher education "at a Master's degree.

LDP would like to choose 'deregulation' policies while DPJ seems to prefer to promote present 're-regulation' such as to upgrade basic status of teachers to MA level. 'Deregulation' policies aim to improve future teachers by introducing competitive environment, though some of them have caused conflicts among traditional education sectors. On the other hand, 're-regulation' policies aim to promote specialized teachers and their qualification while Japanese traditional 'Open System' for teacher education and licensing might be threatened.

Political Solutions in Confusion (2): Modern or Un-Modern?

From another point of view, distance between the policy ideas of DPJ and LDP is based on the different recognition on how and where teachers should grow. As in [Table 2]. The solutions supported by the DPJ are an extension of the so-called beginning of modern nation, or a school system as part of building infrastructure by the government. In that sense, it is remarkably modern. On the other hand, the LDP type of solutions can be viewed as having the centre of its ideas away from such a modern state. An idea like "internship" that leave the main field of training education to the existing settings like schools and boards of education is close to that of a pre-modern apprentice system. Meanwhile, an idea to individually recruit someone taking charge of education from outside the systemized teacher education institutes is reminiscent of the employment of private tutors of medieval aristocrats.

[Table 2] Types of Japanese teacher education reform theories (Iwata, 2015)

Modern	Model	Un-modern
Close to DPJ	Political party affinity	Close to LDP
Reinforcement of the already existing teacher training system	Basic ideas	Relativation of the already existing teacher training system, expectation for an alternative
Practice based on specialized scholarship	Values emphasized	Practice based on high appreciation of mission
From few universities after narrowing down	Recruitment	From outside of universities in addition to various universities
Ungraded universities and graduate schools	Places for teacher training	Actual school settings and boards of education as the main
'Master's Degree' as standard (The CCE report of August 2012)	Policy examples	Internship, expansion of an employment quota for working people (Education Rebuilding Council, May 2015)

Historical Backgrounds of Japan's Challenge on Teacher Education
Conflict between 'Oriental' Image and 'Occidental' Model

These challenges in Japan have historical backgrounds. As Hayhoe and Li (2009) have pointed in [Table 3], 'university' and 'normal colleges' for teacher education have been in conflict from the beginning of modern society. In addition, teachers' images in East Asian areas have different meaning from those of Western area. Teachers in East Asian areas, as well as in Southeast Asian areas, should be not only excellent teacher but also should be good human model for younger people. This kind of teachers' image may have some relation with Confucianism or Buddhism. Moreover, since Japan has set up university system with European model, the gap between academics and requirement for teacher education is more severe than other East Asian area with Normal Universities of 'Shuyuan' model from pre-modern China.

Concerning on teachers' qualification in Japan, there are no nation-wide quantity/quality control for universities providing teacher education programme. So each university with teacher education programme has responsible for quality assurances of prospective teachers, but actually most of them are paid less respect from outside. In this context, local governments (Local Boards of Education = LBEs) in Japan have actual power for teachers such as screening, employment, personnel matter, and even for pre-service teacher education programme. However, since most of

[Table 3] Comparison of University and Normal College (Hayhoe and Li, 2009)

University	Normal College
Theory	Practice
Specialized discipline of knowledge	Integrated learning areas
Value neutral approaches to knowledge	Morally directive approaches to knowledge
A relatively impersonal environment	A nurturing environment with strong mentorship ties between teachers & students
The liberal pursuit of all questions/intellectual curiosities	Action oriented and field based knowledge
Academic freedom & autonomy	State control & professional accountability
An orientation to deep level understanding & long term change	A craft orientation towards high standards of practice

LBEs emphasize on 'practical abilities' or 'humanities' as crucial factors for new teachers, academic-based competencies have become less cherished.

These kinds of ironical phenomena – policies for enhance teachers quality have been causing negative effects on teachers and teacher education – may be also seen in other East Asian areas.

Explosion of 'Open System'

It may be well known that teacher education in Japan has been conducted by 'Open System' concept. 'Open System' means any institute with approved course can equally provide teacher education programme. Thus there are many and various kinds of teacher education providers in Japan: not only former normal schools but also many other institutes – national, municipal and private. No priority exists among these providers

At the beginning of 'Open System', there was shortage of school teachers in Japan, especially for junior high schools (G7-9) which have become compulsory for all the children from 1947. So the 'Open System' for teachers' licenses used to be a solution for the shortage, and it has had a big merit until now to gather many prospective teachers from various types of institutes who have many various majors.

However, when the number of children in Japan is decreasing after 1980s, new needs for teachers have been also decreased while more than 100,000 new license holders have been produced. So some problems have occurred.

There has been a continuous over-production of teachers' license holders since 1970s in Japan. In addition, under the 'deregulation' policy, more and more new teacher education providers have been established in this century, especially those for primary school teachers. Most of these new providers used to be junior colleges and/or post-secondary schools with 2-year programme for

nursery school instructors or welfare supporting staffs.

Marketization and Teachers' Identity

In addition, market-oriented educational services (i.e. private company which provides support of preparation for entrance examination as they are called '*Juku*'s) are widely spread among big cities in East Asian Region. So the requirements for teaching staffs at primary and secondary schools in these areas have become quire unique. When 'Teaching' itself are mainly provided by these private companies, school teachers in Japan as well as some other East Asian areas are more and more required to lead pupils' and students' behaviour. In other words, their identities as 'teachers' have been threatened. According to a survey arranged by the Cabinet B of parents who have G1-12 children feel that '*Juku*'s are better than schools to promote children's achievement (Nikkei Shimbun 2005).

Teacher Education Research in Japan - its perspective

Teacher Educators and Teacher Education Researchers in Japan

Most of teacher education researchers in Japan are also teacher educators in each teacher education provider. So most of the researches are based on their own teacher education practice. This fact makes teacher education researches in Japan more practical, more partial. On the other hand, there are not so many researches about the grand design for teacher education as a whole. So when some policies on teacher education are criticized by teacher education researchers in Japan, most of them will remain partial.

Traditionally, teacher educators in Japanese teacher education providers come from academic background. However, according to recent changes to enhance 'practical' aspect of teacher education, more and more teacher educator with practical background – such as principals, school administrators, and so on – have started to work among various teacher education providers. Some of these kinds of 'trendy' teacher educators may be good teacher education researcher, but others may not. Thus there has been a great diversity among teacher education researcher in Japan. However, a kind of confusion among teacher education researches has also been occurred.

Methods and Viewpoints – parallel trends

As in [Table 4], there are two types of teacher education researches in Japan and they are plural without enough connection each other.

Methods oriented studies are usually focused on each teachers' professional development. Popular Japanese topics such as lesson study, practical research or action researches are typical examples of this type. And researches of this type are quite familiar with so-called reflective practitioners.

[Table 4] Trends on Teacher Education Research in Japan

'Methods' oriented		'Management' oriented

To develop each teacher's professional skills/competencies	Viewpoints	To keep and raise the minimum standards of all teachers
Lesson study, Practical research, etc.	Issues	Finance, management and policies of teacher education, pre-service and in-service teacher education system
Reflective practitioners	Familiar with	Managers, Administrators
Blind with whole system	Disadvantages	Ignorance about each practice at schools

However, it has a fatal weak point. Each research of this type cannot be effective to whole system. Some 'clever' bureaucrats may use partially, at the most.

On the other hand, management oriented researches have wider view for keeping the standards of all teachers. Issues related with whole education system are quite popular – such as finance, policies, administrators, and so on. But researches of this type usually have big distances from each teachers practice at school.

Though connection and/or relationship between these two are quite crucial, most of teacher education researchers in Japan cannot find any effective way at this point. Confused situation about teacher education system and policy (based on historical background as mentioned above) may be a major reason and the increase of teacher educators with practical background may also have some effects upon the situation.

Conclusion

As shown above, Japan has experienced several major changes of teacher education, though most of them have limited or partial effect for promoting teacher education development. Recent policies seem to be in confusion, both between 'deregulation' and 're-regulation' and between 'modern' and 'un-modern'. These confusions have historical background from the real start of Modern Japan, a conflict between 'Occidental' model and 'Oriental' image. In addition, introduction of market theory into education in Japan has caused severe identity crisis upon school teachers in Japan.

Facing on these situations, teacher education researchers in Japan are trying to study by various methods but and some of them are making international collaboration for seeking the solutions.

As a conclusion, future issues to be considered in future should be pointed.

First of all, a 'grand-design' or broad perspective to see the issues and systematic problems should be required for teacher education researchers. The 'grand-design' should be based not only on policies and practices, but also on total children's learning process including the programme

provided by private sectors. In this context, collaboration and common understanding among teacher education researchers have become important.

Actually, some kinds of collaborations among teacher educators or teacher education researchers are now ongoing such as international supporting for developing countries. However, most of them still remain limited to a certain field (for example, science and technology education, ICT education, foreign language education, etc.). It should be better to have wider collaboration to make an effective enhancement of future teachers.

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A Study on the Self-Regulation of Jukus in Japan

Megumi Hayasaka

Tokyo Gakugei University

4-1-1, Nukuikitamachi, Koganeishi, Tokyo, Japan

hayasaka@u-gakugei.ac.jp

Abstract: *This paper explores how jukus (cram schools) in Japan became self-regulating in order to expand and earn a profit.   The author analyses Japan's dual education structure – which consists of (1) mainstream schools and (2) outside supplementary education – by referring to Pierre Bourdieu's concept of the 'field'. In Japanese society, jukus help handle requests from consumers, such as children and their parents, to solve and reduce educational challenges.   Jukus' autonomous system has reinforced Japan's dual education structure. In light of jukus' growth, it is certain that self-regulation has worked as a strategy for them to expand.*

Key Words: jukus, education industry, self-regulation, Pierre Bourdieu's concept of the 'field'

Objectives

Japan's dual education structure consists of mainstream schools and external, supplementary education.   This paper defines educational institutions outside regular schools as *jukus*, which are widely known as Japanese cram schools.   According to the 2014 National Assessment of Academic Ability, carried out by Japan's National Institute for Educational Policy Research (NIER), 48.6% of sixth year students in elementary school, and 60.1% of third year students in junior high school used tutoring services after school, such as jukus and private teachers.

This phenomenon is not new; in fact, it is very common.   According to Hayasaka (2013), jukus outnumbered regular schools in 2009.   There are 39,377 regular schools and 51,726 jukus.   Makoto Yuki, who studied Japanese cram schools, officially identified the existence of Japan's dual education structure in 1987. However, his team did not analyse the dual structure from a historical perspective.

According to the New Encyclopedia of Education, jukus are places for supplementary and private education, in particular for elementary and junior high school students.   The encyclopaedia explains four types of jukus by focusing on their goals and functions: (1) cram, (2) supplementary, (3) comprehensive and (4) relief. Jukus are much more unequal compared to normal schools, since some families cannot afford their high fees. The growth of education outside mainstream schools has led to greater income disparities, thus limiting access to jukus.

This paper centres on how jukus are managed.   If they continue to create economic inequality, they should be run by a third party and eventually abolished.   However, this would be difficult to achieve since jukus have traditionally been autonomous; for example, they have formed associations.

This paper analyses jukus in terms of how self-regulation serves as a strategy for their growth.   There are few

studies on jukus, and even less research on why they expand.   In order to understand how they grow, it is important to focus on how jukus use strategies differently from mainstream schools.

Perspectives

Jukus should be studied from both educational and economic angles.   Jukus have been discussed as an education industry.   For instance, Dierkes (2013) calls jukus an 'insecurity industry', while Ball (2012) examines companies such as Pearson Education, which he places under a category he calls 'Global Education, Inc.'.   However, research by these authors does not focus on how jukus developed from the perspective of regulation.   Thus, the general view of jukus has not been neutral and comprehensive, because research has ignored their actions and strategies.

This paper focuses on jukus as a field in and of themselves.   In terms of regulating supplemental tutoring, Bray and Kwo (2014) claim that schools, teachers' unions, other government bodies, community organisations, and the media should form multiple partnerships to monitor tutoring (p. 57).   In the case of Japan, Hayasaka (2013) discusses how self-regulation became established.   These studies scarcely provide adequate descriptions of the strategic aspect of jukus' self-regulation, which was originally created so the industry could grow and avoid consumer affairs, such as contract issues and overly high instruction fees.   Jukus gradually revealed how they were different from mainstream schools, and the dual education structure developed.

After the 1980s, the dual education structure received greater public attention in light of education reform and deregulation, especially after the creation of the National Council on Education Reform (NCER), which lasted from 1984-1987.   NCER claimed that jukus could be categorised as schools by removing the regulatory barrier known as a 'school establishment'.   NCER's third report declared that the government should not regulate the private education industry, including jukus.   This shows the political and economic ideas of neo-liberalism, the time period after the 1980s. Neoliberalism stresses deregulation, commercialisation, commodification, and privatisation.   As Kitamura (2014) mentions, education reform in the 1980s was particularly important because it determined the course of national education reform over the next 30 years. At the time, life-long learning was deemed important. Werquin (2010) said that non-formal and informal learning outcomes became visible in society.   The education industry also expected that its results would become visible in terms of academic achievement.

The history of jukus shows that they differ from mainstream schools. These two different providers of education never blended.   The structural reason for this should be analysed by referring to the concept of the 'field', created by French social scientist Pierre Bourdieu.

Theoretical Framework

Bourdieu's idea is key to understanding Japan's dual education structure, which consists of two fields: instruction in mainstream schools, and outside supplemental learning. According to Bourdieu's definition, 'In analytic terms, a field may be defined as a network, or a configuration, of objective relations between positions' (Bourdieu & Wacquant, 1992, p. 97).   In addition, he notes that 'In highly differentiated societies, the social cosmos is made up of a number of relatively autonomous social microcosms, i.e., spaces of

objective relations that are the site of a logic and a necessity that are *specific and irreducible* to those that regulate other fields' (Bourdieu & Wacquant, 1992, p. 97). The dual education structure indicates the existence of two autonomous fields.

Concerning jukus' strategy, 'as a structure of objective relations between positions of force, the field undergirds and guides the strategy, whereby the occupants of these positions seek (individually or collectively) to safeguard or improve their position, and to impose the principle of hierarchy most favourable to their own products' (Bourdieu & Wacquant, 1992, p. 101).

The field can be applied to an analysis of the dual education structure.   It seems the establishment of jukus as a field has helped them differentiate other educational institutions, such as mainstream schools.   In a comparative sense, the field allows us to understand the goals of a juku within its strategy for expansion.

Data Sources: Document Data and Methodology

This study focuses on the followings kinds of document data: (1) Document data from the self-regulation process, as determined by juku associations.   (2) The newsletters published by a juku association in the 1980s.   (3) A questionnaire from an investigation that the Fair Trade Commission (FTC) carried out on jukus in 1985.

This paper utilises document study methodology, based on the FTC's description of juku associations and administrative documents.   We can learn about historical realities from this document data, and we should dig deeper into the history of dual education structures.   As the author mentioned, the focus on the 1980s is important in terms of deregulating education. Jukus are not public goods; however, they could dramatically change the concept of school from being seen as a public good, to being viewed as a commodity.

Evidence

(1) The self-regulation process as determined by juku associations.

Based on a historical investigation, there have been two kinds of self-regulation:

(1) The Japan Juku Association (JJA), which began and was authorised by the Ministry of International Trade and Industry in 1988, created self-regulation, which aimed to protect consumers from unethical jukus and to clarify contracts between jukus and consumers.

(2) In 1999, the JJA created a 'self-standard regarding adequate operations in the juku industry'. The standard comprises nine chapters and 34 articles, and aims to:

> (1) inform the whole juku industry about Japan's Personal Information Protection Law and the law's guidelines as suggested by the Ministry of Economy, Trade and Industry.
> (2) Enhance jukus' evaluation system as an authentic service industry. (3) Ensure the safety of every student and parent by cooperating with relevant ministries, as well as other related organisations.

The newer standard consists of the following nine chapters:

Chapter 1: *General Statement*.

Chapter 2: *Disclosure of Information*, which is about 'Standards of disclosing information' and

'Disclosure items for business operators and facilities, services, and expenses'.

     Chapter 3: *Proper Soliciting and Advertisements*, which is about 'Prohibiting excessive advertisements', 'Defining soliciting and contracts', 'Contractual coverage' and 'Prohibited activities'.

     Chapter 4: *A Contract*, which consists of a 'Contract form', a 'Cooling-off period after applications', and a 'Contract period and deposit'.

     Chapter 5: *The period after concluding a Contract*, which involves 'Annual renewal', 'Expenses for educational materials, etc.', 'Midterm cancellation', and 'Disclosure of operations and situations regarding assets'.

     Chapter 6: *Ensuring Safety and Improvement of Services*, which is about 'Health maintenance for students', 'Proper learning environments', 'Improving the teacher's ability to teach', 'Ensuring student safety' and 'Developing and providing new services'.

     Chapter 7: *Protecting Personal Data*, which involves measures such as 'Compliance of the Personal Information Protection Law, etc.' and 'Using the Privacy Mark System'.

     Chapter 8: *Juku Certification*, which is about 'Managing and Using the Juku certification system'.

     Chapter 9: *Miscellaneous Provisions*, which covers 'Implementing the standards', 'Enlightenment for students and parents', 'Establishment of consultation services', and 'Cooperation and information exchange'.

     These chapters are meant to appeal to customers' taste and the impression that the field of jukus is a reliable industry. The juku industry strives to maintain the JJA's self-standard within the field.

(2) The newsletters published by a juku association in the 1980s.

The All Japan Juku Association (AJJA) published its newsletter from 1963 to 2001. AJJA was founded in 1963, but starting in 2001, AJJA changed its name and started collaborating with other juku associations. When the first discussions on self-regulation began, AJJA's newsletter described the strategy for it. According to the newsletter (No. 245, 26 September 1988), there was discussion among AJJA's members on whether to choose the Ministry of International Trade and Industry, or the Ministry of Education, when it came time to be authorised. AJJA chose the Ministry of International Trade to avoid having to comply with rules from the Ministry of Education regarding curricula.

The field of jukus was clearly strategic, since they aimed to become different from schools in terms of the curricula they offered.

(3) A 1985 questionnaire from an investigation on jukus by the Fair Trade Commission (FTC).

The FTC investigated the juku industry in 1985, which brought to light the following three points: (1) Most families participated in some kind of learning service outside mainstream schools. (2) Most families chose jukus as a form of supplementary education. (3) Many families felt that jukus' fees were expensive. Parents had the following opinions regarding supplementary education: (1) Jukus advertise too much by telephone, flyers, and direct mail. (2) It is difficult to choose a juku because the curricula and fees are unclear. (3) Jukus' advertising is doubtful. (4) The fees are too expensive. (5) There is some concern about education being used as a means to make a profit. (6) Using jukus is inevitable because instruction in mainstream schools is not sufficient; moreover, teachers at jukus are more eager to teach than the ones in regular schools. (7) Using jukus is merely a kind of consolation for parents and children. (8) It seems that

jukus accept average or low-performing students for the sake of profit.

These results showed that the tutoring services provided by jukus were problematic.   The FTC investigation concluded that one should be cautious when dealing with jukus, which led them to develop self-regulating rules.

Discussion

The system of self-regulation proves that jukus are autonomous.   By referring to Pierre Bourdieu's sociological concept of the field, the author analyses the field of jukus from a strategic and independent perspective.   The purpose of the strategy was to improve jukus as a new industry and also as an education provider.   Given the public exposure from the FTC survey, the juku industry seemed very uncertain and unreliable.   Then, the Ministry of International Trade and Industry – not the Ministry of Education – demanded that jukus resolve their problems with self-regulation. The Ministry of International Trade and Industry authorised juku associations.   As a result of jukus' strategy for expansion, they are differentiated from mainstream schools.

The question remains as to why an external body does not regulate or prohibit jukus due to their various negative influences, such as high tutoring fees.   The author believes that the industry can be seen in two ways: (1) as an authentic industry due to its self-regulation, and (2) as an educational service that avoids being supervised by the Ministry of Education, and enjoys the freedom to design its own curricula.   Thus, jukus cannot be completely eliminated.

Conclusion

The self-regulation described above allows jukus to expand, despite the existence of mainstream schools. Self-regulation has helped strengthen jukus' autonomy.   Jukus handle requests from consumers, such as children and their parents, to solve and reduce educational challenges.   The autonomous system for jukus has reinforced Japan's dual education structure, and in light of jukus' growth, it is certain that self-regulation has worked as a strategy to expand the field. Using the concept of the field, we can understand the two different types of education in Japan – that is, mainstream schools and external, supplementary education – by looking at jukus from a historical viewpoint.

The study's educational importance and recommendations for future research

Jukus should be considered an educational as well as economic issue.   The dual education structure must be analysed in all its complexity. Bourdieu's concept of the field – which this study explores – is useful for examining the structure more simply.

Japan's dual education structure has possibilities for functioning as a safety net than as a monolithic institution. The author has not yet explored it; however, this study contributes to the potential for future research on education commodification, especially the influence of commodification on public goods in Japan after the education reform of the 1980s.

The author recommends utilising this study to help people and Japanese authorities consider the possibility of

collaboration between schools and the education industry.   The author does not specifically consider such collaboration in this paper; however, this study offers a historical perspective on Japan's dual education structure, which provides a starting point.

Connection to the themes of the assembly

It seems that jukus cause serious educational and economic disparities. This paper can contribute to the assembly as a sociological and historical study by providing an outside perspective on supplementary education.   If we are struggling to understand and overcome economic disparities, we should consider the strategy of jukus and how we can use them to improve education for equality.

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Teaching gap between children's understanding and scientific concepts that teachers want to teach in science lessons
Session Organizer: Sachiko Tosa

Abstract: *This symposium focuses on the teaching gap between students and teacher in science lessons. Each presenter discusses how the gap is made and what might be a possible solution for filling the gap. The main mode of research methods is qualitative. Presenters chose their own way of investigating the problem. Ishii compares researchers' observational notes with teachers' lesson plans to see when and where the gap happens in research lessons. Wada uses TIMSS Science Video Lessons to compare different questioning techniques that teachers use to help student construct scientific concepts. Tosa also uses lesson transcripts of TIMSS Science Video Lessons to analyze how the gap between teacher and students widens or narrows depending on teacher's questions. Through the presentations of concrete examples from multiple perspectives, it is expected that we would be able to gain an insight on this traditional issue of the teaching gap between students and teachers.*

Introduction

In this rapidly changing society, we face with many issues that require deep understanding of scientific concepts. It is important for science educators to help children understand scientific concepts not by memory but by heart so that they would be able to use the concepts to help them solve scientific problems. A typical science lesson in elementary or middle schools includes the following five phases: 1) a review of scientific concepts that students learned previously, 2) presentation of a question that teacher wants students to explore in the lesson, 3) student exploration of the question through an experiment or observation, 4) discussion of the experimental results, and 5) discussion of the scientific concepts that students learned in the lesson. Students are supposed to construct scientific concepts through hands-on, minds-on activities in the five phases. However, it is often observed that there is a gap between student understanding of scientific concepts and what teacher wants to teach in a science lesson. Because of the gap, many students find it difficult to follow science lessons. It is thought that the gap is one of the many reasons why Japanese middle-school students loose interest in science.

Presentation 1:

How the Gap between Students' Understanding of Scientific Concepts and Teachers' Concepts of Teaching is Created: An analysis Using Lesson Plans and Observational Notes

Kyoko Ishii

Tamagawa University

1. Introduction

This study examined how the gap between students' understanding of scientific concepts and teachers' ideas comes about. The gap between students and teachers has long been a topic for discussion in science education (Osborne, 1985; Driver, 1985). Studying the gap is an effective way to bridge it and improve teaching, if the teacher knows where and how the gap appears. However, this is not something that most teachers can discern while teaching a lesson. On the other hand, observers can often see the gap. Asking teachers and observers to reflect collaboratively over the facts of students' learning is a worthwhile endeavor.

A lesson study is a significant opportunity to discuss students' learning with colleagues (Lewis, 2011; Stigler & Hiebert, 1999). Lesson studying is a traditional Japanese method of teacher development based on actual lessons presented at a school. It usually consists of a process during which teachers jointly plan, observe, analyze, and refine actual classroom lessons (National Association for the Study of Educational Methods, 2011).

Mostly, observers and teachers focus on the classroom dialogue occurring during a lesson, but we have found a gap between the group work and experiments presented during science lessons. This is because students must apply their understanding into the problem at hand. With the fact of students, the teachers can reflect on their lesson plans to improve them.

2. Method

This study uses a qualitative approach to examine the researchers' observational notes compared with teachers' lesson plans. The observational notes were recorded during 25 research lessons presented at the elementary through high school levels between 2010 and 2014. There are five high schools, three elementary schools, and 17 junior high schools represented in 25 lessons presented by 23 teachers. Among the 23 teachers, eight were graduate students in the Department of Professional Development of the Teachers College of the University of Fukui. Four of them mentioned their experience with the discussion about the gap in their longitudinal collaborative action research reports.

Four lessons were selected for more in-depth analysis, including feedback and teachers' reflections. The four lessons' topics are: sound, for Grade 7; chemical changes, for Grade 8; electricity, for Grade 8; and friction, for Grade 11. Two lessons' data were video recorded and examined to see when and where the gap appeared. For more analysis, four teachers' gaps and their reflections are examined precisely. The reflection and the improvement processes of the teachers were investigated, along with their longitudinal collaborative action research reports.

3. Results

The results show that the gap appeared during the classes' group work or experiments. At beginning of the lessons, most teachers reviewed the general understanding of the topic with the whole class. In the lesson plans, the teacher notes said to "make sure of" or "review" the students' understanding of how to approach "today's activity." During the classroom dialogue, teacher and some students agreed that they had sufficient knowledge to proceed. It is difficult to ascertain individual understanding from a whole-class dialogue. During the individual inquiry and group work portions of the classes, the observation notes show students' confusion and silence as they misunderstand the procedure needed for the experiments. Many of the students who keep silent and listen to the others are not able to take notes by themselves. In 25 lessons plans, 14 lessons call for students' experiments under the teacher's instruction. In 13 out of 14 lessons, the students' misunderstanding of the group work was recorded

Four teachers used the information about the gap to examine their students' understanding. They determined students' actual understanding based on others' observations, and they reflected on their own lessons using the observation notes from researchers and colleagues after the research lesson. Some of them changed their lesson plans immediately, and others began to cultivate a professional development community in their home school or district.

4. Discussion

The gap between students' learning and teachers' ideas exists everywhere. Most gaps occur because students do not understand what their teacher has taught. During the classroom inquiry, major gaps were observed, but minor ones were not observed. During the group discussion and experiments, students who do not understand can express their confusion; when this happens, teachers often believe that they have taught the material, but the message has not truly arrived for the students.

If colleagues or researchers observe each group's activity, the information they gather makes it possible to help the teacher to improve his or her lesson.

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Presentation 2:

About Teachers' Support toward Making Learners Understand Scientific Concepts
-Through a Lesson Analysis Focusing on Learners' Responses-

Koshiro WADA

Oita Prefectural High School

1. A lesson analysis system focusing on learners' responses in science classes

1.1 A lesson analysis to improve the lesson

It is said that a lesson analysis is an examination of the elements or structure and makes clear the meaning of the facts based on recordings of the lesson (Nisugi, Fujikawa and Kamijo, 2002).

The lesson analysis is carried out to improve teaching methods.

Teachers should foster learners' interests and positive attitude in regard to learning content, help learners understand fundamental knowledge, and grow learners' abilities to think, to make judgment, and to express themselves. Especially, science teachers have roles which make learners acquire experimental skill through hands-on and minds-on activities, and assist learners to build scientific concepts. Therefore, the science teachers need to obtain not only content knowledge, which means being well versed in the subject, but also pedagogical knowledge, which means experience in teaching. The combination of these areas is called pedagogical contents knowledge (Shulman, 1987). In order to obtain pedagogical contents knowledge, it is necessary for science teachers to learn what to teach as well as how to teach. This is done through lesson study, which should be done to improve the lessons. A lesson analysis is a part of lesson study, and is useful to teachers.

A lesson study by individuals sometimes has a tendency toward falling into self-righteousness, and cannot get any findings. On the other hand, a group lesson study sometimes cannot harmonize the observers' opinions due to the various viewpoints the observers have. Additionally, observers often only show their critical comments in the lesson study, and do not apply them.

It is thought that a lesson analysis can be useful in lesson studies, in order to break off the problems mentioned above.

1.2 A lesson analysis focusing on learners' responses

A lesson analysis focusing on learners' responses is an analyzing method that can examine how much the lesson develops learner-centered strategies by sorting learners' responses to the teacher's questions or statements into categories (Matsubara, 2010).

This analyzing method is as follows:

1) Recording the lesson on VTR.

2) Transcribing the teacher's questions, learner's responses and other discussion.

3) Making a protocol divided into moves. Each move consists of a teacher's question and a learner's answer as a unit (Fujii, 1983) based on IRE structure (Mehan, 1979).

4) Categorizing learners' responses according to table 1 (Matsubara, 2010).

5) Lesson study on the basis of the analyzed result.

This data makes it easy to visualize the lesson. It shows whether parts of the lesson are teacher-centered or learner-centered. Besides that, it offers teachers in lesson study common viewpoint, as well as to improve their lessons.

Table 1. *Developed Category System (simple version)*

	Description	Category Code	Interpretation
No Response	No verbal and No physical response	NR1	
	No verbal response but physical response only	NR2	
Teacher Led Response	Yes/No response	L1	Teacher Centered
	Longer response	L2	
Non Led Response	Response showing agreement or disagreement	NY/NN	Learner Centered
	Response demonstrating information and/or knowledge	DI	
	Response demonstrating reasoning and/or thinking	DR	
	Question to the teacher	QT	
	Question/Response to other pupils(students)	QP	

(Matsubara 2010)

2. Findings through the lesson analysis

One Japanese science lesson derived from Japan Public Release Lesson 2 in TIMSS1999 Video Study is analyzed in this analysis system. It shows a forming process of students' understanding, supported by the teacher. Some lessons recorded in Ghana and Zambia are analyzed in the same way. The analyzed data indicate that those lessons have something in common, difference and inclination.

It seems like nonsense to compare with various science lessons which are carried out under different conditions and surroundings. However, Findings make it clear that each lesson has some points to be improved through classifying learners' responses by the same analyzing categories. Focusing on learners' responses proffers information about how learners understand scientific concepts via the teacher's questions and remarks. In addition, it shows how to ask questions and how to support learners.

In many cases of lesson study, it is a general point to consider whether the teacher's questions, remarks and attitude are reasonable or not. Nevertheless, focusing on only those teacher's movements cannot determine quality of teaching. The reason is that if there is no learners' response concerning a question that the teacher considered good, it is not a good question after all. On the other hand, aspects of learners' responses, for

example, answers, remarks, demonstrations and inquiries, would be evidence of how the teacher support his/her learners. Therefore, it is thought that focusing on learners' responses rather than teacher's movements can provide indirect suggestions to improve lessons. In short, analysis of learners' responses would be helpful to teachers.

3. Practices of the lesson analysis

"INSET for improvement of Science and Mathematics lesson" is held for African teachers in OKAYAMA University, and Dr. Matsubara and the presenter are in charge of a 2 day session of the lesson analysis. Dr. Matsubara introduces the significance and methodology of this lesson analysis system and the presenter conducts practices of the lesson analysis by using video samples of Ghana, Zambia and Japan. The trainees can discern that this lesson analysis is a tool to ascertain whether the lesson is teacher-centered or learner-centered, and find out what kind approach teacher should do to be learner-centered lessons. Furthermore, the trainees can recognize what kind of questions or remarks teacher should deliver in order to make learners understand scientific concept.

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Presentation 3:

How Can We Narrow the Gap between Teacher's Scientific Concepts and Student Understanding of Them?: Through a Discourse Analysis of TIMSS Video-Taped Lessons in Middle Schools

Sachiko Tosa

Niigata University

1. Introduction

Children's ideas about natural phenomena are often based their daily experiences and private contexts (Driver,

Guesne, and Tiberghien, 1985). It has been pointed out that children's preconceptitons and misconceptrions about natural phenomena are difficult to change, and that even after receiving formal science instructions in school, children still keep the original conceptions. Especially, at the middle school level where abstract ideas and technical terms describing natural phenomena are presented in science classrooms (MEXT, 2008), children often have difficulties in understanding the meaning of scientific concepts they learn. For example, in the survey conducted by the National Institute for Educational Policy Research in 2003 (NIER, 2003), the percentage of students who claimed that they do not understand science at all is less than 2 % for 5th and 6th graders, whereas the percentage of the students in the same category is increased and in the range of 2.9 to 4.6% for students in middle schools. It is clear that more middle-school students have difficulties in understanding scientific concepts than elementary-school students. Under the circumstances, it is important to investigate how student conceptual difficulties arise in science classrooms. This study focuses on the gap between scientific concepts that teacher wants to teach and student understanding of the concepts. The gap is produced in science lessons. In order to find how the gap is produced, we pay particular attention to connections between what teacher presents in words and what students respond. The research questions that guide this study are 1) What are the characteristics of instructional strategies in verbal forms that teacher use in science classroom? and 2) What are the relationship between the instructional strategies and student verbal responses? Through a discourse analysis, this study aims for identifying instructional strategies that narrow the gap between scientific concepts that teacher wants to teach and student understanding of natural phenomena.

2. Method

Data that were used for this study were 3 video-taped Japanese 8th-grade science lessons collected in 1999. The complete Japanese transcripts were available in the NIER publication (Ogura, 2004). A video of a lesson (Lesson 32) was accessible through TIMSS Video Study (NCES, 2006). Analyses were performed on four different viewpoints. First, we focused on teacher questions and examined the levels of questions based on Bloom's taxonomy of cognitive domain (Bloom, 1956). Level 1 questions represent questions that ask recalled information. Level 2 questions ask if students can explain the meaning or reasons for their thinking. Level 3 questions are those for application; if students are asked to find an answer by using the learned knowledge in a new context, it is a level 3 question. The number of questions at each level was counted. Secondly, discourse analyses were performed on the dialogue between teacher and students in each of the science lessons. Patterns that were often used were identified, and the frequency for using the patters were checked and counted. Thirdly, we checked response time that was used between teacher's questions and students' responses when a dialogue went on both sides interchangeably. Lastly, we checked how frequently students mentioned the key words for learning objective science concepts of the lesson in the closure part of the lesson.

3. Results

The following table summarizes the information and results for three TIMSS science lessons for Japanese 8th

graders (Kita, 2015).

Table 1. *Results of Analysis for Three TIMSS Science Lessons*

		Lesson 2		Lesson 5		Lesson 32	
Topic		Chemical reaction between iron and sulphur		Chemical reaction between iron and sulphur		Chemical synthesis of hydrogen and oxygen	
Questions	Level 1	7	8	14	25	18	27
	Level 2	1		9		2	
	Level 3	0		2		7	
Discourse Analysis	Repeat	2		17		11	
	Fill-in-the-blank	0		4		2	
Response time		No scenes for dialogue to go interchangeably		1 to 5 seconds		1 to 6 seconds	

Two patterns were identified through the discourse analysis of the lessons. One is the use of repeating what student says. This pattern is denoted by "Repeat" in the table. Another pattern that we found was to use a partial sentence to promote students fill the rest of the sentence. We call the pattern as "Fill-in-the-blank." It can be seen that the number of questions included in Lesson 2 was small compared to other two lessons. The patterns of dialogue were not used frequently either in Lesson 2. In contrast, Lesson 5 and Lesson 32 included a number of questions in three levels of taxonomy. Lesson 5 included more Level 2 questions than Level 3 questions, indicating that questions were asked in a step-wise way from lower to higher. Lesson 32 included more Level 3 questions than Level 2 questions. The identified patterns of dialogue were used more frequently in Lesson 5 and Lesson 32 than in Lesson 2.

The analysis of the key words that students mentioned in the closure part of the lesson indicated that teacher explanation was dominant mode in Lesson 32, while student responses were dominant mode for constructing the conclusion in Lesson 5. The results suggest that the gap between student learning and teacher teaching was narrower in Lesson 5. Lesson 5 was the top in every category (step-wise questions, frequent use of dialogue patterns, and short response time). It is interesting to find that the characteristics of a lesson indicated by each of the viewpoint are consistent with the student learning outcome at the end of the lesson.

4. Discussion

Through the lesson analysis focusing on questions and patterns in dialogue, we found that these are good indicators for examining the student learning. It would be important to apply this method of study to a wider range of lessons so that the relationship can be established. If such a relationship is confirmed, we can use these instructional strategies such as repeating and fill-in-the-blank intentionally to narrow the gap between scientific concepts and student understanding of them.

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What should science pre-service teachers learn in college?
Session Organizer: Sachiko Tosa

Abstract: *This symposium presents ideas and examples of practice that help pre-service science teachers become effective teachers through college education. Three of the presentations cover the areas of teacher content knowledge, pedagogical knowledge, pedagogical content knowledge, and learning styles. By discussing the issues from multiple perspectives, it is expected that we would be able to gain an insight on the issue of science teacher education in college.*

Overall Summary:

Education Department in college is a place to train future teachers. Pre-service teachers typically learn educational theories as well as discipline-specific content in courses they take at college. They also acquire practical knowledge about teaching through student teaching. However, the depth of knowledge that students acquire is very much constrained because of the limited number of courses they complete in four years before graduation. On top of all of these, students who want to be a science teacher also need to learn how to teach a science lesson that includes hands-on experiments and observations as student activities. Are pre-service teachers ready for teaching a science lesson at the graduation of college? It is often reported that especially pre-service teachers in elementary education have difficulties in designing science lessons. One of the reasons is the lack of content knowledge in science. Many of the students did not take advanced science courses in high school. They also have very limited exposure to science content in college.

Terashima at Naruto University of Education presents the result of a survey in science content knowledge for pre-service science teachers at a teacher training college. He reports their common characteristics that he found through the survey results. He will show that such an analysis is useful for understanding problems in teacher training.

Ishii at Tamagawa University presents the results of her five year project that focuses on lesson designing processes in science methods classes. She observed that through the group work, students could learn how to design inquiry-based science lessons. She will show her research findings that are obtained through the analysis of survey responses and student description of the processes in the term paper. The use of mock lessons is discussed as an effective strategy for helping pre-service teachers learn what they need to learn in science teaching.

Tosa's presentation focuses on how she reformed science methods class in an active-learning style. She shows how the use of clickers and white boards in an active-learning style helps pre-service teachers change their beliefs about science teaching. She uses student reflection written at the end of each lesson as the data source."

Presentation 1:

> **Common Characteristics of Science Pre-Service Teachers about Science Content Knowledge**

Yukio Terashima

Naruto University of Education,

1. Introduction

In Japan, it has been pointed out that most pre-service teachers not majoring in science at elementary school teacher training courses are not confident to teach elementary science because of a lack of content knowledge and experimental experience in science (Shimoikura et al., 2014). Although many questionnaire surveys about subjective confidence in teaching science have been conducted for in- and pre- service teachers (e.g., Irie et al., 2008), there are relatively few surveys to evaluate their academic ability in science objectively (e.g., Yoshida, 2014). Thus, their ability and challenges has not been fully revealed. In this study, we conducted an academic survey in science for pre-service teachers at a teacher training college to find problem issues with them specifically.

2. Method

The academic survey was carried out in 2014. The respondents of were 65 freshmen of elementary school teacher training courses at Naruto University of Education (NUEs). For this academic evaluation, we used directly the problems and answer papers of the national school achievement test of Japan which were executed for nationwide elementary school in 2012. The undergraduates took the test consisting of 24 questions for 40 min in the same manner as the original test for nationwide elementary school pupils (ESPs) in Japan. We marked their answers based on some reports on the original test (MEXT and NIER, 2012), and calculated the percentage of correct answers (score) (%) for each problem. We obtained the distribution of the number of correct answers for NUEs. Moreover, we analyzed respective average score of two frameworks; basic knowledge (A) and practical application (B), four science contents; "energy" (physics), "materials" (chemistry), "life" (biology) and "earth" (earth science), three point-by-point assessments; "knowledge & understanding", "experimental skill" and "scientific thinking & expression", and three question types; "multiple-choice", "short-term" and "essay questions". Comparing with these scores for NUEs with those for ESPs, we analyzed their common characteristics. Moreover, we performed an error analysis of some problems that are difficult for NUEs to reveal academic issues with the pre-service teachers.

3. Results

The average percentage of correct answers with standard deviation for NUEs is 89.8±9.3%, which is 28.7 points higher than that of ESPs (61.1%). For all items mentioned above, NUEs achieve >16 points higher score compared to ESPs. From a multiple comparison between itemized scores, NUEs are found to be weak at the problems in "earth" rather than "chemistry", and to be poor at "experimental skill" compared with "scientific thinking & expression" and "knowledge & understanding".

We examined the correlation of the percentage of correct answers for each problem between NUEs and ESPs. We found a clear positive correlation between their scores. This fact indicates that NUEs are still poor at the problems which are difficult for ESPs, e.g., the problem about a change in temperature with weather, and the

problems about using a compass and a magnifying glass. Moreover, some NUEs who have a lower average score of <80% is found to be inferior to ESPs at recognizing a difference between visible steam and invisible vapor, estimating a whole trend from multiple experimental data, and understanding conservation of mass in dissolution and properties of an electric current in series and parallel connections of batteries.

Terashima (2015) carried out a similar survey for pre-service science teachers of junior high school by using the problems of the national school achievement test for junior high school in Japan. It was found that the there are some common disadvantages between the undergraduates and junior high school students in the same manner as the results for pre-service elementary school teachers. He gave back the respondents their results of the test, and assigned them homework to review their achievements individually. Through the assignment, the pre-service teachers understood their challenges, and then they considered individually what they should learn before they become science teachers.

4. Discussion

As mentioned above, the academic surveys for pre-service teachers were able to reveal their significant week points objectively and specifically as well as the original surveys for elementary and junior high school students. Such academic evaluations are expected to be useful for understanding of problems in teacher training and for improvement in students' learning motivations. The original national school achievement tests revealed that Japanese students are not good at applying basic knowledge practically (MEXT, 2012). To solve this problem, improvement of academic ability in science for in- and pre- service teachers is required on the assumption that their teaching skills depend on their academic ability. To train pre-service teachers to teach science sufficiently in four years before graduation, first, it is necessary to reveal problem issues with them specifically, and then to improve teacher training programs to allow undergraduates to overcome their weak points one by one.

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Presentation 2:

How the Gap between Students' Understanding of Scientific Concepts and Teachers' Concepts of Teaching is Created: An analysis Using Lesson Plans and Observational Notes

Kyoko Ishii

Tamagawa University

1. Introduction

This study examined how the gap between students' understanding of scientific concepts and teachers' ideas comes about. The gap between students and teachers has long been a topic for discussion in science education (Osborne, 1985; Driver, 1985). Studying the gap is an effective way to bridge it and improve teaching, if the teacher knows where and how the gap appears. However, this is not something that most teachers can discern while teaching a lesson. On the other hand, observers can often see the gap. Asking teachers and observers to reflect collaboratively over the facts of students' learning is a worthwhile endeavor.

A lesson study is a significant opportunity to discuss students' learning with colleagues (Lewis, 2011; Stigler & Hiebert, 1999). Lesson studying is a traditional Japanese method of teacher development based on actual lessons presented at a school. It usually consists of a process during which teachers jointly plan, observe, analyze, and refine actual classroom lessons (National Association for the Study of Educational Methods, 2011).

Mostly, observers and teachers focus on the classroom dialogue occurring during a lesson, but we have found a gap between the group work and experiments presented during science lessons. This is because students must apply their understanding into the problem at hand. With the fact of students, the teachers can reflect on their lesson plans to improve them.

2. Method

This study uses a qualitative approach to examine the researchers' observational notes compared with teachers' lesson plans. The observational notes were recorded during 25 research lessons presented at the elementary through high school levels between 2010 and 2014. There are five high schools, three elementary schools, and 17 junior high schools represented in 25 lessons presented by 23 teachers. Among the 23 teachers, eight were graduate students in the Department of Professional Development of the Teachers College of the University of Fukui. Four of them mentioned their experience with the discussion about the gap in their longitudinal collaborative action research reports.

Four lessons were selected for more in-depth analysis, including feedback and teachers' reflections. The four lessons' topics are: sound, for Grade 7; chemical changes, for Grade 8; electricity, for Grade 8; and friction, for Grade 11. Two lessons' data were video recorded and examined to see when and where the gap appeared. For more analysis, four teachers' gaps and their reflections are examined precisely. The reflection and the

improvement processes of the teachers were investigated, along with their longitudinal collaborative action research reports.

3. Results

The results show that the gap appeared during the classes' group work or experiments. At beginning of the lessons, most teachers reviewed the general understanding of the topic with the whole class. In the lesson plans, the teacher notes said to "make sure of" or "review" the students' understanding of how to approach "today's activity." During the classroom dialogue, teacher and some students agreed that they had sufficient knowledge to proceed. It is difficult to ascertain individual understanding from a whole-class dialogue. During the individual inquiry and group work portions of the classes, the observation notes show students' confusion and silence as they misunderstand the procedure needed for the experiments. Many of the students who keep silent and listen to the others are not able to take notes by themselves. In 25 lessons plans, 14 lessons call for students' experiments under the teacher's instruction. In 13 out of 14 lessons, the students' misunderstanding of the group work was recorded

Four teachers used the information about the gap to examine their students' understanding. They determined students' actual understanding based on others' observations, and they reflected on their own lessons using the observation notes from researchers and colleagues after the research lesson. Some of them changed their lesson plans immediately, and others began to cultivate a professional development community in their home school or district.

4. Discussion

The gap between students' learning and teachers' ideas exists everywhere. Most gaps occur because students do not understand what their teacher has taught. During the classroom inquiry, major gaps were observed, but minor ones were not observed. During the group discussion and experiments, students who do not understand can express their confusion; when this happens, teachers often believe that they have taught the material, but the message has not truly arrived for the students.

If colleagues or researchers observe each group's activity, the information they gather makes it possible to help the teacher to improve his or her lesson.

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Presentation 3:

An Active-Learning Science Methods Class that Helps Pre-Service Teachers Learn Science Teaching by their Heart

Sachiko Tosa

Niigata University

1. Introduction

In Japanese universities, it is often a custom to deliver lectures in a large classroom of about 200 students. Students in such a class would listen to what the presenter says passively and take notes based on what is presented. There would be little opportunities for students to construct their own knowledge actively during the class time. In education for pre-service science teachers in Education Department, the lecture type lessons are typical; students are normally sit in class passively and their learning style is to memorize what are presented in class. Would it be a type of practice in teacher education for science teachers in the 21st century? In the Japanese national curriculum, the Course of Study describes that students in elementary and secondary schools should learn science actively through hands-on and minds-on experiences (MEXT, 2010). Despite the fact that national educational policy emphasizes the importance of active learning, the low level of students' interest in science has been looked as a problem. Especially at the middle school level, students' lack of interest in science has been widely known (NIER, 2011). Under the circumstances, it is important to develop a science teacher education program that helps pre-service teachers to learn instructional strategies for active science teaching. In this study, active learning strategies were implemented as a part of instruction in a science methods course in a teacher education program at a Japanese university. The effects of the instructional strategies on students' learning style were examined.

2. Method

A curriculum was developed for a science methods course for pre-service teachers at a university in Japan. The course consists of 15 sessions delivered in about 4 months. Participants of this study are 203 pre-service teachers who took this course in Spring 2014 and Fall 2014 as one of the requirements for earning teacher certificate in elementary school. In order to promote active learning strategies for pre-service teachers to experience and learn, each session included elements such as 1) use of clickers (student response system), 2) Peer Instruction (Mazur, 1997), 3) group discussions with a small portable whiteboard, 4) hands-on activities at their seat, and 5) planning and implementation of mock science lessons. A survey was administered at the beginning and at the end of the semester to examine change in pre-service teachers' learning style during the term. The survey included 5 items to measure participants' orientation toward active learning style in contrast to the style that emphasizes memorization. Reflection cards were written and collected at the end of each session. Also, final paper submitted at the end of the term included reflection on the course. The written reflection data by each pre-service teachers were served as anecdotal evidence for the participants' change toward favorable learning style.

3. Results

Table below shows the mean value of each of the 5 items for pre and post-program survey responses for Spring 2014 and Fall 2014.

Table 1. *Survey Results for Science Pre-service Teachers about their Learning Style*

item (5=strongly agree, 4=agree, 3=neither agree or disagree, 2=disagree, 1=strongly disagree)	Spring 2014 （N＝139）		Fall 2014 （N＝64）	
	pre	post	pre	post
1) My learning style is primarily to focus on memorization.	3.02	2.89	2.95	2.77
2) Memorization is an effective way to learn subject matter.	3.21	3.01	3.03	2.78
3) I agree with the learning style that focuses on memorization.	2.34	2.22	2.25	2.20
4) I do not know what it means to understand using my own words.	2.32	2.21	2.21	1.90
5) I agree with the learning style that emphasizes to think and understand the content using my own words.	4.14	4.34	4.21	4.27

The results indicate that participants less agreed with memorization as an effective way to learn subject matter (item 2) and changed their learning style from memorization to active learning (item 1, 3, and 5) at the end of the semester both for Spring and Fall of 2014.

Many of the written reflection submitted at the end of each session or in the final paper included participants' new realization toward learning. For example, one of the pre-service teachers described in her term paper "We just listen to the instructor and take notes during the 90 minutes of a lesson in many of the university lectures. Lessons in this course were different. We clarified our misconceptions using clickers and learned other people's ideas through discussions of various problems in the group work. And then, we presented our constructed knowledge and understanding through paper writing. We ourselves actively participated in activities and we absorbed concepts as our own. If I am asked how this course looks like, I could describe every detail of this course. The fact that I could describe the course well is evidence of how this course contributed to my learning."

4. Discussion

It is often said that Japanese university students are lazy and lack of motivation to learn actively. We argue that with the implementation of active learning strategies, students can change their learning style from memorization to active learning using their own words. What was more important in the results of this study is that when students changed their view about their learning style, they could appreciate the importance of their own learning. Active learning requires students to do something instead of to sit quietly. For typical Japanese students who are accustomed to listening what teacher says and follow teacher's instruction obediently,

classroom activities that promote active learning such as group discussions may provide a hurdle to overcome their self-consciousness. However, the results of this study indicated that students tend to appreciate their own learning by heart based on the hard work they performed in the course.

This study is a beginning of the research on the effect of active learning instructional strategies on pre-service science teachers. It would be interesting to extend the scope of research to the acquisition of content knowledge. More research studies are strongly encouraged in this field.

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The States of Teacher Practices Based on the Standards of Work Performance
and Standards of Conduct in Thailand

Ratana Daungkaew,

Sukhothai Thammathirat Open University,

Jaengwattana Road, Pakkred, Nonthaburi 11120 Thailand
ratana.dau@stou.ac.th

Annop Jeenawathana
Sukhothai Thammathirat Open University,

Jaengwattana Road, Pakkred, Nonthaburi 11120 Thailand
annop.jee@stou.ac.th

Abstract: *The objectives of this research were (1) to study and compare the states and problems of teacher practices based on the standards of work performance and of conduct as perceived by teachers under different work agencies; and (2) to study suggestions for promotion, monitoring, and follow-up of the teacher practices based on the standards. The sample comprised 2,144 teachers under different work agencies. The instruments were 5-scale rating questionnaires and a focus group guideline. Data were analyzed by the frequency, percentage, mean, standard deviation, t-test, F-test, and content analysis. The findings were:(1) the overall state of teacher practices based on work performance standards was at the high level; and the overall problem of the practices was at the low level; while the state of overall practices based on the conduct standards was at the highest level; and the overall problem of the practices was at the low level; (2) as classified by teacher work agencies, it was found that (2.1) the overall state and problem of practices based on the work performance standards were significantly different ; and (2.2) the overall state of practices based on the conduct standards was significantly different; while no significant difference was found regarding the overall problem of the practices; (3) important suggestions for promotion, monitoring, and follow-up of the practices were given to the work agencies, schools, and the Thai Teachers Council.*

Key words: Standards of work performance, Standards of conduct, Teacher practices, Teachers Council

Introduction

Currently, dramatic and global changes in economic and technological conditions are altering people's life, work, and education. Worldwide computer linkages and transportation enable all parts of the world to the ability to connect among another and stimulate interest in the creation of regional networks and communities, such as a European Community and ASEAN community. Individuals are continually required to learn new ideas and skills, as well as to be alert for development in order to meet the needs of the 21st century. Hence, education around the world should be a means to empower citizens to become active participants in the transformation of their societies. Particularly, education must be lifelong to strongly influence the learning of children and young adults. In this way, change is required not only in curricular education, but also in the role of teachers.

Similar to other countries, Thailand has been influenced by these global changes. The Thai government also realizes that, since education is key to a nation's development and competitiveness, enhancing the capability of a country's human capital is much more important than developing conventional resources in response to domestic and international demands. According to Thailand's 11th National Economic and Social Plan (2012-2016), one of four major missions in the cultivation of a knowledge based society is "to develop people with integrity, knowledge, and skills appropriate to their age and to strengthen social institutions and local communities for positive adaptation to changes." In addition, the current National Education Plan (2002-2016) emphasizes human-centered development and holistic scheme of education, religion, art, and culture in order to increase quality of

life. These two plans serve as frameworks to formulate the development and implementation of plans in all levels of the education system.

Amongst other main educational inputs, teachers are usually regarded as one of the most important factors affecting students' achievement and quality of educational experience nationwide. However, teachers, nowadays, face continual change, some of which are certain and some of which are more unpredictable. They need to develop their professional capacities as change agents for educational quality improvement, in reflection of the fact that students' futures depend heavily on their quality of teachers. To this end, in recognition that teachers play essential roles in reforming the learning process, many efforts have been provided to upgrade the status and standards of the teaching profession. In congruence with the National Act 1999 (B.E.2542), the teaching profession development system in Thailand has been reformed in four key areas: the improvement of teacher educational development; the evaluation of personnel management methods and introduction of a new salary scale; maintenance of professional standards; and the development and promotion of teachers and educational personnel (Nillapun, et al., 2013). To encourage the perception of teaching as a highly respected profession (as previously mentioned), the Ministry of Education has played a major role in providing supervisory and co-ordinating functions to the institutions responsible for production and development of teachers through both pre-service and in-service training programs, especially providing sufficient budget and other resources required for the teacher professional development.

As part of the Teachers and Educational Personnel Council Act 2003 (B.E.2546), the Secretariat Office of the Teachers and Educational Personnel Council of Thailand was founded by the Ministry of Education to establish professional standards; issue and revoke licenses for professional practices; and monitor and supervise practices according to the standards and ethics of the profession. According to the act, teacher professionals must be licensed to practice and must behave according to the 3 main standards required for teachers, including 1) standards of teachers' knowledge and experience, which require teachers to have minimum qualifications to be used in the practices and to pass the criteria for evaluation of the teaching functions in accordance with the rules set by the council; 2) standards of teachers' performance, which require teachers to academically practice in order to achieve the objectives and goals of learning as well as to develop themselves continuously; and 3) standards of conduct, which demand that teachers adhere to professional ethics in order to preserve and promote the reputation and honor of the teaching profession (Pilanthananond, 2007). Overall, the practice of these three standards encourages the development of the quality of the teachers and educational personnel towards a culture of encouraging students to think critically and creatively in order to catch up with the globalizing trend and increase graduates' job performance.

Although the Council has adopted monitoring measures for the quality of teacher professionals and made efforts to raise professional teaching standards, progression in the overall quality of Thai education since the educational reforms of 1999 has not proven entirely satisfactory. Average scores in core subjects on national exams (O-NET) at the different educational levels in 2011, more than a decade post-reform, were less than 50 percent of the total scores (National Institute of Educational Testing Service (Public Organization), 2011). Results from the International Student Assessment Programme (PISA) and Trends in International Mathematics and Science Study (TIMSS) initiative also revealed that the overall scores of the Thai students are at the lower end, particularly in reading, mathematics, and science. Hence, education reforms in teaching and learning are still necessary to keep pace with the changing world (The Institute for the Promotion of Teaching Science and Technology, 2008; Thai Post (Online), December 12, 2012).

Furthermore, although the Council has set standards of conduct for teachers to practice in accordance with the respected status of their profession, so far, evidences indicate that many teachers neglect to follow such standards. Issues in teaching behavior included teachers leaving their classrooms for their own business, behaving inappropriately towards students, drinking alcohol while on duty, and sexual harassment by teachers (Sinlarat, 2015). As reported by the Thailand Development Research Institute (TDRI, 2013), the crux of the country's educational problems is the lack of accountability throughout every step of the education system. Even though the government has invested significant sums of money in education, the quality of education continues on a downward trend, reflecting that compliance with professional standards in all aspects of teachers is still very poor.

From the above mentioned, the Thai Teachers' Council recognizes the need to explore Thai teachers' practices based on the nationally prescribed standards of work performance and standards of conduct, as well as their problems found while behaving according to the standards. Furthermore, their opinions towards guidelines of supporting and monitoring in compliance with the standards of work performance and standards of conduct are concerned. The research findings might possibly be used to improve the content of such standards more effective, including establishing a plan for the promotion and development of teacher professional.

Objectives of the research

The objectives of this research were (1) to study the states and problems of teacher practices based on the standards of work performance and of conduct; (2) to compare the states and problems of teacher practices based on the standards as perceived by teachers under different work agencies; and (3) to study suggestions for promotion, monitoring, and follow-up of the teacher practices based on the standards.

Theoretical framework

The teaching and learning process is an important mechanism to enable students to develop at their own pace and to the best of their potential. Therefore, improving teaching quality should be the priority of the Teachers Council of Thailand under the jurisdiction of the Ministry of Education, according to the Teachers and Educational Personnel Council Act 2003 (B.E.2546). This section focuses on the functions of the Council as follows: (1) the meaning of educational profession in Thailand; (2) professional standards for teachers; and (3) retraining oneself in the profession (Teachers Council of Thailand, 2013). In particular, professional standards for teachers related to standards of teachers' performance and standards of conduct were used as a research framework of the study. Additionally, professional standards for teachers from an international view are briefly described.

The Meaning of Educational Profession in Thailand
The educational discipline is highly respected as an honorable profession. Educators must naturally have greater responsibility for the service end-users and the public due to the impact they have. Therefore, it is necessary to have specific controls over the profession to create confidence in it. According to the Teachers and Educational Personnel Council Act B.E. 2546 (2003), a practice of licensed educators stipulates its primary duty relating to the teaching and learning process and promotion of learning through various methods. Therefore, professional educators who are going to enter the said professions, including teachers, school administrators, educational administrators, and supervisors must receive a professional license to practice from the Council before beginning practicing the profession. In addition, once in the profession, they must follow professional practices under the established restrictions and conditions. Also, they must perform and conduct themselves according to the professional standards.

Professional Standards for Thai Teachers
There are four main standards required for Thai teachers.
     1. Standards of Teachers' Knowledge. According to these standards, a teacher must have minimum qualifications with a Bachelor's degree in education or the equivalent or other degrees as accredited by the Teachers' Council of Thailand, with knowledge in the following areas: language and technology for teachers, curriculum development, learning management, psychology for teachers, educational measurement and evaluation, classroom management, educational research, educational innovation and information technology, and teachership.
     2. Standards of Teachers' Experience. Based on these standards, a teacher is required to have completed teaching functions in educational institutions under an educational degree curriculum for a minimum of one year and passed the criteria for evaluation of the teaching functions in accordance with the rules, procedures, and

conditions as set by the Teachers Council of Thailand Board as follows: (1) Training on professional practice during study; and (2) Teaching functions in educational institutions on specific subjects.

       3. Standards of Teachers' Performance. Regarding these standards, a teacher has to maintain the 12 standards of his/her performance as follows:

           Standard 1: Regularly practice academic activities relating to development of the teaching profession.

           Standard 2: Make decisions to practice various activities, taking into account their consequences on learners.

           Standard 3: Be committed to developing learners to reach their full potential.

           Standard 4: Develop teaching plans for effective implementation.

           Standard 5: Regularly develop effective instructional media.

           Standard 6: Organize instructional activities focusing on permanent results for learners.

           Standard 7: Systematically report on the results of learners' quality development.

           Standard 8: Conduct themselves as good role models for learners.

           Standard 9: Constructively cooperate with others in their educational institution.

           Standard 10: Constructively cooperate with others in the community.

           Standard 11: Seek and use information for development.

           Standard 12: Create opportunities for learners to learn under all circumstances.

    4. Standards of Conduct. A teacher is required to adhere to the following standards of conduct: personal ethics; professional ethics; client-centered ethics; collegial ethics; and societal ethics.

       Personal ethics

       Standard 1: Professional educators must always have self-discipline, self-development in the profession, personality and vision to keep abreast of educational, economic, social and political developments.

       Professional ethics

       Standard 2: Professional educators must have love, faith, honest and responsibility for the profession and must be an upstanding member of the professional organization.

       Client ethics

       Standard 3: Concerning the standard, professional educators must treat students and service end-users equally with love, compassion, concern, help, and support.

       Standard 4: Professional educators must promote the creation of learning, skills, and good habits to students and service end-users in tandem with the role and duty to the fullest potential and with sincerity.

       Standard 5: Professional educators must behave and be a role model physically, verbally and psychologically.

       Standard 6: Professional educators must not act with antagonism regarding the physical, mental, psychological, emotional and social growth of students and service end-users.

       Standard 7: Professional educators must equally and sincerely give services without requesting or accepting benefits through the abuse of title and position.

       Collegial ethics

       Standard 8: Professional educators shall constructively give help and support one another holding on to the system of morality and unity of the group.

       Societal ethics

       Standard 9: Professional educators shall act as a leader in the conservation and development of the economy, society and religion, art and culture, local wisdom, the environment, public common interests and adhere to the democratic ruling system with the King as the Head.

Retraining Oneself in the Profession

In Thailand, licensed teachers must practice the teaching profession under restrictions and conditions. They also have to practice and conduct themselves in accordance with professional standards and ethics as well as to develop professional teaching practice to correspond with the conditions set forth in the renewal of the license in order to retain themselves in the professional field according to the stipulated professional standards as follows:

     1. Retaining Oneself in the Professional Field

Professional teachers with a license to practice, dated five years from the date of the issuance of the license, have to develop their skills and professional practices in order to attain the criteria set up by the Teachers' Council of Thailand Board for the renewal of the license.

2. Developing Professional Practice

Teachers shall receive professional training in knowledge and experience, performance and practice under the professional standards and ethics for their profession. The Council has established a development strategy and system to increase professional educator potential, to promote and create social confidence, faith and trust, relevant to those for honorable professional practice.

3. Acquiring Expertise in Professional Practice

Teachers with performance to the quality level of an expert according to the professional standards under the rules and regulations of the Council shall be certified as experts in professional practice.

4. Promoting, Supporting, Commending and Upholding Professional Educators

Teachers who practice and conduct themselves in accordance with the professional standards and ethics and also with clear evidence of work, shall be officially recognized and held in high esteem as in various forms such as receiving awards and tokens of honor.

Australian Professional Standards in Teaching

In Australia, the development and implementation of professional standards for teaching have been rampant growth in the nationwide. However, these have often been unrelated to each other and used in differing and unrelated ways (Mayer, Pecheone, & Merio, 2012). With the establishment of the Australian Institute for Teaching and School Leadership (AITSL) in 2010, the Commonwealth has introduced a common set of professional standards to be used across the country. The national professional standards require all teachers including graduate teachers, proficient teachers, highly accomplished teachers, and lead teachers to demonstrate professional knowledge, practice, and engagement. Regarding these standards, a teacher has to maintain the 7 standards of his/her performance as follows:

Professional Knowledge

Standard 1: Teachers should know students and how they learn.
Standard 2: Teachers should know the content and how to teach it.

Professional Practice

Standard 3: Teachers should plan for and implement effective teaching and learning.
Standard 4: Teachers should create and maintain supportive and safe learning environments.
Standard 5: Teachers should assess, provide feedback, and report on student learning.

Professional Engagement

Standard 6: Teachers should engage in professional learning.
Standard 7: Teachers should engage professionally with colleagues, parents/careers, and the community.

According to the Mayer et al. study (2012, p.123), the three most common means of collecting evidence on the quality of teaching are: (1) observation protocols linked to professional standards for beginning teaching; (2) portfolios documenting teachers' professional knowledge and reflection on their professional practice; and (3) teacher and/or student work sample. As for rewarding accomplished teaching, the Australian government usually supports effective teachers in terms of enhancing the status of the profession and acknowledge, retaining and sometimes financially rewarding highly accomplished teachers.

As mentioned previously, it is clear that both Thailand and Australia have been concerned for the development and implementation of professional standards for teaching due to the fact that professional development for teachers is a key mechanism for improving classroom instruction and student achievement (Yoon et al., 2007). Moreover, recent studies suggested that not only is effective teaching at the heart of student learning, it is also a factor in the success or failure of school reform (Sander & Rivers, 1998; Wenglinsky, 2000 as cited by Pool et al., 2001). However, a study conducted by Pool et al. (2001) indicated that teachers certified by the National Board of Professional Teaching Standards (NBPTS) in the US, performed differently in the quality of teaching and learning in their daily practices. Thus, teacher preparation, credentialing, and continued professional development should be concerned. Yoon et al. (2007) noted that many countries consistently call for high quality professional

development due to lack of such programs—characterized by coherence, active learning, sufficient duration, collective participation, a focus on content knowledge, and a reform rather than traditional approaches. Similarly, Ball & Cohen (1999, pp. 3–4 as cited by Yoon et al., 2007) indicated that a particular target for criticism is the prevalence of single-shot, one-day workshops that often make teacher professional development "intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative". Therefore, high-quality preparation programs that are in line with performance based standards need to be established for teachers' work and professional development.

Methods
This study incorporated a mixed methods design consisting of two distinct phases (Creswell & Plano Clark, 2011). In the first phase, the quantitative and numeric data were collected first, using a survey in order to explore the states and problems of teacher practices based on the standards of work performance and of conduct, as well as to compare the states and problems of teacher practices based on the standards as perceived by teachers under different work agencies. The employed research sample comprised 2,144 school teachers under six work agencies, namely: the Office of the Basic Education Commission, the Office of the Vocational Education Commission, the Office of the Private Education Commission, the Office of Bangkok Metropolitan Education, the Office of Coordination and Development of Local Education Management, and the Office of Pattaya City Education. All members of the research sample were obtained by multi-stage sampling. In a multistage random sample, in the first stage, a random sample of 28 representative provinces from each region was collected. Next, in the second stage, a random sample of two schools from different work agencies was taken from within each province chosen in the first stage. Then, in the third stage, a random sample of teachers was taken from within each school chosen in the second stage. The response rate among the teachers in the survey was 76% of the participants. The employed research instruments were four sets of 5-scale rating questionnaires on perception of the states and problems of practices related to the standards of work performance and standards of conduct, developed by the research team based on the conceptual framework for standards of work performance and behavioral model in accordance with the professional code of ethics as determined by the Teachers Council of Thailand. Statistics employed for analysis of data on background information of respondents and data concerning perception on the states and problems of practices based on the standards of work performance and standards of conduct were the frequency, percentage, means, standard deviation, t-test, analysis of variance, and Scheffe's test for pair-wise comparison. In the second phase, a qualitative study was used to collect data through a focus group discussion. 11 key informants, all school teachers from different work agencies and educational supervisors, participated in the focus group. Open-ended question items were used on issues for the discussion concerning guidelines for promotion, monitoring, and follow-up of the practices based on the standards of work performance and standards of professional ethics. These qualitative data on the guidelines were analyzed by content analysis.

Results and conclusions
Research findings are summarized as follows:

1. Teachers under all work agencies perceived that the states of overall practice and by-standard practices based on the standards of work performance were at a high level; and they perceived that both the overall problem and by-standard problems of practices based on the standards of work performance were at the low level; while the states of overall practice and by-standard practices based on the standards of conduct were perceived by them to be at the highest level; and both the overall problem and by-standard problems of practices based on the standards of conduct were perceived by them to be at the low level.

2. Regarding comparison results of the states and problems of practices based on the standards of work performance and standards of conduct as perceived by teachers under different work agencies, it was found that (2.1) the perception of practices based on the standards of work performance of teachers under Bangkok Metropolitan Administration was significantly higher than the counterpart perceptions of teachers under other work agencies, while no significant difference was found regarding other pair-wise comparisons; as for comparison results of perceptions on problems of practices based on the standards of work performance of teachers under different work agencies, it was found that the perception of problems of practice of teachers under

Bangkok Metropolitan Administration was significantly lower than the counterpart perceptions of teachers under the Office of the Basic Education Commission and teachers under the Office of the Vocational Education Commission, while no significant difference was found regarding other pair-wise comparisons; (2.2) the perception of overall practice based on the standards of conduct of teachers under Bangkok Metropolitan Administration was significantly higher than the counterpart perception of teachers under the Office of the Vocational Education Commission, while no significant difference was found regarding other pair-wise comparisons; as for comparison results of perceptions on problems of practices based on the standards of conduct of teachers under different work agencies, no significant difference was found.

3. Concerning suggestions for promotion, monitoring, and follow-up of the practices based on the standards of work performance and standards of professional ethics, the following suggestions were given: teachers under every work agency had opinions that the superior work agencies of the schools and the Teachers Council of Thailand should perform the duty on promotion, monitoring and follow-up of the teachers' practices based on the standards of work performance and standards of professional ethics; there should be determination of clear policies and professional standard framework which are appropriate and feasible for implementation; there should be various models of teacher development that are relevant to the teachers' problems and needs; the work performance follow-up should focus on the actual and empirical work performance condition; there should be a morale enhancement system for teachers; there should be activities to enhance and develop the teachers' virtues and morality; there should be the connection between the teacher's practices based on the standards of work performance and standards of professional ethics and the internal quality assurance of the school; and the determination of measures for evaluation of the teacher's competencies should reflect the teacher's real competencies in order to apply for renewal of the teacher's teaching certificate.

Discussions and recommendations

 The findings of the study lead to the following discussions:

First, teachers from different work agencies perceived that the state of overall practice based on the standards of work performance were at the high level and the overall problem of practices were at the low level. This is probably because most teachers realized that they are responsible for their teaching practices taking into account the needs of individual learners by developing a practical lesson plan, providing teaching materials for students to learn effectively, systematically reporting on the results of student learning, emphasizing parent and involvement in teaching and learning process, and improving their own teaching ability through the use of knowledge and information in today's world. In particular, they perceived that they can conduct themselves as good role models for students based on Standard 8 in terms of modeling exemplary character traits and moral responsibility. According to Wynne (1995), teachers who want to raise students' morality and achievement should have a deep obligation to help students learn by providing excellent instruction. That is a teacher's first moral obligation. However, many teachers under different agencies perceived that they still have some limitations to follow Standard 1 related to regularly practicing academic activities relating to development of the teaching profession. Although they attempt to focus on permanent results for students (Standard 6), there are still some problems in the teaching and learning activities that can help students construct their own knowledge and that can embed students' values, habits and learning to form more permanent behaviors and traits. The results of the group discussion also reveal that teachers have rarely been supported to have teacher leadership roles in terms of serving on academic committees, leading school seminars, initiating learning projects, and developing academic works published. These are consistent with the Yoon et al. study (2007). It suggested that teachers need high quality professional development programs. Moreover, Harrison and Killion (2007) state that in order to shape the culture of their schools, improve student learning, and influence practice among their peers, teacher leaders assume a wide range of roles to support school and student success, such as resource providers, instructional specialists, curriculum specialists, classroom supporter, catalyst for change, etc. Therefore, the Teachers Council of Thailand should concern the teacher leadership issue in order to find a highly effective way for teacher professional development.

Regarding the teacher practices based on the standards of work performance as mentioned, it is consistent with many previous studies on professional teacher standards in Thailand in terms of teachers perceiving their standard practices at the high level (Roekkasem, et. al., 2009; Thepraksa, 2008). On the contrary, the results of the focus group discussion indicated that teachers have no real understanding about teacher professional standards. But their belief of having complied with professional standards and practices might be because of the awareness of their teaching duties. This might be explained by the fact that since the education reform in 1999, the public has not been satisfied with the quality of education at all levels. The empirical evidence shows that the results of students' test scores on both national and international levels have not met the criteria yet. Therefore, all governments have to strongly focus on improving the quality of teachers in a variety of strategies as well as enhance those who are not qualified teachers to have a higher degree in curriculum and instruction, and so on. Moreover, according to the 1999 National Education Act, all Thai schools have to be monitored and evaluated by their own agencies and external agencies for quality assurance in education. With these reasons, teachers are encouraged to develop their teaching skills continuously in order to get a teaching license and to meet the criteria specified. By doing so, we believe that the high quality of teachers can probably affect student achievement. Therefore, teachers who have positive perception of their practices are more likely to make efforts to meet the requirement of the standards (Chantakorn, 2008).

So far, teachers have been gradually trained for improving their professional practices by people involved-however, the quality of the students has yet to improve. This might be due to the fact that many teachers still have limitations related to some standards that deliver directly to student outcomes, such as Standard 6, organizing instructional activities focusing on permanent results for students. This suggests that teachers may not have sufficient knowledge and skills about the curriculum, teaching strategies, and standards-based assessment. Hence, the teaching and learning process cannot help students construct the knowledge according to the requirement of learning standards. The results suggest that teachers' intensive professional development –currently focusing on academic subject matter by giving them opportunities for "hand-on" work in terms of focusing on content knowledge, opportunities for active learning, and coherence with other learning activities -is more likely to cultivate teachers' enhanced knowledge and skills, thus having an impact on student achievement (Garet, Porter, Desimone, Birman, & Yoon, 2001; Yoon et al., 2007). As for the results of the focus group discussion, the participants agreed that the superior work agencies of the schools and the Teachers Council of Thailand should establish various effective models of teacher development and a morale enhancement system in order to enhance teachers' teaching competencies to meet the standards of work performance and the standards of ethics.

Next, teachers from different work agencies perceived that the state of overall practice based on the standards of conduct were at the highest level and the overall problem of practices were at the low level. This is probably due to the fact that most teachers agree with the importance of ethical practices in all aspects. According to personal ethics, teachers apparently perceived themselves to have self-discipline and self-development in the profession and in their personalities. In terms of professional ethics, teachers have love, faith and responsibility for their profession as well as are proper members of the Teachers Council of Thailand. As for client-centered ethics, teachers believe that they treat students by adhering to the moral justice, providing equal opportunities to enhance students' development, supporting both students and parents, and encouraging students to construct their knowledge and work habits as well as serving as a role model for their students. Teachers are also concerned that they follow collegial ethics by building a relationship with their peers in terms of sharing professional resources, exchanging teaching strategies, serving as mentors for new teachers, etc. Finally, in societal ethics, teachers obviously adhere to the democratic ruling system with the King as the Head. Noticeably, most teachers behave according to the societal ethics in terms of leading in the areas of economy, environment, and public common interests less than focusing on the other ethics above mentioned, especially on the client ethics. This may be due to the government emphasizing the improvement of student achievement. By doing this, most teachers have to focus on their teaching duties in order to raise the quality of education to meet the learning standards. Nevertheless, as a noble profession, teachers must be responsible for both the teaching and non-teaching duties (Kellough, 2000). Particularly, the area of social responsibility can encourage teachers to create a better understanding in society and modify as well as extend the concept of conservatives to become universal. The findings are consistent with the research done by Research Institutes and Consulting, Thammasat University (2554), showing that most teachers are less vulnerable to the issues of morality and ethics. However, as Sinlarat

(2015), Chair of the Teachers Council of Thailand, recently noted in a 2014 speech that there are many instances of teachers engaging in alleged ethical misconduct. For instance, there are cases of complains against teachers being involved in love affairs with married people, sexual assaults on students, drinking while on duty, etc. In these cases, the teachers in question have been suspended and their licenses revoked for a period of time (three months) or permanently. Also, the Council has cooperated with school districts to organize a moral and ethical workshop to raise the professional ethics of teachers. Through such programs, the Council is attempting to align with the teachers' suggestion that the superior work agencies of the schools and the Teachers Council of Thailand should perform the duties on promotion, monitoring and follow-up of the teachers' practices and determine clear policies and professional standard framework for teachers to follow.

Conclusion
Results of the study indicated that if we are serious about using professional standards as a mechanism to raise teaching quality, all superior work agencies of the schools and the Teachers Council of Thailand need to invest in various teacher development programs that research shows foster improvements in teaching. Also, there should be the connection between the teacher's practices based on the standards of work performance and standards of professional ethics and the internal quality assurance of the school; and the determination of measures for evaluation of the teacher's competencies should reflect the teacher's real competencies in order to apply for renewal of the teacher's teaching certificate. The results suggests that in order Thailand to be able to enhance the teaching and learning comparable to international standards, teachers must conduct themselves in line with their professional responsibilities, and teacher evaluation policies must be formulated so that teachers must work to achieve the aim of enhancing student learning.

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The Development of a Web-based Package of Educational Administration Research for Basic Education School Administrators in the Bangkok Metropolitan Region

Koolchalee Chongcharoen
School of Educational Studies, Sukhothai Thammathirat Open University,
Nonthaburi, Thailand, koolchalee.cho@stou.ac.th

Choochat Phuangsomjit
School of Educational Studies, Sukhothai Thammathirat Open University,
Nonthaburi, Thailand, choochat.phu@stou.ac.th

Ratana Daungkaew
School of Educational Studies, Sukhothai Thammathirat Open University,
Nonthaburi, Thailand, ratana.dau@stou.ac.th

Ketkanok Urwongse
School of Educational Studies, Sukhothai Thammathirat Open University,
Nonthaburi, Thailand, ketkanok.urw@stou.ac.th

Abstract: *This study explored the needs of basic education school administrators with respect to educational administration research, investigating how a web-based package of educational administration research was developed, as well as studying the effects of a developed web-based package. The data were analyzed by percentage, mean, standard deviation, t-test and content analysis. The data reported in this paper are based on needs assessment survey of three hundred and fifty participants and fifty participants in a web-based package experiment and evaluation.The most significant key theme emerging from the results is the need by school administrators for educational administration research and a web-based package development process. Suggestions for organizations planning to implement are included. It can be concluded that a "systematic web-based package" can be used as a support tool for school administrator development and can be employed through part of a policy on educational personnel development.*

Keywords: web-based package, educational administration research, basic education school administrators

Introduction

The challenge of school reform and the task for school leaders in promoting and supporting such reform creates pressure and expectations for effective school leaders (Dinham, 2007; Caldwell, 2005). The focal point for these reforms is leadership capabilities and this paper explores such capabilities with regard to educational administration research in the context of Thai education reform. This study was based on a project which explored the key to the needs of school administrators' regarding educational administration research and how to employ effective web-based training to support their capability. Web-based training is broadly consistent with an emphasis on professional standards, educational administration research and web-based training of educational administrators. In addition, this study has generated discussion and sharing of knowledge relating to the field of education and training for accessible web design.

Background of the study

The Thai government enacted the National Education Act (NEA) of B.E. 2542 (1999) which is the cornerstone legislation for education reform movement in Thailand. The NEA has changed the direction of the new education system toward a philosophy of lifelong learning and societal participation, including an educational administrative structure that requires all educational institutions to improve educational quality and standards at all levels (Office of the National Education Commission, 2001).

The reform process also brought about new initiatives in education quality improvement, such as Section 30, which requires educational institutions to develop effective learning processes by encouraging instructors to carry out research that supports suitable learning for learners. In addition, Section 52 to Section 57 of the NEA requires the development of teachers, faculty staff and educational personnel. Atagi (2002) commented that learning reform is the key component of educational reform while other aspects, such as objectives for the assurance of teaching quality, enhancement of professionalism, the quality of teachers, the mobilization of resources, and promotion of educational technologies, are supporting components. Therefore, such reforms present challenges relating to the professional capabilities of school leaders in managing effective learning reform.

As Huber (2004) remarked, the role of school leaders is related to a board context of school management. Changing contexts force school leaders to move toward a new form of professional development in many kinds of learning. To cope with the changing situations, the capabilities of school leaders should be focused on all kinds of training and development based on adult learning, professional development and continuing learning to meet the professional standards. It is widely acknowledged that the role and influence of electronic media, such as information and communication technology, on learning and teaching is optimized, especially when such technology is skillfully integrated into the educational experience (Naidu, 2006).

Research Questions

This study focused on the following research questions:
- What are the basic needs of school administrators with respect to educational administration research?
- How is a web-based package for educational administration research developed?
- What are the effects of a developed web-based package on the knowledge relating to educational administration research?

Purposes of the Study

This study explored the needs of basic education school administrators with regard to educational administration research. The study also investigates how a web-based package on educational administration research was developed and studies the effects of a developed web-based package on knowledge, opinions and satisfaction.

Literature Review

The relevant literature was reviewed, including professional standards of education administrators and web-based training.

Professional standards of education administrators

One of the important changes relating to school reform is the professionalization of school leadership and the development of leadership skills. Thai school leaders were identified as needing an enhanced degree of professional capabilities, including skills, knowledge, and attitudes to provide leadership to respond to the challenges of the future. For the professional standards of Thai educational administrators, including school leaders, the Secretariat Office of the Teachers' Council of Thailand (2005) has divided the standards into three aspects.

The first standard concerns knowledge and experience, requiring an education degree and a training course accredited by Teachers' Council of Thailand Board. This standard also requires experience in a teaching position and in a position of division head/department, head/section, or head/other administrative in an educational institution for a minimum of two years. In addition, educational institution administrators are required to have knowledge and competencies in: principles and procedures for educational institution;

educational policy and planning; academic administration; administrative, financial, procurement and building management; personnel management; student activities administration; educational quality assurance; information technology management; public and community relations management; and morality and ethics for educational institution administrators.

The second standard relates to performance standards. This standard establishes twelve criteria that educational administrators need to meet. These include performance of professional academic activities; making decisions to develop personnel, learners, and community; developing colleagues to perform potential tasks; developing organizational work plans; developing and using administrative innovation to improve quality; performing tasks focusing on permanent results; reporting on results systematically; conducting themselves as a good role model; constructively cooperate with the community and other agencies; seeking and using information for development; being a leader and creating leaders; and creating opportunities for development under all circumstances.

The last is with regard to conduct and describes related ethics of educational institution administrators. The five ethics are personal, professional, client centered, collegial, and societal.

Thus, educational administrators, including school leaders, need to develop themselves for educational improvement, particularly with respect to student quality.

Web-based training
The role of technology in education will always be twofold: to enhance education and to increase the technological adeptness of learners so they can function in the workforce (O'Neil & Perez, 2006). In this regard, distance learning that uses electronic educational technology in learning and teaching is noted.

Many concepts regarding distance learning, such as those detailed by Khan (2001), Hall (1997) and Keegan (1986), concentrate on distance learning as web-based learning with technology used being the internet or intranet. Many studies, such as those by Horton (2000) and Driscoll (2002), have discussed web-based learning over the internet. Advances in computer technology have facilitated innovative methods for delivering training in human resource development. The internet enables the delivery of computer-based training across time and distance.

A review of literature between 1996 and 2002 shows more than 500 reports concerning web-based courses (Wisher & Olson, 2003) and reveals that, in terms of effectiveness, web-based instruction improves learning achievement. Driscoll (2002) claims that web-based training is significant for adult learning and such training is considered for solving problems in the workplace. Web-based training also provides rich and meaningful feedback during guided practice and student practice. Educators and researchers in human resource development also emphasize web-based instruction as a delivery option for training, professional development, and education.

Web-based training is a proven method that needs to be very systematically managed, including paying attention to the technology and the infrastructure that is necessary to support such training. Web-based training also involves attention to course design and development and strategies for managing subject matter content. Naidu (2006) recommends that e-learning, such as web-based learning, is suitable in the following settings: the technology course design and development; subject matter content management; implementation requirements of e-learning; student registration; learner support; assessment of learning and feedback; and evaluation of the impacts of e-learning.

When developing web-based training applications, it is essential that the applications meet the client's requirements and the student's needs. The generic instructional system design (ISD) model acronym, ADDIE, stands for five sequential phases: analysis, design, development, implementation, and evaluation. This linear model serves as the basis for most of the subsequent ISD models (Smith, 2010). The first step is analysis phase in which the instructional problem is clarified, the goals and objectives are established, and the learning environment and learner's existing knowledge is identified. The second step is design phase. In this phase, a systematic instructional strategy is developed, along with determination of the format and visual design. The third step is development phase when the instruction plan is produced. This is followed by the fourth phase which is implementation, that is, putting the plan in action, including delivering the materials. The last step is evaluation phase when both formative and summative evaluation occurs. Alessi & Trollip (1991) also suggest a cycle of web-based course that has four phases in any complete instructional interaction: presenting information; guiding the learner in practice; practicing; and assessing the learning.

Driscoll (2002) explains that online training design process has five steps. The first step is started with assessing the needs of learner. This step needs to scope the area of the project, the objectives and the goals of the learners, including the environment of accessing data and information for a suitable model setting. The second step is selecting the most appropriate e-learning method. From a need analysis of the learner, determining the types of learning is essential. The key to identifying the type of learning required is to divide the goal into distinct parts, including classifying the skills needed as cognitive, psychomotor, or attitudinal and then developing instructional strategies and choosing the best delivery methods. The third step is designing lessons. In this case, the design for planning needed to develop includes interaction for support, a practical and possible feedback plan, and prioritizing structural design and resources. The fourth step is developing a blueprint showing the document interactions, feedback loops, information structure, as well as producing a script and storyboard. The last step is implementing and evaluating the web-based training programs and is used for assess the program factors for accuracy and efficiency.

Research Design

To answer the research questions, the most appropriate ways to collect data was deem to be by using questionnaires, a web-based package, achievement tests, and an opinions and satisfaction assessment form. The concept of sampling is one of the most important factors of any research, particularly the method of drawing a sample from a population to which the researcher intends to generalize some results (Johnson & Christensen, 2004; Wiersma, 1986; Mertens, 2005). In this study, a stratified random sampling technique to ensure representativeness was employed to select a sample of 350 participants from school administrators in the Bangkok Metropolitan Region for a needs assessment survey and 50 basic education school administrators for the web-based package experiment and evaluation.

The empirical data used for this paper were drawn from need assessment questionnaire, web-based package, achievement tests, and an opinions and satisfaction assessment form. Quantitative data were statistically analyzed by percentage, mean, standard deviation, and t-test; while qualitative data were analyzed with content analysis.

The Themes Emerging from the Study

The themes that were considered the most important for presentation in this paper were as follows:

1) Needs for educational administration research

The findings show that there is a gap between the knowledge of school administrators and the need for educational administration research. The need by education school administrators for basic educational administration research is at a high level. When considering all aspects, ten elements were rated at a high

level: determination of research problems; objective and scope of study; literature review; research concepts and assumptions; research design; sampling design; measurement design; data collection; statistics and data analysis; and research conclusions, discussion and recommendations writing. The findings also indicated that most of school administrators were interested in administrative model and innovations, leader capability/effectiveness and indicators, and efficient school management through the ASEAN Community. The highlight of the findings also shows that school administrators need to develop their capabilities regarding qualitative research, mixed methods research and quantitative research.

2) The web-based package development

The study also investigated how web-based package for educational administration research was developed. The outcome indicates that the web-based package development process comprised two phases as follows:
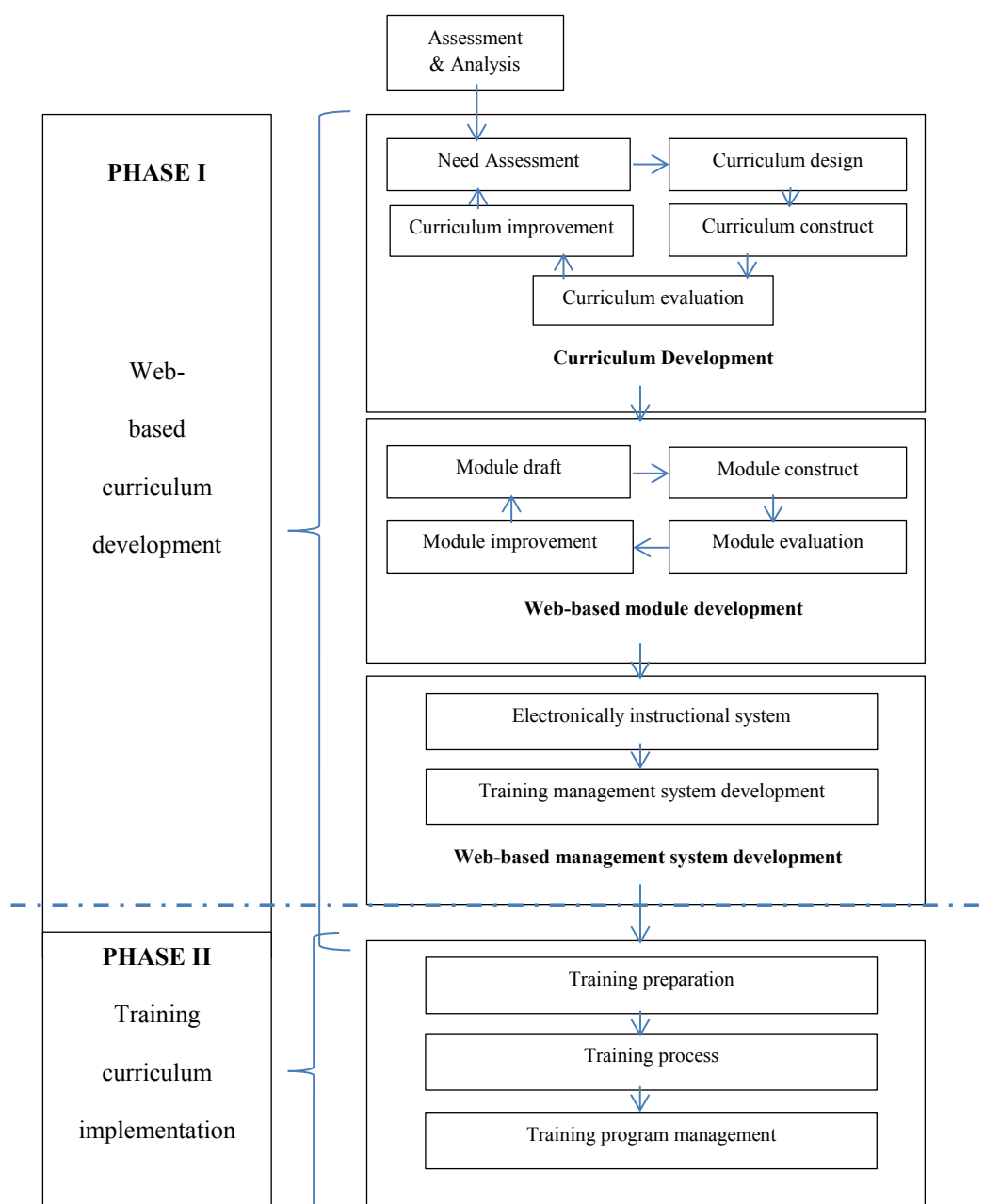

Figure 1 Web-based package development

Phase 1: Web-based Curriculum Development Process

The web-based curriculum development process consisted of curriculum development, web-based module development, and web-based management system development,

Curriculum development
The first step of curriculum development was the ***curriculum design.*** In this phase, a systematic instructional strategy was developed, as well as determination made of the format and visual design. The process started with an analysis of participants' research capabilities, as well as information and technology competency. The process then surveyed the needs of the participants regarding educational administration research development. The study revealed that the participants need to develop a research process at every stage. When the participants were asked about the type of research to be undertaken, the findings show that they needed to develop their capabilities on qualitative research, mixed methods research and quantitative research. When the problem was clarified, the goals and objectives were established and the learning environment and learner's existing knowledge was identified. The next step concerned ***curriculum construct.*** The curriculum design began with a draft of the documentary analysis and synthesis, at both the curriculum and module levels, then creation of a blueprint and construction of achievement tests. The next step was ***curriculum evaluation*** when both formative and summative evaluation occurred. There were two steps of evaluation; (1) a discussion between the researcher and the curriculum lecturers to focus on the content validity and activities design; and (2) comments and recommendations from the curriculum experts on the content and construct validity, including curriculum design possibilities. The last step was ***curriculum improvement.*** The researcher was able to improve the curriculum after the evaluation by the lecturers and experts.

Web-based module development
The web-based module development stage was when the application was programmed. The ***module draft*** was analyzed and designed for content and activities. The training plan was processed and online lectures in each curriculum were produced. The following documents were necessary in developing the application: a course syllabus, training objectives, training content, training activities, training media, training evaluation and criteria, knowledge sheets, a curriculum pre-test, module pre- and post-test and curriculum post-test. The second step was the ***module construct.*** This step was the preparation for web-based instruction. Storyboards and scripts needed to be developed before the programming and production began. The scripts had to contain all on-screen instructions, tutorials, interactivity, program navigation, and a description of graphics, video, and animations. Then the ***module evaluation*** was employed by the experts in specific details, such as the content structure, content validity, presentation model, etc. The conclusion of the module was the ***module improvement***.

Web-based management system development
The web-based management system development in this study employed the ***electronically instructional system*** of STOU (Sukhothai Thammathirat Open University) e-learning (http://stouonline.stou.ac.th/elearning), URL: http://www.moodle.stou.ac.th
In addition, ***the training management system development*** was set as website access, registration, learning activity, and two ways communication and information delivery. Three sub-systems were established. The trainee system was used for participants who registered by setting a username and password, then studied step-by-step through the package. The trainer system was for the researcher and the lecturers to follow the study access of the participants, as well as coordinate, support and solve problems that may occur during the study. The system for the system administrator was for operation of the computer systems.

Phase 2: Training Curriculum Implementation Process
The curriculum implementation process of consisted of three steps: the training preparation, the training process and the training program management.

The training preparation started with a survey of the needs of school administrators for educational administration research. According to Bogdan and Biklen (2003), gaining access to participants is an initial barrier to fieldwork. For this study, for example, a formal letter was sent to the offices of the participants, asking for permission and written consent form from the participants who had agreed to participate in the study.

The training process began after the participants accessed the system process with their individual username and password provided by the system. The participants received trainer announcements, an introduction to the study, the purposes of the study and curriculum contents. In this study, after studying the initial guidelines, the participants were asked to perform a curriculum pretest, module pretest, and to study the document materials, including the module plan, knowledge sheets, online lectures, and activity sheets. They then continued the module post-test, curriculum post-test and finally filled the form with their opinion and satisfaction assessment.

Curriculum Pre-test

Module 1	Module 2	Module 3
1. Module pre-test	1. Module pre-test	1. Module pre-test
2. Studying online lecture	2. Studying online lecture	2. Studying online lecture
3. Studying knowledge sheets	3. Studying knowledge sheets	3. Studying knowledge sheets
4. Doing activities	4. Doing activities	4. Doing activities
5. Module post-test	5. Module post-test	5. Module post-test

Curriculum Pre-test

Doing Opinions and Satisfaction Assessment Form

Figure 2 The training process

The researcher and the system administrators were responsible for ***the training program management*** and for setting up and maintaining the system or server.

Results of Experimenting with the Developed Web-based Package
The results of experimenting with the developed web-based package on educational administration research found that the participants in this study increased their learning achievement scores by 22.67 percent. When their post-training and pre-training scores were compared, it was found that their post-training scores were significantly higher than their pre-training counterparts, at the .05 level. Regarding the opinions of participants towards the web-based training, it was found that their opinions regarding the training as a whole were at the highly appropriate level. The highest rated item of the training was the training media, followed by the training website, and the web system and training content. As for opinions and recommendations concerning the quality of the web-based package as obtained from the web-questionnaire, it was found that the web-based package should have various modules on research knowledge, while the specific issues on educational administration are required, the offline training package should be supported, and the curriculum choices for their needs should be designed.

Discussion
Some distinct results show a gap between the knowledge of school administrators and their need for educational administration research, with their needs for educational research at a high level. An important

reason that the school administrators need to develop on educational administration research is because school administration is a social process including schools, school administrators, teacher training, student learning, instruction methods, resources and environments, and classroom dynamics. Such research is needed for the school administrators to have the capability for administration research methodology for school quality development.

In addition, the empirical data from this study showed the increasing learning achievement scores after the school administrator's post-training and their opinions toward the training as a whole were at a highly appropriate level. This occurred because of a well- developed web-based package and an efficient process, especially subject matter emerged from the participant need survey.

Furthermore, the method used for this study for web-based learning can be suitable for adult learning. The lesson designing and developing blueprint should be systematically constructed, both for the web-based package development process and training curriculum implementation process. Finally the package needs to be methodically implemented and evaluated. Significantly, a package needs to be well-ordered and tested for validity and reliability. To sum up, a web-based package that is well organized and systematically developed can response to the needs and contributes to effective outcomes.

Conclusion

This paper presents an overview of the needs of school administrators with respect to educational administration research and how to employ effective web-based training to support the capability of school administrators on educational administration research. The results from the web-based evaluation, both the curriculum and module evaluation and the learning achievement of the participants, confirm the effective of web-based training development. The Driscoll (2002) process development defines a process to ensure this interaction occurs. An effective web-based training application mainly depends on the needs of the participants and a continuing, efficiency process in selecting the most appropriate web-based training method, designing lessons, developing blueprints, and implementing and evaluating programs. Educational personnel development, particularly school administrators, requires a systematic and effective tool, such as web-based training, to strengthen capabilities to meet the professional standards and the challenges required in the future.

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The Enhancement of Motivation through Lessons with Skype
-In Search of the Most Effective Ways to Use Skype-

Yuko UESUGI

National Institute of Technology, Kure College

Abstract: *This study attempted to provide evidence that there was a distinctively effective way to use Skype in order to enhance the motivation of students. The enhancement of motivation is one of the most important factors in the acquisition of the second language. The more motivated they are, the less stressful or depressed they feel, even when they come to a deadlock in conversation. Their self-enlightenment and autonomy are also key factors for their English improvement. Sources to analyze the most effective Skype usage were as follows: the transitional data of the students' speaking and TOEIC scores; questionnaires; interviews of the student; the transitional data of class contribution points. Among some tentative ways to use Skype I found that a tandem system in a setting one American to two Japanese students discussing predetermined seasonal topics given in advance was the most effective way from both quantitative and qualitative points of view.*

The Purpose of this paper

How many Japanese students can utilize English in order to express their own thoughts, understand others' opinions, and negotiate with people who have different cultural backgrounds? It's hard to say that we have succeeded in producing such students.

Beginning with this issue, we need to explore the most effective ways for them to acquire communication skills using English. This concern led us to use the distinctive tool, Skype, rather than traditional methods of teaching English.

Skype is an abbreviation of 'Sky peer-to-peer' and it is a communication software, which Microsoft developed, using PSP technology. It's a free Internet telephone service with video calling system. Skype has been developed for the users to communicate face-to-face and to connect people simultaneously all over the world. Skype makes it possible to have a chat or meeting with people who live at a long distance. Its characteristics of promptness allow us to produce various language learning programs.

Skype must have unfathomable possibilities to be broadened from English educational points of view. Using this Skype system to make the Japan's traditional English education system changed and progressive, metaphorically speaking, could be like throwing a stone into a pond to make this situation ripple. Just chatting without any purpose, however, would not bring a very rich harvest in the students' development.

How could we improve the students' communication skills the most effectively through Skype? In search of the most effective ways to use Skype, I'll introduce some tentative ways among which the most effective ways will be analyzed with data collected in classrooms both quantitatively and qualitatively.

Previous Studies

There have been various investigations into the benefits of Skype. Young and Edwards (2012) described how advantageous in promoting listening and pronunciation skills as well as for negotiation of meaning and

production of modified output could be through Skype.

Wakisaka (2012) pointed out eTandem's significant effects were the reciprocity and the learners' autonomy and investigated what factors changed the learners' motivation. Tandem language learning is a method of language learning based on mutual language exchange between tandem partners. Ideally each learner is a native speaker in the target language the proponent wants to learn. Ikeda and Shrobsbree (2014) also studied eTandem's effectiveness along with an e-mail exchange project between Japanese and English learners. Fedic and Krelova (2015) aimed at evaluating the traditional methods of teaching and suggesting innovative teaching methods especially using Skype. Coburn (2010) researched teaching oral English online through Skype and focused on facilitating interaction patterns conductive to language learning.

Godwin-Jones (2005) described emerging technologies such as Skype, which offer intriguing opportunities for language professionals and learners. Bryant (2010) also expanded the horizon of using Skype with the Mixxer Language Exchange Community, in which he tried eTandem and examined cultural and language benefits. Minegishi (2009) examined effects of Skype exchange between Morioka University and Victoria University in Japanese teaching classes and analyzed the students' opinions collected from questionnaires of both sides.

Hayashi, Sugihara and Trummer-Fukada (2013) regarded the merit of Skype as a possibility to exchange real information such as their culture and climate difference casually and timely with people all over the world.

Todaka (2013) put the importance of the enhancement of motivation on the reflection of English education with the purpose of increasing the number of Japanese who could use English.

Tenbata, Murata, Shimada, and Inoue (2014) viewed Skype as "pseudo-study-abroad experiences" especially for the physically challenged people who are unable to go outside. Tsujimura, Mori, and Miyakoshi (2014) analyzed both merits and demerits about Skype and concluded independent attitudes of learning are significant to enhance the effects of learning.

Yanguas (2010) as well as Blake (2000) suggested one of the benefits of computer-mediated communication (CMC) is the real time interaction in which learners negotiate meaning, modify input and output, and respond to feedback. At the same time they highlighted the important ideas that it was essential to prepare for a well-designed and motivating task, carefully selected linguistic context, and careful planning.

Based on the Skype's great advantages and reflective suggestions investigated above, I'd like to attempt to explore and deepen Skype-oriented language learning methods.

Who are the participants?

The students belong to a college of technology, a kōsen school, 5-year science-oriented college for 15-years-old and older students. There are 63 institutions in Japan; most were established by the national government. Most of the institutions are technical schools, each with an enrollment of about 200 students per grade focusing on engineering and mercantile marine studies.

The Skype lessons in 4th year students' Oral Communication Ⅱ(OCⅡ) are held between our students and students in the University of Hawaii Maui College (UHMC), with which we have been in a sister-school relationship for more than 10 years. We have an intensive language study tour for about 10 days every September, in which about 20 students with 2 chaperones from our college join annually. The Oral

Communication Ⅱ is designed to give the students who apply for the study tour preparatory training for the program. Even before they meet the UHMC students, they can make friends with them here in Japan and after the program they can have a regular reunion keeping their friendship through Skype, which is truly beneficial for the students on both sides. The number of the students who enrolled in OCⅡ was 20 in 2013 and 27 in 2014.

Various ways to use Skype

In search of the most effective ways to use Skype, some tentative ways to use Skype were conducted as follows:

      1. A Japanese-English tandem system

      2. Various tentative ways on topics

         2.1 Without any topics given;

         2.2. With Topics given

         2.3. Seasonal or nonseasonal topics

      3. One-on-one or two-on-one sessions

      4. Time settings to use Skype.

In these tentative ways, the most effective ways to use Skype with a purpose of enhancing motivation and self-enlightenment were analyzed from both quantitative and qualitative points of view.

A Japanese-English tandem system

Since the UHMC students majored in Japanese, we divided one-hour Skype sessions in halves: Japanese time and English time. This is called 'tandem', which has been investigated by many researchers such as Bryant and Wakisaka. The reciprocity as well as learners' autonomy can be brought to both sides.

In our case, we succeeded in creating an interactive teaching and learning atmosphere, from which both sides could enjoy benefit. In this tandem system, especially in Japanese time our students became more excited at speaking their native language as instructors than when they spoke English. It was remarkable that they spoke Japanese triumphantly and loudly in a relaxed manner. Teaching experiences gave them confidence, nurtured self-enlightenment and promoted autonomy. This exchange system of the practice of their target language and native language eventually broadened the students' view through their own real experiences. According to their questionnaires afterward, the students found different types of merits and pleasure from both Japanese time and English time. More than half of the students said "both were worth doing."

For the 2nd and 8th sessions, a non-tandem system was purposely introduced. The 2nd one had a topic, while the 8th one didn't have one. Our students kept speaking English all the time and the atmosphere was joyful, filled with English. As a result, more than half of the students wrote in the questionnaires that it was productive although it was energy-consuming. The conversation with a topic was much smoother than that with no topic they said.

Various tentative ways on topics

In 2014 Skype sessions, topics given to the both sides of the students were as follows:

Number	Month	Topic
1	April	Self-introduction
2	April	Hobbies (non-tandem)
3	October	No topic
4	November	Plans to spend Christmas and New Year's Day
5	November	Plans to spend Christmas and New Year's Day
6	January	How you spent your New Year's Day
7	February	Differences between the US and Japan on St. Valentine's Day
8	February	No topic (non-tandem)

Table 1: Topics Given to Students in 2014

Without any topics given

Without any topics given, as an advantage, they could start their conversation casually with a self-introduction. As a disadvantage, however, when they ran out of topics to talk about, both sides became silent, looking at each other dumbly. Without any topics given, this deadlock situation was inevitable. Yet, they managed to go on with their conversation, not smoothly but intermittently. More than half of the students wrote in the questionnaires that they felt embarrassed, awkward, and uncomfortable at the moments when an uneasy silence fell over them.
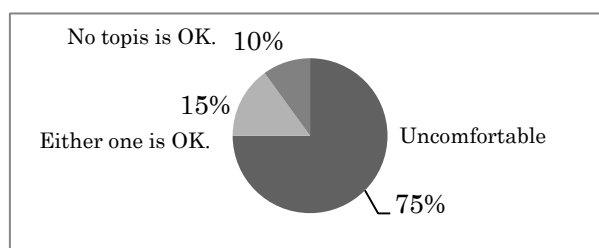
Graph 1: Without Any Topics Given

With Topics given

With topics given a week or 2 weeks in advance, their conversation started smoothly and went on actively. According to the topics given, their attitudes varied. Especially they got excited when they came to understand how different their cultures were.

More than half of the students wrote in the questionnaires that they felt closer to the UHMC partner when they got to know each other. Also they expressed their strong desire to be able to ask more detailed and burning questions in the next session. It was more advantageous for the students to have a chance to prepare for the topics beforehand than to have no preparation chance as no topics were given.
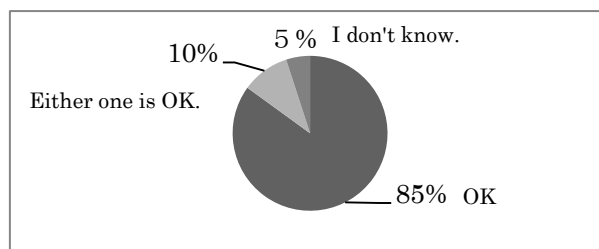
Graph 2: With Topics Given

Seasonal or nonseasonal topics

Topics related to the seasons were as follows: How to spend Christmas, Halloween, summer vacation, or New Year's Day; Differences between the US and Japan on St. Valentine's Day; while nonseasonal topics were: Differences on school systems, club activities, food, hobbies or fashion.

Seasonal topics made the conversation more pleasurable and vivid than nonseasonal topics, according to the students' attitudes. In the questionnaires many students wrote they wanted to express more on seasonal topics than on nonseasonal topics.
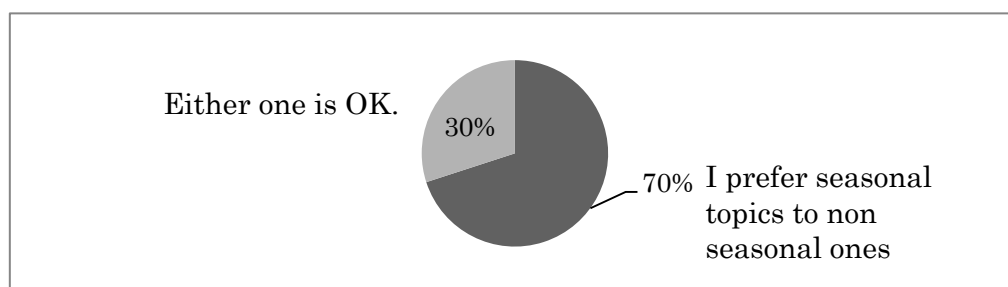
Graph 3: Seasonal or Nonseasonal Topics

One-on-one or two-on-one sessions

20 students in 2013, and 27 students in 2014 enrolled in Oral CommunicationⅡclass, while UHMC had just from 10 to 15 students enrolled in both years. In this case with a gap in the number of students, we rarely had one-on-one Skype opportunities so we allocated one pair of students sitting together with one headset each for one UHMC student.

When we occasionally had one-on-one sessions, the student was embarrassed at first but gradually he or she tried to talk to the partner on the screen. An experienced student with certain English skills could manage this one-on-one session remarkably well. Otherwise, he or she felt uncomfortable and wanted to end the conversation quickly. According to the questionnaires, two-on-one sessions gave more relaxing situation in which students with different English levels could start a smoother conversation.
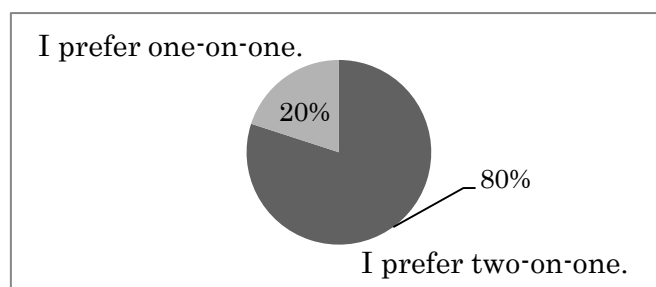
Graph 4: One-on-one or Two-on-one Sessions

Time settings to use Skype

The timing of using Skype came to have a remarkable influence on the students' attitudes toward learning their target language. For example, there was a significant difference between having Skype sessions before or after term or mini tests. How often they had Skype sessions each month and how long the Skype sessions were for contributed to students' attitudes toward learning their target language.

These differences influenced the questionnaires and students' motivations. Before term tests or mini tests, they couldn't fully concentrate on the sessions while they could enjoy the sessions much more after the tests. We needed a taking-turn system because of the gap in the number of students between our schools. We always had some students waiting for the sessions. Therefore, the longer the sessions went, the better their training went on. Almost all of the students wrote in their questionnaires that they wanted to have longer sessions. It is obvious that the students felt the longer the sessions were, the more the benefits they got.

Analysis on each way: What are the most effective ways to use Skype?

The key to analyzing the most effective ways to use Skype could be closely related to how to motivate the students. The more motivated they were, the less stressful or confused they felt even when they came to a deadlock in conversation. Their self-enlightenment was also another key for their English skills to improve. Which way could be the most effective way to use Skype to realize both of these factors: the enhancement of motivation or the self-enlightenment?

Sources to analyze the most effective ways to promote Skype sessions were as follows:
1. Transitional data of the students' speaking tests scores
2. Transitional data of the students' TOEIC scores
3. Questionnaires conducted after each Skype session
4. Interviews of the students
5. Transitional data of the students' class contribution points.

Transitional data of the students' speaking tests scores

Speaking tests were done 4 times a year. They had to memorize 3 certain designated units. They drew lots for a unit to recite in pairs and showed their recitation in class with only Japanese translation cards given by the teacher in the tests. This test had a maximum of 10 points, evaluating Pronunciation, Intonation, Accuracy, and Fluency. The charts of transitional data of the students' speaking test scores for each year were as follows:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
First	10	8	10	10	8	10	9	9	8	10	9	10	10	10	8	9	9	9	7	9
Second	10	10	10	10	10	7	10	9	10	10	7	10	9	10	10	9	10	10	8	10
Third	10	10	10	10		9	7	9	10	10	8	8	7	10	10	9	7	10	7	8
Fourth	8	10	10	10		8	9	7	9	9	6	7	6	10	7	10	9	9	9	9
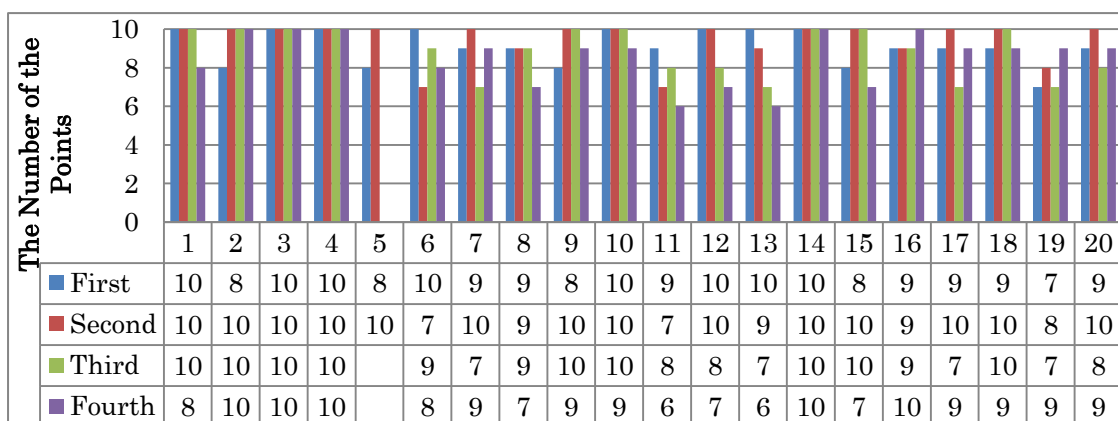
Graph 5: The Transition of Speaking Tests Scores in 2013
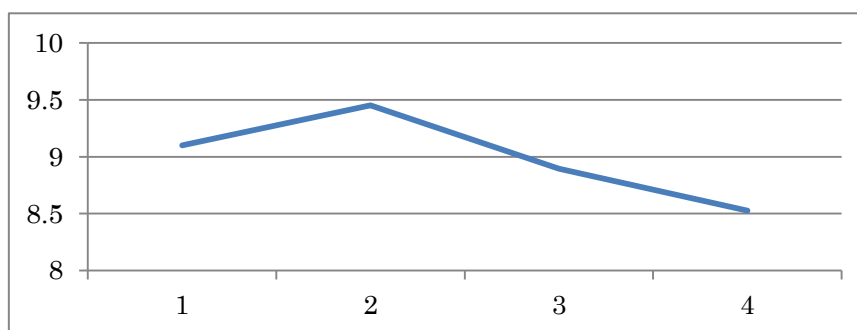
Graph 6: The Transition of the Average Scores of Speaking Tests in 2013
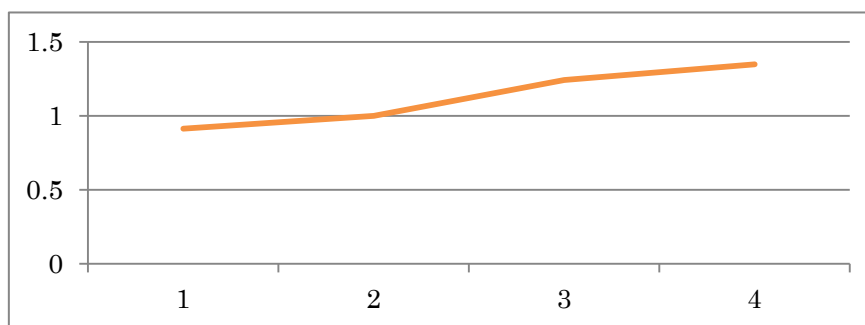
Graph 7: The Transition of the Standard Deviations of Speaking Tests in 2013

In 2013, 10 among 20 students got better scores or kept the maximum 10 available points. The standard deviations slightly got upward. The 2nd term tests scores were higher than the other terms, which can be analyzed from the number of Skype sessions' points of view. In fact, 1st term had 2; 2nd term had 4; 3rd term had 3; 4th term had 1. It is assumed that Skype sessions had an effect on the highest scores at the 2nd term test. At that time the standard deviation was one, which shows the data points tend to be very close to the mean, the expected value. Although the average scores didn't show any remarkable progress, more than half of the enrolled students maintained or got better scores. Since this class was elective, originally highly motivated students tended to enroll. This may be the reason there was not a significant difference in speaking tests

scores.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
First	10	6	7	10	10	5	7	10	10	10	9	7	9	10	10	10	10	10	10	10	9	10	10	10	10	9	5
Second	9	9	9	8	9	5	8	9	10	10	10	10	10	9	9	10	10	10	10	9	9	9	9	10	10	8	8
Third	10	10	10	10	10	10	10	10	9	8	10	10	9	10	9	9	10	10	10	10	8	7	10	9	7	5	9
Fourth	4	10	8	9	10	8	10	9	10	10	9	9	9	10	9	10	10	10	10	10	10	7	9	10	9	10	9
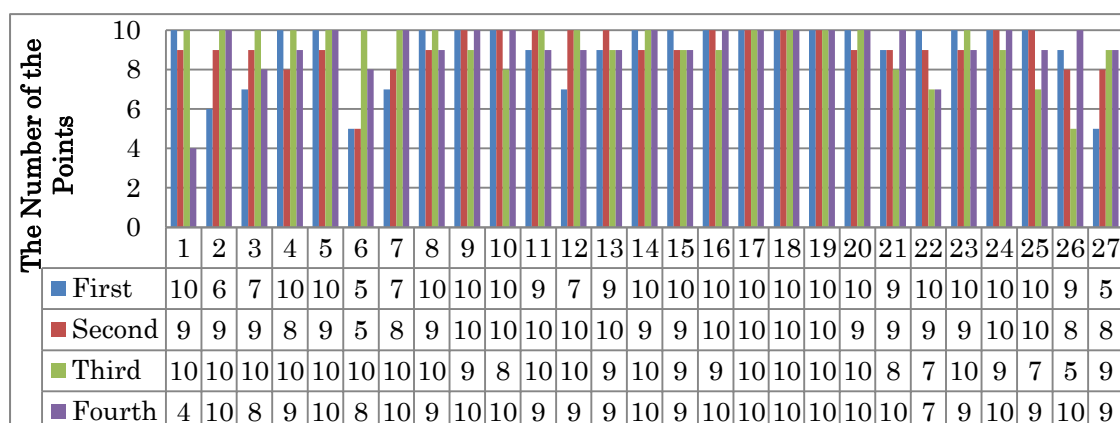
Graph 8: The Transition of Speaking Tests Scores in 2014
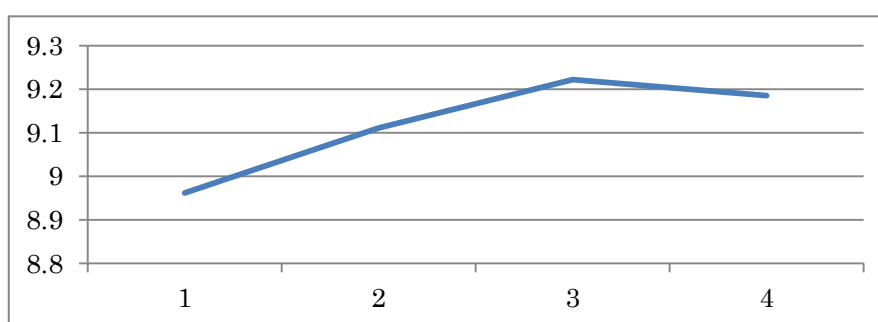
Graph 9: The Transition of the Average Scores of Speaking Tests in 2014
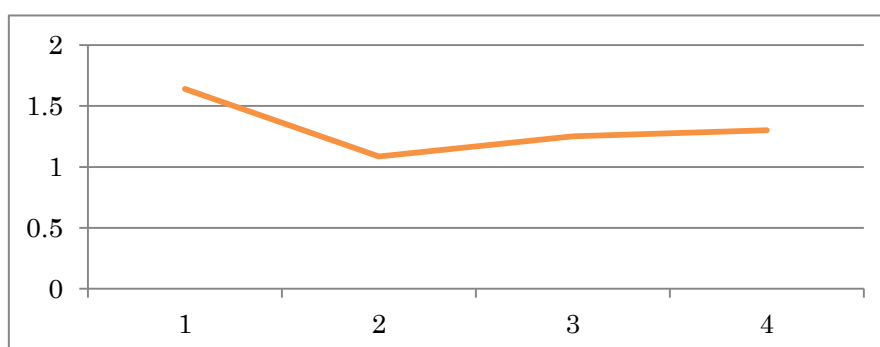
Graph 10: The Transition of the Standard Deviations of Speaking Tests in 2014

There is a relation between the number of Skype sessions and the speaking tests scores above. For the 1st term test, we had 2 sessions: for the 2nd term test, we had no sessions: for the 3rd term test, we had 3 sessions; for the 4th term test, we had 3 sessions (cf. Table 1). The 3rd and 4th term tests scores with more Skype sessions were higher than 1st and 2nd term with less or no Skype sessions. In 2014, 16 students among 27 got better scores or kept the maximum 10 available points. The low standard deviations show that the data remained over a very small range of values between 2nd and 4th term tests.

Transitional data of the students' TOEIC scores

The TOEIC scores of the students who took OC Ⅱ in 2013 made great progress, increasing their scores by 31.2 points in 2014. This can be inferred that after Skype sessions they were highly motivated and continued to increase their motivation to study and increase their scores in these two years. Skype sessions had something to do with their constant motivation. For the TOEIC scores of the students who took OC Ⅱ in 2014 it is incomparable because they took the TOEIC Bridge test in 2013. It can be said at least that the students who enrolled in OC Ⅱ got higher average scores than the rest of the students in our school. For the students who enrolled in OC Ⅱ in 2014, due to the lack of progressive data, it can't be proved that they would get higher scores with higher motivation so far. The average scores of the aspect of all the students show that they were lower than those of only the OC Ⅱ enrolled students. The rate of progress for those data is incomparable because the OC Ⅱ students were included in the data of all students.

Table 2: The Average TOEIC scores in 2013 and 2014

	The Average TOEIC scores in 2013	The Average TOEIC scores in 2014
The 2013 OC Ⅱ students	345.2	376.4
The 2013 All students	309.2	363.7
The 2014 OC Ⅱ students	Incomparable	316.4
The 2014 All students	Incomparable	303.5

Table 3: Questionnaires picked up from one student

2nd session	I couldn't comprehend English. Yet I'll try to ask the partner more questions and answer his or her questions next time.
5th session	In both English time and Japanese time, I couldn't speak properly and got very confused. Yet, gradually I am getting the feeling that I'm talking more smoothly. I feel I can acquire English through speaking English with fun.
6th session	I had a common hobby with the partner so I could talk pleasantly. It got easier for me to acquire English by enjoying speaking it.
8th session	It was hard for me to talk with a person who has been learning Japanese for only 6 months. Using gestures and words, I realized how important the effort to express what I wanted to say was.
9th session	The more sessions I have, the less confused I feel. I now feel that I enjoy talking. For the rest of the limited number of sessions, I'll treasure them and enjoy studying English.
10th session	I came to think it was a lot of fun to talk with people who live abroad through Skype. I was afraid of what I should say and avoided speaking with foreigners before. Yet I got positively involved with talking with people overseas. It was a great experience for me.

Questionnaires conducted each time after Skype sessions

Some positive changes were shown in one student as follows:

This student apparently changed her previous negative attitude toward speaking English into a positive attitude with strong hopes and desires. She even developed perseverance to overcome the difficulty of speaking. Even though every time she had some fear, she gradually came to put at end of questionnaires, positive hopeful comments for the next session. She finally enjoyed speaking with people from different backgrounds. She recognized she had a great experience that changed her sense of value.

Interviews of the student

In 2013, one student who took OC Ⅱ and participated in the UHMC study tour made up his mind to go back to Maui after the study tour. He decided to ask for a year's leave of absence from school and registered in a language intensive course for 3 months at UHMC. After he came back to Japan, he continued to take OC Ⅱ and had an amazing reunion with his UHMC classmates through Skype. Interviews of this student were as follows:

Table 4: Interviews of one student

・I wanted to talk with people there but I couldn't convey what I wanted to say at first. Yet this became a trigger for me to go back to UHMC and study English more.

・I got used to listening to daily conversation after I spent one month there. When the 3 months passed, I could express my feelings freely. In the future I'll study more and get an international job using English overseas.

The study tour including Skype sessions had such a significant influence on his life that he made up his mind to study more. His interviews proved how he broadened his own view and he changed his life, motivated and self-enlightened by the study tour and through Skype. It is no exaggeration to say that these experiences became life-changing experiences for him.

Transitional data of the students' class contribution points

In this class, 10 % was evaluated as class contribution points. When the students raised their hands to share answers, questions, comments with others, they could get one class contribution point each. Even when their answers were not correct, they could get at least one point for their braveness.

This was designed with the purpose of promoting students' positive attitudes toward learning English. This is a kind of system, where the more active and positive they become, the more points and rewards they can get. Even with a material desire, their positiveness is naturally nurtured.

The charts of transitional data of the students' class contribution points for each year were as follows:
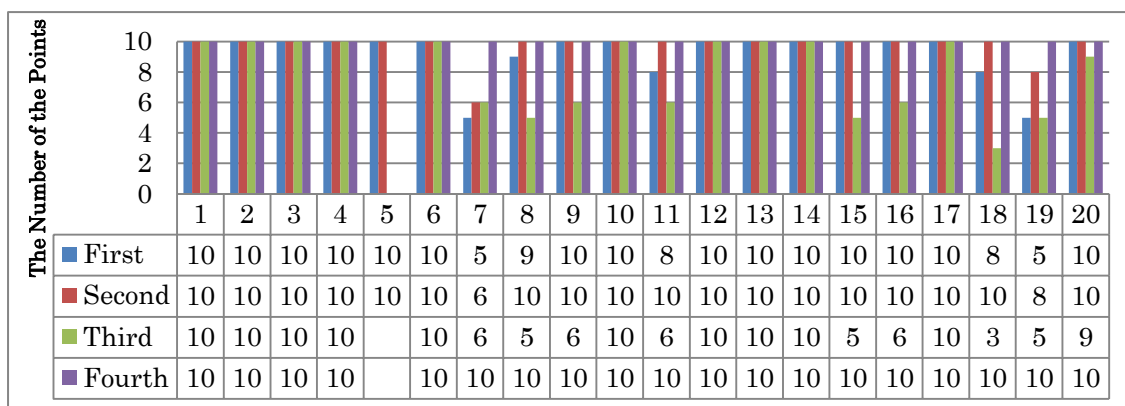
Graph 11: The Transition of Class Contribution Points in 2013

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
First	10	10	10	10	10	10	5	9	10	10	8	10	10	10	10	10	10	8	5	10
Second	10	10	10	10	10	10	6	10	10	10	10	10	10	10	10	10	10	10	8	10
Third	10	10	10	10		10	6	5	6	10	6	10	10	10	5	6	10	3	5	9
Fourth	10	10	10	10		10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
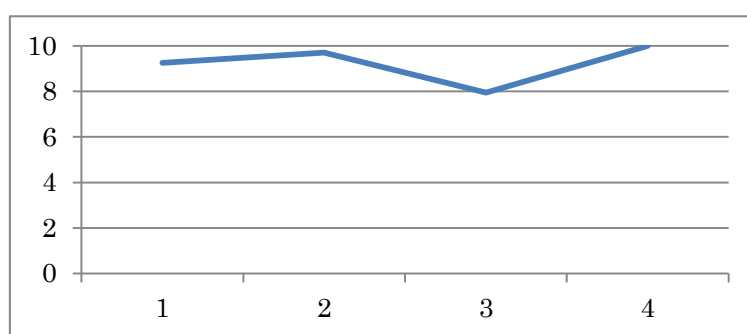
Graph 12: The Transition of the Average Points of Class Contribution in 2013
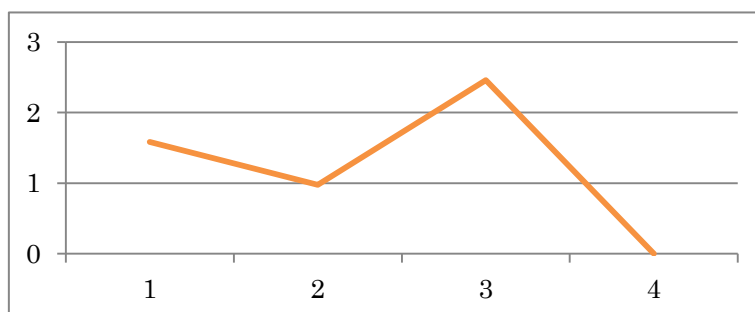
Graph 13: The Transition of the Standard Deviations of Class Contribution in 2013

The 3rd term test shows slightly lower points average, with the standard deviation highest, but the average points through the year were 9.22. In 2013 the class contribution points in the fourth term test showed a remarkable characteristic: "every" student obtained the maximum 10 available points, no matter how shy they were and no matter what English level they had. This shows how effectively Skype lessons enhanced their motivation and independent attitudes of learning. In the active atmosphere where the students always kept their hands up, we had an exciting learning environment which could be contagious and effective to others.

The Number of the Points	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
■ Fist	10	10	10	8	10	10	10	7	10	10	10	10	8	10	10	10	10	10	10	8	10	10	10	10	10	10	10
■ Second	10	9	10	10	9	7	9	9	10	10	10	10	9	10	10	10	10	10	10	10	10	10	10	10	10	9	10
■ Third	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	7	7	10	10	10	10	10	10	10
■ Fourth	8	8	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
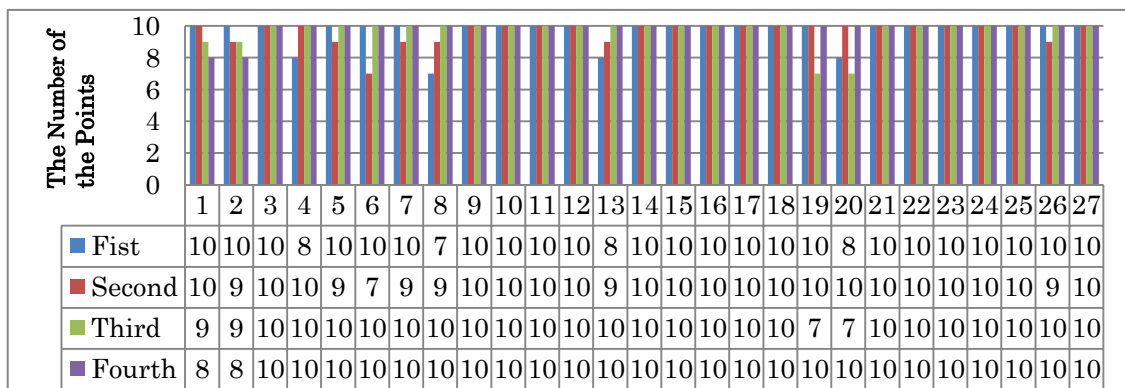
Graph 14: The Transition of Class Contribution Points in 2014
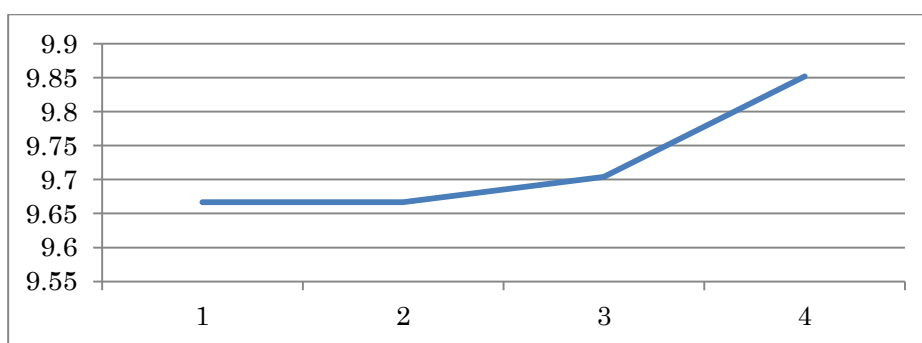
Graph 15: The Transition of the Average Points of Class Contribution in 2014
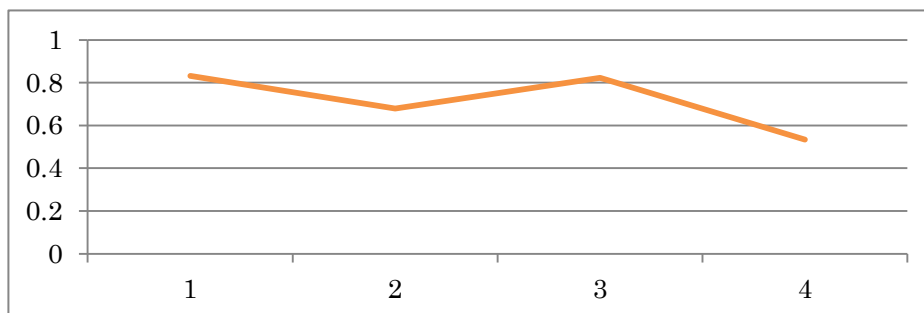
Graph 16: The Transition of the Standard Deviations of Class Contribution in 2014

In 2014, 25 students among 27 obtained the maximum 10 available points in the fourth term test. Characteristically, the more Skype sessions they had, the higher the points were this year. The standard deviations got downward, which indicates the amount of variation or dispersion got smaller. It can be observed that Skype sessions eventually made the students motivation higher and led them to become more active and positive in class. The positive attitudes were gradually nurtured through the year.

Conclusion

I investigated several ways to use Skype and integrated quantitative analysis, such as transitional speaking tests, TOEIC scores, and class contribution points, and qualitative analysis, such as interviews, questionnaires and reactions of the students. As a result, thanks to Skype, qualitative analysis shows that they were motivated

enough to figure out the limits they had to overcome. This result was more strikingly shown in the year 2013, compared with the year 2014. As long as they were motivated enough to have the desire to convey something to their partners overseas, who seemed to be close to them on the monitor, they wouldn't give up, much less feel negatively frustrated or disappointed. They always felt their partners were close to them conversing, right in front of them, even being able to see their facial expressions. The important factor of Skype is that they always felt their partners were close to them not only physically but also mentally. Importantly, studying with partners or with others in a different community will make a significant difference in the language acquisition process.

Finally, let's answer this paper's starting question: what is the most effective way to use Skype? With the quantitative and qualitative analysis integrated, we can conclude that a tandem system in a setting with one American and two Japanese students discussing predetermined seasonal topics given in advance was the most effective way. Finally I'd like to put an emphasis on a Skype essential advantage: According to the students' questionnaires, the students could overcome a fear of speaking English and started to enjoy learning English just because they had their partners close to them. In search of more devices to promote the effectiveness of Skype, we have broad possibilities to explore more for the future of English education.

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Effective Use of Online Resources for Provision of Reading Materials to Ensure Participation, Critical Thinking Development and Fair and Full Inclusion of Visually Impaired Students in the Mainstream University Classroom

Amita Sanghvi

Sultan   Qaboos   University,   Oman

Abstract: *University teachers are required to develop skills meeting the core objective of Education: Critical Thinking. The EFL teacher seeks to find interesting materials on an ongoing basis, that are culturally appropriate, interesting and engaging. Using Newspapers is a proven successful practice to optimize participation, discussion and develop awareness on relevant issues. We have both Sighted and Visually Impaired students included in the same classroom. Developing and timely providing teaching materials becomes a challenge, though we have a fully equipped Special Needs Computer Lab and a Braille Printer. For the sake of giving all students equal access to information in this Information age, and to empower them to enhance their competencies in the Mainstream classroom, this paper suggests the use of In-house publications and Online newspapers as a reliable, ready source to prepare teaching materials that can be easily accessible to both, the students with Visual Impairment and the Sighted students.*

Keywords: Using Newspapers, critical thinking, reading and motivation, EFL reading, EFL classroom activities

Introduction

This paper is an attempt to address serious concerns that need to be resolved for full and fair implementation of Government policies and the Sultanate's vision of welfare of the Disabled population:

•   Inclusion of the Disabled students by integration in the Mainstream classroom at University.

•   Accessibility to information for fulfilling the requirement of Equal opportunities to study through use of free, contextual, valid and reliable Online resource materials.

•   Social acceptance and inter-dependence between differently disabled students for motivation and support.

•   Developing and educating for enabling them to have a clear vision, critical thinking and employability skills that will support the 2 % job reservation for empowerment of disabled students.

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SECTION ONE

GOVERNMENT POLICY

Omani Disability Law was issued in April 2008 after signing the UN Convention for the rights of disabled persons in 2008, and called 'the Welfare and Care of persons with Disability. The law says persons with disabilities have the right to educational services commensurate with their sensory, physical and mental capabilities; right to appropriate vocational rehabilitation and support in the labour market; right to employment; specifically they have the right to equal opportunities and benefits allocated to non-disabled employees. Government and Non-government agencies that have 55% or more employees are required to appoint persons with disabilities- quota fixed at 2%.

- As of April 2014, 90,000 people with disabilities (PWDs) are there in Oman. An urgent need of an action plan to formulate a national forum to draw a comprehensive and clear national policy was recognized and addressed to. Oman's Disability Employment Conference, and to launch a campaign to help employers become confident in employing disabled people. (Hasson Kamanpoori:2014)

- Out of the 90,000 PWDs, 24,000 are Visually Impaired people falling in the age range of 18-64 years.15,000 are Hearing Impaired.

- On 13/04/2014, the Royal Decree about the establishment of a Directorate General for Disabled Affairs was announced, that shows the committed role of championing the rights of disabled people across the country.

- Mukhtar Al Rawahi, spear-headed the movement for disabled associations in Oman and was the Founding member of Association for the Welfare of Disabled Children in 1991, Oman Association for the Disabled in 1995, and currently President of Oman Paralympic Committee since 2010, and Deputy Vice President of Rehabilitation International for the Arab Region and a Disabled Representative at the National Committee for the Welfare of the Disabled in Oman. At the age of 20, he himself sustained leg injuries in a car accident, not having worn the seatbelt.

- The Joint Committee of Ministry of Social Welfare and the Sultan Qaboos University have reviewed the potential of expanding the size of admission for the Visually Impaired people in more disciplines.The Ministry has proposed conducting a study on the challenges and obstacles facing the students with disabilities at the universities and colleges, as well as overcoming them. The committee also discussed the Omani Voluntary Day to highlight on scientific planning depending on all individual and institutional efforts towards its affirmation towards Royal interest.(http://www.hupso.com/share/)

SECTION TWO

UNIVERSITY'S ROLE IN EXECUTION OF GOVERNMENT POLICY

The first and foremost question faced by the Language Center at Sultan Qaboos University:
Students in Oman go through one year of English Language learning and therefore their first step of entry at University is the Language Center. Therefore, the crucial decisions of how to bring about integration of these students were made here.
To integrate or not to integrate?
Believing that students with visual impairments should benefit socially and feel as normal university students, integrating them in the normal classes SQU Language Center took the right step.

 "Having them in the regular classroom and enabling the enhancement of their common experiences essential to the development of a keen awareness of the realities of the world around them" (Mani: 1998). With proper technical assistance, consultation, workshops and training given to regular classroom teachers, and a broad educational environment, blind students are able to show their true worth; they are then more readily accepted socially by their sighted counterparts.

Some of the blind students in my class have scored the highest marks among all other students and that too consistently in all the tests and the quizzes etc.

Statistics reveal that not even 10% of blind students in most of the developing countries are receiving any kind of education, and therefore, integrated education is considered to be the only practical approach. It is here necessary to mention that Oman, as a young modern nation has several steps taken at the National University- the Sultan Qaboos University, for not only providing learning opportunity but also very successfully setting up the latest technology and gearing up to give the best facilities to the blind students. It is the economically viable, psychologically superior, and socially important to train blind students with the rest of the student and to integrate them into the mainstream of education.

Objectives of Integration
The true objectives of integrated education are to:
- Provide the same opportunities and educational experiences for blind children as those provided for sighted children
- Allow blind children – and their families, neighbours, and friends – to interact socially in normal situations
- Change the typical public response to blindness by demonstrating that blind students are students   first, and

'blind' students next

- Provide a natural basis for adult life experiences so that blind students may take their proper places as contributing members in all sectors of society.

Integrated education is not simply placing a student in a regular classroom. The student needs assistance. Blind students can easily assimilate more than 80% of teaching and experience in the regular classroom if they are provided with **the correct material in the correct form at the correct time.** Therefore, development of the right educational environment will make integration of blind children a reality.

Factors Contributing to the Success of Integration

The major means of attaining successful integration are:

- Provision of experienced teachers to serve as resource persons, to prepare special materials, as required, and to provide special instruction in those skills peculiar to blindness such as Braille reading and writing, use of reader services, auditory perceptual training and orientation and mobility.
- Provision of all appropriate educational texts and selected aids and appliances. If textbooks are not available in Braille, substantial quantities of individually transcribed Braille materials may be required.

SECTION THREE

POLICY IMPLEMENTATION AND TEACHER"S ROLE, RESPONSIBILITY AND CHALLENGES

What I teach and my first hand experience

Sultan Qaboos University Language Centre runs the English for Humanities Course   for students majoring in Arts, Islamic Studies and Tourism. In these classes, there are about 1/3rd of Visually Impaired students.

The course is meant for developing fluency in Reading, Writing, Listening and Speaking skills in English.

These students are mixed with the normal-sighted students and are expected to take the regular diagnostic assessments online and paper-based, as well as take mid-term and end of semester achievement tests assigned in the course.

While it is easy to get the normally sighted students to do extensive reading outside the classroom, extensive reading material to be provided in Braille is a challenge to those Blind students who are not well-versed with using computers. While 'reading' actually happens only if Braille is provided, what computer based so called

'reading' is basically just having the blind students 'listen' more to English instead of reading it. Listening to a huge chunk of material is simply very time consuming and mentally tiring, so how does one develop critical thinking skills or keep these students abreast of latest materials, latest events, latest publications?

Challenges and concerns faced by me as their teacher:
Providing appropriate materials in appropriate formats, in timely manner, is the huge challenge for many reasons:

- Many students are not Braille proficient.
- Each Blind/VI student has a different preference.
- Some want the Braille copy of all softcopies provided, and insist on it.
- Some want access to VI special lab at all times, 24/7 but this is impractical for various concerns like finding them transportation, manning the Lab and safety concerns.

- Some of them want to just listen the material to be read by a Live peer tutor, and do not do anything autonomously. Last year our peer tutor met a horrific accident, and was in the ICU for months, struggling between life and death. The VI student who she worked with was not revealed this information to prevent obvious psychological shock as they connect deeply and sometimes very attached to their tutors.

- Provision of consultation for regular classroom teachers, school administrators, families, local health authorities and the general public on matters dealing with education of blind children, specialised training techniques and selection of appropriate materials.

Before planning establish your student's needs. The following questions should be answered:

- How long has the student been blind? Is she a Braille reader?
  Does she know how to use a screen reader such as JAWS and does she have this software herself?

- What assistive technology does she use that she would like to be able to bring to my class?
  If she writes in Braille, how will I read?

- What peer tutor is assigned to her? Is the peer tutor a Special Educaiton Final year student, studying and volunteering to assist and thereby reliable, will he/she find time to help?

- Braille books:

- Having a Special lab for the Visually Impaired students in the Language Center is a boon, but it is very new; the technicians are almost doing this for the first time in their lives, and also, they are constantly sent to various courses conducted abroad to harness their skills, upgrade with software and technologies, very often, they are unable to weekly supply Braille materials.

- Homework: How do I give Homework to them? Who will help them?
- Lab work, simultaneously have lab sessions with the VI and Normal students is strenuous on the teacher as they are located in opposite corridors…where and how do I spend more time, attention and effort?
- Computer/laptops glitches during lectures- the Sighted students get impatient if I wait for the VI students to find the page.
- Am I selecting the 'right' reading material- no pictures, no graphs, no videos? Whom do I cater to, the Blind or the Sighted?
- In the same lecture, catering to both types: the sighted students are not particularly angels, some problem cases have been where normal students demand to change their class, and refuse to study with the blind students, sometimes, they are good to them in the beginning of the semester, but later on create a physical distance and refuse to do any group activities with them- this happens unexpectedly, and the teacher has a new challenge to face in her session.
- Use of the White Board, Videos, Colour schemes, colour codes.
- 'Push' them to work?

Reading Skills, really??

Are they listening or are they reading? Can we do without Braille, where they are actually reading the material with their fingers? If we provide a screen reader and all the long chunks of reading material online, or on the computer- as a softcopy, how are we compromising on fair presentation of materials?

For example, how does the blind student 'read' and not 'listen' to graphs, diagrams and tables?

Listening Skills

While it is known that Blind students depend entirely on listening and memory for their learning, the challenge we face is how to conduct a listening test for them.

We have been providing a scribe to write down the options they choose, but how can we download a listening audio and give the students access that will enable them to listen more than the 2 times allotted in exam to the normal students?

How do we conduct a Listening test that requires simultaneous reading and selecting the correct option for an answer?

The real challenge is that while a normal student can be asked to read two story books of about 1,500 words each, provision of a softcopy of the same title or Braille copy of the same title is not at all feasible. Peer tutees

are provided to the blind students as of now to assist them to read, memorise and also scribe assignments. Peer tutees have their time constraints. Moreover, the integration of students does not bring about provision of the same titles, same word length, same level of difficulty of extensive reading materials.

But while these questions are of great importance and need to be answered, the greater question that suddenly faced me was that University has **_other_** disabled students, handicapped students.

At the university, an increasing number of Handicapped students who have lost their legs are learning in the mainstream classroom. Most of these students have become handicapped after having a bad car accident. These students are suffering from chronic depression, low motivation and frustration over their loss.

What about them? Their integration in the mainstream classroom as having Handicapped and coming to class on a wheel chair, is one thing, and their REAL healing and acceptance of having lost a limb in a road accident was quite another.

Possible solution?

After much contemplation, I have proposed a project hoping to address a lot of concerns and cater to all the disadvantaged students- VI and Handicapped, by creating a community for them.

Project Proposal:

Creating Employability Opportunities for Disabled students through Peer Teaching at Sultan Qaboos University

General Background

Students' Part-time Employment for Peer-tutoring at the Language Center (LC)

The Student Services Center at the LC, SQU, provides three major academic support services to students at the LC- the Library, the Writing Center and the Tutorial Center. These centers employ 28 students for peer tutoring and administration. The students are from the Colleges and selected on the basis of their merit as well as their level of English Proficiency. They work for 20 hours a month and are paid OR 4 for each hour. This facility is available for all the mainstream students in the LC.

Peer Tutoring and the Disadvantaged students at LC

Two disadvantaged groups of students are currently studying at the University. They are Visually Impaired students and Handicapped students.

At the Language Center in Sultan Qaboos University, both the groups- the handicapped and the visually impaired students, are taught in the mainstream classroom, making education inclusive. Last semester I have taught Blind students at SQU with the Normally Sighted students, thus bringing them to the real classroom

environment and making them face the Mainstream educational practices, tests and challenges. The performance and the results as well as the experience of having taught on such a course have been indeed moving but very encouraging. As is rightly said:

"Inclusive education has positive outcomes for all students. Both disabled students and non-disabled students have an increased academic performance when in an inclusive classroom. Disabled students learn important social skills and appropriate communication. Their peers learn valuable life skills such as accepting others, patience, and respect".

Voluntary peer-tutoring is successfully practiced at the Language Center between Normally Sighted students and the Visually Impaired (VI) students. These are 20 + in number.

As reported (and reproduced below) is information of peer tutoring of Visually Impaired students by the sighted students, written by Widad Al Hashmi (Student Co-ordinator and faculty at LC):

" One of the special assistance offered to students with visual disability is peer tutoring. Student volunteers from the senior levels of the English Department assist students with visual disability in a variety of ways in the classroom and outside it. They mainly support the teacher by reducing the time and physical effort students with visual disability would have to make to keep up with the class. Student volunteers help visually disabled students navigate to a page in a book, or a serially ordered task, and take a dictation from them. Outside the class, they provide one-to-one revision and remediation, and workshops on speaking. Another one of the early decisions we take with each student with disability is about test accommodation on two counts".

However, right now, neither any payment nor any training is offered to these normally sighted students for their services in assisting the VI students.

Creating Employability Opportunity to the Handicapped students as Peer tutors

This context has forced me to think of how the two disadvantaged groups can help each other in a systematic way. Therefore, I present an innovative idea of creating employability by preparing our Disabled students for Peer teaching. This research project suggests training and appointing these handicapped students to assist and peer-tutor the visually impaired students at the University.

The onus of responsibility of integrating Disabled students, Visually Impaired students into mainstream education and eventually the job market is on Educators at University. To mutually benefit the Blind students, the Disabled students with the Normally Sighted Omani students at school, college or university, making them

employable and independent after University Education is crucial.

Challenges of fulfilling academic demands over literature review:

Hardly any literature or theory is available that studies the effectiveness of Handicapped students being trained and employed part time as peer tutors for the Visually Impaired students. Such a setup that encourages two disadvantaged groups should be encouraged to associate academically and socially as peer tutors at University is to my knowledge a totally innovative and feasible research idea.

This idea is so novel that apart from citing Literature review that supports and advocates the benefits of peer tutoring, I am not able to provide theoretical background on this highly feasible project that is one of its kind. Having said that emphatically, in the section below, I would like to very briefly state the benefits of peer tutoring approach as a successful widely used practice in classrooms, colleges and universities around the world.

Theoretical Background:

Benefits of Peer teaching are numerous and widely known. Peer tutoring is:

- a widely-researched practice across ages, grade levels, and subject areas
- The intervention allows students to receive one-to-one assistance
- Students have increased opportunities to respond in smaller groups
- It promotes academic and social development for both the tutor and tutee
- Student engagement and time on task increases
- Peer tutoring increases self-confidence and self-efficacy (Spencer, 2006)
- The strategy is supported by a strong research base

(e.g., Calhoon, Al Otaiba, Cihak, King, & Avalos, 2007; Kunsch, Jitendra, & Sood, 2007; Vasquez & Slocum, 2012) Taken from: "Peer Tutoring" by Brittany Hott and Jennifer Walker, George Mason University; Jasneen Sahni, Marymount University (April, 2012) in the website: http://www.cldinternational.org/InfoSheets/PeerTutoring.asp

The project will conducted in three stages. In the first stage, I will select and train handicapped students in peer teaching. I will then co-ordinate with their Blind peers and schedule them to teach Visually Impaired students. I will closely model the preparation of the peer tutors in collaboration with the experienced faculty currently running the peer tutoring, both paid and voluntary, as mentioned earlier, at the LC.

Adapting from M. A. Mastropieri and T. E. Scruggs' model will be beneficial to my study and to my purposes. It is reproduced here:

Planning and Implementing a Peer Tutoring Program

- Clarify the specific objectives of the tutoring program, including both academic and social objectives when appropriate to all participants, peer tutors and tutees.
- List objectives in a form that can be easily measured. For example:
- "Students serving as tutees will improve reading fluency by 30% on classroom reading materials in the next 12 weeks."
- "Within 8 weeks, students involved in tutoring will report that math is at least their third favorite class."
- Choose tutoring partners carefully. I will ask students to volunteer to find their pairs to get those who will work together well
- Establish rules and procedures for the tutoring program. These rules will cover how students are to interact with each other. A convenient time schedule will be prepared specifying the times and dates of tutoring, the materials to be used will be the course materials, and the suitable activities for tutoring will be suggested.

On-going Evaluation of the Pilot tutoring

As mentioned by Mastroperi & Scruggs, "Evaluate the program frequently, and do not wait for the end of the program to determine whether it was effective. Collect information throughout the program, and predict whether it will be successful. If progress is not being made, modify the program".

In the third stage, I will mainly study how effectively peer teaching among the two disadvantaged groups took place. I will conduct interviews on how this sort of association affects the cognitive development of all the Disadvantaged students involved, and how far is it enhancing their social skills, their communication skills, their self-confidence, their personality and their motivation to the optimal level. (Mastropieri M.A & T. E. Scruggs, 2007)

In order to create employment opportunities for these students, this project proposes all handicapped students be paid for peer tutoring while in the third stage of the pilot study.

During the intake and assessment process, we find out as much as possible about each student's skills, needs and learning goals, including educational and work backgrounds, vision history and plans for the future. Similarly, during the volunteer tutor interview process, we learn about the skills and interests of tutors: Do they use braille? How well? If they have some vision, how much do they have? What adaptive technology do they use, and with what level of competency? Are they able to tutor writing, reading, or math? Before a tutor is assigned to a student, we consider which of the available tutors has the most competencies needed by the student.

It is also important that tutoring take place in a setting which provides the appropriate context for achieving the student's learning goals, the appropriate atmosphere for promoting learning, as well as the necessary reading

and writing tools. It is best if the tutoring occurs during working hours at the offices located in our building where are regular students also take appointments at the Writing cener, the tutorial center run by our Student Services and Support Unit in the Language Center. Exposing the VI students to different environments prepares them better for adjusting in real-life settings that contain many of the objects necessary for exploring and demonstrating ideas and activities that the students need to learn about in English.

PROJECT FRAMEWORK:

Part One: Preparing Disabled for Peer Teaching. The training will include how to:

- Provide direct, systematic instruction for the peer tutors who are selected, based on their English Levels and merit.
- Consider providing cue cards summarizing protocols
- Model error correction procedures.
- Teach peer tutors how to praise correct responses.
- Share with students and colleagues (at a later stage) the link between peer tutoring and increased achievement.

(Adapted from "Peer Tutoring" by Brittany Hott and Jennifer Walker, Jasneen Sahni, Marymount University (April, 2012) in the website: http://www.cldinternational.org/InfoSheets/PeerTutoring.asp)

Part Two: Peer tutoring could begin between these disadvantaged groups- the disabled students will assist and teach the Visually Impaired students.

Part Three: Unstructured Interviews would be conducted among all participants to determine the extent of the emotional, social and cognitive development that takes place in these teaching and learning opportunities among both Disabled students and the Visually Impaired students.

Such a research project would have many outcomes:

- It would be the first of its kind research project at the Language Center and add to the lack of research available in the History or Literature of working with disabled and blind students and their education in Oman.
- It will provide hands-on experience to our Disabled and Blind students of working as a peer teacher
- Their emotional, social and cognitive levels will boost and develop their confidence, motivating them to work hand in hand with their colleagues, teachers.
- A sense of motivation and inspiration will be inculcated in the normally students who come in contact with

them; we will give them a shining example of hard-work despite of physical challenges.

- A new sense of purpose and professional development in a friendly, sensitive environment for the Disabled and the Blind students who peer-teach each other will benefit their self-image and a different sense of achievement will outshine.

A list of advantages has been listed by Toni Riester-Wood in her article, " Peers Supporting an Inclusive School Climate" rightly points out the benefits:

Benefits for Students with Disabilities:
- Friendships
- Increased social initiations, relationships and networks
- Peer role models for academic, social and behavior skills
- Increased achievement of IEP goals
- Greater access to general curriculum
- Enhanced skill acquisition and generalization
- Increased inclusion in future environments
- Greater opportunities for interactions
- Higher expectations
- Increased school staff collaboration
- Increased parent participation
- Families are more integrated into community

Benefits of Inclusion for Students without Disabilities
- Meaningful friendships
- Increased appreciation and acceptance of individual differences
- Increased understanding and acceptance of diversity
- Respect for all people
- Prepares all students for adult life in an inclusive society
- Opportunities to master activities by practicing and teaching others
- Greater academic outcomes
- All students needs are better met, greater resources for everyone

The power of peers as shown here has a cumulative effect, and I strongly believe, if the peer tutoring is between Disabled students and the Visually Impaired students, it will hopefully be to the great advantage of all students involved.

One of the biggest challenges IS, from where would we provide materials?

The only answer to ensure reliable, correct, contextual and relevant materials that flow day in and day out are

the Online resources. In order to conform to standards and suitability of materials found online, I propose the use of Online In-house materials and Online Oman Newspapers , Tabloids and Weeklies. **"** A language class is an ideal place for offering information on different topics. The objectives of a curriculum should not be limited to linguistic factors alone, but also include developing the art of critical thinking". Dar, Rahimi, and Shams, **(2010:9)**

I strongly agree with Dar, Rahimi, and Shams, **(2010:9),** There are two National tabloids easily available every Tuesday and Wednesday, HI and The Week. These are popular, widely read and free of charge. They are found easily in University Language Center lounges, shops, cafeterias and students and teachers both read and enjoy the weekly musings and social affairs of Muscat, the capital of Oman. Some regular features include very interesting and critical awareness

raising issues like Environmental issues, Sultan Qaboos University students' page, Editorial letters, Social events caught with photo galleries.

Use of the newspapers would motivate VI students to learn new Vocabulary and find out local information and events from these tabloids. Newspapers offer multiple language learning opportunities, but this paper will mainly focus on Reading Comprehension, Skimming and Scanning Skills and Vocabulary Development using these two newspapers. Certain commercial textbooks are used for the courses, but they are limited in their toics and exercises and contextually not always interesting and relevant. The peer tutors could have the freedom to be creative and supplement reading materials in order to support the curriculum objective of encouraging extensive reading habits among VI students to enable them to read outside the classroom. Therefore, Hi and The Week, two widely circulated tabloids seem to be very good choice to the researchers. The advantages of using newspapers in the Reading classes are several:

1.   Both these newspapers and the In-house publication are free.
2. They are readily obtainable.
3. They are interesting as they focus on local issues and events.
4. The information being current, students' motivation in reading pops up immediately
5. They can be used for pair work, individual work, or group work.
6. They can be used for skimming, scanning , comprehension and vocabulary skills.
7.   Students can continue to form the habit of reading them for life-long social awareness purposes   and language learning.

8.   What's more, they are also available online: http://www.theweek.co.om/image/email.png

http://www.theweek.co.om/image/print.png

http://www.theweek.co.om/UserFiles/Image/460/begnning.jpg

Resources required:

There are two National tabloids easily available every Tuesday and Wednesday, HI and The Week available

online, plus all the National Dailies in English are available Online. Moreover, the daily, Oman Observer, also

has the audio facility. These are popular, widely read and free

of charge. They are easily accessible Online, and Wifi throughout the University makes them even more easily

available for free on personal Smartphones.

'New smartphone app gives sight to the blind'

(http://omanobserver.om/new-smartphone-app-gives-sight-to -the-blind/ is an article that talks about the latest

technology on Smartphoens, that enables blind students to listen to an audio readback of printed text.

Such access to articles on a daily basis widely opens up their world of knowledge. They can then be at par tiwht

the lateset and feel fully catered to in the provision of information as comparable to their counterparts- the

Sighted students. Some regular features include very interesting and critical awareness raising issues like

Environmental issues, Sultan Qaboos University students' page, Editorial letters, Social events caught with

photo galleries.

 "Students benefit more from Realia-based material introduced every few weeks and find reading classes more

interesting and interactive than merely doing the course book.

Motivation improves considerably when students are allowed to choose from a bank of materials to be read

across a variety of topics in a given class, further making reading interesting'.

This activity enthused students to email the article to each other, recommend it for reading and students ended

up reading what their friends had chosen online.

Furthermore, I would like to describe how the articles were used in the regular classes and in the lab session.

Firstly, I used the article of interest in the regular lab session, and the students were asked to write and post their

comments and share the article with friends and family online.

Secondly, I prepared the following tasks for the Reading Classroom to be completed in pair work in class or to

be assigned as Homework:

- Reading comprehension worksheet is prepared to ensure comprehension skills are enhanced.

- Skimming and scanning worksheet, where students are asked to look for word forms paragraph-wise.

- Language awareness worksheet, where tense, word-form related questions are asked to raise language use

and linguistic awareness

- Students form their opinion on the issue, and discussion is encouraged in the tasks assigned, enhancing their speaking and critical thinking skills in group discussion or voicing opinions in front of the class, upon reflecting on the article.

- Students are given Homework to choose an article of their interest and an Article Report worksheet is also available on the University Moodle Website that teachers are encouraged to use.

Opinionnaire Survey with sighted students over the use of online materials: I conducted an opinion survey to which I received the following responses:

The students reflected on the activity as well as the Newspaper/Magazine they preferred. Here is a summary of the same:

Students' Opinion Survey

Circle one of the items below that you like to read in the Reading class:

> - Reading   Course book
> - 'Horizon' magazine
> - 'Hi'   newspaper-
> - 'The Week' Newspaper

Rate the reading-related activities from most boring to most interesting:

Activity in the reading class	Most boring	Boring	Interesting	Most interesting
Reading a piece of **News** **aloud** in the class		1	12	3
Reading and answering **Comprehension and Vocabulary** questions about the news item			14	2

Reading and looking up the **dictionary** for meanings	1	3	9	3
Reading a news item/article and writing **a reflection log** on what I have read		6	10	
Reading an article from the **newspaper and presenting the information** to the class	3		10	3
Reading an article from the magazine '**Horizon**' and **expressing my opinions** about the article.	1	9	5	1
Reading and **taking notes** and **writing a summary**		4	8	4

In order to motivate Omani Foundation Year University students to read more, weekly newspaper tabloids and in-house publications were used. A weekly 'Reading Souq' was made available, with a selection of freely available newspapers and magazines that became a good source of reading. These are all available Online.

These materials also offered themselves in making activities for Language Learning.

Two weekly tabloids, 'Hi' and 'The Week' were used for making activities for the EFL Classroom. The editorials, letters and articles on local issues were used to raise students' linguistic awareness as writers. The tasks guided them to closely analyze the language used for expressing opinions.

An increased enthusiasm to read was observed in class, as materials dealt with local contexts. Lively discussions followed, enhancing critical awareness among students. Based on this experience, this paper is meant to share the tips to design materials for your Reading classes! This paper suggests that the same practice can be used by peer tutors working with Non sighted students to enable them to develop critical thinking skills.

Conclusion

Several opportunities are found in designing newspaper-based classroom activities to enhance reading skills of our students who need to read with a vigor, learn with a rigor and sharpen their critical thinking and reading skills. The researcher has found the experience highly motivating and successful, both for the teacher and the

students and highly recommends its use. The subtle yet strong sense of bonding that builds up over the semester between the teacher, the sighted and the non-sighted students, is actually quite moving when the semester ends. But the most desirable objectives on the curriculum cab be better achieved- developing critical thinking skills, and preparing the non-sighted students for employability, fully equipped with the confidence of remaining abreast with the times, by using newspapers and online resources.

Therefore it is strongly recommended that extensive reading opportunities for the non-sighted students should be provided through Online resource materials that are of the times, contextual and certainly relevant to the students, ensuring their full and fair inclusion as well as provision of same resources for both type of students, bringing about greater similarity in resources provided, and examinations conducted and comparable results of sighted and non-sighted students. This paper is a humble, lonely attempt to initiate further discussion, research and real groundwork for fulfilling the responsibility we owe towards physically challenged students.

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Indonesia Teaches Movement: Education for Sustainable Development

Syahfitri Purnama

Indraprasta PGRI University
Jalan Nangka No. 58 C, Tanjung Barat, Jagakarsa 12530
Jakarta Selatan 12530
syahfitri@hotmail.com

Abstract: *This paper describes about education activity of Indonesia Teaches Movement Program conducted by the Indonesian Young Teachers from various universities in Indonesia. This program was born as the application of the promise of Indonesia Independence to educate the nation stated in the 1945 Law of the Republic of Indonesia. This program started in 2010 to cover lack of teachers in remote areas especially for teaching the primary school. Indonesia Teaches Movement is to encourage changes behavior in better education and creating a sustainable impact on the target entity and its mission is to build a social movement education in Indonesia. Indonesia Teaches Movement Program combines two learning activities that work for the self development to become the nation's leader and build the area through the involvement of all elements of society designated by the outcome mapping: motivation, achievements, behavior, and the Indonesian spirit. The Indonesia Young Teacher as an agent of change work one year for as long as five-year program with the hope they can encourage these changes by doing curricular activities, extracurricular activities, community development, and local government involvement. The aim is to activate and encourage every actor in education (students, teachers, principles, parents, community, and education officials) to take active roles in improving quality of education. The Young Teachers work with one common goal and they also as a modifier, driving, and as encouragement entity behavior regional actors. Indonesia Teaches Movement believes that the key towards sustainability in education lies with local actors in the respective area. An area is considered sustainable when the society can manage and solve education problems independently, supported with open access to resources, confidence, and high quality leadership. The document as a source of valid data obtained from The Indonesian Movement Teaching Office and Young Teachers on duty interview in remote areas in Indonesia.*

Key Words: Indonesia Teaches Movement, Indonesia Young Teachers, Outcome Mapping.

Introduction

Indonesia is an archipelago with around 17.505 islands lying over the country. Nowadays, the number of Indonesian population is in the amount of 250 million people (Depanri, 2009) and they spread inhibit all the islands including the remote islands which are difficult to reach. This geographic condition limits the access of education. Lack of qualified teachers becomes one of the factors of low education quality in these areas. Gap in education is finally available and exists between those who live in cities and those living in remote areas.

Education is essential for every human being in a country. Modern countries are usually characterized by good education within. For that reason, one of Indonesia's national development visions is to create independent nation and people who are qualified, fair and prosperous. This vision is included in Long Term National Development Plan period 2015 – 2025. Independent nation here refers to the capacity to perform good quality of life and make life in equal level to other nations by doing things on their own strength. Modern people or modern society here is valued by the quality of the people who have the capability to perform justice and prosperity which is reflected in the system and institution of economics, social, politics, law and culture. That people in Indonesia live in justice should be able to be seen from the availability of structures and mechanism

that prevent any values, behaviors and institutional policies from discrimination among individuals, segments in society and regional as well. On the other side, prosperity of Indonesian people can be identified by continuous fulfillment to life's needs. There are eight missions of national development proposed in the long term national development plan 2015 – 2025 (Ace Suryadi, 2014). Those are:

a. Indonesian people who are noble, are in good morality, and show good ethics in accordance with the philosophical values of Pancasila. (the foundation of Indonesia).

b. Nation with good competitive strength.

c. Democratize people who rely on the supremacy of the laws of the country.

d. Indonesia which is peaceful, safe, and is in unity.

e. Fair development distribution.

f. Beautiful and everlasting Indonesia.

g. Independent, developed, and strong Indonesia based on national interest.

h. Indonesia as a country which plays a vital role in international relationship.

Education in Indonesia is implemented to improve the quality of the human resources based on the national policy, to prepare a nation with people and society that show good national characters and personality and that owns the capability to masters knowledge, technology, and arts to heighten economic competitive strength to perform continuous development (Ace Suryadi,2014).

The 1945 Indonesia's Constitution article 33 verse 4 says that every citizen is obliged to have basic education and it is the government that has to fulfill and finance this program (Indonesian Constitution 1945). This article shows that Indonesia is committed to hold compulsory basic education and as an active member of the UNO, Indonesia commits to perform Universal Declaration of Human Rights (UDH, 1948). Article 28 of UDH asserts that education is the right of every person and it should be free of charge, at least on basic level. To meet the human right reserved by Laws, the government must organize qualified education service which is fair and equitable for all Indonesia's citizens (Ace Suryadi,2014).

It is stated that education cannot be done solely by the government. The implementation of education should be supported by the whole society, either individually or within groups. Education, formally, as well as non formally will improve the quality of the human resources, consequently, it will enlarge base community participation in economic activities either in trying productively or producing works of superior which is beneficial for many people so in turn it will increase society welfare. The bigger the community participation in equitable welfare, the stronger forces to expand educational opportunity and to strengthen the capacity of science and technology (Ace Suryadi, 2014).

By evaluating the condition of education in Indonesia remote areas like mentioned before, young teachers created the program of Indonesia Teaches Movement. These young teachers posses not only the ability to teach but also the motivation to develop the community to be independent nation. This paper will discuss about Indonesia Teaches Movement (ITM): its objectives, done activities, chosen strategies in organizing

education in remote areas, also the analysis of its benefit. This paper will hopefully be able to give inputs in developing sustainable education especially in remote areas countries.

Indonesia Teaches Movement (I T M)

The Idea Underlying The Birth of ITM

ITM is a social initiative education started in the end of 2009 (ITM Division Team). This movement has big idea to combine two ideas: leadership development of the youth through an exchange program and the importance of the involvement of all elements in the society. These two ideas will then be developed into a basic approach to send the best graduates young people of any universities to become teachers (called Young Teachers) in remote areas for a year in order to overcome the probem of lack of qualified teachers in such areas. The Young Teachers practically give examples of good behavior at schools, societies, and stakeholders as partners.

The visions of ITM are: (i) all parties intervene in overcoming the education problems in Indonesia. (ii) the entire nation could come to move the intellectual life of the nation to fulfill the independence pledge; and (iii) the nation is filled by leaders of various fields with global competence and roots understanding. The Missions are: (i) to encourage the change of education behavioral entity toward bitterness and continuity; (ii) to become the vehicle for learning leadership for the best young graduates; and (iii0 to move the society to completely involve in the advancement of education.

The focus of The Young Teachers is to encourage behavioral change through curricular tasks, extracurricular, community development and educational advocacy networks. ITM does not give rigid and detail teaching guides due to its open character to adjust with any different contexts in the areas. Tasks are done by The Young Teachers through four task areas. (Curricular, extra-curricular, society enhancement and regional envelopment). They have the role as initiators and agents of continuous improvement in behavioral entity. This is done to encourage all actors/doers (students, teachers, parents, society and education department) to be more enthusiastic, confident and highly motivated.

The Implementation Strategies of ITM

Since the early 2010, the preparation of ITM implementation strategy has been taken. These include recruitment and training based on the visions and missions of ITM. The preparation done by ITM is mostly based on the reflection of experiences from NGO and other development projects from international donors among which are:

   a.   The ITM program is a long term and continuous program.

   b.   The activities are very complex due to the existence of diversity in each area so that a special approach is needed to accommodate the dynamics of learning and the management of social programs.

   c.   The effort to achieve the target is quite complicated to perform because of the demand of the sponsors to see tangible results.

The approach applied by ITM to meet the target by doing outcome mapping, an approach developed in the end of 1990s with the focus on the behavioral change (outcome) as the target. Outcome Mapping also stands on the belief that that a program or intervention does not cause direct changes as a result of linear cause-effect

relationship but it will only be able to influence a change through direct interaction with the actors whose behavior is about to be changed. This belief is based on the declaration of this strategy approach on the complexity ò social problem reality. This principal in common then make the ITM choose using the Outcome Mapping, a method to help plan, organize and monitor the Young Teachers program.

The ITM studied the Outcome Mapping at the same time when the recruitment process.of the first generation of the Young Teachers had been on process together with the preparation for two month intensive training. At that time, the ITM had already got concepts on the Young Teachers management that is the obligation for Young Teachers to stay with the society for one year, to give real practice on good behavior at school as well as among the society and to cooperate with the stake holders as partners. In the teaching strategy, monitoring mechanism is needed and should be prepared. In preparing the monitoring mechanism, intentional design has to be made first. The intentional design will become a manual, the placement planning of the Young Teachers to meet the behavioral change. This guide is equipped with vision, mission, implementation team, boundary partners and affecting zone, outcome challenge from every direct partner, progress markers of the outcome challenge, strategy mapping for each direct partner, and good organization practice.

Monitoring mechanism involving steps above is done regularly to encourage continuous learning process including the studying of the monitoring mechanism which is effective and suits the institution capacity. Some challenges appear when collecting quick and detail data including the number of journals having to be completed by the Young Teachers which is too many including the young teachers' comprehension on outcome mapping and its monitoring, collecting journals from difficult geographical condition, and analyzing the too many data and information from the journals.

The Cycle of The Program and The Implementation Period

The sending of young teachers is done twice a year. In December, some of young teachers are assigned to seven regencies while in July, other young teachers are sent to ten other regencies. The assignment period is for one year and around six to ten young teachers are sent to some of regencies.

Since the first period of the sending of young teachers in November 2010 up to now, around 494 have been involved. The placement location is seventeen regencies in 16 provinces of Indonesia : Lebak Banten, Bawean Island Gresik East Java, west Tulang Bawang, Bengkalis, Musi Banyuasin, Muara Enim, Aceh Utara, Paser, Kapuas Hulu, Majene, Sangihe Islands, Banggai, Bima, Rote, South Halmahera, West south east Maluku, and Fak-fak.

The Result of ITM

The ITM has brought about a change on students, teachers, headmasters, and other educational stakeholders. The changes are:

On Students

- joining the performance improvement activity and potential development like Science Olympics other competitions, additional lessons;

- following flag ceremony regularly, actively participating in teaching learning process at school included questioning, discussing, and collaborating;

- completely joining the class;

- being highly motivated to achieve the ambition;

- actively communicating with friends from other area;

- appreciating and tolerating diversity;

- keeping high reading interest within;

- obeying class regulation and its agreed consequences;

- being knowledgeable about Indonesia as a nation;

- possessing self consciousness to perform new positive habit and behavior;

- joining extra-curricular activities;

- possessing the habit of independent learning either in the classroom or outside;

- mastering the materials given in accordance with the standards ò completeness.

On Teachers

- showing interest in improving their teaching competence by requesting teaching inputs, and references as well as requesting to be trained by the young teachers,

- showing positive attitude in front of students like not smoking in front of students or committing acts of physical or verbal violence against students,

- engaging in activities that boost students' achievement and potential,

- completing the teaching obligation in full,

- applying integrity in the classroom, especially in the implementation of tests and examinations,

- encouraging students' interests in reading by motivating them to utilize school library,

- practicing two-way communication to students inside as well as outside the classroom,

- appreciating students positively and treating them equally,

- actively improving their own competence and capacity independently by implementing new teaching materials and participating in activities that increases capacity like teacher development forum,

- involving parents to participate actively in monitoring the progress ò the students,

- guiding the extra-curricular activities,

- sharing the knowledge of student-center teaching skills to other teacher,

- keeping a recode of students' improvement,

- preparing and applying teaching plan independently,

- Applying creative and enjoyable teaching methods.

On Principals

- leading the flag ceremony to show a sense of nationalism as a nation of Indonesian,

- actively developing self ability for example by attending the principals, associations,

- facilitating activities that improve achievement and students' competence development,

- showing positive attitude in front of teachers and students,

- encouraging the love of homeland,

- supporting and expanding the library program,

- facilitating any activities that improve teachers' competence,

- applying integrity in the classroom, especially in the implementation of tests and examinations,

- being present at school in full,

- communicating actively with related department on school development and socializing it at school,

- carrying out good administration and financial management of the school,

- activating communication forum between school and parents,

- implementing teaching learning process which is student-centered,

- developing active and accountable school committee that support school development,

- preparing school development plan which is student-centered.

Other education stakeholders

- people in the target area participates actively in educational activities in the community,

- the society involves in improving education development in their area with initiatives and personal resources,

- parents appreciate any positive development on achievement, potential and attitudes of their children,

- education department holds effective in two-ways communication with principals and teachers,

- the stakeholders in target area plan, implement program and activities in improving education,

- parents participate actively in education at school,

- the community starts to initiate needed learning activities with the support ò the young teachers,

- parents watch the implementation of education at school,

- parents, education department, and community encourage honesty in the implementation of examinations,

- education department encourages activities that improve students' achievement,

- parents communicate with school intensively on the development ò students' learning process,

- Education department in the regency socializes any information.

Analysis

The ITM has given positive changes on the activities done by students, teachers, principals and other education stakeholders in the target area these four elements are an inseparable unity and play an important role in education for continuous development.

The continuity of education is of top priority that has to be done through the improvement of the quality of the persons who will become smart, competent and professional agents of development. To accelerate education for continuous development, the role of qualified people will support the creation of strengthening atmosphere, establish, nurture and bound integrally in an independent national life.

The changes of attitude on students, teachers, principals, and other education stakeholders show more positive way in the possession of high motivation, the increase in competence, the show of positive attitudes, and the existence of two-way communication as a result of the presence of the ITM. The existence of the ITM is clearly needed in education for a continuous development.

Conclusion

The Indonesia Teaching Movement (ITM) which is done by young teachers has given great contribution in changing the behavioral entity in target areas of students, government, stakeholders and society although the changes mentioned before took a long time to process.

The presence of the ITM in remote areas in Indonesia gave inspiration and heightens hope and optimism for children ò the nation who want to be equal with other nations in the world.

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IMPROVING MATHEMATICS TEACHERS' QUESTIONING ABILITY
THROUGH METAPHORICAL THINKING APPROACH

Heris Hendriana

STKIP Siliwangi Bandung, Indonesia

herishen@yahoo.com

Abstract: *This study is a part of research report entitled Mengembangkan Kemampuan Bertanya dan Kreativitas Guru Matematika Melalui Pendekatan Metaphorical Thinking (Improving Mathematics Teachers' Questioning Ability through Metaphorical Thinking Approach). This study was an experimental research of posttest control group design which was aimed at analyzing the role of metaphorical thinking approach towards mathematics teachers' questioning ability. It was highly expected that this study was able to improve mathematics teachers' questioning ability. The population of this study was all mathematics teachers in West Java Province, Indonesia and the sample was randomly selected from one of mathematics teachers group in West Java Province. The sample was then determined randomly into control and experimental class. Based on the results of data analysis, it was concluded that: the questioning ability of mathematics teachers who were given metaphorical thinking approach was better than before they were not given metaphorical thinking approach. The mathematics teachers' questioning ability was categorized as medium.*

Keywords: Questioning Ability, Metaphorical Thinking

Introduction

In the process of mathematics learning, every student has different questioning ability. Rusman (2002) states that questioning is one of tools to create student's self actualization. For that reason, teachers must be able to facilitate students' questioning ability that can be used in learning process. Brown (in Nurajijah, 2012) expains that, based on the Bloom taxonomy, there are two kinds of question, namely (1) low level cognitive question and (2) high level cognitive question. Low level cognitive question consists of basic components that have to be applied in submitting a question. This kind of question is only for testing knowledge. It also covers the question of memorizing, understanding, and application. In the meantime, high level cognitive question is a question that functions to improve students' thinking ability, participation, and to motivate them to be able to make an inisiative by themselves. High level cognitive question can also be defined as the question to create knowledge. It covers the question of analysis, evaluation, and creation.

Questioning ability is a habit students usually do that can be trained and habitualied by using times outside the class. Questioning can also be the process of learning where students have their own understanding about the problems they want to ask. The ability to submit good questions is as important as the ability to answer the questions of problems.

The explanation above is strengthened by the models of mathematics learning applied in Elementary and Secondary School, which are now directed to the achievement of targeted materials as ordered in the curriculum or refer to the main books oriented to the exercises of national examination and selection for entering university, not directed to the understanding materials being learnt. The students tend to memorize mathematical concepts by explaining the definitions given by the teachers or written in books. In other words, they do not try to understand the real meanings of the concepts.

In the process of mathematics learning at university Mathematics Education Department, the lectures always ask the students to question learning materials that have not been understood by them. Although there are some students who submit questions, however, they are generally redundant to ask questions. This is caused by the fact that the way the teachers teach is still not optimum; so, submitting questions is only done by the students whose mathematical ability is high enough.

The pilot study done by a mathematics teacher in one of public high schools in Bandung, Indonesia clearly shows that the teachers play important roles in motivating the students to be fond of learning mathematics. That is why, there is still lot of the students prefering the teachers who give them opportunity to explore their understanding about the substances of mathematics learning materials. The teachers must be patience and close with their students because it will give good impact on students learning success.

Based on the facts above, mathematics teachers should now turn the mechanistic learning to be an enjoyable humanistic learning. The learning process which was previously restricted should now be able to give opportunity for students in order to be creative in asking questions. It is hoped that not only does this kind of learning process consider the students' cognitive aspects, but also recognize their whole aspects, including their personality as well. It is now clear that, in mathematical learning process, motivating students' creativity in asking questions is an obligation for all teachers.

A study by Carreira (Hendriana, 2009) explains that the application of mathematical problems in real life situation is a special condition to produce meaning and understanding the mathematical concepts. Carreira (Hendriana, 2009) also clarifies that finding the relationship between mathematics and real life situation is an effort to apply an important mathematical model. This is due to the fact that mathematical model is a collection of a set of mathematical concepts and interpretations that need interpreting accurately. An integrative process is really needed in mathematical model and its application when the students learn in the class. All learning activities, including the ability of mathematical questioning, is expected to give positive impacts on students' mathematics learning process in order to be more meaningful.

In order to make mathematics learning process more meaningful which enables the students to improve questioning ability, the teachers should be creative also in asking good mathematical questions. One of the alternative ways that can be used by teachers is a learning approach called Metaphorical Thinking that is applied to mathematics teachers.

Metaphorical Thinking is a bridge between mathematics model and its interpretation; so, it is highly expected that mathematics teachers are able to give good opportunities for students to explore their knowledge in learning mathematics. By Metaphorical Thinking, the learning and teaching process will be more meaningful

because the students are able to see the relationship between the concepts they learn and the concepts they have recognized. Consequently, the teachers are expected to be able to change the students' perspectives, so they will not consider mathematics as a difficult subject. Besides, the students basically have the ability to learn this subject. Finally, the teahcers are hoped to be more self-confident in teaching this subject.

Based on the explanation above, I try to conduct a study on the students' mathematical questioning ability through Metaphorical Thinking approach. The question for this research is *Is the mathematical questioning ability of the students after they are given Metaphorical Thinking approach better than before they are given Metaphorical Thinking approach*?

Theoretical Review

Mathematical Questioning

Questioning is an activity done by the students during learning process in the class, including the activity to solve mathematical excercises or to give opinions towards peer students or teachers. Clement & Lockhead (Schafersman, 1991) reveal that, in teaching the students, the teacher should have directed them to *how to think* not *what to think* anymore. In other words, one of the alternative ways to improve the students' critical thinking is by using questioning. Through their questions, the students can shape their understanding in their mind.

According to Wilson (1997), there are five types of question, which are:

a. **Factual**. This is the kind of question demanding an honest and simple answer but it can still make sense based on real facts. This question is considered as the lower level of both cognitive and affective. The answer to this question is short, such as *true* or *false*. For instance, is it true or false that the sum of angles in a square is 360 degrees?

b. **Convergent**. This question demands answers on the accurate range that should be accepted and it has limitation. This question is considered to be in different cognition levels, such as understanding, application, analysis and so on by making a conclusion or prediction based on personal awareness or reading materials. For example: determine the average calculation from the following data: 54, 21, 44, 52, and 25!

c. **Divergent**. This is the kind of question that permits the students to explore different opportunities and create many different variations, alternatives or scenarios. The truth is derived from logical or contextual projections. This question asks the students to analyze, synthesize, and evaluate basic knowledge, and then estimate or predict different results. Answering this question demands high level affective functions. The truth is generally stated subjectively based on the possibilities offered. This question is sometimes aimed at stimulating imaginative and creative thinking, investigating the cause and effect relationship, arising deeper thinking or wider inquiries. Everyone is prepared to face the facts that there is no single or absolute answer for this kind of question. Divergent question can also be submitted in wider contexts that are used to lead an inquiry which is then known as essential questions and this question is the content of a subject.

For example, the distance from City A to City B is 30 Km. The distance from City C to City B is 58 Km. How far is from City A to City C?

d. **Evaluative**. This kind of question needs complicated cognitive level and emotional decisions. To answer this question, the students combinate multiple logical thinking and affective thinking process or use comparative framework. Before arriving at the synthesized information through new alternatives or conclusions, in answering this question, the students can analyze multiple level based on different perspectives. For instance, determine the differences and similarities between parallelogram and kite areas?

e. **Combination**. This kind of question is the combination of four kinds of question above. For example: the width of square ABCD is 120 cm^2. On the side CD there lies point E and F, so CE: EF: FD is 1:2:1. The length AF and BE cut in G. Determine the width triangle of ABG?

Hamzah (2003: 17) explains that, in mathematics learning process, mathematical questioning deals with the three definitions, namely (1) formulation of simple mathematical problems or reformulation of mathematical problems given by some alternatives in order to solve complicated problems; (2) formulation of mathematical problems dealing with the conditions of problems that have been solved in order to find the relevant problem solving alternatives; and (3) formulation or submission of mathematical questions based on given situation, whether or not the questions are submitted before, during or after solving the problems.

According to Krishnan (2009), misunderstanding about open-ended questions occurs for the students with high level thinking ability. If the questions is submitted structurally and systematically or if the teachers use appropriate learning strategies, then, the students will surely be able to think about it. This is in line with what Yuniarti (2009) has ever stated that a teacher cannot stimulate the students to ask questions only by saying 'is there any questions?' Although the teacher asks that question, however, it is still not assured that the students would like to ask. This is caused by the fact that there are many pressures to the students, such as feeling of afraid, shy, inferior, and aphatic.

Yuniarti (2009) also states that there are some functions of questoning in learning process in the class, which are: (1) stimulating thinking activity; (2) facilitating communication; (3) strengthening conceptualization; and (4) assessing learning process.

Based on the explanation above, then, stimulating questioning ability of the students is an important thing that should be noticed by a teacher, so the students will be able to understand well the contents they are learning. Besides, it will be better for the teacher to give questions that are appropriate with the students ability where the questions are asked systematically and structurally and in giving the questions, the teacher uses sentences that are easy to understand, so the students can understand the materials very well.

Metaphorical Thinking Learning Instruction

A metaphor is described as applying a characteristic of something to something else proportionally by comparing the signified explicitly with a comparative theme, such as "like ....", In other words, the comparison is a form of extension of metaphor. In simple terms, it can be said that metaphor is a comparison

that bridges relations between literal meaning and figurative meaning (Ricoeur, 2002). Metaphor shows a unique character in a whole relationship of explicit and implicit meaning of a concept. In connection with this metaphor, Lakoff and Johnson (1999) states that the metaphor is not solely in the words we use, furthermore it is a fact that most of the human thinking process and system of understanding is metaphorical. Wahab (1995) says that the metaphor lies in its crucial role in understanding the relationship between the language of human knowledge and the world s/he wanted. He added that the metaphor is a linguistic expression which its meaning cannot be reached directly from the symbol because the intended meaning is in the prediction of the linguistic expression. In other words, the metaphor is the understanding of the experience of similar concept is applied to another.

Thus in the traditional definition, metaphor is a rhetorical tool to say something as an analogy to something else. In another hand, metaphor, in the modern definition, is a device that also plays an indispensable function in the process of human cognition, namely, to clarify one's thinking. Examples of metaphors are as follows:

1. Light is knowledge and dark is ignorance.
2. Love is a plant.
3. The human body is a tow truck.
4. The words are weapons.
5. The ideas are food.
6. Life is a journey.

From these examples we can see that the metaphor is a direct comparison of two different things related or unrelated meanings. Metaphor can open new horizons of one's understanding and can help improve students' communication skills by explaining difficult concepts through a combination of things that are already known. Metaphoric thinking is a thinking process that uses metaphors to understand a concept. According to Holyoak & Thagard (Hendriana, 2009), metaphors originated from a concept known by student toward another concept unknown or being learned by the students. Metaphor depends on a number of properties of concepts and objects of the metaphor.

Metaphoric thinking in mathematics is used to clarify the mind of someone related to his/her mathematical activities. Abstract concepts organized by metaphorical thinking are expressed in concrete matters based on the structure and ways of reasoning based sensory-motor system called a conceptual metaphor. The forms of conceptual metaphor include:

a. *Grounding methapors* is the basis for understanding mathematical ideas connected to daily experiences.

b. *Linking methapors*: building a relationship between two things: choose, affirm, gives freedom, and organize the characteristics of the main topics by the support of additional topics in the form of metaphorical statements.

c. *Redefinitional methapors*: Redefining the metaphors and choosing the most suitable topics to teach.

In line with that Careira (Hendriana, 2009), she developed the concept of *metaphorical thinking* as follows:
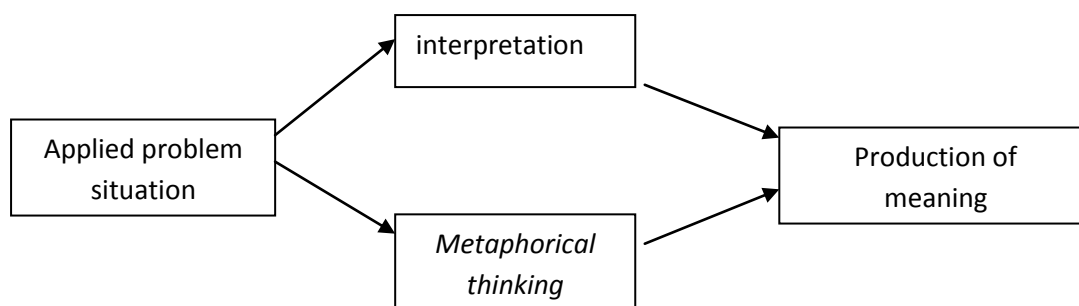
Diagram 1
The Concept of Metaphorical Thinking

Metaphoric thinking in mathematics start from modeling a situation mathematically, and then, the models were interpreted by the approach from the viewpoint of semantics. The use of metaphors in mathematics learning by students is a way to connect mathematical concepts with the concepts that have been known to the students in daily life, in which s/he revealed the mathematical concepts in their own language which shows students' understanding of the concept.

Metaphoric mathematical thinking is different from the usual metaphoric thinking, the difference lies in understanding the concepts and applications in solving problems that must be faced. In the usual metaphoric thinking, students are asked to illustrate a concept with concepts familiar to them without asking them to complete the task in detail.

Research Method

This study is designed in experimental design with one-group pretest and posttest design. This study examines the role of *metaphorical thinking* on the questioning ability of mathematics teachers'. In addition, this research is also expected to improve the questioning ability of mathematics teachers'. The population in this study is all teacher of mathematics in West Java, while the sample is selected randomly from teachers in one of the cities in West Java. Beside scenarios of learning instruction for *Metaphorical Thinking*, this study used instruments in the form of the test of mathematical questioning ability. The test of mathematical questioning ability refers to the characteristic of questioning ability and the principles of designing test. The data were analyzed using paired sample t test statistic.

Results and Discussion

The following are the findings regarding the questioning ability of mathematics teachers' as presented in Table 1.

After being tested for normality of data distribution, the questioning ability of mathematics teachers' was found to have normal distribution. Based on these findings, the testing of difference of the paired samples is presented in Table 2.

Table 1

Description of the Questioning Ability of Mathematics Teachers'

Ability	BEFORE TREATMENT (n = 20)		AFTER TREATMENT (n = 20)	
	Mean	SD	Mean	SD
The questioning of mathematic teachers'	38.50	9.27	60.70	9.08

Ideal Score of Questioning Ability is 100

Table 2

Recapitulation of Test Results of Mean Differences with Paired samples t-test the questioning ability of mathematics teachers'

ABILITY	Sig.	INTERPRETATION
the questioning ability of mathematics teachers'	0,000	After being given an application of the *metaphorical Thinking,* the questioning ability of mathematics teachers' is better than before being given the application of *Metaphorical Thinking* on significance level of 5%

Source: adapted from SPSS output 19

Based on the analysis above, it can be interpreted that the questioning ability of mathematics teachers' after being given a better application of the *Metaphorical Thinking* is better than before being given the application of *Metaphorical Thinking*. The questioning ability of mathematics teachers'after being given the application of *metaphorical thinking* is in *enough* category (mean 60.70 of the ideal score of 100).

These results illustrate that the approach of learning applied is enough influential to the questioning ability of mathematics teachers', although the results are not quite optimal. This is due to *metaphorical Thinking* learning instruction gives more access to teachers based on their lowest ability to express some different ideas, ways and argument. Open-ended questions and instructions in some learning approaches enable the expected teachers to make more students have the opportunity of meaningful mathematics learning because learning new concepts must be linked to a concept that has been previously known.

Conclusions and Implications

Conclusion

Based on the results and discussion, the conclusion of the study is that t the questioning ability of mathematics teachers' after being given the application of *Metaphorical Thinking* is better than before being given the application of *metaphorical thinking*. The questioning ability of mathematics teachers' is in category *enough*.

Implications

Based on the conclusions of this study, it can be implied that to develop the ability of students to ask in mathematics learning, *Metaphorical Thinking* can be an alternative learning instruction undertaken by teachers.

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The Observation of Tracheal Intubation Skills in 5th Year Medical Students:
Bridging The Gap between Novice and Expert

Parichad Apidechakul
Faculty of Medicine Siriraj Hospital, Mahidol University
2 Wanglang Road Bangkoknoi, Bangkok , Thailand,
dao_pari@yahoo.com

Patipan Toomtong,
Faculty of Medicine Siriraj Hospital, Mahidol University,
2 Wanglang Road Bangkoknoi, Bangkok , Thailand,
siptm@mahidol.ac.th

Tachawan Jirativanont,
Faculty of Medicine Siriraj Hospital, Mahidol University,
2 Wanglang Road Bangkoknoi, Bangkok , Thailand,
tachawan.jir@mahidol.ac.th

Abstract: *Tracheal intubation is an essential skill for medical professions. This study is aimed to compare intubation skill performed by medical students with experts. 21 fifth-year medical students and 18 experienced anesthetists were recruited to the study. The intubation skill checklist and global rating scale were compared between two groups. There were 14.3% of unsuccessful intubations in the medical student group. The ability to perform wide mouth opening, sweep the tongue to the left, lift the laryngoscope, smoothly insert and strap the tube were significant different (P<0.05). The global rating scales of intubation skills between medical student and staff groups were different (2.8$\pm$0.27 VS.1.5$\pm$0.60 respectively, P<0.001). For tracheal intubation training in novice, the attention should be drawn to the skill of mouth opening, application of laryngoscope, smooth insertion and strapping of the tube.*

Keywords: Tracheal intubation skills, Medical students, Expert

Introduction

Tracheal intubation is an essential skill for medical professions. This skill is required for ACLS and also in routine anesthesia practice. (Zirkle, M., et al.,2005) The core skills for physicians and other health professions is management of the airway and it is determined to be the terminal objective of the curriculum of medical schools around the world.(Goliasch, G., et al.,2013) However, there are different in teaching and learning this skill. The medical student still has an unconfident in endotracheal intubation procedure in early postgraduate period. (Marel, G.M., et al, 2000)

Teaching endotracheal intubation usually performs in manikin and also in real patients. The training with manikin in a safe environment is an essential strategy for novice training but the realism limits the skill practice. (Hesselfeldt, R., Kristensen,M.S.,Rasmussen,L.S.,2005) On the other hand, the time limitation, the medicolegal concerns and increasing in the number of trainees also affect the learners' real experience.(Johnston,B.D., Seitz, S.R.,wang,H.E.,2006; Chao,A., et al.,2012)

In our institute, fifth-year medical students gain tracheal intubation skill in the skill lab and the operating room during 2-week anesthesiology rotation in the 6-year medical curriculum. In order to specify the area for improvement in the medical student training of intubation skills, we would like to compare the intubation skills performed in the patient by the medical students with the experts for bridging the gap between them.

Objectives

To compare the intubation skills performed in the patient by the medical students with the experts.

Study design, setting and population

This was an observational study to compare the endotracheal intubation performance in 5ᵗʰ year medical students and experts or experienced anesthetists in anesthesiology department, Faculty of Medicine Siriraj Hospital. The medical students were in 2-week anesthesiology rotation in the 6-year medical curriculum. In the experienced group, they had to have an experienced in anesthesiology for more than 10 years. The local IRB approved our study without requiring informed consent from patients but participants.

Methods

After IRB approval, the participants were informed and signed consent. The patients with age more than 15 years old, ASA classification 1-2 and no expected difficult airway were included in this study. All patients would have the basic standard preparation for their surgery and anesthesia including monitoring, IV insertion and medication for general anesthesia. All of the patients received intravenous anesthetic agents and muscle relaxant for facilitating the intubation with the eyes tape after they slept for the patient privacy concern. The video was recorded since the equipment preparation for endotracheal intubation until the endotracheal tube strapping. The visualizer of the video was the procedure of endotracheal intubation without recognizing the participants' face.

The intubation videos were reviewed using a standard checklist by an expert anesthesiologist who blinded to the study. The check for not done, not complete and complete task were used for each category. The global rating scale of 0-4, time for intubation, the success rate and the complication were also recorded.

Statistics analysis

We analyzed the data by SPSS version 18. The demographic data were reported with mean and SD. We tested the differences of score between groups by unpaired t test and compared the qualitative result with chi-square.

Results

There were 21 medical students and 18 experienced anesthetists in this study. The demographic data of the 2 groups and the patients were shown in Table 1.

Table 1

Participants characteristics	Medical student N=21	Experts N=18	
Amount	21	18	
Age (mean± SD)	22	40 ± 8.7	
Airway management experienced			
1-5 times	21 (100%)	0	
5-10 times	0	0	
More than 10 times	0	0	
More than 100 times	0	18 (100%)	
Patient characteristics	Medical student	Experts	P values
Age (mean ± SD)	41 ± 14.3	42 ± 15.5	0.69
ASA physical status			0.72
1	14 (66.7%)	11 (61.1%)	
2	7 (33.3%)	7 (38.9%)	
BMI	21±2.9	24 ±3.6	0.16

The intubating performance for each group was shown as a number of participants performed in each checklist category (table 2). The missing data was declared as cannot evaluate performance. The ability to perform wide mouth opening, sweep the tongue to the left by the laryngoscope, lift the laryngoscope without using upper incisors as a fulcrum, smoothly insert an endotracheal tube and strap the tube were micro-skills statistically significant different between medical students and the anesthetist staffs ($P<0.05$). All participants in both groups performed sniffing position. Other skills included: lift the laryngoscope without injury to adjacent structure, adjust tip of the laryngoscope blade to visualize vocal cord, identify appropriate depth of the endotracheal tube, inflate the endotracheal tube cuff with appropriate amount and check the endotracheal tube position by lung auscultation were not different between two groups.

Table 2

Intubation skill categories	Not done		Not complete		Complete		Cannot evaluate	P values
	Experts N=18	Medical student N=21	Experts N=18	Iedical student N=21	Expert N=18	Medical student N=21	N=39	
Positioning the patient into sniffing position	0	0	0	0	18 (100%)	21 (100%)	0	
Widely open the patient's mouth	0	0	3 (16.7%)	1 (52.5%)	15 (83.3%)	10 (47.6%)	0	0.02*
Sweep the tongue to the left by laryngoscope blade	0	0	0	11 (52.4%)	18 (100%)	10 (47.6%)	0	0.001*
Lift the laryngoscope without using upper incisors as a fulcrum	2 (11.1%)	16 (76.2%)	0	0	16 (76.2%)	5 (23.8%)	0	0.001*
Lift the laryngoscope without injury to adjacent structure	0	2 (9.5%)	0	2 (9.5%)	18 (100%)	17 (81%)	0	0.15
Adjust tip of laryngoscope blade for clear visualized vocal cord	0	0	0	2 (9.5%)	18 (100%)	19 (90.5%)	0	0.18
Gently insert an endotracheal tube	0	6 (28.6%)	6 (33.3%)	7 (33.3%)	12 (66.7%)	8 (38.1%)	0	0.03*
Identify appropriate depth of endotracheal tube	1 (5.9%)	1 (5.0%)	0	0	16 (94.1%)	19 (95%)	2 (5.1%)	0.96

Inflate endotracheal tube cuff with appropriate amount	5 (71.4%)	4 (80%)	0	1 (20%)	2 (28.6%)	0	27 (69.2%)	0.24
Confirm endotracheal tube position by epigastriumand lung auscultation	0	0	4 (23.5%)	7 (35%)	13 (76.5%)	13 (65%)	2 (5.1%)	0.45
Strap endotracheal tube	0	0	1 (5.9%)	11 (55%)	16 (94.1%)	9 (45%)	2 (5.1%)	0.01*

Table 3 showed the global rating score, success rate and duration of intubation of the two groups. The intubation global rating score was significant higher in expert group compared to medical student group ((2.9+0.6 and 1.5+0.6, P=0.01). The experts group also took less time for intubation compared to the medical students group (43.9+17.2 and 94.2+42.9, P=0.004). We found the 14.3% of unsuccessful intubations in the medical student group and subsequently succeeded by their staffs. All intubations in the staff group were performed successfully. No patient in this study had complication from an endotracheal intubation.

Table 3

Mean of the overall performance between 2 groups* (full marks)			
	Experts N=18	Medical student N=18	P values
Intubation global rating score (0-4)*	2.9+0.5	1.5+0.6	0.01 **
Intubation success rate(%)	22 (100%)	18 (85.7%)	0.09
Duration for intubation (second)*	43.9+17.2	94.2+42.9	0.004**

* Result shown as mean ± SD
** p<0.05

Discussion

With the limitation of anesthesiology curriculum period, the medical students gain only 3-5 live experiences in the operating room. The limitation of time and resourses for intubating practice effects the intubation experience. From the literature review, at least 17 intubation practice are required to reach 90% of success in intubation. (Tarasi, P.G., Mangione, M.P., Singhal, S.S., Wang, H.E.,2011) In this study, we demonstrated the success rate of 85% in only less than 5 intubation experience of the medical students. The reason could be explained with the paticipants who consented in this study might have more confidence than others and also the patients needed intubation were included only ASA class 1 and 2 without difficult airway expectiation. As the confidence of medical students decreases significantly after fail intubation (Chao,A.,et al.,2012) the intubation practice for the beginner should be started in a normal airway patient.

Improving intubation skill performance was identified after experiential learning.(Ti, L.K., Chen, F.G., Tan, G.M., Tan, W.T., et al., 2009) Simulation-based learning can be used to gain technique and skillful before practice in the real patients. Students must engage in goal-directed learning to reach higher levels of performance. Learning

activities had to correct and remedy the student weaknesses and improve performance.(Tarasi, P.G., Mangione, M.P., Singhal, S.S., Wang, H.E.,2011) Our medical students gained intubating skills from their skill lab before the operating room clerkship. Identification of the problem after practice have an important role for improving success of the skill performance. This study demonstrated the assessment comparing novices and experts. As we postulated that if we could identify the gap, we would be able to manipulate the student at the narrow aspect.

The ability to perform wide mouth opening, gently sweep the tongue to the left by the laryngoscope, lift the laryngoscope without using upper incisors as a fulcrum, smoothly insert an endotracheal tube and strap the tube were micro-skills statistically significant different between medical students and the anesthetist staffs ($P<0.05$). The BURP maneuver can improve the larynx view as appropriate. The alignment of the oral, pharyngeal and tracheal axes to view the glottis opening were needed for Macintosh laryngoscopy. That is a difficult skill to acquire. (Wang, H.E, Seitz, S.R., Hostler, D.,2005; Gerbeaux P.,2005; Garza, A.G., et al.,2003; Mulcaster, J.T., et al., 2003) The skills performing different in this study were mostly difficult to practice in the manikin. However, we could be able to aware of it by informing the student during the skill lab in order to improve the intubation skill in the real patient.

This study had some limitations. We used video for recording the performance in order to provide the ability of assessment without time pressure and for blinding propose. However, it limited the assessor view. This result in a number of cannot evaluate categories. We also limit experts group to anesthetists, which might have a different practice from general physicians. The variety of training and practice would also result in different outcome.

Conclusion

For improving endotracheal intubation training propose, we demonstrated the different in performance between beginners and experts. The attention should be drawn to the skill of mouth opening, application of the laryngoscope, and smooth insertion and strapping of the endotracheal tube.

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The Politics of Governance in Australian Secondary Schools

Dianne Cullen
Australian Catholic University - Melbourne Campus
Faculty of Education and Arts
115 Victoria Pde, Fitzroy, 3065, Australia
dianne.cullen@acu.edu.au

Abstract: *Within the Australian secondary education context the majority of schools can be categorized into three major systems; Public, Catholic and Independent. Whilst the States govern the public schools in their jurisdictions, governance of Catholic and Independent schools relies heavily on school boards. In the secondary sector, board members are considered directors.*

According to Australian law, company directors, including those on school boards, must engage in professional development in order to be up-to-date regarding the requirements of their duties as director. Given governance of schools can prove complex, the role of director can be onerous thus it behooves each school board member to be aware of their legal, fiduciary and ethical responsibilities.

Discussed in this paper is a review of how one secondary school incorporated professional development as part of its regular board meetings. At each meeting a case study centering on an issue concerning directors of a school board was presented and analyzed. After examining the case studies it was concluded by the board members that it is essential for directors to understand both the politics and policies that govern school boards. Not to do so, can result in dire consequences.

Keywords: school boards, governance, professional development, legal liability

Introduction

In the Australian context "good governance" has become a major concern of company boards. High profile cases where companies have failed in their compliance measures have received extensive media coverage. In a number of cases, the courts have imposed large financial penalties on companies that have engaged in poor governance practices. Over the past several years some high profile private schools have made media headlines as a result of inadequate governance decisions made by their school boards. It is school "governance" that is the focus of this paper. A brief study of how the dual system of schooling developed in Australia, that is public and private, is followed by an examination of the common understanding of the terms "governance" and "good governance". The association between neo-liberal values and school governance which operates in schools today is then analyzed. This leads into an investigation on how one group of schools which come under the umbrella of Good Samaritan Education, have taken a broader view of governance. How they are working to implement a different form authority is examined in the latter stages of this paper. Finally, the adequacy of the current understanding of "governance" and "good governance" is brought into question.

Historical Development

Before the Commonwealth of Australia was founded in 1901, the country consisted of six separate self-governing colonies. Federation occurred when these six colonies combined and agreed upon which layer of government would be responsible for governing which particular area. In apportioning areas of constitutional governance, education became the province of the states hence each state established and developed a system of publicly funded primary and secondary schools.

In the early years of the colonies, the first schools were founded by the religious authorities. As part of their concern for the education of the poor and the spiritual wellbeing of their flock, church leaders of the respective denominations built numerous schools throughout the country. However, correlating with the onset of Federation, a clear division between Church and State came into being. As a consequence of this division the states refused to fund the church schools, leaving these institutions in a parlous financial state. At this time, sectarianism was prevalent throughout the country and religious leaders struggled to maintain their schools. Subsequently, dire financial circumstances forced many of the religious schools to close, but for one hundred years the Catholic Church struggled to maintain and develop its own education system. It was not until the 1960s that funding for Catholic and independent schools began to trickle into non-government schools and a decade later, when the power

of the Catholic vote was realized by politicians of both major parties, funding to religious schools increased considerably.

School Governance
Today Catholic schools receive approximately ninety percent of their funding in the form of grants from both state and Federal governments. In the Catholic secondary school sector, school boards are responsible for overseeing how the finances of the school are distributed as well as a number of other areas such as the appointment of the principal. Members of the board are considered "directors" thus they have a responsibility to be conversant with Australian regulations concerning both their personal role, and the role of the board, as the schools have been established as companies. All companies must be registered with the Australian Securities and Investments Commission (ASIC) and all boards and directors must act according to ASCIC regulations in order to ensure good governance. This raises two questions: a) what constitutes "governance" and b) what constitutes "good governance".

What is "governance"?
The complexity of governance is difficult to capture in a simple definition, however, a review of the literature brings to light several common dimensions. These include: authority, decision-making, accountability, transparency, integrity and ethics. The working definition of governance provided by the Institute for School Governance (hereunder ISG) states, "Governance determines who has power, who makes decisions, how other players make their voices heard and how account is rendered" (2015, p. 15).

What is "good governance"?
According to the ISG "Good governance is about the processes for making and implementing decisions. It's not about making 'correct' decisions, but about the best possible process for making those decisions" (2015, p.16). In writing about good governance Bosch argues, "The essence of any system of good corporate governance is to allow the board and management the freedom to drive their organization forward but to exercise that freedom within a framework of effective accountability" (1995, p. 17).

The Australian Institute for School Governance (hereunder AISG) has produced a document *Guiding Standards for Governing by Australian School Boards* (2015). According to the documentation produced by the Institute these governing standards are "to guide school boards towards effective and efficient governing of their respective schools. In turn, ensuring that students are provided with every possible opportunity to achieve their potential, and that the school is able to sustain its growth and prosperity" (2015, p. 3).

The guiding standards are divided into the following five dimensions:
1. roles and accountability
2. responsibilities
3. membership
4. decision making
5. documentation

Accompanying each of the aforementioned dimensions is a broad guiding standard as well as a list of "practices (measurable actions) that would provide evidence of school governing at its very best" (Australian Institute for School Governance). An example is provided below.
> **Dimension 1:** Role & accountability
> **Standard:** The school board knows its role, accepts its consequent accountability, demonstrates transparency, and is cognisant of the role of the principal, board officers, and the board appointing authority.
> **Evidence of practice:**
> 1.1 School board members understand the difference between governing (strategic) and managing (operational)
> 1.2 The school board understands its role within the context of the governance structure for the school
> 1.3 The school board adheres to its constitution (or similar document), and periodically revisits this document to ensure the board is aware of its content, and is able to demonstrate compliance and accountability

1.4 The school board is aware of its legal status

1.5 The school board recognises and understands the reserve powers of its appointing authority

1.6 The school board has established position descriptions for board chair, secretary, and all other board officer positions

1.7 The school board engages in ongoing reflection and review of its performance as a governing body and subsequently develops and implements its annual board development plan

1.8 The school board engages in a substantive performance review of its processes, activities and effectiveness every 2-3 years

1.9 The school board provides an annual report of its activities to the school community, as well as to its appointing authority

1.10 The school board provides all necessary reports to ensure compliance with regulatory and statutory requirements

(2015, p. 3).

Whilst the dimensions, standards and evidence of practice statements appear on the surface level to provide a reasonable modus operandi for measuring the quality of governance, it is argued in this paper that these standards privilege a particular set of elements, that whilst worthwhile, provide a limited view of what constitutes good governance. It will also be argued that this limited view of governance is framed by those characteristics associated with neo-liberalism. Furthermore, it is argued that a neo-liberal form of governance belies the complexity of school life and undermines the notion of community, relationship building and human dignity.

Neo-liberal forms of governance.

Over the past thirty years, neoliberalism has become the dominant hegemony throughout much of the world (Harvey, 2005). It has resulted in a redefining of the purpose and role of social, cultural, and political institutions according to market logic and the prioritization of economic outcomes (Apple, 2001; Aronowitz, 2000; Giroux, 2005; Harvey, 2005; Slaughter & Rhoades, 2004). Education has not escaped the redefinition of its institutional purpose. Indeed, Grimmett et al. (2009) write "neo-liberalist thought has been able to extend its hegemonic socio-economic reach into the public sphere to redefine roles and responsibilities in education . . ." (p. 11). These developments have not gone unnoticed and authors such as Apple (2000) have argued that today there is a tighter linkage between education and the economy. Acker-Hocevar *et al.* (2010) describe the changing role of the state in education as changing "from one of providing support and resources to one of monitoring and ensuring compliance to its mandates and regulations" (p. 121).

Bates believes the emerging interplay between education and the economy is evidenced by the discourse patterns employed by neo-liberalists.

> The current rhetoric informing attempts to restructure education … involves concerns with 'the new economy', and the need to 'remain competitive' through 'world class' institutions and 'quality assurance' 'benchmarked' against 'best practice'. This is the rhetoric not only of business elites but also of the governments they appear to have captured
> (2004, p. 118)**.**

Similarly Ozga (2000) argues that neoliberalism is underscored by terminology such as: deregulation; efficiency; privatization; performativity; accountability; competition; best practice; quality assurance; evidence driven; international best practice; consumer choice and user-pays. She continues by claiming it is this style of language that permeates policies supportive of a neoliberal ideology.

In the contemporary Australian educational context, neo-liberalism has intruded into the operation of local school boards. The language peppered throughout the *Guiding Standards for Governing by Australian School Boards* (2015) provides evidence to support this view. Terms such as 'performance', 'compliance', 'accountability', 'strategic actions', 'standards', 'innovation', 'effective governing' 'provides data', 'evidence of practice', 'enterprise risk framework', 'code of conduct', 'close scrutiny', 'due diligence', 'growth and prosperity', resemble the neo-liberalist language identified by the aforementioned authors Ozga and Bates.

Jensen (2015) argues, "neoliberalism is changing the relationship between government, civil society and the market [resulting in] sector boundaries … blurring and converging". Such a development is witnessed in

education when governance priorities, values and the language of school boards begin to mirror the values of the business community. As the over-riding priorities of school boards begin to revolve around an economic and legal framework whereby financial accountability and compliance procedures become the new dominant of governance, a shift develops in what is considered the fundamental purpose of schooling. Likewise, when school students' examination results are constantly subjected to data analysis, both within and outside of the school, a further shift arises in the culture of schooling; a shift which begins to permeates all aspects of education. According to Jensen (2015), this situation "presents some very real practical challenges for faith based non-profit organisations in Australia" (http://www.eurekastreet.com.au/article.aspx?aeid=43947).

This is indeed the case for Catholic secondary school boards across Australia that are challenged by encroaching neo-liberal ideologies impacting upon their governance practices. If the directors of Catholic school boards are to act in a manner that is contrary to the prevailing free market culture, thus prioritising many of the values contrary to a neo-liberal culture, then the boards must be prepared to rise to the challenge of offering a different form of governance. What follows is an exploration of how the Good Samaritan Order of nuns have instituted a style of governance which challenges the privileging of neo-liberalist characteristics in the development of school boards by fore-fronting values significant to the development of human dignity, partnership, a respect for tradition, the recognition of local community and the seeking of God.

The Governance of Catholic Secondary Schools in the Good Samaritan Tradition
When Catholic schools were founded in the early days of the Australian colonies, many were established and staffed by particular orders of religion, albeit male or female Orders. Their respective Orders had a set of rules which reflected the philosophical position of the Order's founder. Many of these rules, together with the moral and ethical stance fostered by the founder, still have relevance for Catholic schools today and are still influential in how school boards and directors arrive at particular decisions in their practice of governance.

In 1857 the first Catholic Archbishop of Australia, John Bede Polding OSB established the Order of the Sisters of the Good Samaritan. This Congregation of nuns is based on the Rule of St Benedict and was originally charged with the duty to care for disadvantaged and abused women. Over the passing years this mission was to widen and the Sisters, whilst maintaining their commitment to women, moved into education and schooling. Originally these schools were staffed predominantly by nuns, but in this contemporary period it is mostly lay people who administer and teach in the schools. Nonetheless, today Good Samaritan schools are still sustained by a particular vision of Catholic education which

a) Draws on the strength of the Good Samaritan/Benedictine tradition
b) Is directed to the seeking of God
c) Is centred on Jesus Christ and His mission
d) Is committed to partnership and to Christian community
e) Is committed to participative leadership
f) Is responsive to its cultural context

(Governance Handbook, 2007).

It is this vision of education that makes governance by the company, Good Samaritan Education, and by their schools boards, different. This does not mean however, that broader regulations concerning company governance can be ignored. As with all company boards, Good Samaritan school boards and their directors are subject to the rules of the Australian Securities and Investments Commission (ASIC). However, whilst at all times adhering to the Commission's rules and regulations in their governance practices, for Good Samaritan school boards there exists an additional layer of influence to consider in their decision making processes. This raises the question of how this is achieved in practice. The following section of this paper discusses how one Catholic Secondary girls' school has attempted to have their directors regularly engage in professional development in the area of governance in order to up-skill their decision making processes.

Santa Maria College

Founded by the Sisters of the Good Samaritan Order in 1904, Santa Maria College is a girls' secondary school in Victoria, Australia. It has a student body of approximately 900 girls. Two years ago, the chairperson of the school board was concerned that the board was not meeting fully the ASIC requirement to ensure directors are up-to-date regarding their knowledge of the law. As a result, it was decided at each meeting of the Santa Maria College Board, a specific amount of time would be set aside for the professional development of directors. What follows are three examples of how the board engaged in professional development through the interrogation of case studies that are presented at each meeting.The directors are expected to analyze the scenario, identify the governance issue that needs to be addressed and suggest the correct course of action the board should take. In considering the correct course of action, three levels of judgement are called into play by the directors:

1) the regulations of the Australian Securities and Investment Commission and
2) the rules of Saint Benedict
3) the Good Samaritan vision of education.

Case Study One

It has come to the attention of the principal of the College that one of the board members is photocopying sections of the minutes of the board meetings and distributing them to a small group of parents. One of the parents in this group is the producer of an Australian Broadcasting Corporation (ABC) morning talkback radio program. Two confidential decisions taken by the board have been aired on the radio program in the past two months. Whilst the principal of the College is aware of who is leaking the information she is confident no-one else on the board is aware of the leaks or who is doing it. Should the principal engage the board with this issue and if so, how should the board respond?

ASIC Regulations

Ethical Standards for Directors

- Directors will abide by, and uphold, the final decision of the Board regardless of an individual stand taken on any issue.
- Directors are to ensure that problems are solved through due process.
- Directors will keep all confidences shared during the meetings of the Board (p.19).
- No improper use of position or information.
- Directors and Officers must not improperly use their position or information obtained because they are or have been a Director or Officer, to gain advantage for themselves, or someone else or to cause detriment to the College (Sections 182 and 183 of the Act, p.21).

Benedictine Tradition

Our educational settings, where we work in a spirit of collaboration, teamwork and partnership, witness to the possibility of Christian community. We aim to foster inclusive communities where all are encouraged to contribute with the "good gifts" given (cf Rule of Benedict Prologue 21) and so build up the Body of Christ (cf 1 Corinthians 12)

Good Samaritan Colleges Australia Governance Handbook, p. 7.

Case Study Two

The school board meeting was nearing completion when the new member, Mrs. Renata Cellini, asked to put an item on the agenda for discussion at the next meeting. Renata took her position seriously and had spent time reading about governance and not-for-profit organizations. She explained to the other members that she had come across an article on 'Corporate Governance' which she had obtained from her husband who worked at Price Waterhouse Coopers. The new member thought the article contained some excellent ideas for how the board should operate and gave the example of the need for performance reviews of members of the school leadership team and the chairperson of the board.

The suggestion was not well received either by the school Principal (Peter Foster) or the Chairperson (Bill Harold). Peter explained that he has an annual performance get together with Bill each May and manages to

"pass muster" thanks to the bottle of Jim Bean whiskey he gives Bill before each meeting. Following this comment the chairperson Bill, pointed out to the new member, that the board is composed of volunteers who already give generously of their time. He made it clear to Renata that neither he nor Bill wanted to abuse the good nature of the members by imposing any unnecessary commitments upon their time. At this stage a number of Board members nodded in agreement to support Bill's comments. The new member was perplexed and unsure of what to do next.

ASIC Regulations
- Proper evaluation by the board of the performance of senior executives and particularly the CEO (Principal) is imperative. A once a year chat over lunch is not sufficient…. An effective board has a documented process in place that combines development plans, ongoing monitoring and periodic formal performance assessment.
(Corporate Governance Toolkit, section 5 Performance Review).

Benedictine Tradition
The charism of Good Samaritan Education is centred on the person of Jesus Christ in the communal seeking of God, believing that it is together – not as isolated individuals – that we go to God (Rule of Benedict 72:12). Charism attracts people to engage in an overall task together, providing a constancy of orientation while allowing for internal growth and change (Paulus P.P. V1)

Case Study Three

Maureen has been principal of a large outer suburban, secondary college for the past seven years. She has been an excellent leader and is extremely popular with teachers, students and parents. Everyone admires Maureen for her dedication and for what she has achieved at the school. When Maureen was reappointed two years ago, the school community, as well as the board, were thrilled. However, the chairperson of the board was recently approached by members of the school leadership team who informed him of their concerns in regard to the principal. They believed Maureen was no longer functioning well in her role and was finding decision making difficult. Moreover, they claimed the principal appeared to be forgetful and was displaying uncharacteristic behaviour. As a result of this information the chairperson, who was also quite concerned about the principal's behaviour, contacted her husband to discuss the issue. Jack, her husband, revealed that Maureen had been diagnosed with dementia however, she was in denial and the family wanted "business as usual" as they did not want their mother distressed or upset.

ASIC Regulations
Ethical Standards for Directors:
- Directors are to ensure that problems are solved through due process
- Directors will keep all confidences shared during the meetings of the Board.
- The lines of communication between the Members, the Directors, the Principal and the staff will be free and open.
- Directors will realise that the welfare of the students and adults served by the Board is a priority in making decisions (p. 19).

The Principal is accountable to the Board. This is demonstrated by:
- Carrying out all aspects of the duty statement of the Principal.
- Completing particular tasks that have been set by the Board (p. 26).

Benedictine Tradition
Mission is the work of God, in which we participate. [It is] the reason for our existence as Good Samaritans and as Good Samaritan Schools …. To be seeking God, our mission takes us on a journey away from our place of comfort and security in order to lead us on the path to love. Benedict indicates this stance in his prologue when he says:
"In a given case we may have to arrange things a bit strictly to correct vice or preserve charity. When that happens, do not immediately take fright and flee the path of salvation, which can only be narrow at its outset …" (Posa, C. 2013).

Rethinking Governance

In the opening sections of this paper two questions were raised. The first question ad was simply: what is "governance"? Quoting the Institute for School Governance (ISG) the answer given was "Governance determines who has power, who makes decisions, how other players make their voice heard and how account is rendered" (2015, p. 15). Yet this definition says nothing of developing positive relationships, working in partnerships, striving for an ideal and valuing people.

The second question was: what is "good governance"? Bosch puts forward the suggestions that, "The essence of any system of good corporate governance is to allow the board and management the freedom to drive their organization forward but to exercise that freedom within a framework of effective accountability" (1995, p. 17). Within this definition lie the values of neo-liberalism. And with the acceptance of neoliberalism comes a dehumanizing of those individuals who most need outsiders to be their voice. Directors who comprise a school board are morally obliged to be the voice for all students and their families, not just those whose measurement of results and evidence of awards might raise the profile of the school, attract enrolments and better the school's financial position.

Conclusion

In the current culture of Western societies, issues of governance are receiving an increase in focus. Education is not immune to this development. School boards throughout Australia are seeking to improve their management strategies but too often do so by adopting neo-liberal forms of governance which are taken- for-granted and are adopted without question. Hence, 'evidence', 'accountability', 'data collection and analysis', 'compliance procedures' and the like are driving decision making by school boards. Good Samaritan Education has been more discerning in its view on governance. As a consequence it has adopted a different perspective to the neo-liberalists whereby they seek to prioritize contradictory values through an emphasis on tradition, human dignity, partnership, the building of community and the seeking of God. Whilst Good Samaritan Education endorses the legal compliance regulations by which directors must abide, they hold a position on governance which values people and community. If boards of Good Samaritan schools are to do this well, "Initial and continuing formation is essential for the Board to fulfil its responsibilities …" (Good Samaritan Education, p. 17). Highlighted in this paper is how one school, Santa Maria College, is making a concerted effort to develop the knowledge of its directors on both the legal requirements of the board and the vision of Good Samaritan Education. An understanding of the importance of always foregrounding the dignity of the human person in their governance processes is what makes their boards and their schools, different.

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Rethinking Literacy and Well-being: Voices from Maasai Women in Kenya

Taeko Takayanagi

The University of Sydney, Australia

Abstract: *The purpose of the study was to examine the organisation of a village-based literacy centre and to explore the role of literacy as a key means for Maasai women to improve their well-being, and examined the primary linkages between literacy, human development and gender inequality in Narok County in Kenya through local women's and institutional perspectives. An analysis of the interviews of the research participants demonstrated that: 'illiterate' village women initiate small manageable activities to improve well-being of their family and community in collective action and solidarity; and that women develop forms of resistance to gender inequality by accommodating men's self-pride and different gender roles to create a harmonious society. This paper concludes that a literacy programme should be more centred on the women from the village and must acknowledge their traditions and culture.*

Key Words: Literacy, Gender and Development, Africa, Qualitative Research

Introduction

The universal literacy of women has been a goal in the world, being regarded as a key component of governments' policies to improve one's well-being and country's development. The expansion of women's literacy in less developed countries has benefited their children and families' well-being. Numerous studies have been conducted to examine the impact of literacy on social development and the implication and practice of literacy skills not only in work-related, educational and religious institutions (Maddox 2005, 2007) but also in homes and everyday life (Barton et al. 2000; Bartlett 2008, Dyer 2008; Papen 2002; Street 2001; Maddox 2007; Robinson-Pant 2008, Levine et al. 2012).

Although women's and girls' access to formal/non-formal schooling has improved dramatically in some countries, and knowing that women's literacy has positive effects on their families' well-being, there are still some women who have been excluded from education in less developed countries (UNESCO 2015).

Using evidence from my research in a village in Kenya conducted in 2011, this articles reveals how a village based literacy centre is organised following the Kenyan government adult education policy and in what way the female participants benefited from literacy learning.

This article provides an overview of adult literacy education and community development   and how acquired knowledge and skills through adult literacy learning correctively benefit in people in Africa. Then it describes the research method, and presents the organisation of a village based literacy centre and Maasai women's application of skills and knowledge though literacy learning and development via thematic analysis.

Adult Women's Literacy Education and Social Development from the Context of Africa

Women's literacy is the crucial factor to empowering women's participation in decision-making in society and to improving families' well-being. In the target year of 2015 declared by the United Nations' the Millennium Development Goals (MDGs) in 2000, however, challenges still remain. 58 million children are out of school and there are 781 million illiterates (15 years and older) worldwide, in which two thirds consist of women (UNESCO 2015). Gender inequality strongly exists in educational attainment.

Women lack equal access to resources, information and power, giving men a higher social status. Economic, social and cultural gender inequalities negatively affect the ability of women, particularly those who are in developing countries, to acquire a basic education for a better quality of life. rather, women carry domestic unpaid and reproductive work, and tend to have a long working life from childhood to older age (Tsukada and Silvia 2009).

The Ministry of Education of Kenya has established three main programmes for adults; literacy, continuing education, community education and extension (Republic of Kenya 2010, pp.13-14). Adults can learn the school based curriculum in a non-formal setting (Republic of Kenya 2010). The adult literacy programmes have also aimed at achieving gender equality by improving women's literacy rates and girls' education attainment (Bunyi 2006).

Literacy education directory contributes to individual flourishment and income generation, and has the impact on improvement in child nutrition and schooling (Bown 1990; LeVine et al., 2012; Rao and Robinson-Pant 2006). The concept and application of literacy should be contextualised to link literacy with specific communities and peoples (Benavot 2015). And evidence based adult literacy policies are required to encourage adults to acquire literacy skills (Benavot 2015). In addition, one needs to acknowledge the range of literacy needs and challenges at different phases of one's life span; children need proficiency in language through schooling and adults needs literacy skills in their every day lives and workplace.

In fact, many studies have shown that multiple literacies based on different socio-cultural contexts should be considered (Street 2001; Papen 2002, 2005; Robinson-Pant 2009, Levine et al. 2012). Gebre et al. (2009) describes how people in Africa practise literacy and numeracy skills in markets, houses, small scale businesses and farming and the application of the literacy in everyday lives is named as 'everyday literacies'. Although people are illiterate in a formal school setting, but they are knowledgeable and so-called illiterate adults do deal with literacy and numeracy demanding situations with their own strategies (Chopra 2004; Robinson-Pant 2004). People employ signs, symbols and pictures to record events or convey messages (Gebre et al. 2009).

If appropriate educational activities are organised with women, there are positive effects of literacy projects on social, economic and personal change (Bown 1990; LeVine et al., 1991; Rao and Robinson-Pant 2006). Given that there is a strong linkage between women's health and literacy, a significant finding is that literacy also

enhances comprehension ability in modalities other than reading when literate mothers listen to radio health messages (Levine et al. 2012). Levine et al. (2012) observed that literacy skills play an important part of the solution, reducing risks to their children's health and improving children's development. Freire (1973) also suggests adult learners acquire the social skills or knowledge to bring about positive changes to reduce poverty through aprocess of critical awareness raising, in other words, 'conscientization' (Freire 1973).

In the context of Africa, people value their families and communities' well-being before individual benefits. And, communality and solidarity are the important significant aspects of life. People try to find activities and strategies by themselves to develop a cooperative manner to improve their community (Pratavanda 1989). People attempt to make decisions which benefit 'communities rather than individuals' (Lugones 2010, 754). One's priority in applying one's knowledge and skills is expected to improve communities rather than to profit individuals. Mohanty (2003) suggests that aid provided for Africa has been ineffective for many years because neoliberal and postmodern centred development projects organised for Africa have neglected the integration of traditional knowledge and community based management systems.

In case of Kenya, Wangari (2004) asserts that uneducated people also have knowledge and capacity to improve their life. Women activists challenge gender inequality by demanding equality in the family and society, and exercise togetherness and sisterhood to achieve women's socio-economic and political empowerment. As Sen and Grown clearly state, "recognition not just of poor women's work but of its centrality to such development processes is essential" (1987, p.83). Women have been seen more as objects than as subjects in many communities (Sen and Östlin 2011).

Therefore listening to the voices of silenced women in developing countries is vital for the purpose of social development (Ashcroft et al. 2000; Said 1989; Connell 2007).

Methodology

The study adapted an ethnographic study design with semi-structured interviews, informal conversations and observation. As the primary goal of ethnography is to comprehend the socio-cultural contexts of a particular society (Atkinson et al. 2001), ethnography was appropriate for my study. By participating in the village-based literacy centre, observing and interviewing local people, I attempted to understand the nature of Maasai women's life and educational experiences through interviews (Spivak 1985, Mohanty 2003, Narayan and Harding 1989).

Some Maasai women are kept busy managing house cores all day long and have little time learning literacy and numeracy skills. On top of the housework, a Maasai woman cultivates vegetables with her husband. Some Maasai women also take care of cattle, goats and sheep. Plus, due to the practice of female genital mutilation (FGM) and early marriage in the community, girls' participation in education has noticeably dwindled over the years. Moreover, many girls are brought up to be subservient to men and are regarded as a gift from a father to

a future husband (Chege and Sifina 2006).

The fieldwork for this study was conducted in between April and September 2011 in Narok North District of Rift Valley Province in Kenya, where Maasai traditions and cultural practices are preserved and practised. The Maasai speak Maa (the Maasai language), and many people are able to communicate in Swahili and/or English. One village based literacy centre was selected to find out about the situation of its organisation and management. While 16 women from a settled Maasai community were involved in the study, I selected two interviews to illustrate their experiences of adult literacy learning and community development. I had an interpreter who could speak English, Swahili and Maa for interviews.

First, the organisation of a village based literacy centre is introduced. Second, I open each woman's interview with some biographical background, and explore the literacy learning and community development experiences. Analysis of the impact of literacy on one's well-being and action taken by the women to challenge gender issues are discussed. All these names below are pseudonyms.

Presentation of Research Findings and Discussion

This section provides major findings in response to the sequence and the research objectives that guided this study. Following the description of the literacy centre, the activities of a self-help group organised by the literacy class participants are introduced. First, Table 1 below demonstrates the organisation of a literacy centre located in a village in Narok County.

Table 1. Description of a Village-Based Literacy Centre

Location	Church
Participant fees	None
A number of participants	varies (3-10)
Instructor	A local male
The instructor's background	Secondary school graduate, Farmer, Affiliated with KALA
Class time-table	1-2hours, twice a week. A class is decided by the participants.
The medium language of instruction	Maa and Swahili
Teaching materials	Adult learner textbooks provided by the government
Teaching methodology	Teacher-centred
Assessment	No regular written or oral exams

Background and Management of the Literacy Class

the classroom literacy programme

The literacy classes were organised at a local church. It was scheduled between 2-3:30 and 4pm on Wednesdays and Fridays. The majority of the literacy class participants were aged between 25 and 50. One female participant attended with her baby on her back. They were farmers, motorbike-taxi drivers or petty

traders. The instructor had no lesson plan. He was not provided with the adult education curriculum. At the time of the research, the instructor was a local 34 year-old Maasai man, and had been teaching at the literacy centre for four years. He was a farmer, and also grazed animals. He completed secondary education, yet dues to financial issues, he could not pursue higher education.

The writing, reading and numeracy skills were the most taught using adult education textbooks. The instructor's approach was to write down the Swahili alphabet and words on a blackboard and to explain the words to the participants. He would also elaborate the meaning of the words in Maa so that the participants could understand the meaning correctly. Group or pair work or cooperative learning were not used during a class, hence the participants had less time to share their views or experiences during a literacy class. The participants brought a notebook, pencils and an eraser. The instructor had a big tin container, and he kept stationery, attendance sheets and some text books distributed by the government. Kenya Adult Learning Association (KALA) provided the literacy participants with small financial support to manage a small-scale business project.

The instructor received a monthly allowance of 3000 shillings (about US$ 33) from KALA. He continued teaching voluntary even though the allowance payment was delayed, as the participants belonged to his community. The instructor gave an award to hard-working learners every December to motivate their learning. The participants were found to be travelling long distances to the literacy centre. At a time of a crop harvest or a community meeting or function, the literacy classes were closed. The instructor and participants communicated through a mobile phone to pass information on class days. During harvesting seasons or market days, high absenteeism was observed.

There was no homework for the participants. A library was not situated in the church-based literacy centre. The participants lacked reading and learning materials.

The participants' academic achievements were assessed on the basis of the instructor's observation on one's notating skills, whether a participants was able to copy the blackboard down on a notebook correctly or was able to write one's name on a notebook. Although there was no regular small tests or term exams conducted for the participants, the instructor stated that there was a significant impact from learning on women's socio-economic situation from gaining literacy. Some women were able to write their names or sign documents. Some women had established small scale business by themselves. There was no refresher course or regular training provided for the instructor to upgrade new teaching approaches or techniques. During the researcher's fieldwork, a government officer paid a monitoring visit once to the literacy class.

The instructor applied a conventional method of literacy teaching in the classes, in which an instructor writes and explains words on a blackboard, and the participants repeat and copy the words in their notebook. Although Freire (1970) and Knowles (1973) emphasized the importance of the practical way of learning, the instructor and the participants adopted teacher-centred teaching and learning. This also is called the 'banking

concept of education', in which teachers know everything, hence teachers transfer and deposit knowledge to students (Freire 1970). This teaching method contributed very little to create a forum for the class participants for raising discussions (Spivak 1985). The literacy class participants had a minimised space to discuss community issues critically.

Community development activities organised by the literacy class participants

The literacy class participants organised a self-help group with a chair person, treasurer and secretary, two women were appointed as a chair person and treasurer. The instructor became the secretary to record the minutes of discussion. They discussed the establishment of a small-scale business of farm products and calculated the costs of seeds, the rental fees of farm land and a tractor. Income generating activities were also organised by the participants of the literacy centre. The participants would buy and sell potatoes, maize and clothes to make a profit in the local market. Once, the participants had a discussion on how to establish a small business, how to identify profitable commodity and where to locate a stall in the classroom. During an interview, the instructor stated:

> [literacy is] to know how to read and write, manage small businesses. Literacy means knowing what you do not know.

A socio-political dialogue about social and gender inequality did not emerge during the researcher's participation in the classes.

However, the instructor emphasised on the importance of income generating activities within literacy learning. As the literacy class participants were mostly women from his community, he played the role of a facilitator to create discussions on small-scale business. According to the instructor, by conducting an income generating activity, the literacy class participants had planned a community development project and implemented the project. 'Non-literacy' aspects of adult education was promoted and emphasised (Robinson-Pant 2008). The entire process of a project was managed and controlled by the members of the class. This is consistent with an autonomous development approach suggested by Carmen (1996). Moreover, this is an example shown to Fals-Borda's assertion that local people in developing countries have a capacity to organise and to produce knowledge based on their socio-cultural settings (1987). The literacy participants appeared to have a high level of trust on the instructor because the instructor respected learners' schedule and commitments to one's family.

Although the income generation class was not observed during the researcher`s observation in the class, the literacy centre itself created a space and forum for the participants to share life experiences and collaborate to run an individual small-scale business.

The next section demonstrates two females' experiences on learning activities in relation to community

development. Rhoda was one of the participants of the literacy centre and Teresa was a female pastor gaining a certificate in pastorate.

Case One: Rhoda

>Rhoda did not attend school. During her father's time, no one went to school, hence her father did not send any children to school. She had attended an adult literacy class for two weeks. She had seven children. Two daughters were married. During the interview she was collecting beans from shelves outside while her husband was looking after their animals with their children. After that activity she made oil from milk cream by boiling it for a long time. The younger children took a spoonful of the oil to be healthy. She sold milk and worked for other farms to earn income. She also participated in a women's group for one year with 10 other women. They cultivated each other's farms together in turn. After harvesting, each one contributed money on a weekly basis. Every week, the group members visited one member. Each member was supposed to bring two cups, two plates, and 220 shillings. In total, when the member was visited they received 20 cups, 20 plates and 2200 shillings. The group members continued this process of visiting each member in turn. Rhoda expected improvement in the standard of education in the village through the group activities because she was able to finance her children's education with the 2200 shillings group money. She could purchase school uniforms and other necessary things for school. The group members discussed children's schooling, and assisted each other. She spent income generated by a harvest on food. She learnt how to build a traditional Maasai house from her grandmother. Her grandmother told her to observe the house construction process carefully because she needed to build her own house when she got married with a Maasai man. Consequently, she learnt new skills and gained information from others, including the church, and educated people.

Rhoda told me what she felt would be the best way to gain new knowledge and skills:

>Through discussion and casual conversations among the literacy centre peers, I have learnt how to manage my business and how to write things down.

Lastly, I asked about her view regarding the future in Narok. She replied:

>I expect better farming of maize and beans in future.

The village women have found a way of reducing their workload through cooperation and organisation of a group and the women's group was formed to share the workload of cultivating farms. They were aware of the large amount of work that women were expected to manage. Hence, by avoiding quarrels with their husbands, they came up with a constructive solution: they formed a group to share the workload amongst themselves. Rhoda and fellow women seem to accommodate men's self-pride and try to live harmoniously (Tamale 2006). Togetherness and this communal society is the key aspect of African culture (Pradavanda 1989). These village women are aware of gender disparity through an unequal workload and men's general expectations of women,

yet they discuss a solution based on their capacity and attempt to create a better situation for women. This process reflects a praxis (Freire 1985), meaning people raise their own awareness of social issues and act to bring about a solution. The women were not ordered or persuaded by outsiders to plan and implement a development project; instead, it was cooperative and mutual learning to change their situation. In addition, based on their everyday needs, each woman contributed a small amount of money to the group members as a whole. Each woman would indicate that she has a high expectation for education and she utilises the money to educate her children. However, again, the women's views can be overly optimistic as Puchner (2003) emphasises that socio-economic development cannot be guaranteed by providing only an education to people.

Case Two: Teresa

> At the time of the research, Teresa was a pastor and farmer. She had never been to school. She had nine children. The first-born child completed secondary education, and she hoped that the child would continue to higher education. She had a small business, making and selling Maasai ornaments in the market. She also went to Nairobi city to purchase animal fat, which she boiled to produce oil at home, and sold by retail in the market. When she was young, her mother had taught her how to make Maasai ornaments at home. It was a Maasai tradition for women to make ornaments. Teresa also had a certificate in pastorate. She attended pastorate lectures, which were conducted for two groups, one for those who were formally 'literate' and one for those who were formally 'illiterate'. 'Illiterates' were taught in their mother tongue. Teresa said, in her heart, she could hear, or 'catch' what was taught, and intuitively understood the bible. A teacher explained about the bible in lectures, and participants discussed it. Teresa absorbed the contents of lectures, and remembered them. As a pastor, Teresa oversaw the church participants' behaviour, teaching the value of Christian life and working hard at home. Teresa advised church members to build a toilet at home within hygiene and cleanliness education. Teresa also encouraged the women's group of the church to contribute 40 shillings every Friday to assist those who were less fortunate. She was keen for people to become more active in daily work. She was also concerned about the sustainability of her church, and wished to educate church members to be able to play her role so that she could go to several other churches to supervise. She stated that she would like God to empower women because they were very much behind in Narok. Teresa felt that women should be at the front-line in the community, not lagging behind men. To her adult education was beneficial for women, as Teresa was able to write her name from attending adult education classes. However, at church, she relied on other church members to read and write.

Teresa organised women's seminars on how to improve their houses, how to approach men and husbands, and advised about women's rights. She also coordinated a women's ministry whose members had become church pastors, and encouraged them to teach fellow women in her community. Despite being a woman, people welcomed her to church seminars and meetings because of her status as a pastor. Teresa also taught men how

to cooperate with women, and preached to men to encourage them to provide opportunities for women to manage various tasks in the community.

Teresa recognised the importance of education and had attended a college to gain a degree in pastorship by memorising the contents of the study programme. For her, illiteracy was a very small disadvantage that she could overcome in order to acquire new knowledge and the skills of pastorship through orality. The significance of orality was well recognised within religious higher education. This reflects Carmen's perspective on orality, which is that, "literacy cannot fully replace the pre-existing oral order"(1996, p.100). Teresa also facilitated women's cooperative learning and solidarity in establishing self-help activities. This process demonstrated that in cases when people have an urgent need, they will take the initiative to establish cooperative activities (Carmen 1996, Pradavanda 1989, Freire 1976, Gramsci 1979). The process of power through informal literacy and learning was reflected within the women's group. Even though Teresa experienced opposition from men in the community, she avoided conflict with men. Teresa accepted men's pride, a position echoed by Oyewumi (2003)'s theories about creating a harmonious society. As a church leader, Teresa foresaw the sustainability of her church. She expressed a desire to train other church members to take over her responsibilities within the church community. This can be understood as sustainable development where using her opportunity as a pastor, she attempted to open a space from which women could speak. Also she discussed women's issues or their situation with men at church and encouraged men to be more accommodating to women. She used a dialogue to convey her messages to village people. Teresa was well aware of the Maasai's strong patriarchal system, meaning that women's voices were often ignored by men. Hence, she approached both men and women with different communication methods and tried to engage both men and women to bring about social change together. Here, the gender and development (GAD) approach (Moser 1993, Østergaard 1992) was applied for church programmes in which men and women worked together in accordance to their gendered roles and responsibilities. Cornwall (2000) identified the issue of men's problem discourse, which shows men are always problematic in promotion of gender equality, and there is not enough dialogue between men and women. Teresa's point echoes with Cornwall's view and emphasised a dialogue and understanding of different roles played by men and women within the church. In addition, Teresa applied role modelling as a method of empowering village men within church, aiming to counter women's subordinate position.

Discussion

The Impact of Literacy on One's Well-being
In the process of learning, these women raised their critical awareness of social issues and gender inequality and attempted to improve the situation through collaborative learning. They all assess needs by themselves and conduct various kinds of activities to improve the well-being of their family and community. The women also consider not only benefits to themselves and family but also to their relatives, friends and neighbours. They believe in collective action and solidarity, and bring about a positive change at the pace of their choosing (Mohanty 2003).

On one hand, literacy tends to be understood as the result of alphabet acquisition through literacy learning. On the other hand, the impact of literacy on people's standard of living such as self-empowerment and poverty alleviation was highlighted in the research participants' comments. Egbo (2000) looked at the personal impact of literacy on women and she suggested that it resulted in an increase in one's self-esteem to bring about a better life. This was mentioned by the instructor's comment on the impact of literacy on one's well-being. However, Maddox (2005) reports that some marginalised women can be reluctant to demonstrate acquired literacy skills due to culturally restricted gender roles. It implies that a level of one's self-confidence developed in the process of learning village women's perspectives on literacy and well-being were explored in interviewed. As Knowles observed, adults learn and gain knowledge based on their needs and experiences while children learn mostly in a classroom setting. Adult informal learning is distinct from formal learning. Knowles (1973) clearly showed that 'andragogy' is all about self-directed and problem-based learning, bringing in life experiences. Critical reflection on learning and outcomes are key aspects of adult informal learning. Although critical literacy was not specifically part of the village based literacy curriculum or the pastorship course, Rhoda and Teresa developed critical thinking and acted upon bringing about a social change (Freire 1970, 1973).

Women's contribution to community development: the effect of togetherness and solidarity

The interviewed women were keen to speak about their learning experiences to the researcher. In the forum created by the self-help group through learning activities, village women raised their voice and became more active, getting involved in community development projects. The interviewed women actually moved into action and implemented a small-scale business and primary health care project. The participant in the process of gaining new knowledge and literacy skills built a collaborative relationship with others.

Apart from Rhoda, Teresa showed that she challenged gender inequality. Teresa understands the expected role in their male dominated community, yet she looks at her surroundings and analyses the issues by herself (Narayan and Harding 2000).

Rhoda did not indicate her actions towards gender inequality. As Tamale (2006) emphasises, the form of activity should be linked to political structure, if individuals strongly demand to have a more equitable and democratic society.

The women seem to accommodate men's self-pride and try to live harmoniously (Tamale 2006). Togetherness and this communal society is the key aspect of African culture (Pradavanda 1989). These village women are aware of gender disparity through an unequal workload and men's general expectations of women, yet they discuss a solution based on their capacity and attempt to create a better situation for women. This process reflects a praxis (Freire 1985), meaning people raise their own awareness of social issues and act to bring about a solution. Each woman would indicate that she has a high expectation for education and she utilises the money to educate her children. However, again, the women's views can be overly optimistic as Puchner (2003) emphasises that socio-economic development cannot be guaranteed by providing only an education to people.

While Mohanty (2003) and Haraway (1991) suggest that solidarity and togetherness among subordinated women can help them bring about positive changes in society, these two women have rarely engaged in political initiatives to challenge gender inequality.

Teresa and Rhoda found her own way to overcome social issues.

Conclusion

The aim of this paper was to report on the organisation of a village based literacy centre and on Maasai women's views on literacy and development experiences in Kenya. It also attempted to examine how women resist patriarchy through collaborative learning and togetherness.

The findings imply that it is beneficial to apply an ethnographic approach, to ensure that women's voices are valued. This paper has presented the set of data derived from observation and interviews. The data of observation suggests that a village based literacy centre has limited financial and technical supports from the government offices. It has resulted on the instructor's own capacity to organise and manage the literacy programme. As the instructor appears to be motivated in teaching and working in community development with his literacy class participants, a regular training course and up-to-date teaching materials could help the instructor organise a more learners-centred and effective literacy programme in the village level.

The analysis above suggests that the interviews of each woman's experience on literacy and community development was the powerful tool for building my knowledge on how the Narok village women improved their well-being.

While the development approach tends to be regarded as "rational problem solving" favouring literacy as an instrument (Robinson-Pant 2008, p.780), this paper has demonstrated that there is an alternative to the top-down literacy and development approach, which is local people-centred to lead a positive social change.

Conversations with the Maasai women can challenge existing top-down literacy and development policies. It will be important to monitor the formulation of policy on adult education and gender issues in Kenya in future.

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Professional Learning Communities of Teacher Educators: A tool for building academic research capacity in teacher education

Ruth Zuzovsky, Irit Levy-Feldman, Nir Michaeli

Introduction

This paper deals with the conduct and impact of twelve teacher-educators' professional learning communities (henceforth PLCs), which have been active for the last three years in a large college of education in Israel. Following the success of a pioneering community that dealt with political education, the leaders of the college decided to open additional communities for other groups of teacher-educators. This was a comprehensive strategic act taken to build up the research capacity of individual staff members as well as of the entire institution, an urgent need for the developing academic colleges of education in Israel and a condition for being fully accepted in the higher-education sector.

The aims of this act were the following:

1. Developing research identities and strengthening the academic self-perceptions of staff members in the college.

2. Providing staff members with adequate support for conceptualizing, writing and publishing their professional knowledge.

3. Developing norms of trust and collaborative learning among members of the communities.

4. Nurturing and enriching the intellectual and academic discourse in the college.

The formation of a research identity, writing for publication, developing norms of collaboration and maintaining intellectual discourse among the college staff were regarded as indicators of success in building up a research capacity.

Building research capacity in higher education using PLC

McIntyre & McIntyre (1999) define academic research capacity as the "potential" for doing research in the current conditions that exist in higher-education institutions and not as how much research is actually done there. Leaning on Desforges' equation (Murray, Jones, McNamara, & Stanley, 2009), three elements are essential for developing research capacity: "expertise"; "motivation" for research and "opportunities" given to

do research. "Expertise" includes the necessary methodological understanding as well as substantive theoretical understanding, an ingredient stressed by Biesta, Allan and Edwards (2011). "Motivation" is the extent to which research has priority and incentive in the culture within which people work, and "opportunities" include the working conditions and funding that support the research (McIntyre & McIntyre, 1999). If all these elements are present, this gives individuals, groups, entire schools, and the entire system the power to become involved and sustain learning over time. The use of a multiplier in Desforges' equation means that the lack of even one element causes the sum of the equation to become zero.

Building Research capacity in teacher Education College using PLC

Using this terminology in the case of teacher education institutions, professional learning communities of teacher educators can be considered as one of the "opportunities" for developing the research capacity of individuals and organizations and, consequently, for elevating the status of teacher education.

The building of research capacity within teacher education institutions around the world should be viewed in the context of changes in their academic status. In many countries, either because of the creation of professional colleges for advanced education for teachers and academic colleges of education, or because of the amalgamation of teacher colleges with universities to form new university structures with a research orientation, teacher-education institutions have become part of the higher education sector. These processes were described in many publications – in Australia: Mayer, Mitchell, Santoro, and White (2011); in Sweden: Erixon Arreman and Erixon (2008); in Finland: Hökkä, Eteläpelto, and Rasku-Puttonen (2012); in South Africa: Chetty & Lubben (2010) and in England: Murray (2008b); Sikes (2006). In all these cases, staff members in former teacher education institutions were required to engage in research, an activity which was not in line with their former occupational profile. Mechanisms of quality assurance of research activity in higher education institutions, such as the RAE – Research Assessment Exercise in England and Scotland or the ERFA – Excellence in Research for Australia – only made these requirements more demanding. As a result of these pressures, the potential for establishing PLCs for the purpose of building the research capacity of individual teacher educators and that of teacher-education institutions was acknowledged.

Following this acknowledgement, in the US and in many countries in Europe PLCs were established for building research capacity into the teaching and learning of teacher educators (Chetty & Lubben, 2010; Cochran-Smith, 2003; Cochran-Smith & Zeichner, 2005; Davies & Salisbury, 2008; Erixon Arreman & Erixon, 2008; Gore & Morrison, 2001; Hill & Haigh, 2012; Lucas, 2007; Lunenberg, Ponte, & Van De Ven, 2007; McIntyre & McIntyre, 1999; Murray, 2006, 2008a; Murray, Jones, et al., 2009; Rees, Baron, Boyask, & Taylor, 2007; Stoll, Bolam, McMahon, Wallace, & Thomas, 2006; Tarrou & Holmesland, 2001). Some of these projects were in the form of micro-communities existing in one teacher education institution (Murray, 2006, 2008a), while others took the form of networks connecting several institutions. Such is the Welsh research network (WERN) described by Davies and Salisbury (2008) and the Teacher Education Research Network (TERN) described by Murray, Jones, et al. (2009) and Murray, Campbell, et al. (2009).

In Israel too, in the context of the academization process that teacher education institutions have undergone since 1980 (Hofman & Niederland, 2012; Kfir, Ariav, & Libman, 1995), similar changes occurred. From being non-academic post-secondary seminars for teachers, subordinated to the Ministry of Education, they turned into academic colleges of education that grant B.Ed. and M.Ed. degrees and are subordinated to the Council of Higher Education, like all other academic institutions in Israel.

The Israeli context

Here too, this process placed an increasing demand on the staff of the colleges, most of whom had little experience with the academic ethos or in writing and publishing. In light of these increasing demands, the building of research capacity of teacher educators working in teacher education institutions in Israel became a must. Creating institutional PLCs of teacher educators seemed to be the answer for this purpose (Ben-Peretz & Silberstein, 2001), as well as inter-institutional networks such as the MOFET Institute for Research, Curriculum and Program Development for teacher educators.

The present study focuses on twelve PLCs that were initiated in one teacher education institution in Israel. In this sense, they resemble the micro PLCs, where, in a supportive and stimulating cooperative learning environment, teacher educators shape their professional identities as researchers.

The study

Research questions

In line with the aims of the PLCs, the research questions of the study were the following:

- What motivated staff members to join the PLCs, and what are their perceptions as to whether their goals were fulfilled?

- What was the nature of the meetings held in the different PLCs?: activities, atmosphere, and orientation (conduct)

- What was the impact of attending the PLC meetings on the research capacity of individual members: their professional identity, evolving norms of collaboration, interpersonal relations and success in conceptualizing, writing and publishing academic papers?

- What was the impact of the PLC activity on the research capacity of the college as a unit and on the intellectual and academic discourse it produced?

Participants

187 staff members (about half of the permanent staff members working at the college at that time) were registered for the twelve communities that operated until 2014. However, only about 130 of them participated in the PLC meetings on a regular basis and only 87 of them responded to the questionnaire that was the main source of data on the characteristics and motivation of the staff.

Most of the teacher educators who responded to the questionnaire held doctorates (67%) or were studying toward a doctorate (24%). All had some previous academic experience in writing, publishing and supervising students in academic tasks. Many of them (77%) present papers in local and international conferences and submitted research proposals to funding agencies within and outside of the college (47% and 61%, respectively). However, most of them (74%) held only low ranks or no rank at all on the promotion career ladder.

Methodology

As the study dealt with twelve PLCs that operated concurrently, it took the nature of a collective case study (Bogdan & Biklen, 1998; Stake, 1995). Using a mixed method approach, we obtained qualitative data through

observations carried at most meetings of seven of the 12 PLCs, as well as through semi-structured interviews with some of the participants and with all PLC leaders. Quantitative data were obtained from a Likert-type questionnaire administered to all members of the PLCs toward the end of the study period. Participants' and leaders' perceptions of their experiences revealed the essence of the processes that occurred at PLC meetings. In this sense, the study adhered to a phenomenological research type (Creswell, 2003; Moustakas, 1994). The data collected provided information regarding the following:

- Motivations and expectations of the staff members who joined the PLCs, and whether these were fulfilled

- The conduct of the PLC meetings: activities, atmosphere and orientation

- The impact of participating in different PLCs on both individual staff members and on the college as a whole.

Results

1. *Staff motivations for joining the PLC and the extent to which these were fulfilled*

The findings were mainly obtained from responses to the questionnaire on which participants ranked their motives for joining the PLCs and the extent to which these were fulfilled, on a scale of 1 to 5. The main motives for joining the PLCs were the need to write for the purpose of promotion and the wish to be affiliated with an elite group of knowledge producers. Table 1 presents the mean scores on motivation and fulfillment as well as T-test and significance for paired differences.

Motives	*Motivation*	*Fulfillment*	*Gap*	
	Mean (SD) *N=76-80*	*Mean (SD)* *N=74-78*	*T-test & Sig*	
Being affiliated to a knowledge creating group	4.2 (0.9)	3.7 (0.9)	0.5	5.5 ***
Motivation for academic writing and publication	4.2 (0.9)	3.6 (1.1)	0.6	4.7 ***
Opportunity for learning, updating, renewal and	4.0 (1.0)	3.6 (1.0)	0.4	4.2 ***

enrichment

Opportunity for collaboration and mutual enrichment	4.0 (0.9)	3.2 (1.1)	0.8	7.3 ***
Extending the circle of acquaintance with other staff members in the college	3.6 (1.1)	3.7 (1.2)	- 0.1	-1.5
Getting support in writing from "critical friends"	3.2 (1.2)	3.0 (1.2)	0.2	2.0 *
Restructuring my professional knowledge	3.3 (1.1)	3.0 (1.2)	0.3	3.1**

Table 1 – Motives for joining the PLC and the extent to which they were fulfilled

2. *Conduct of the PLC: activities, atmosphere and orientation*

Activities

Participants were asked to evaluate the extent to which the meetings of their PLC were dedicated to different types of activities: listening to lectures, reporting on their writing, conversations not related to their writing, and giving and receiving feedback concerning their written products. In the figure below, activities that scored 4 or more were labeled with two ++, those that scored 3-4 were labeled with only one +. Figure 1 shows the average scores obtained for the different activities in each PLC.

The figure indicates that all PLCs exhibited a mixture of activities although some emphasized certain ones more than others. This profile of activities shows a balance between activities targeted toward writing and toward discourse.

Atmosphere and Personal relationships

Participants were asked to describe the atmosphere and type of interpersonal relationships that were developed at the meetings on a semantic differential scale between two poles ranging from 1 (positive expressions) to 7 (negative impressions). The mean scores indicate positive personal relationships (Table 2).

Figure 1 – Different activities in each PLC

	Political Education	Bible	Education-Technology	Art Education	Ecological & Social sustainability	Qualitative Research	Holocaust Education	Interdisciplinary in Humanities	Gender Education	Media	Adventurous Pedagogy	Visual Literacy
■ Listening to lectures	3.3 +	3.3 +	2.7	3 +	2.6	1.8	2.9	4.7 ++	2.6	4 ++	1.8	4 ++
╲ Reporting on writing	3.7 +	2.6	2.7	3.6 +	4.1 ++	4 ++	3.6 +	2.4	3 +	1.5	1	1
≡ Feedbacking on writing	4.3 ++	2.7	2.3	4.2 ++	3.9 +	4.2 ++	4.6 ++	2.6	2.5	1.5	1	1
▨ Discourse and Conversation	3.7 +	3.3 +	3.8 +	3.2 +	2.2	4.2 ++	3.4 +	3.4 +	4.4 ++	4 ++	4.8 ++	2.3

Table 2 – Mean of group responses regarding atmosphere and interpersonal relationships

Dimension	N	Mean (SD)
Atmosphere (1 positive – 7 negative)	81	1.9 (1.3)
Cooperation (1 cooperative – 7 competitive)	78	2.3 (1.2)
Sharing (1 trust – 7 suspicion)	80	2.1 (1.3)
Trust (1 trust – 7 suspicion)	73	2.4 (1.2)
Modesty (1 modesty – 7 pretension)	80	2.4 (1.3)

Orientation

In addition, participants were asked to define how they perceive the main intention or orientation that was dominant in their PLC: toward writing, toward action, toward conversations and discourse, toward enrichment or a mixed orientation. The most frequent orientations perceived were those toward writing and toward discourse and conversation. These activities are in line with expectations that the PLC would support writing and intellectual discourse among the college staff. In this sense, the establishment of PLCs was successful. Table 3 shows the frequency of these responses.

Table 3 - Main orientation of PLCs (N=76)

Orientation	N and % of respondents
Writing	34 (45%)
Action/Practice	3 (4%)
Discourse/Conversation	24 (31%)

Enrichment	3 (4%)
Mixed	12 (16%)

3. *The impact of PLC activities on building the individual's research capacity*

Building individuals' research capacity is viewed not only as providing staff members with the knowledge and skills needed for doing research but, first of all, with developing a disposition toward changing the way they perceive their occupational role, which was, and tended to remain, that of teachers. Information on participants' role perception was obtained through the questionnaire. PLC members were asked to agree with several role perceptions on scale of 1 (not at all agree) to 5 (mostly agree). The average scores on the agreement scale with the role of a researcher in education or as a scholar who studies his or her own practice were found to be low. As this question was asked toward the end of the research period, it seems that participation in the PLC meetings did not change their role perception and their main occupational identity as teachers. Table 4 presents the average scores and the percentage of those who agree and mostly agree with each of these roles.

Table 4 – Role perception of PLC members

Occupational Role	*Mean (SD)* *N=69-74*	*Agree & Mostly* *agree (%)*
Teacher	4.4 (1.1)	68%
Educator and Social activist	4.0 (1.1)	64%
Theorizing and writing in the discipline	3.9 (1.2)	61%
Theorizing and writing in education	3.6 (1.3)	47%
Researcher in discipline	3.9 (1.4)	62%
Researcher in education	3.4 (1.3)	39%

| Researching own practice | 3.3 (1.4) | 33% |
| Manager - Principal | 3.0 (1.5) | 33% |

4. *The impact of PLC activities on institutional research capacity*

We will again use Derforges' equation in describing the impact of PLC activities on building a research capacity on the institutional level. As described earlier, research capacity is defined by multiplying "expertise" for doing research by "motivation" to do it and by "opportunities," mainly the conditions that support doing research. Evidence regarding the accumulated "expertise" of the staff members who participated in the PLC meetings indicates that most of them already exhibited considerable levels of research experience. However, most of them were only in the initial stages of their academic promotion, thus their "motivation" to play the "academic game" of writing for publications was high.

The opportunity given faculty members to pursue this scholarly activity in the context of the PLC meetings was very meaningful. Many of them agreed to join the PLC on a voluntary basis with high levels of commitment. About half of the permanent staff members, joined the PLC and about 17% participated regularly in PLC meetings.

The establishment of the PLCs was only one of the opportunities the college provided for interested staff members. During the period the PLCs operated, other initiatives took place and are still ongoing. Among these was the launching in 2014 of a refereed journal that until the end of the research period published six issues. In addition, the allocation of paid hours for research and monetary support for editorial purposes and travel expenses to conferences, etc. were made available.

The academic yield of the college staff during the period in which the PLCs functioned was impressive. 148 refereed papers were written by staff members and 263 lectures were presented at conferences. Another indication of increased research capacity were the annual research conferences organized by the college during the three years of the PLCs' activity to enable staff members to present their studies, and the high rate of staff participation in them.

Although it is hard to distinguish between the impact of the different initiatives for promoting research that took place concurrently, their combined effect on the general atmosphere of the college added to the already existing humanistic ethos that is part of an academic ethos.

5. *Conclusion and Discussion*

In summing up the findings obtained from the intensive follow up study, we will refer to two issues: the conduct of the twelve PLCs and their success in achieving the aim of building the staff's research capacity and an academic ethos in the college.

In regard to the findings on the conduct of the PLCs, we found that the PLCs exhibited a mixture of activities. The dominant ones were those focused on writing and on conducting discourse not necessarily related to the writing. It seems that the community structure provided space for the very necessary intellectual discourse among scholars in the college.

In most PLCs, the research aspect that nourished the writing occurred before the start of the PLC meetings. The PLC served as a platform for elaborating on research findings that served as a basis for the academic writing. The writing process usually followed a period of formal learning that occurred at the meetings, in which members were engaged in listening to lectures on topics relevant to the theme of the PLC. This phase enabled participants to become familiar with one another and to develop trust and a feeling of belonging to the group, a pre-condition for willingness to share and accept feedback. Following this phase, a period of writing and rewriting occurred. Participants began to present their drafts and were very interested in receiving feedback.

Participants' responses indicate that they appreciated the feedback given at the meetings as contributing to the quality of their writing and as helping them to write for publication. However, despite the apparent success of the PLCs as perceived by the participants in developing norms of trust, providing support for better conceptualization, ensuring high quality writing and in enriching the academic and intellectual discourse, the aim of developing a researcher identity among the college staff was not fully attained.

Difficulties in building research identity among teacher educators have been reported in many studies around the world. In all these studies, teacher educators facing changes in the academic status of their workplace were

required to construct a new professional identity. These requirements were in conflict with their traditional role perception and commitment to teaching. Many considered relinquishing their teacher's role and changing their world view as highly risky. Labaree (2003), in discussing the cultural divide between teachers and researchers, mentions four transformations that teachers must go through when crossing the boundaries between teaching and research: giving up the normative-moral way of thinking for an analytical one, the personal for the intellectual, the particular for the universal and the experiential for the theoretical. In the face of these transformations, changing the professional identity of teacher educators is an ambitious goal. It seems that the process of adopting a new professional identity expands beyond the time limit of this study.

With regard to the aim of building the research capacity on the institutional level, the simultaneous operation of the twelve PLCs was very successful. The building of such research capability on the college level is, however, related to building the research capacity of individual staff members. As Senge (1990) puts it, "Organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning. But without it no organizational learning occurs" (Senge, 1990, p. 139).

The many new initiatives offered by the college leaders during those three years provided the conditions to pursue research. A new strata of scholars interested in doing research alongside their teaching duties appeared. The academic yield of publications and academic activities that followed these initiatives during the three years the PLCs operated is another sign of success in promoting the institutional research capacity.

In summing up the success of the PLC projects in attaining their aims, we can conclude that most were attained, especially those that are manifested on the institutional level. There are signs of growing personal relationships among the PLC members, increase in trust and collaborative work, success in conceptualizing and in writing academic papers, and growth in the feeling of affiliation with the college as a workplace. Evidence of the research capacity of individual members is also positive. However, in spite of these results, the aim of developing a research identity and strengthening the academic self-perception of the community members was not attained.

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How is the national language, Thai, acquired by school children of the highland communities in Thailand?
-Influential factors and Impacts-

Yasuko ONO

Nagasaki University, Japan

Abstract: *Thailand is often considered as a relatively homogeneous country, speaking Thai and sharing a common culture. Thailand is, however, also said that one of the most linguistically and ethnographically diverse areas of the world. As a school level Thai is mainly used, children whose mother tongues are not Thai have to study in an unfamiliar language at the primary school, which makes them difficult to learn both Thai and school subjects. In this paper the acquisition of the national language, Thai, for children from the highland community will be focused with the case study of the Lisu woman and the Tai-yai man. The paper will draw the influential factors for a successful acquisition of Thai by highland children as an ethnic minority.*

Introduction

Thailand is often considered as a relatively homogeneous country, speaking Central Thai (Thai) and sharing a common culture. Thailand is, however, also said that one of the most linguistically and ethnographically diverse areas of the world (Prapasapong, 2009; Schliesinger, 2000). Majority of the total population is from the Thai ethnicity. However, many different ethnic groups of people such as the Chinese, Malay, Khmer, Mon, and various highland people also exist. Therefore, while Thai is considered as the national language, Lao, Chinese, Malay and English as well as languages used by highlanders are also used in everyday life in Thailand (Prapasapong, 2009; UNESCO, 2008).

The purpose of this study is to examine how the national language, Thai, is gained by children from the highland community where their mother tongues are not Thai, in Thailand. The paper will focus on the learning process and learning environment for the children of the highland community to gain Thai, specifically in the primary education level.

Many of the highland people live in mountain areas of the northern and the western part of Thailand (see the appendix). They have their own culture and language (Hurights Osaka, 2014; Schliesinger, 2000). The schools, however, use the national curriculum; therefore, the children start their Grade 1 with Thai instructions which are not familiar to the children from highland. The children from highland face difficulties to learn subjects as they do not understand the language (Kosonen, 2009; SIL international, 2014; UNESCO Bangkok, 2015). There are, however, also children from the highland communities who acquire Thai and successfully go up to a university level, where the medium of instruction is of course Thai.

In this paper I explore the case of two people from different ethnic minority groups, both of whom have reached a graduate level at a university in Thailand. One is from a highland community and the other is originally from Shan state in Myanmar (Burma). Their mother tongues are not Thai, national language or a dominant language in Thailand. I try to find what factors affect them for a Thai learning process as non-Thai speakers from their experience. Their experience could give us some clues to understand the language acquisition during primary education for children from the highland communities as well as children from minority ethnic groups.

I will begin with the sociolinguistic situation for highland people in Thailand, followed by a brief description of educational context for them. I will then offer my research question and justification, before turning to the case study of two people whose mother tongues are not Thai. In discussion then, I will draw the possible factors for a successful acquisition of dominant language, Thai, by highland people. In addition I will also touch a little on their cultural identity as the two interviewees seem to be integrated into Thai society.

The sociolinguistic situation for highland people in Thailand

Ethnic groups in Thailand can be grouped into five linguistic families for their origin. They are the Tai language family, the Austro-Asiatic language family, the Sino-Tibetan language family, the Austronesian/Malayo-Polynesian language family and the Hmong-Mien/Miao-Yao language family (Hurights Osaka, 2014; Keyes, 2008; Prapasapong, 2009; Schliesinger, 2000; Forbes & Henley,2014).

The Tai language family includes Thai (Central Thai), Northeastern Thai (Isan), Northern Thai (Lanna), Shan (Thai-yai) and others. The Austro-Asiatic language family is said to be used by people original inhabitants of Southeast Asia such as Mon-Khmer languages and Aslian languages. Mon-Khmer languages are used by Khmer, Khmu, Kuy, Mon, Htin and others.   The Sino-Tibetan language family consists of Tibeto-Burman language group and Chinese language groups. Tibeto-Burman languages are used in the northern and western parts of the country, including Min Nan Chinese, Karen, Pakayor, Bisu, Akha, Lahu and Lisu. Austronesian/Malayo-Polynesian languages are used mainly in the south by Malay, Moken and Urak Lawoi. Hmong-Mien languages are spoken in northern Thailand (Hurights Osaka, 2014; Keyes, 2008; Prapasapong, 2009; Schliesinger, 2000; Forbes & Henley,2014)

Among these ethnic groups above in Thailand, the nine groups are well recognized as highland people. These nine groups are the Hmong, Mien, Lahu, Lisu, Akha, Karen, Lawa, Htin and Khamu. They live mainly in the northern and western part of the mountainous areas of Thai bordered with Myanmar (Burma) and Laos. Highland people are often called a hill tribe or 'chao khao' in Thai. The name of a hill tribe or 'chao khao' is viewed as a problematic status, from the discourse of modernization and nation-building during 1950-1960's. The name became to have a negative connotation during the political process of nation building at that time. They were categorized as non-Thai into one segment of society outside of the nation and seen as someone who was not integrated and backward so that they had to be assimilated into Thai society. This was caused because of their traditional mode of cultivation and the past association with the producers of opium as well as their own unique culture (Forbes & Henley, 2014; Gravers, 2008; Keyes, 2008; Schliesinger,2000).

The image of highland people started, however, to change in 1980's and the early 1990's because of the rise of the international awareness for human rights as well as the adoption of the 1997's constitution with the emphasis on the importance of the diversity in cultures and languages. Many NGOs became active during the era and leaders of highland ethnic groups started working with the NGOs. The highland people gradually gained a positive recognition in Thai society. They also started the promotion of their cultural crafts, trekking and cultural dances and outfits and became one of the tourist attraction resources (Gravers, 2008; Keyes, 2008).

Educational context for highland people in Thailand

The Thai education consists of a 12 year free basic education, which is a 6 year primary education followed by a 3 year lower secondary and a 3 year upper secondary education, included 9 years of compulsory education. In addition, early year education is taken place (Ministry of Education, 2008).

Even though they live in a mountainous area, children of highland can attend a government primary school in their villages. There are also low land primary schools where ethnic minority go and study. One of the issues at school for highland children is the medium of instruction at school. Some argue that it is not clear that the government officially announced Thai as the national language (Prapasapong, 2009). Thai, however, has been mainly used at a school level. As a result, the learning achievement of the highland children is likely to be lower as they have to learn Thai and subjects at the same time. The children are confused and lose confidence as they face an unfamiliar language, Thai. This problem tends to be seen when their languages are not related to the language family of Thai (Kosonen, 2009; Prapasapong, 2009).

To overcome the problem, the constitution of 1997 first time provided a new opportunity for ethno-linguistic minorities, including highland children to use their languages. According to the 1999 Education Act and curriculum, the schools are allowed to put up to 30 % of the content about their local culture and language in their curriculum (Makaramani, 2013; Prapasapong, 2009; Siltragool, Petcharugsa, & Chouenon, 2009).

Along with the new curriculum, Bilingual Education pilot programme and Mother Tongue-Based Multilingual Education (MTB MLT) pilot programme were carried out in the early 2000's for the Mon, Pwo Karen and Hmong speaking areas, aiming children from non-dominant language communities to use their own language to start their primary education. It is said that MTB MLT programme brings children opportunities to answer questions and think well with confidence of their own language instead of being confused in language they do not know. It is believed to achieve an impressive level of outcome for an oral and written fluency and skills at school and enable them to continue leaning for the higher grades (Kosonen, 2009; SIL international, 2014; Siltragool, Petcharugsa, & Chouenon, 2009; UNESCO Bangkok, 2015; UNESCO Institute for Lifelong Learning, 2015) It seems, however, that the bilingual education is not fully implemented at school level. Many of the children from the highland communities, therefore, have to learn subjects in Thai at primary schools even now (Foundation for Applied Linguistics, 2015; Kosonen, 2009).

Research Question

The main question in this study is: How is the national language, Thai, acquired by school children of the highland communities in Thailand?

In this paper I will focus on the factors that affect the acquisition of Thai by children from the highland communities as well as minority ethnic groups during the time before bilingual education or cultural diversity widely taken into consideration in the education policy. While bilingual education is emphasised for a better learning achievement, some children who are at a government primary school with an only Thai use successfully continue their education up to higher grades. There must be some important factors that we

can learn from and to apply for further development of educational approaches toward highland children.

Justification of study

To achieve Universal Primary Education in Education for All goals and Millennium Development Goals, 58 million Out of School Children (OOSC) have to be brought to school and quality of education has to be improved (UNESCO, 2015). Many of the OOSC are often ethnic minorities who do not speak the dominant languages where they live. They, therefore, tend to be socially and economically marginalized. Gaining the language used in the main stream society and in the economic sector is one of the paths to improve their standard of life while it is said to have a risk to lose their own culture and identity (UNESCO, 2010).

Children in highland communities in Thailand have the same issues and it was until recently that the bilingual education environment was not taken into consideration. The study of language acquisition by highland children whose mother tongues are not dominant languages will contribute to improvement of education for not only children from the highland communities in Thailand but also for the minority groups and marginalized groups in general in Thailand as well as different countries. This study would provide some implication for a better education approaches to children at schools where an unfamiliar medium of instruction is mainly used. Furthermore, this can lead to search for the evidence if it is possible for those children who successfully learnt the dominant language to be integrated themselves in the main stream of the society while preserve their own culture and identity.

Method

The case study presented in this paper is a part of a larger study to be planned in the future with teaching material analysis, and site visits for class observation and interviews to children, teachers, parents and community people at the site to answer the research question. The field research was conducted in January and March 2015. This paper has resulted from literature reviews, interviews from different stakeholders with NGO workers, university professors, and researchers on highland people to gain basic information on issues for children from highland in the primary education sector. With this preliminary information, two interview sessions were conducted with a Lisu woman and a Tai-yai man who are both ethnologically non-Thai. The Lisu woman is from highland areas in Chiang Rai province, who graduated from a university with a master degree in Chiang Mai. The Tai-yai man is from lowland in Chiang Rai province, who currently studies at a master course at a university in Chiang Mai. Although the Tai-yai are not officially categorized as highland people, their circumstance with the area of settlement and language group can give some clues for a successful language acquisition.

The interview was consisted of 30 questions and it was conducted in a manner of a semi-structured style so that the interviewees could freely talk about themselves for the topic they were interested in. Interviews were conducted in English or Thai with an English interpreter. The names of research participants are anonymized. Throughout the interview sessions, the research participants were cooperative and eager to discuss their learning experience and environment.

Case Study

Background information of the Lisu and Tai-yai

The Lisu people live on high altitudes of over 1000 meter. They are originally from the western Yunnan province and they started to come to Thailand probably around 150 years ago. Their religion is a mixture of indigenous animism and ancestor worship. They live mainly in the provinces of Chiang Rai, Chiang Mai, Tak, Mae Hong Son and Lampang. Their language belongs to the Tibeto-Burman language group of the Sino-Tibetan language family and do not have a written language. Their main cash income used to be the growth of opium but after the opium eradication programme, they started to grow cabbages, tomatoes, kidney beans and soy beans as well as coffee to generate income (Schliesinger, 2000).

The Tai-yai people in Thailand mainly come from Shan state in Myanmar (Burma) and originally come from the southeast China. Many of them living in northern Thailand are refugees from Myanmar (Burma), especially in 1980's and 90's. Most of them are Buddhists. They live in both lowland and highland of the provinces of Chiang Mai, Chiang Rai and Mae Hong Son. Many of them are from a farming background before coming to Thailand but also trading is another source of their income. They speak Tai-yai, which belong to the Tai language family (Baek & Subramanium, 2008; Cats, 2009).

Ami's story

Ami was born in 1981 and she is from the Lisu community at Doi Laan, Chiang Rai province. Her mother tongue is Lisu. She attended at her village primary school up to Grade 2, then some months at a Christiane school in Chiang Rai province, before attending at a government school in Ang Thong province from Grade 3 to Grade 9. Ami started leaning Thai when she entered the kindergarten at her village. She attended one year at the kindergarten and learnt Thai alphabets. During her primary schools she used only Thai at school. All the subjects were taught in Thai as well as Thai as a subject. No extra curriculum for her ethnic language, Lisu, culture or extra curriculum of Thai for non-Thai speakers. Although it was the first time to learn subjects in Thai, she said that she did not have any difficulties to study subjects in Thai at the primary school. She said the school from Grade 3 to Grade 9 at Ang Thong province was very strict in using Thai. The school was for the poor ethnic children and different ethnic groups such as, Akah, Mon, Mien, Lahu, Karen and Lisu were there. About 1000 students were boarding at the school facility. 40 or 50 teachers were there, who were all Thai. The students were not allowed to use their own languages. If they spoke their language, they were punished by the teachers. Also she had to speak Thai to communicate with children from the different ethnic groups in the school as they did not speak Lisu. She thinks this was the reason why she successfully gained Thai language skills.

Her family background is quite unique as she was adopted by a Dutch-American couple when she was at Grade 10. Now she lives with her foster parents but also meet her Lisu parents living in the village. Both sets of the parents seemed to be influential to her education. Her Lisu parents did not have formal education when they were at school age but they speak Thai. This is because that during the opium eradication around 60's the border police came to the village and tried to educate people in the village and taught Thai.

Her Lisu father and mother encouraged her to go to school. It was her father who suggested her to go to a school in Ang Thong province and let her stay till Grade 9. It was her Lisu mother who suggested to live with her foster mother in Chiang Mai and to keep studying after Grade 9.

Her foster mother is an anthropologist and started her research on Lisu ethnic group at Ami's village in 1982; one year after Ami was born. Her foster father is a historian. They speak a little Thai but they communicate with Ami in English. Ami remembers that the foster parents always read and discussed when she was at home with full of books around. She thinks this kind of environment encouraged her to keep studying after Grade 10.

Ami said she forgot Lisu traditional dance and Lisu language since she left her village around the age of 10. She explained the reaction of her village people when she went back to the village. The villagers gave her a warm reaction even though she could not dance properly. She said the older generation accepted the reality that the younger generation lost skills of traditional dances and languages when they went out of the village for education. According to Ami, the village people know sending children to school is important but also they know that children lose their traditions including Lisu language. Ami said that they were, however, confident that the younger generation could keep their Lisu identity even though they lost skills of dances and language.

In her school at Ang Thon province, some quit the school after Grade 6 because they wanted to escape from the harsh school environment. But she did not and kept studying. Then after Grade 9 she had a support from her foster mother so that she did not have to work like others. I asked her what made her keep studying while other classmates at the school in Ang Thon province quit their study at Grade 6 or Grade 9. She gave me two reasons; one was her strong personality and determination with a desire to continue education and the other was an opportunity for a further study.

Ami also explained about her identity as Lisu. She feels she is Lisu even though she forgot some of traditional dance and Lisu language skills. She has a strong emotional connection to her village and people. Currently she is helping her village selling Lisu crafts and collecting documents of her village in Chiang Mai.

Sai's story

Sai was born in 1989 in Keng Tung of Shan state, in Myanmar (Burma) and his family came to Mae Sai in Chiang Rai province, Thailand when he was at the age of one, in 1990. He called himself Thai-yai. His community in Mae Sai is located in lowland. According to Sai, his community is quite new and the community people do not have a strong bonding. The community receives a lot of development supports from the local administration. He went to a government school, 2 km from his house up to Grade 6. Then he went to Buddhist school from G7. He was a novice for 7 years and became a monk for 3 years then he entered a master course at a university in Chiang Mai.

He said that the government school at Mae Sai had around 800 students with different ethnic groups of students such as the Lahu, Akah, Tai-yai as well as Thai, but Tai-yai was a majority group. About 24 teachers were there at that time and none of them spoke Tai-yai. There was no extra curriculum for Tai-yai culture and language as well as Thai class for non-Thai speakers.

He could speak Thai when he entered the primary school as he learnt Thai in the kindergarten. But he did not speak Thai before that. He learnt all the subjects in Thai and he also had Thai as a subject three times a week. Each class was about one hour. Sai said that he did not have a difficulty to acquire Thai. He gained Thai from his friends, neighbors and TV as well as at school. Another interesting point he mentioned is

that Thai and his mother tongue, Tai-yai, are grammatically similar. He thinks, therefore, he has gained Thai skills with no difficulties.

His parents supported him to go to   school financially. They had to pay 1000 Baht a semester for the school fees, books and other materials even though it was a government school. Sai said his parents wanted to send their children to go to school so that the children could read and write Thai and help them. Sai parents understand Thai and speak a little Thai but they do not read or write Thai. They also understand and speak Tai-yai, their own language, but they do not read or write either. When Sai was at the primary school at Mae Sai he helped his parents at work.

A majority of the children in his community in Mae Sai studies up to Grade 9. He said this was because that some of them do not have Thai ID. Others do not have financial supports to keep studying.

He also talked about why he kept studying. He said that he would like to see the society's development and make a better livelihood. He also said that he had an opportunity to study so he took the chance.

I asked him about how he felt his identity. He said he had mixed feeling as he was away from his community and he did not write Tai-yai well. But he is attached himself to Tai-yai identity and when there are some events for Tai-yai he attend them.

Discussion

In this section, I will try to find answers for my research question, exploring mainly how the factors below affect for the successful language learning for children from the highland communities. The factors are drawn from literature reviews and my field researches conducted in January with interviews from different stakeholders such as NGO workers, university professors, and researchers. Some of the factors are not discussed as no evidence is found at this stage.

-A strong objective and a possibility of further study.

-A practical language for the community to have a better life or a further education.

-Contents in the text book familiar to and useful for the highland community.

-Bilingual Teachers

-Qualified teachers

-Hours for teaching and learning

-A location of the villages.

-A strong community and parents' involvement/supports.

-A continuous leaning environment or a post literacy activity, such as reading materials provided and chances to use newly learned Thai.

Highland people are likely to have a lower educational qualification and their leaning achievement is not as good as Thai children who go to school where the medium of instruction is their mother tongue, Thai. The Thai instruction of education at the early age of school is often pointed out to give negative impacts on leaning achievement of non-Thai speaking children (Kosonen, 2009; International Work Group for Indigenous Affairs, 2015; UNESCO, 2008). The two interviews reveal some possible factors that influence

the learning process of Thai by highland children. Bilingual education is not widely provided in schools for highland children yet, therefore, the cases during the time of strong emphasis on Thai uses without any consideration for cultural diversity could give some clues for a better learning acquisition of Thai by highlandchildren.

Ami and Sai had no extra Thai lessons for non-Thai speakers as well as any cultural studies included in their curriculum. They went through their school ages before the bilingual approaches and cultural contents in the text books and classes. It was time when the schools were under a strict atmosphere for a Thai use only. Ami's case, especially, was far from the ideal educational approaches in term of nurturing one's cultural development as a use of non-Thai, in her case Lisu, was prohibited. While Ami and some other who went to study up to Grade 9 or higher, others quit at Grade 6 or Grade 9. Ones who quit their education did not want to take the harsh school environment any longer and also they needed to work for their living as they had no supports for a further education. Therefore, it cannot be ignored the positive influence of the individual personality and strong determination as well as opportunity or chance they have on their leaning process to have a highachievement.

Sai's case reaffirmed education as an investment as Psacharopoulos and Woodhall (1985, p. 3) stated 'Education, like other forms of investment in human capital can contribute to economic development and raise the income of the poor just as much as investment in physical capital'. His parents did not go to school and could not write and read Thai or Tai-yai, which was the main reason for his parents to send Sai to school so that Sai could help them with their business. Also Ami's community and parents understood leaning Thai was important to live well. Having education in Thai was an investment for them. Also Thai was definitely seen as a practical language for Ami and Sai and their families to have a better life. Learning a dominant language must become an important factor for people to be encouraged to learn andsupport.

The location of school seems to affect their learning achievement too. Both the schools were located in lowland and were closely surrounded by Thai society. As a result they had more opportunities where they could use Thai out of school than the ones living in an isolated mountain area. In addition, for Sai' case, he helped his parents at work, which certainly gave him more chances to practice Thai outside of school. It could be said that with such a continuous leaning environment around them, they must have encouraged them to gainThai.

The cases show the effect of school environment on their leaning achievement of Thai. Ami and Sai studied with different ethnic groups at the same school. They had to use Thai when they talked to friends from different ethnicities. This was because their mother tongues were different so that they could not communicate in their own languages. They might have felt encouraged to speak Thai as that was only way to talk to their friends. This fact must have also given them a good leaning environment forThai.

The important role of parents and community people should be stressed. Without parents and community's supports, children are not able to study at school. Parents have to make sure for their children to attend school. The awareness of education in community must be also raised(UNICEF & UNESCO, 2007). For Ami's case, her father encouraged her to go to a primary school away from home. The reason was not clear why he sent his daughter to a school in lowland but as a result Ami could keep studying after

Grade 9. Sai's parents also played an important role. The community of Ami was also a supportive element.

The community people at the village knew the importance of education even though education outside of the village might give a negative impact on cultural customs and their own language skills. They are confident that forgetting Lisu tradition and language does not mean they are losing the identity of Lisu. The positive attitudes of the community toward education must have encouraged children to go to study. Sai's case, however, the community does not seem like to be Ami's. People settled in relatively recent. The people's relation in the community must be different from Ami's, which is worth to investigate in future.

Another finding is the importance of readiness when the children enter the primary school. UNICEF (UNICEF, 2012) stresses the importance of school readiness for children as a smooth social environment transition and a period to gain learning skills. Ami and Sai went to a kindergarten before entering the primary school. They knew some Thai before starting to learn subjects in Thai and must have given a smooth shift to understand things in their own language to Thai. Some knowledge before primary school must have given children a safe environment and confidence to use Thai at the primary school (UNESCO, 2008)

In addition Sai's case confirms the notion by other researchers (Kosonen, 2009; Makaramani, 2013; Prapasapong, 2009) that children with languages from the same family Thai belong to have a smoother leaning process than ones with languages from the different family. Tai-yai is in the same language family as Thai, which made Sai understand and use Thai easier.

Conclusion

The case study tries to draw factors that influence Thai learning process for children from highland community from two non-Thai speakers. One is Lisu from highland and the other is Tai-yai from lowland, both of whom successfully reached a graduate level at university during the time before the implementation of language and cultural sensitivity at school level.

The study is not completed as any class observation and interviews from children, teachers, parents and community have not been conducted yet. In addition current text books and curriculum at school in the highland village should be analyzed when I do a future field research.

This study, however, still gives us some clues for possible factors that could affect Thai acquisition by highland children. First of all the language itself should be seen as a practical language. A school environment is influential. Children in the schools with mixed ethnicity or with Thai society around could give a positive impact. They tend to have more opportunities to talk Thai. The more they use Thai, the more they learn it. Therefore, location of the school can be important too. Readiness of education before the primary schools seems important as well as parents and community's contribution toward children's education, which are to be investigated at the site of the village on highland. Furthermore individual strong personality and determination must be a crucial element to motivate their acquisition of Thai. In addition, it could be assumed that whether children see an educational opportunity in future can affect for a leaning motivation and acquisition.

Lastly, even though they seem to be adjusted into Thai society under the environment with no mother tongue spoken and away from their own culture during primary school and now, they sound proud of being Lisu and Tai-yai and strongly connected to their own culture. For them, it seems that having their life balanced in Thai and their ethnic society is not difficult as same as they acquire Thai when they were younger.

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Appendix

Source: Ethnologue http://www.ethnologue.com/country/TH
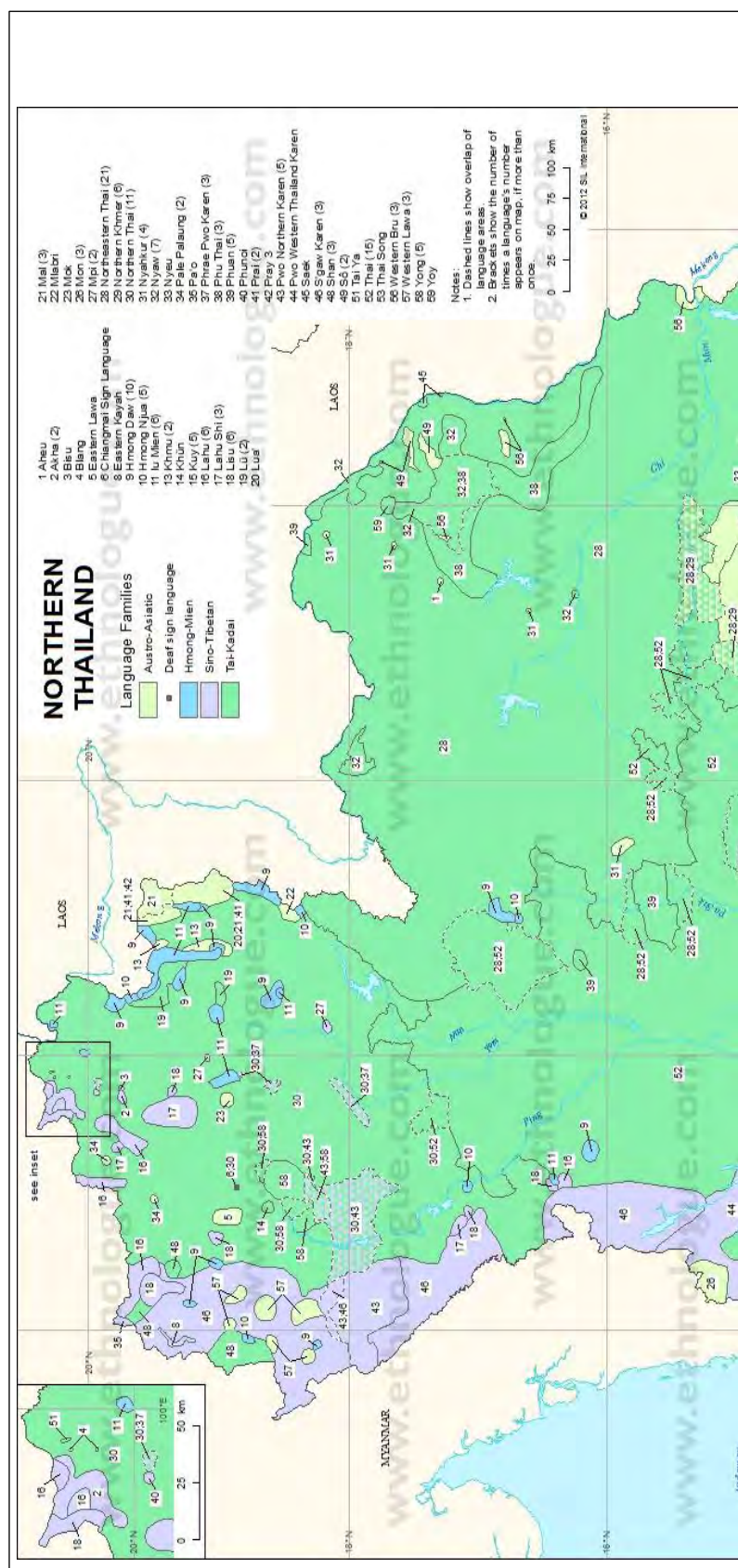
Effect of practices for improving the quality of mathematics and science lessons in Burkina Faso

Kinda / Tapsoba Constance N. M. Hortence

(Ministry of National Education and Literacy, Burkina Faso)

Yukinori Yanagida

(Project Expert, Japan International Cooperation Agency)

Abstract: *In Burkina Faso, the project on teaching and learning quality improvement in mathematics and science (SMASE) generalise the learner-centred approach called ASEI-PDSI (Activity, Student-centred, Experiment, Improvisation – Plan, Do, See, Improve) all over the country. In order to change the teachers' practices and behaviours and learners' activities and attitudes, the project developed the lesson plans and the in-service teacher training contents based on ASEI-PDSI, and then provided them to primary school teachers. This study is to confirm the positive and negative effects of this strategy by means of the evaluations in 603 lessons in 2012 and 2015, the questionnaires for 126 teachers, and the pre- and post-test of the in-service training for 1151 teachers in 2015. It makes sure also the possibility of the continuous improvement of the quality of education through practices of ASEI-PDSI.*

Keywords: Learner-centred, Lesson plan, Quality lesson

Background

In order to ensure the good quality of teaching and learning for learners, many countries have given the education the priority and spent a lot of national budget for diverse activities (Global Monitoring Report, 2013/4). The activities for improving the quality of education occupy one of the choices. Actually, a lot of innovations and experiments are implemented in the aim of solving the problems of the mediocre quality lessons.

In these days, introducing the learner-centred approach is proposed as one of the conditions for realising quality lessons, however in any case, in developing countries, the majority of lessons are still teacher-centred. Even though the teachers receive various supports like trainings, distribution of textbooks and teaching aids, and so on, as Teaching Gap (2009) said that the culture of teaching is strongly fixed among our teachers, it is difficult for them to adopt the other methods which could improve their practices. Therefore, many countries do not reach the expected results on the quality of education in spite of a considerable amount of money and time sacrificed to learning because of various internal and external factors.

According to Beeby's model of stages of educational change of developing countries (Beeby, 1966), the relevance of intervention is determined by the knowledge and teaching techniques of teachers and classroom

environment for improving the lesson, etc. Recently, effectiveness of the lesson study has been featured by many research documents. The lesson study is considered as a strategy on the paradigm change of teaching method. Its advantage is not only the lesson improvement but the strengthening awareness and the will of mutual improvement among teachers. The common point of the technique with the other activities is that at first the teacher executes individually the series of activities: making lesson plan, preparation, implementation, evaluation and improvement. However, in the reality, because of insufficiency of their content knowledge and the preparation time, lots of teachers cannot link between learners' activities and the lesson objective, and they practice some superficial techniques such as the group work and writing the responses on the blackboard by learners. After all, the lesson study cannot improve the teaching and learning quality, if the above-mentioned problems have not been solved.

In Burkina Faso, one of the priorities of the Basic Education Development Strategy Program (PDSEB) is improving the quality of basic education. According to the Annual Statistics of National Education of the Ministry of National Education and Literacy (MENA), the primary school completion rate has been only 57.6% in 2014, so the educational efficiency is very low.

The results of learning evaluation also remain low, for example the study of Educational System Analysis Program of CONFEMEN (Conference of Education Minister of Francophone Countries and Governments) (PASEC) showed that the fall of learners' results is significant between 1996 and 2007. And the average score of national proficiency test is less than 50% in French and in mathematics. For that reason, PDSEB aims to improve especially French, mathematics, and science for development of technologies of the country.

For improving the learning quality by the significant method, MENA has implemented the project on teaching and learning quality improvement in mathematics and science (SMASE) in collaboration with Japan International Cooperation Agency (JICA) since 2008. The project generalises the learner-centred approach called ASEI-PDSI (Activity, Student-centred, Experiment, Improvisation – Plan, Do, See, Improve) to primary school teachers through the existing in-service teacher training (INSET) systems all over the country.

In 2012, before the generalisation, the project conducted the examination on the effects of the interventions, and then, it was revealed that the teaching and learning methods in the classes were teacher-centred rather than learner-centred. In addition, it became clear that teachers do not always master subject knowledge and they irregularly prepare or do not prepare the lesson. Besides, the teacher is obliged to make a lesson plan, but some of them sometimes copy almost all the contents of the teacher guide which do not always give necessary information for arousing the learner's interest on subject contents. The guide provides neither the process of the solution to problems nor the application of subject contents to the daily life for developing the learner's logical thinking. From that information, the project hypothesised that "the quality of lessons based on the learner-centred approach will be improved more rapidly than other interventions, if teachers use good quality lesson plans developed by the project"

Relevance of the strategy on the distribution of lesson plans

There are some theses or books critical to this strategy, because some teachers might use directly the lesson plans received during the lesson without using for leading the necessary reflections to adjust the plans in the preparation. However, those criticisms were not enough to give this strategy a pounding, insofar the actual curriculum of Burkina Faso enforced in 1989-1990 put the emphasis on the mastery of language through reading, writing, speaking, and arithmetic and the ability and knowledge of the teachers is not always improved. That is, the level of educational situation of Burkina Faso is considered as the beginning of the second stage (formalism) in the theory on the stage of educational development (Beeby, 1966).

The results of the examination in 2012 also revealed that the quality of teaching and learning could not be better through INSETs only, because the teachers do not have enough time to prepare the lesson the basis of the learners' knowledge building on account of the huge amount of work. The project considered a strategy for reducing a bit of their burden and guaranteeing the acquisition of correct basic knowledge to learners, and then decided to develop lesson plans of all the lessons in mathematics and science.

There are some positive proofs that they use the lesson plans and they will be motivated for improving the quality of lessons for a long time, if the plans are put at the disposal of the teachers. It has been already confirmed that some lesson plans made by the project and attached to the training textbook in 2012, have been used by several teachers, after that they did good lessons. That's why the strategy based on the distribution of lesson plans could be relevant in the context of Burkina Faso.

For continuous practice of the learner-centred approach in mathematics and science lessons, the necessary information such as the philosophy, the principles, some examples of good teaching techniques, making and using teaching materials and so on, is communicated to teachers in INSET in February 2015. Moreover, the lesson monitoring tool indicates the improving steps of each element of actions and roles etc. with a view to the self-evaluation of a teacher with regard to encountered difficulties.

Learner-centred lesson plan of Burkina Faso

Lesson plans in mathematics and science existed in Burkina Faso, however the plans have sometimes been bare or brief information for these years. It is evident that the learning is separated and in consequence the teaching occupies with the memorisation of knowledge and its repeat corresponding to the first level of the Bloom's taxonomy of the cognitive domain (Anderson et al, 2001).

Now each learner has at least one textbook of mathematics and science in Burkina Faso, however these books have not been used sufficiently, or they are often used just the images for observation. It means that the learners are not allowed participating in an actual reflection and an active research for the knowledge construction in the process of making lesson plans. In order to change the paradigm and to take up the challenges of mainstreaming of learning, while taking into account the teacher's ability, the learners' faculties, availability of materials, classroom environment etc. the project developed the format of lesson plan and the plans. The foundations of ASEI-PDSI is the lesson planning based on learners' activities linked with the achievement of lesson objectives and the implementation of scientific approach which allows learners to develop their scientific mind and to acquire higher levels of the taxonomy.

The format of lesson plan based on ASEI-PDSI

Table 1: Format of lesson plan based on ASEI-PDSI

Class:
Subject:
Topic:
Title:
Lesson duration: min
Justification
Specific objectives
Material:
    - collective:
    - personal:
Documents

PROCEDURE OF THE LESSON

Step / Allocated time	Activities of teaching and learning		Point of teaching and learning
	Role and actions of the teacher	Activities and attitudes of learners	
I- INTRODUCTION (min)			
Mental / rapid calculation (min)			
Reminder of prerequisite knowledge (min)			
Motivation (min)			
II- DEVELOPMENT (min)			
Presentation of the problem situation and sharing of hypotheses (min)	Presentation of the problem situation	Sharing of hypotheses	
Instruction (min)			
Verification of hypotheses (min)			
III- CONCLUSION / SYNTHESIS (min)			

Summary (min)			
Link with the daily life (min)			
Link with the following lessons (min)			
IV- EVALUATION (min)			
Acquired knowledge (min)			
Additional problems			
Remediation			
Decision related to the lesson (min)			
Teacher's performance (min)			
V- EXTENSION ACTIVITIES			

The format of lesson plan (Table 1) comes in the form of two-dimensional array. On the column, it is written about the role and actions of a teacher, the activities and attitudes of learners, and the point of teaching and learning. In the first item, it is noted what the teacher say or do during the lesson such as instructions of each activities on individual work and group work and questions. In the second one, it is noted all the actions and activities the learners carry out in the lesson, and the responses proposed by learners that are correct or wrong. In the third one, it is noted the results that learners must reach at the end of each activity.

On the row, there are different elements of plan. In the development part, it is firstly the problem situation that allows the learners to say what they think according to their experience. The ideas are written at the side of the blackboard and called hypotheses. At the end of this part, during the verification of hypotheses, the points of teaching and learning are compared with their hypotheses, and then each learner confirms their position compared to their initial knowledge.

In the conclusion part, during the link between acquired knowledge and the daily life, the teacher asks learners to establish the link between them. It must give the usefulness of new knowledge for solving the problems in the daily life, or say how they can use this knowledge. The presence of this element is justified by the fact that the approach is meant to be practicing and the things learned in the lesson must be meaningful for learners. During the link with the following lessons, learners are asked or communicated the knowledge to study soon and what has a link with the studied knowledge. They participate in development of the research mind and the recognition of necessary knowledge for next lessons.

In the evaluation part, the additional problems are proposed for answering the concern of the distinguished pedagogy. The better learners are occupied and they do not bother or disturb those who have not finished. After that, the remediation is mentioned for drawing an attention of the teacher who must work toward weak learners for leading them to fill in the gap and to follow the pace of the lesson.

At the end of the lesson, the extension activity is an activity which allows the learners to apply concretely what they acquired in the lesson for improving the living conditions of the members of their family and whole environment.

Cost of development of lesson plans

Table 2: Entire cost on development of all lesson plans of mathematics and science

Activities	Entire cost	
	FCFA	Dollar
Workshop on development and finalisation of plans (15 times in total)	23,678,850	$ 39,663
Workshop on validation of plans (3 times)	6,684,500	$ 11,197
Total	30,363,350	$ 50,860

NB. 1 Dollar = 597 FCFA

Table 2 shows the entire cost on development of all 863 lesson plans of mathematics and science is 30,363,350 FCFA ($ 50,860 approx.). Moreover, the estimated cost on printing of the plans for all public schools is that: 1000 FCFA × 3 terms × 11,000 schools = 33,000,000 FCFA ($ 55,276 approx.). Hence, the estimated entire cost for putting at the disposal of all 55,000 teachers is 63,363,350 FCFA ($ 106,136 approx.), that is, the project invested 1150 FCFA (less than $ 2) per teacher. In Burkina Faso, the daily allowance on participation in INSET is 5000 FCFA ($ 8 approx.) or 7500 FCFA ($ 13 approx.). In comparison with this cost, the investment of the project is more efficient for improving the quality of education.

Objective of the practice

The objective is the change of teacher's practices and behaviours and learners' activities and attitudes for realising the learner-centred approach (ASEI-PDSI) in the class through application of the lesson plans that the project developed. This study explores the changes between 2012 and 2015 from various aspects and the degree of teachers' satisfaction on the plans and ASEI-PDSI itself, and then reveals positive and negative effects on continuous improvement of the quality of education.

Method of the survey

Survey schedule

The periods and places that the project implemented the lesson evaluation, the questionnaire and the pre- and post-test are written in table 3. All of schools selected for the evaluation and the questionnaire are public and conventional, but the tests are taken by the teachers of public and private schools.

Table 3: Survey schedule

	Periods	Provinces visited
Lesson evaluation	April 2012	4 pilot provinces et 9 others
	February 2015	2 pilot provinces
	March and April 2015	4 pilot provinces et 14 others
Questionnaire	April 2012	4 pilot provinces et 9 others
	March and April 2015	4 pilot provinces et 14 others
Pre- et post-test	February 2015	3 pilot provinces et 6 others

The sample is split into two groups in the 4 pilot provinces (Kadiogo, Oubritenga, Sanmatenga and Tuy) which have been intervened by the project since 2008, and the others. The project exceptionally visited the cooperating schools in Ouagadougou of Kadiogo and in Loumbila of Oubritenga in February 2015 before INSET. Concerning the pre- and post-test, the project targeted the 4 pilot provinces and 9 others, 14 provinces in total; however 9 provinces only brought their results of the tests.

Evaluators of lessons

All the lessons have been evaluated by the national trainers and subnational trainers of the project who are Burkinabe inspectors or pedagogic advisors. They took part in the development of the lesson monitoring tool, and have already monitored a lot of lessons with it in the ordinary job. They collaborate also the development of lesson plans with the project, so they are suitable as evaluators because of mastery of the plans and the tool.

Survey instruments

Lesson monitoring tool

This tool has been designed for the purpose of evaluation on the role and actions of a teacher and the activities and attitudes of learners. It assesses the degree of application of ASEI-PDSI from the preparation to the end of the lesson. In 2012, many teachers were struggling to make lesson plans, so there were several elements on the preparation in the tool. After changing the strategy, since lesson plans are developed by the project, the

elements of evaluation have been concerned with particularly the actions of teachers who respect the contents of the plans.

Table 4: Lesson monitoring tool

	Role and actions of the teacher	Activities and attitudes of learners
1	PRACTICAL DISPOSITIONS BEFORE THE LESSON	
1.1	Have a daily notebook	
1.2	Collect the material	
1.3	Write the exercises, the basic texts, the illustrations, etc. on the blackboard.	
1.4	Check that each learner or group has collective and/or personal materials	
2	INTRODUCTION	
2.1	Give some exercises of mental / rapid calculation	Give the answers of the exercises
2.2	Check the prerequisite knowledge or reminder of the previous knowledge	Answer the questions and/or carry out the tasks
3	DÉVELOPMENT	
3.1	Present the problem situation to learners and ask them to share their suppositions or hypotheses	Share their hypotheses or suppositions
3.2	Provide the instructions to learners	Accomplish the tasks
3.3	Organise the activities	Observe, think, manipulate the material, experience, demonstrate; share their conclusions by using expressions, the figures, charts graph, sketch, diagram according to the context, and describe the process and/or following steps
3.4	Check the achievement of activities	Carry out his tasks
3.5	Make write down and repeat the new knowledge studied	Write down and repeat the new knowledge studied
3.6	Inform the allocated time for each activity to learners	Follow the allocated times for each task
4	CONCLUSION	
4.1	Encourage learners to synthesise the new knowledge studied for the summary	Participate in the synthesis of the new knowledge studied for the summary
4.2	Make perceive the links between new knowledge and the daily life	Establish the links between new knowledge and the daily life
4.3	Tell learners the links between new knowledge and knowledge to study later	
5	EVALUATION	
5.1	Give the questions for assessment, assess	Answer the proposed questions correctly or

	learners' answers and identify the causes of their mistakes (acquired knowledge, additional problems)	correct the mistakes if there are
5.2	Decide the continuation of the lesson according to the results of the assessment	Participate in the decision making
5.3	Encourage learners to give their opinion on the teacher's performance	Give their opinion on the teacher's performance
6	EXTENSION ACTIVITIES	
6.1	Provide some extension activities (if possible)	
7	GENERAL EVALUATION OF THE LESSON	
7.1	Mastery of the contents	
7.2	Time management	
7.3	Working atmosphere	
7.4	Implementation of the lesson plan	
7.5	Practice of good teaching techniques	

The evaluation is on a scale of 1 to 4 (4 being the highest), and its criteria are determined by element of the step, and correspond to each degree of the scale for both a teacher and learners. The elements of the same number are linked, therefore for example if a teacher do not instruct on activities, learners cannot execute. In this case, the evaluator ticks "No application to the lesson" that is out of evaluation in the assessment of learners, because it is not their mistake.

This tool ensures noting the change of the role and actions of teachers and the activities and attitudes of learners for each element, and also the objective achievement rate etc. from averages, standard deviations, differences of the whole results. It shows also the improvement of each element according to the comparison of the results of lessons by the same teachers with or without interventions of the project.

Questionnaire for teachers

The questionnaire on satisfaction of the lesson plans developed by the project and ASEI-PDSI itself verifies the degree of relevance of their contents and the contribution to the reduction of the work burden which is linked with the continuation of putting into practice of ASEI-PDSI in classroom.

Pre- and post-test of the teacher training

These tests bring out the effect of the INSET according to the achievement rate of questions about the basic knowledge on ASEI-PDSI, and identify the easy or difficult contents. The pre- and post-test were distributed respectively at the beginning and the end of INSET.

Sample

Table 5: Number of sample teachers

	Period	Number	
		Provinces	Teachers
Lesson Evaluation	April 2012	13	118
	February 2015	2	51
	March and April 2015	18	159
Questionnaire	March and April 2015	18	126
Pre- and post-test	February 2015	9	1151 (pre-test) 1030 (post-test)

The sample for the lesson evaluation is selected randomly in the schools which are not so far from the provincial capital. On the other hand, in March and April 2015, the project gave priority to the teachers who are evaluated in 2012 and/or in February 2015. In particular, among the teachers evaluated in March and April 2015, 37 teachers had been evaluated in either 2012 or February 2015. Besides the project passed the lesson plans to the teachers for preparation a few days before the evaluation.

Concerning the questionnaire, the sample is the teachers evaluated in 2015. For the pre- and post-test, one or two provinces were chosen per region, and then one or two district offices (CEB) in the provinces chosen were selected while considering the balance between the provincial capital and a rural area.

Table 6: Qualification of sample teachers

Period	Provinces	Teaching certificate	Sub-teaching certificate
April 2012	4 pilot provinces	22	1
	14 others	84	11
	18 provinces	106	12
February 2015	2 pilot provinces	49	0
March and April 2015	4 pilot provinces	59	0
	14 others	83	16

	18 provinces	142	16

According to the table 6 and 7, there is no big difference about the level of qualification and the experience of the teachers evaluated, except the qualification of the teachers in February 2015.

The table 8 and 9 shows the balance among the classes and between the subjects evaluated. Admittedly, there is a little difference in the number of sample teachers, and it is very distinct that the number of the grade 5 teachers is almost double the others in 2012.

Table 7: Experience of sample teachers

Period	Provinces	Number of teachers per work year						Average (years)
		Less than 5	5-10	10-15	15-20	20-25	More than 25	
April 2012	4 pilot provinces	1	8	8	8	3	1	13.46
	9 others	5	32	20	26	5	1	11.32
	13 provinces	6	40	28	34	7	2	11.83
February 2015	2 pilot provinces	2	7	11	18	4	3	19.13
March and April 2015	4 pilot provinces	0	6	17	10	16	6	16.98
	14 others	11	23	41	12	9	2	11.38
	18 provinces	11	29	58	22	25	8	13.39

Table 8: Number of sample teachers per class

Period	Provinces	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6	Total
April 2012	4 pilot provinces	4	5	4	3	7	0	23
	9 others	16	16	16	16	31	0	95
	13 provinces	20	21	20	19	38	0	118
February 2015	2 pilot provinces	6	12	9	8	9	7	51
March and April 2015	4 pilot provinces	9	12	15	12	10	0	58
	14 others	20	20	20	21	20	0	101
	18 provinces	29	32	35	33	30	0	159

Table 9: Number of lessons evaluated per subject

Period	Mathematics	Science	Total
April 2012	118	118	236

February 2015	43	42	85
March and April 2015	146	136	282

The table 10 shows that the average of the number of learners per class is almost identical because the fluctuation of their majority was between 70 and 75. However, the number of class with more than 100 learners in March and April 2015 became more than 2 times of that in 2012, and the number of class with between 60 and 80 learners was also increased. The large classes constitute constraint for the teachers on the application of the new approach.

Table 10: Number of learners per class

Period	Provinces	Number of class per the number of learners							Average (learners)
		Less than 50	50-60	60-70	70-80	80-90	90-100	More than 100	
April 2012	4 pilot provinces	5	2	2	1	5	4	4	74.33
	9 others	16	17	11	13	16	11	11	72.58
	13 provinces	21	19	13	14	21	15	15	72.92
February 2015	2 pilot provinces	9	12	10	5	3	2	9	70.62
March and April 2015	4 pilot provinces	6	8	10	6	3	2	21	82.25
	14 others	18	8	18	22	12	9	13	70.94
	18 provinces	24	16	28	28	15	11	34	75.00

Limitation of this survey

The project confirmed that between 2012 and 2015 in Burkina Faso, there is no other interventions directly related to teaching and learning improvement in mathematics and science for teachers except that of the project. However, it is difficult to make sure of attendance at the training individually by teachers, initiative of school directors, and impression of learners on the new approach etc.

For the additional objectivity of the results, it is desirable to ensure the evaluation of the same period every year for evaluating the same lessons.

The effect on the continuous use of the lesson plans cannot be analysed, because the project gave part of the plans to teachers just before the lesson evaluation. And the effect of each intervention cannot be evaluated either. Due to a lack of some information for regression analysis, the project analysed the results from the averages, differences and standard deviation only.

Results

Lesson monitoring tool

The results of the lesson evaluations are analysed from three aspects: the overall results between 2012 and 2015, the results of the similar elements of the tool and its criteria between 2012 and 2015, and the results of the evaluation of the same teachers' lessons by between February and April 2015.

Overall results

The table 11 clarifies the improvement on the teachers and the learners in both subjects. All the results are improved and approached 3 of the scale; moreover the gap between the pilots and the others has considerably gotten smaller or has been little. Thus, lots of teachers acquired the practical ability of ASEI-PDSI in the lessons of two subjects.

Table 11: Average score of the overall results of lesson evaluation in 2012 and 2015

Period	Provinces	Number of sample	Role and actions of the teacher		Activities and attitudes of learners	
			Maths	Science	Maths	Science
April 2012	4 pilot provinces	23	2.23	2.18	2.10	2.02
	9 others	95	1.72	1.62	1.61	1.52
	13 provinces	118	1.82	1.73	1.70	1.62
March and April 2015	4 pilot provinces	58	2.91	2.95	2.87	2.98
	14 others	101	2.83	2.95	2.73	2.87
	18 provinces	159	2.86	2.95	2.78	2.91

Results of the similar elements of the tool and its criteria

The project revised the monitoring tool and its criteria in 2012 and 2014, but most of the elements have not been changed so much. The results of those similar elements show the difference of each element.

Mathematics

Science
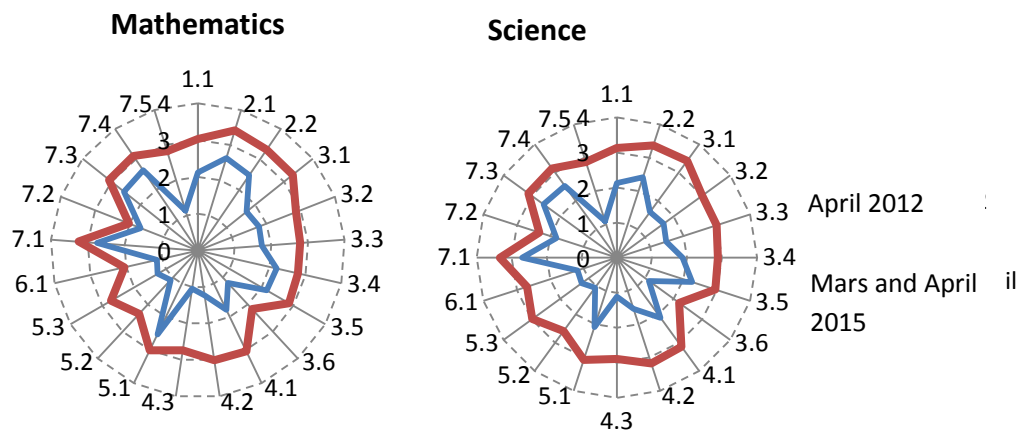
Graph 1: Results of similar elements related to the teacher's performance

April 2012

Mars and April 2015

The graph 1 proves that all elements are improved and approached 3 of the scale. The element 1.1 concerning the adaptation of the lesson plans before the lesson reached 3, therefore many teachers do not use the plans without reflecting the contents and their environment. The element 6.1 regarding the extension activities is low in mathematics, but it is understandable because of the difficulty of finding this activity for some lessons. The elements 3.6 and 7.2 concerning the time management are lowest, because the teachers did not include its technique in the lesson.

Table 12: Overrun of the given time of each lesson

| Period	Provinces	Average of overrun	
		Mathematics	Science
April 2012	4 pilot provinces	9.48 min	– 3.19 min
	9 others	12.94 min	– 2.80 min
	13 provinces	12.27 min	– 2.87 min
March and April 2015	4 pilot provinces	12.91 min	8.90 min
	14 others	14.97 min	11.36 min
	18 provinces	14.21 min	10.51 min

The table 12 shows that the increasing of the overrun of 2 minutes in mathematics and of 13 minutes in science on average between two periods.

Mathematics   **Science**
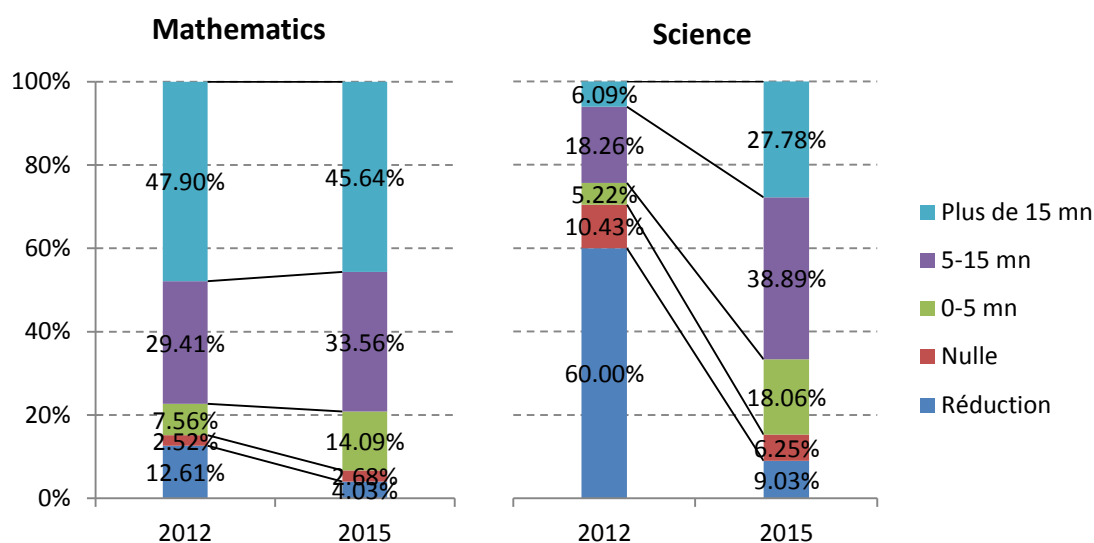
Graph 2: Proportion of the overrun lessons per exceeded time

According to the graph 2, the proportion of the lesson overrun of more than 5 minutes in two periods, in mathematics there is not a big difference, but in science it was increased from 24.35% to 66.67%. From other point of view, in the pilot provinces the overtime of some teachers who regularly apply ASEI-PDSI is shorter than the others.

Mathematics   **Science**
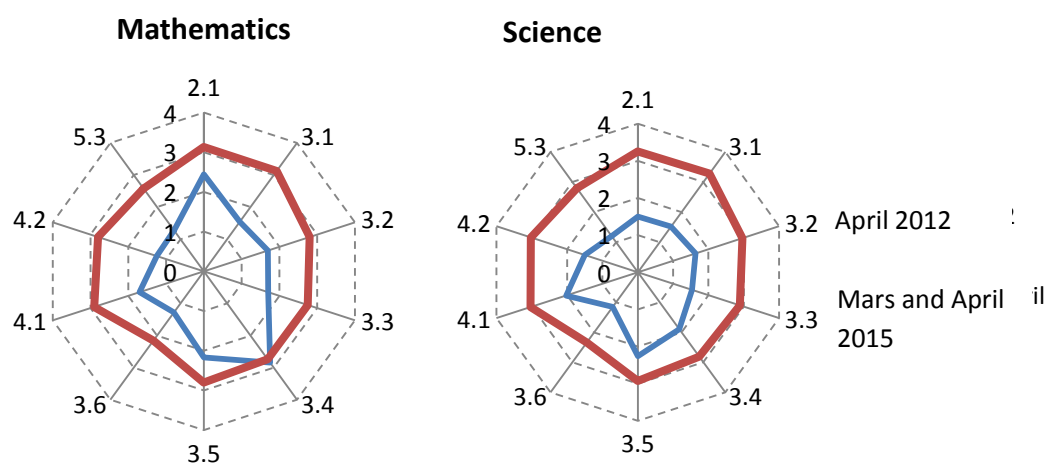
Graph 3: Results of similar elements related to the learners' performance

The activities and attitudes of learners are also improved and approached 3 of the scale by and large according to the graph 3. The element 3.6 concerning following the allocated time is also improved but still low, because

learners are not used to working within the definite time. In addition, the element 3.4 regarding carrying out the tasks has not been changed.

Results of the evaluation of the same teachers' lessons

Table 13: Average of overall results of the evaluation of the same teachers' lessons

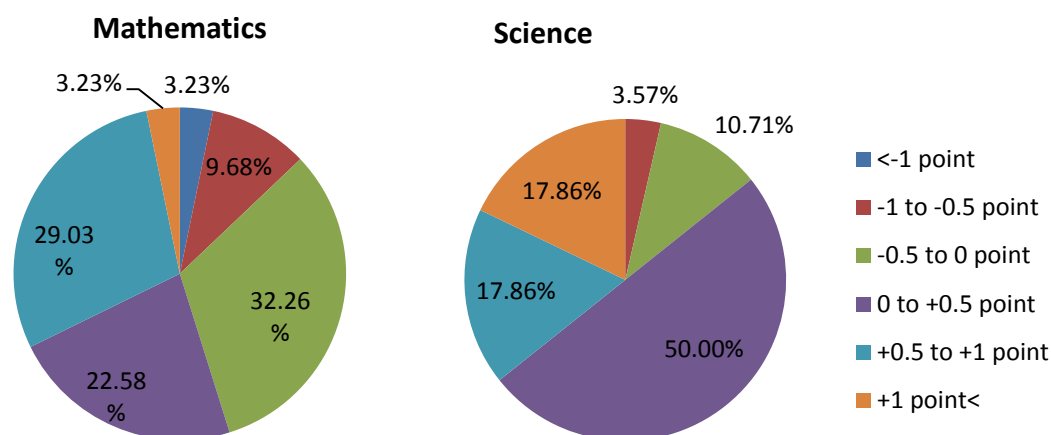| | Average of the overall results | | | | | |
| | Mathematics | | | Science | | |
	February 2015	April 2015	Gap	February 2015	April 2015	Gap
Teachers who applied	2.82	2.91	0.09	2.65	2.91	0.26
Teachers who did not apply	2.22	2.49	0.27	2.05	2.62	0.57
Gap	0.60	0.42	-0.17	0.60	0.30	-0.30
All the teachers	2.54	2.71	0.18	2.42	2.80	0.38
Standard deviation	0.32	0.36	0.04	0.28	0.48	0.20

Table 13 shows that in February 2015 there were the gap of 0.60 point in two subjects between the teachers who applied regularly ASEI-PDSI by using the lesson plans developed by the project and those who did not apply. In fact, the results of the latter were almost same as that of the pilot provinces in 2012 of table 11. In April 2015, after the INSET, all the results were improved and the gap between the teachers who applied and those who did not apply has gotten smaller, but the standard deviation has gotten a bit greater.
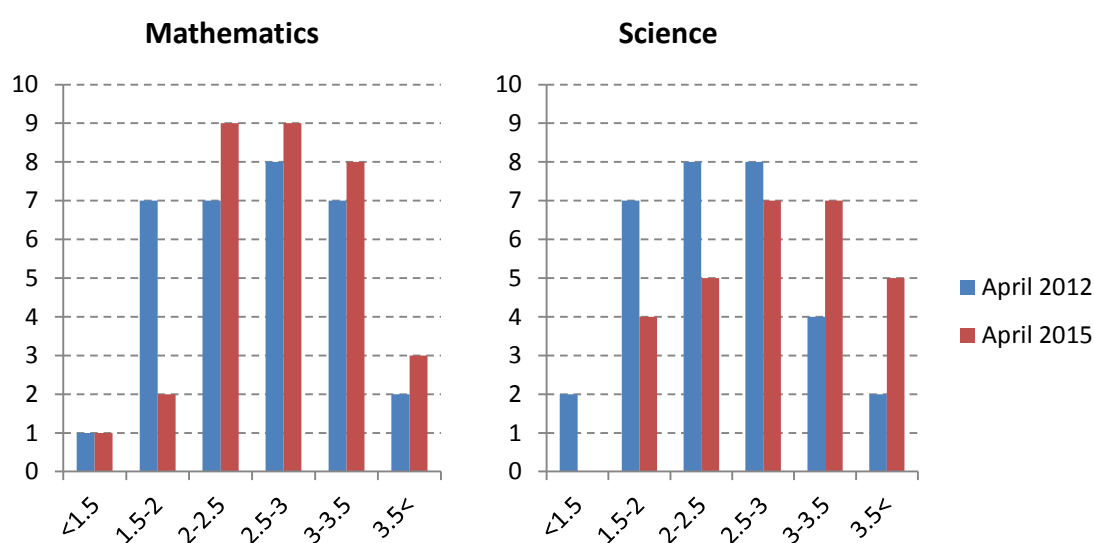
Graph 4: Distribution of the number of overall results' average of the evaluation of the same teachers' lessons

The graph 4 manifests that the number of bud quality lesson was decreased after interventions of the project.

Mathematics

3.23% — 3.23%
9.68%
29.03%
32.26%
22.58%

Science

3.57%
10.71%
17.86%
17.86%
50.00%

- <-1 point
- -1 to -0.5 point
- -0.5 to 0 point
- 0 to +0.5 point
- +0.5 to +1 point
- +1 point<

Graph 5: Proportion of the difference of overall results of the same teachers' lessons

However, the graph 5 reveals almost 45% of mathematics lessons and 14% of science lessons have been worse. Even if some teachers have already achieved a certain level in mathematics in February 2015, the degradation of more than 1 point which was 3.23% provokes some questions. Some reasons could be supposed like the quality of the plans, contents mastery of the teachers, the difference of the evaluators, etc.

Pre- and post-test of the INSET

Through the INSET in February 2015, teachers' knowledge and techniques on ASEI-PDSI were improved according to the table 14. Although all correct answer rates except the Q8 were increased between 20%

Table 14: Results of pre- and post-test of INSET

Questions		Correct answer rate		
		Pre-test	Post-test	Gap
Q1	Meaning of the acronym of ASEI-PDSI	30.9%	81.4%	50.5%
Q2	Fundamental principles of ASEI-PDSI	15.5%	58.3%	42.8%
Q3	Reasons of the necessity of the justification	16.4%	56.1%	39.7%
Q4	Steps on the lesson plan based on ASEI-PDSI	5.2%	32.7%	27.5%
Q5	Examples of good practices on ASEI-PDSI	5.5%	50.1%	44.6%
Q6	Advantage of the use of the instructions	8.4%	29.2%	20.8%
Q7	Interests of the recommendation for learners to exchange	12.0%	36.1%	24.1%
Q8	Practical dispositions for conducting the experimentations, experiences and demonstrations	3.0%	10.9%	7.9%
Total		11.9%	44.2%	32.3%

and 50%, the overall rate of the post-test has not reached 50%. The elements which were not understood are the practical dispositions for conducting the experimentations, experiences and demonstrations which recorded 10% and three others which was nearly 30%.

Questionnaire for teachers

Table 15: Degree of teachers' satisfaction on the lesson plans and ASEI-PDSI

	Not at all satisfactory	A little satisfactory	Satisfactory	Very satisfactory	Degree of teachers' satisfaction
Lesson plans	1	24	92	9	80.16%
ASEI-PDSI	1	18	81	6	82.08%

NB. The number of incorrect responses is excluded.

According to the table 15, most of teachers were satisfied with the interventions of the project. The teachers who expressed dissatisfaction with the application of the plans raised the problem of time management and the lack of teaching materials. When developing the plans, the project took account of these aspects, but the regular practice in enough long time is necessary to solve those problems.

Discussion

From the viewpoint of enough appreciable results, it is possible to say that the lesson plans and the training contents developed by the project have a positive effect on the quality of education. The short-term improvement is observed on all the elements of teaching and learning in the monitoring tool despite various problems.

The concern about the use of the plans without preliminary reflection was not justified in the context of Burkina Faso. On the other hand, the poor results of the post-test shows that the teachers did not acquire the essential knowledge on ASEI-PDSI. This could be a restraint for achieving 3 of the scale in all the elements of the monitoring tool and would lead a further increase of the standard deviation.

The application of the lesson plans and the practice of ASEI-PDSI will be continued, because a lot of teachers are satisfied insofar as the plans contribute reducing considerably their work burden. Moreover, the improvement of results of the monitoring tool could be the source of motivation for using the plans at the beginning, and the consequence will be able to reduce the result gaps as a total absorption. However, as well as many teachers have difficulties in finishing the curriculum, the project wonders whether the results of overrun during the implementation of the plans could not be an obstacle to regular practice of ASEI-PDSI.

Conclusion

In summary, the objective of this practice would be achieved, because the behaviours of the teachers and the learners are changed positively in a short term in all the provinces by means of the interventions of the project. The teachers acquired the rudiments of the practice of ASEI-PDSI through using of the lesson plans and the INSET. The quality of mathematics and science lessons will be attained the higher level by every teacher's judicious use of the plans. On the other hand, the challenge of the continuous practice of ASEI-PDSI lies in the problem of the progress of the curriculum and the time management allocated to each lesson.

The perspective on the effects of the practice of ASEI-PDSI by using the lesson plans is actually incorporated in the long term. In the further study, it is necessary to make sure the way of improvement of the lesson quality after the teachers will achieve the desired effects.

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Students' Mathematical Modelling from Open-ended problems

Penprapa Boonpipatmongkhon[1]
Education in Sciences and Technology, KhonKaen University, Thailand
penprapa_b@kkmail.com

Auijit Pattanjak [2]
Center for Research in Mathematics Education, KhonKaen University, Thailand
auipat@kku.ac.th

Abstract: *This research aimed to explore students' mathematical modelling from open-ended problem situation. The target groups were three grade 11 students in Anukoolnaree School. By using open approach as a teaching method based on the concept of Inprasitra (2010). The data were collected by using 1) 6 lesson plans 2) field notes and 3) semi-structured interview. Data analysis included protocols deriving from the open-ended problem solving, the field notes, interviews of students and the students' written works. Bloom and Leiß (2007) was used as a framework of the study.*
The result show that student can create their own mathematical models during they solved the problems. Each student has a process to create mathematical models in different ways based on fundamental knowledge and experiences to deal with problem solving. The research results were demonstrated that student had mathematical modeling.

Keywords: Mathematical Modelling, Open-ended problems

Introduction

Due to the present need of many staffs which are good at engineering, architectural and so-on technologies, mathematical solution and mathematical modelling skills are needed for those people (Lingefjard, 2007). The students' mathematical modelling activities are rarely found in mathematical learning and teaching (Blum et al, 2002) due to the difficulty of the connection between the reality and Mathematics for students (Blum and Ferri, 2009). Currently, the mathematical modelling is more important and considered using as the activity to develop the capability to link real world with mathematics world and can be essentially used in daily life (Hirabayashi, 2013). However, mathematical modelling still has a far less prominent role than is desirable and modelling is difficult both for students' and for teachers (Blum & Borromeo Ferri, 2009). Open Approach is a teaching method emphasizing students' participation of assigned problems with the variety of answers called Open-Ended Problems (Inprasitra, 2010). Open-ended problem help students to think and be able to link the world of mathematics and the world of reality (Becker and Shimada, 1997).

Applying open-ended problems to an activity makes students search tactically with their confidence and makes them more feel like they are fond of solving mathematical problems. According to the just-mentioned activity, it increasingly develops students' mathematical concepts. They can crack formulas, rules and mathematical principles themselves. The activity aims the variety of students' idea (Inprasitra, 2006). Open-ended situations are created from students' reality (Plienrum, 2013). It attracts students to join the activity and encourage them to use symbolic calculation media in order to link students' reality and their mathematical world (Sutthisung, 2013). As all said on the subject, the

research question subsequently is 'What is the students' math model creation from open-ended problem taught by open approach like?'

Mathematical Modelling

Mathematical modelling is the process of translating between the real world and mathematics in directions (Blum and Ferri, 2009). Berry and Houston (1995) claim the mathematical modelling is such a preparation of how to solve a mathematical problem. Lesh and Sriraman (2005)) prove the mathematical modelling is the most important objective of Mathematics Education in term of the problem which is mentioned in the research of the solution in Mathematics pertaining to students' preparation of complicated problem fixes in their daily lives (English, 2003). Lesh and Zawojewski (2007) add there is a new support of the research of mathematical solutions. The mathematical modelling is presented in high levels of primary education and high school education, plus it is also a key of all contents in Mathematics consisting of arithmetic, algebra, geometry and calculus (Dundar, Gokkurt and Soylu, 2012).In addition, the mathematical practice and modelling in Mathematics Education can be used for the development and design of course syllabus, teaching aid and activities in classes (Blum et al., 2002). Stender (2012) indicates both practice and modelling are intended to promote the purpose of teaching principle development, learning process design along with learning and teaching modelling.

The Program for International Student Assessment (PISA) chooses the mathematical modelling as an element to evaluate mathematical skills consistent with specifying problem structures taken to create a model, converting the reality into mathematical structures, valuing the reliability of a model, analyzing and criticizing a model and its outcome, a concept of a model and its result including, the limitation, trace and control of a model generating process (TH-PISA, 2009). The Basic Education Core Curriculum B.E. 2551assigns the mathematical modelling is the standard Mathematics learning. The students can apply this modelling as mathematical problems, encode the meaning of a model and finally solve the problem (Ministry of Education, 2008).

Mathematical Modelling in Classroom

The students' mathematical modelling activities are rarely found in mathematical learning and teaching (Blum et al, 2002) due to the difficulty of the connection between the reality and Mathematics for students (Blum and Ferri, 2009). A solve-the-problem teaching method is not popular for many schools in Thailand, so that is why scarcely discovered in classes (Inprasitha et al., 2003). As the result of Thai national test, it shows the efficacy of the students is discontenting. It results from the teaching is not linked to the uses in their daily lives, the lack of self-learning and the loss of chance in the students' analysis and problem cracking (ONEC, 2010). Mathematics textbooks from grade 1 to 9 are mostly written with calculative exercises or exercises only pertaining to rules or learned principles (Inprasitha, 1997). In addition to exercises, teaching ways given to students seem rote learning and they study it for only completing a test. 90 percent of Mathematics teachers in Thailand teach their students just like the way in a textbook and let them finish the exercise at the end of each chapter. Therefore, the students do not the opportunity to give an idea or comment to the mathematical problems which would virtually help their Mathematics learning process (Inprasitha et al., 2003).

Open approach as teaching method

Inprasitha (2010) reveals there are 4 steps to create open-ended-problem classrooms:

- *Posing open-ended problems*

  Here is the first step concerning the problem in students' real life. When it is presented, the students would be followed by the question: 'What can you find from the problem situation?' The question may confuse some students at the first time and it is the beginning of problem solving.

- *Students' self-learning*

  Open approach is the key of students' mathematical concepts. Some students' opinions do not influence the teachers' guidance to all students in the classroom. So, the teachers should be more careful. This teaching method is similar to normal ones included two things:

  1) Individual work or group work
 2) Whole class discussion

  However, due to no certain answers, the teachers can expect students can figure out new things or ideas during in the class running throughout the discussion. The key of this method is to make individual learning become group one.

- *Whole class discussion and comparison*

  It is very important to make a record of answers, how-to or problem solving from individual work and group one; as a result, using a notebook or worksheet is convenient for students to note what they have learned. Plus, the teachers can easily evaluate individual and group learning from the collecting students' notes. The activities students have learned impact on the development of used lessons next time. The teachers are going to seek which students do not yet understand problem situation and additionally give them more examples or motivate them to think about the problem situation. The teachers keep walking around the classroom so as to monitor how students work and whether they should be given more time for complete work.

- *Summary through connecting students' mathematical ideas emerged in the classroom*

  The teachers or the students should write the success of individual and group work on the board so that everyone in the class can see and learn together. In addition, the teachers should collect all students' ideas even though there are some similar or completely same to each other. The students should be inspired to make sure their works are compatible or if can be applied to other students' ideas. However, some ideas are incorrect or incomplete; the teachers should suggest their students with proper methods and solve it with other students' while they are trying to summarize the suggestion to one another in the class. Consequently, while the teachers are collecting and adjust students' answers, the teachers should edit them more easily understandable. After that, infer what they have learned and lead them to next chapter (see Figure 1).
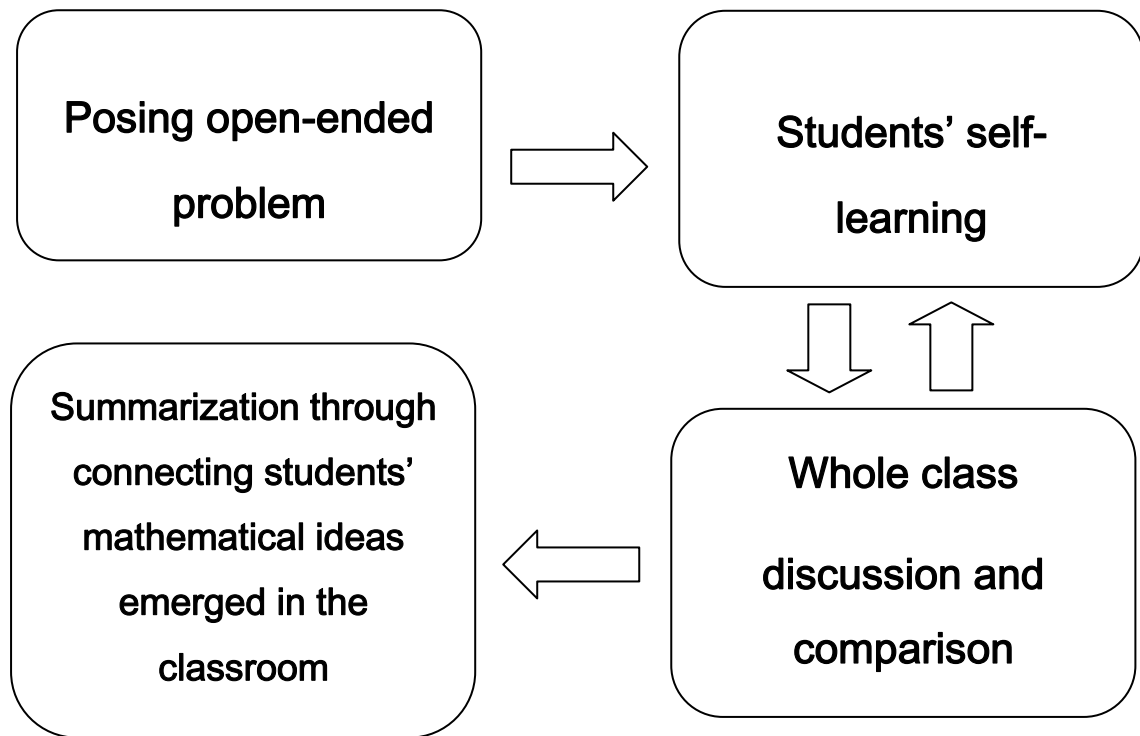
Figure 1: Open approach as teaching method (Inprasitha, 2010)

Research question

What is the students' math model creation from open-ended problem taught by open approach like?

Objective

To monitor students' math model creation from open-ended problem taught by open approach.

Methodology

Participants:

The group of participants in this research is three grade-eleven students from Anukoolnaree School, Kalasin District, Kalasin Province. The evaluated students' abilities consist of the enthusiasm in classes, able to work with other people, the courage to give an opinion and logics and the willingness to take part in this research. Open approach is chosen to sometimes teach the students so that they get accustomed to this teaching style. The students are to pick out the participation in the group activities. So, when they have more chance to talk, ask and discuss in their group, it is better!

Research Instrument:

1. Inevitably, six lesson plans are used in this research related to open ended problems and motivate the students to create the mathematical modeling. Those problems concern what they have to solve in their daily lives and urge them to think and practice.

2. Field note: it is used to record the students' conversation and reaction during solving the problem. It is important for analytical information.

3. Voice recorder: it is used to record the students' voice during solving the problem.

4. Video recorder: it is used to record the students' behavior and voice during solving the problem.

5. Interview: it is used after solving the problem in semi-structure interview.

Data Collection:

The researcher collected the information in Semester 2/2014 in detail:

1. The researcher is a runner in the classroom with an open approach.

2. During the data gathering, the researcher and the assistant monitor with field note, voice and video recorder to see how they solve the problem and interview them afterwards.

3. The protocol is gotten from field note, voice recorder, video recorder, interview and the outcome of the problem they solved.

Data Analysis:

The researcher uses the students' writing, the protocol, the field note and the interview result to qualitatively analyze the information. Blum and Leiß's framework in 2007, the theory of the mathematical modelling, is used in this research themselves as follow:
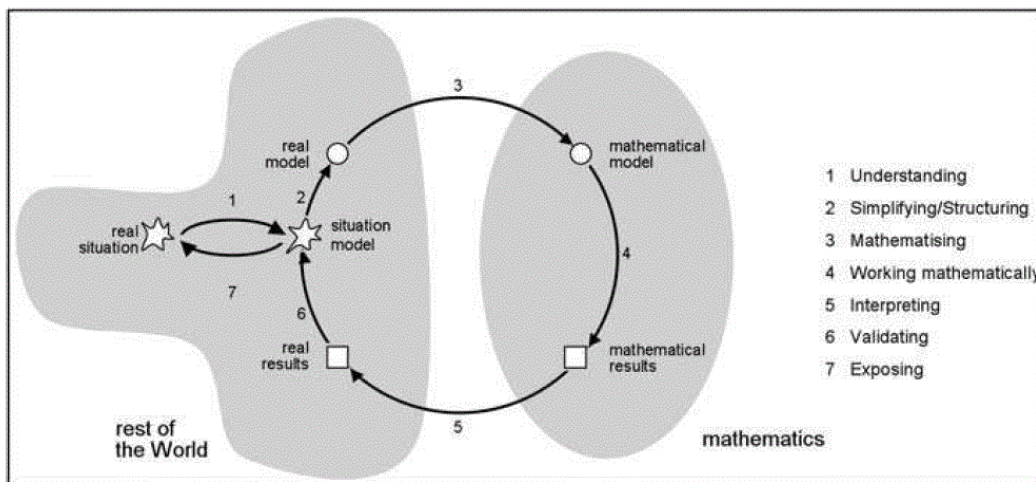
Figure 2: The process of modelling (Blum and Leiß, 2007)

1) Understanding: First, the text and may be a photo have to be read and the problem situation has to be understood by the problem solver, that is an individual mental model of the real situation has to be constructed.

2) Simplifying /Structuring: For example by making assumptions or selecting given data the situation has to be simplified, structured and made more precise, leading to a real model of the situation.

3) Mathematizing: Based on basic ideas of different mathematical concepts, mathematisation transforms this real model into a mathematical model.
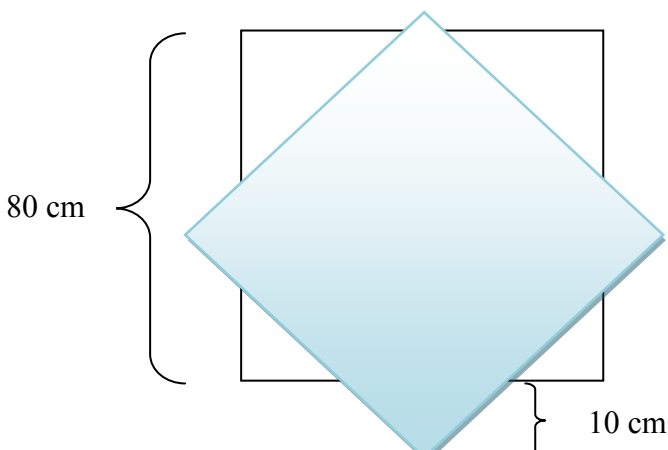
4) Working mathematically: Then mathematical tools like rearranging a term or the rule of three are used, yielding a mathematical result.

5) Interpreting: By activating basic idea again, the mathematical result has to be interpreted in the real world as a real world as a result for the given problem.

6) Validating: The next step is a validation of the real result: Is the accuracy appropriate? Are the assumptions/simplification adequate? Accordingly, one might go round the modeling loop several times.

7) Exposing: The process ends with an exposition of a final answer to the original problem.

Findings

The protocol decoded from a video and analytic description is used as an analytic method to see the students' math model creation in detail. So, the researcher will show the example of the students' math model creation as follow:

Table Cloth

Problem situation: have a square table (length each side: 80cm) paved with a table cloth, the corner of each side of the table will be surpassed (length 10cm) as the figure below.

80 cm

10 cm

The problem is adapted by Leiss et al. (2010)

> **Direction 1:** What have you students learned from the problem situation above?
> **Direction 2:** Let's make the explanation of how to find the area of table cloth.

According to the students' math model creation from open-ended problem taught by open approach, it concerns the seven procedures of math model creation as Blum and Leiß's framework (2007). It can be concluded that…

1) *Understanding*: the students comprehensively read the problem situation, think about the meaning of the problem and ask additional information pertaining to the problem situations as the protocol below:

Item 4	B	Excuse me, I don't understand how the triangle surpasses 10cm long. It will be like this or this. (She is drawing the picture in the air as the example while asking.)
Item 5	Teacher	Alright… let's talk and find the radius of this area.
Item 6	A	Master, if this one and the table are equal to each other, aren't they? Like… if we twist… (He points at the problem situation on the blackboard.)
Item 7	Teacher	They aren't necessary to be equal.
Item 8	B	I told you to use 90. Don't think much.
Item 9	A	90 what? It can't be used. The number isn't exact as you know.

According to the protocol, item 4 to item 9, it shows the aspect of the attempt to understand the problem situation. For example, the student A from item 6 asks "Master, if this one and the table are equal to each other, aren't they? Like… if we twist…" so that it makes him more understand.

2) *Simplifying/Structuring*: the students draw a picture of some part of the problem situation. They use the imagination along the situation. In addition, they search more information on the Net, ask the teacher and change the word in the problem situation as the protocol below:

Item 11	A	I don't think so. The square is 10cm long each side. (Draw a picture and write the text in the proposition.)
…	…	…
Item 26	A	Drag dotted lines. Try it. Keep dragging like this. (Explain what he is drawing.)

According to the protocol, item 11 and item 26, it can be inferred that the target student (A) draws a picture in the problem situation so as to more easily understand on his/her own way.

1) *Mathematizing*: the students know well what mathematical lessons are related to the problem situation and make a plan for the solution as the protocol below:

| Item 28 | A | Side times side. Base time height. What is the formula of finding the area of a parallelogram? I can't remember, teacher. |
| Item 29 | Teacher | Do you want to use it? If so, I'll tell you. (Writing on |

		the blackboard.)
Item 30	A	Are you for real? Alright. Must it be calculated? Personally, there are 2 ideas: the first one is 4,800 and another is to little divide the first picture and the second one. Then divide it into 3 parts. After that, find the area by dividing the area of the square with these 4 ones and plus another 4 ones. (Explaining their concept in the group.)
Item 31	B	Explain it more slowly, dude. I'll have you (Student A) take a loot this one. First, I find the area of the big white one. Then cut this color out and add with another one. Finally, it becomes this color.

According to the protocol, item 28 to item 31, it is said that the target student (A) adapts the finding the area of a parallelogram to crack the problem (see item 28) and it shows the student's strategy to find the answer (see item 31).

3) *Working mathematically*: the student solves the problem with the mathematical knowledge according to his/her blueprint as his/her success below:
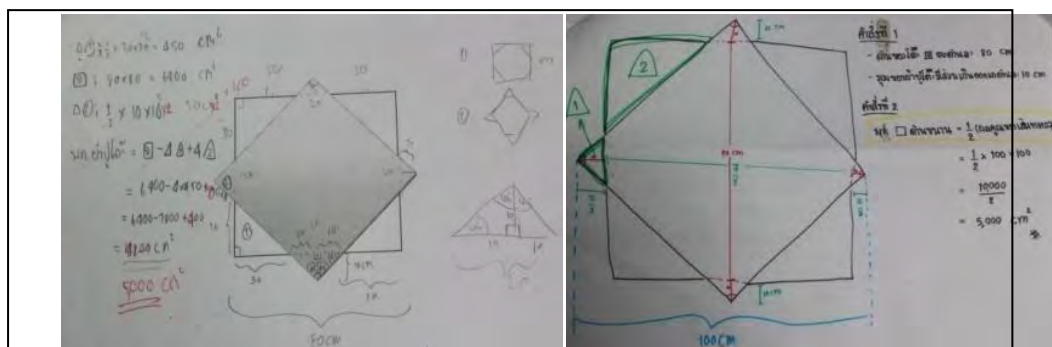
Figure 3: The target student's success as learning plan 1

The figure 3 shows the target student (A) solves the problem with drawing a geometry shape to find the each area of the table. Begin with finding the area of the table, find the area of the corner of table that is the triangle and find the area of surpassed portion of the table cloth. Next, totals minus the area of the corner of the table that is the student creates the equation represented with the geometry shape. The area of table cloth is 5,000 square cm.

4) *Interpreting*: the student puts the unit of the answer from the calculation and then creates the problem and solves it as the figure 3. The target student (A) changes the answer gotten from the calculation with the unit, square cm. So, it is certain that the unit put in the equation is the unit of the area of the table cloth.

5) *Validating*: the student can consider whether the answer is reasonable or possible as the protocol of the interview below:

Item 13	Teacher	Do you check the gotten answer is reasonable?
Item 14	A	Yes, I do. I can see the table cloth and table are different in disproportion. I think the table cloth is smaller than the table. It is more certain when I found it is smaller.
Item 15	Teacher	Do you think it is possible that the table cloth is bigger than the table?
Item 16	A	Yes, I do. But according to the picture you gave me, the size of the table cloth must be bigger than the table cloth.

According to the protocol, item 13 to item 16, the target student (A) checks the answer by his/her consideration of the problem situation. The table cloth is smaller than the table and he thinks it is possible.

6) *Exposing*: the student intensively writes the answer to explain the problem situation as the figure 3. The target student (A) makes the explanation of the problem situation with intensive writing. According to the picture, you can see that the student shows that the answer he/she found is the area of the table cloth.

There is the difference of the process and type in each student's math model creation. Furthermore, the process of the creation of each student's math model is explicitly different in the third procedure (Mathematizing) and the fourth one (Working mathematically) depending on the base knowledge and their own collected experience.

Suggestion

1. The students' mathematical modeling is various based on the complication of the mathematical problems.

2. To build the mathematical modeling depends on each student's experience, so it will be easier to crack the problem if the mathematical problems are in their daily lives.

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The effectiveness of the teaching assumptions and evaluation in a learner-centered lesson

Ndlalane Thembi

Okayama University, Japan

thembi.ndlalane@hotmail.com

Oka Hideki

Okayama University, Japan

Kita Masakazu

Okayama University, Japan.

kitam@cc.okayama-u.ac.jp

Abstract: *In this article the authors examined some principles that seek to promote effective learner centered lessons which involve teachers as active and reflective practitioners in the change process. The article describes a model of teacher change practice from theoretical practice of a learner centered lesson to that of effective practice that has an impact .The study explored their understanding and practice of learner centered lessons with the aim of connecting new teaching strategies to their own unique contexts. The data was collected from a group of 12 African teachers' two months intervention based at Okayama University. The data was collected from interviews, classroom observations and collection of students' work. The data revealed that there were gaps in understanding and perceptions in practicing learner centered lessons in a classroom .The defined structures guided teachers through more systematic teaching assumptions, strategies and evaluation that helped them to adapt and change their practices.*

Keywords: Learner centered lessons, teaching assumptions and evaluation

Objectives and purposes of the study

Implementation of inquiry- based lessons that are learner- centred in the sciences at the classroom level is still a challenge in most countries. Anderson, (2002:7) echoes that' research indicates that inquiry teaching is possible for many teachers to initiate, although is not clear on how to do so'. He continues to say that, "frustration and difficulty problems have been encountered in implementing inquiry teaching as intended." We echo the same sentiments after investigating the teachers' experiences from seven African countries. The Japanese education system has tried to align its instructional practices with the features of a learner centred lesson which links with the theoretical practices as advocated by the theorists in this regard. The result of the Japanese

students' performance in the 2011 TIMMS Study is an evidence of the effectiveness of this method in enhancing skills development and knowledge acquisition. The learner centred lessons in Japan in science enable children to become familiar with nature and to engage in observation, conduct experiments with their own prospect as well as to develop their problem solving abilities. It further develops minds that are filled with affection for the natural world that help them to develop scientific realistic understanding of natural phenomenon that enhance their perspectives and ideas. It was thus used for this study as a benchmark for our understanding and for comparison purposes of the teachers from Africa and the way in which Japanese teachers practice the learner centred lessons.

In this paper, we narrate our personal, observations and understanding of the learner-centred science lesson in teaching assumptions and evaluation, as science educators and managers of JICA international projects on various science teacher development programmes. Our comments are supported by learner centred lessons captured data, lesson observations, lesson study comments which we captured as data using video camera as well as interactions with teachers during training workshops. We believe that teachers are the key factors in making any educational reforms to work in the classroom. No matter how clean and even agreed upon, an educational goal of teaching objectives might be, an all-important practical issue, is how to translate these objectives into the classroom. The training that we conducted aimed at increasing the effectiveness of the trainees collectively and individually by helping them to enhance their skills and knowledge on learner centred lessons by reflecting on their own practices in order to challenge and to improve their conceptual understanding and practice of this approach. The training further focussed on teaching assumptions for assessing and evaluating the teaching hypothesis and its effectiveness in enhancing learning in the classroom. On the other hand the training provided a balance between the needs of the individuals and the group for common understanding and implementation of learner- centred lessons based on teaching assumptions. The training focused on the learning process in the teaching of science and mathematics at the primary level using a Japanese model that could help them to adapt or change their understanding and practice of this approach. The educational objective of any lesson becomes the essence of the learning process which should be relevant to the learner and the learning situation. The delivery and the presentation of the lesson should provoke interest and curiosity to the learner thus telling and doing activity for the learner by the teacher becomes boring. The learner centred approach of problem raising, solving and investigation by the learner helps him or her to develop, to make decisions and to take action accordingly as eluded by Zoller, 1997. Our major focus for this study was to investigate how best we can change the African teachers' teaching practice instead of them telling the learners and dominating the classrooms during the lesson. We based our research on the teaching assumptions that allow learners to realise the purpose of the lesson through activities that challenge their minds and thinking through questioning and relating to their daily life experiences. A key aspect of what we wanted to investigate were the association between teachers' own perceptions of effective practice and their changed practice as we observed them in Japanese classrooms after the 2 months training.

Theoretical Framework

The thesis of this paper is that teachers' subject matter knowledge interacts with the assumption and explicit beliefs about teaching and learning; students and the context that shape their ways of learning and understanding. The effectiveness of this approach results in measureable outcomes on students' learning. The scientific teaching assumption is constructed on the basis of known scientific facts and principles, by scientific method of thinking. It is a presumed interpretation to some existence phenomena and a prediction to those that are not existed in the reality, especially in the sciences. Teaching assumptions is intended to reveal the explanation, the prediction and the verification of the scientific hypothesis characters. Hypothesis thus explains the world and

guides the people's practice. The scientific hypothesis is thus a bridge leading to something that is of reality. Creative thinking and teaching practice play an important role in the teaching of a learner centred lesson. When the scientific hypothesis is identified, it is thus examined and be used as a criteria for assessment or evaluation process. The purpose of evaluation in an educational setting is to verify the instructional hypothesis, to asses objectively the degree of achievement. Class observations that indicate the behaviour and the processes of pupils' participation and ideas in the classroom are of major importance in a learner centred lesson. For example, assessing learners' critical thinking requires an educator to think critically, plan effectively and to set tasks that actually requires critical thought responses on the part of the learner. In learner centred lessons learners are no longer passive receivers of knowledge instead they are active participants in learning and constructing of knowledge.

Meene (2003: 111) confirms that, "learner centred teaching emphasizes students' intrinsic motivation to learn and the development of student's abilities to acquire appropriate techniques in problem solving". Learner centred methodology deploys a variety of assessment items that help to enhance students' potential to promote learning and give them opportunities to develop self and peer assessment skills. Huba and Freed (2000); Weiner,(2002); define assessment as a process of gathering and discussing information in order to develop a deep understanding and to help students to use the knowledge as a result of their educational experience. To explore these issues, this paper highlights the experiences of the Sub-Saharan African teachers funded by Japanese International Agency (JICA) in an intervention programme based at Okayama University in Japan. The field of practice was Okayama attached primary school. The paper engages two bodies of practice, effective classroom practice and the ways of enhancing educational performance and capabilities through teaching assumptions and evaluation. We argue that the two bodies under discussion exemplify each in its own way; firstly is the *understanding of a learner centred approach* and secondly, *teaching assumption and evaluation*. This paper further intends to help educators to grasp and to assess their lessons using teaching assumptions recommended for evaluation processes. The paper further shows some samples of lessons transcripts presented by the African teachers in Japanese classrooms highlighting the teaching assumptions and evaluation. As researchers we were interested at the ways and aspects of the intervention programme that supported them in making their lessons effective.

Research Methodology

This case study focused on 12 JICA primary teachers of science and mathematics participants which were on training for the period of two months at Okayama University, in Japan. These teachers came from 7 countries in Africa. These countries are; Ghana, Rwanda, Namibia, Nigeria, Zambia, Ethiopia and South Sudan. The teaching experience of these teachers varied from 6 years to 18 years Yin, (2008) defines case study research as' an empirical inquiry that investigates a contemporary phenomenon within its real life context, where the boundaries between the phenomenon and the context are not clearly evident and in which multiple sources of evidence are used'. As researchers we were not clear about the depth of the problem and the challenges that the teachers were facing on the understanding and the implementation of learner centred approach in each country as a result it was difficult for us to limit our investigation to few sources of data.

 Qualitative case study research was found suitable for this study as it helped us to explore, describe and to bring an understanding to a complex situation which can extend our experience or add to what is already known through previous researchers on this context especially dealing with seven different country's educational systems and policies on how learner centred lessons are implemented.. It also created a starting point for our training. Although theories, beliefs values and understanding are of critical importance in the process of teacher acquiring an inquiry approach to teaching, but one should not expect to address them in isolation from a practical context or expect that they will be addressed directly as mental constructs. This notion was further noted

by Anderson (2002:7),' teachers considering new approaches to education face many dilemmas, many of which have their origins in their beliefs and values' as this was noted and experienced in comparing their initial views and beliefs about learner centred lessons and the interviews and lessons conducted in Japan.

We were able to get a better understanding of the situation at hand by deploying a wide range of interconnected interpretive practices as suggested by Denzin & Lincoln (2009). For us to understand this complex situation we had to ask the basic question on these teachers' conceptual understanding of the theory on learner centred approach and how it is practiced in their various countries. This was done through pre and post-test questionnaires that were studied, analysed and interpreted. They had been further asked to prepare a learner centred lesson that they had to present in Japan with the aim of showing the course trainers how it is done in their countries. We then compared and matched the responses and came out with themes that could better clarify their conceptual understanding on the learner centred approach and how it is practiced in these African countries. These were followed by on-going interviews, classroom observations and discussions that led to ultimate presentations of lessons to the Japanese students at Okayama attached primary school. These lessons were captured using video clips, analysed and evaluated using the criteria of the teaching assumption theory and practice based on observations, learners' worksheets and their responses during the lessons.

Interpretation of findings and discussion

Education, just like any other sciences should be based on the scientific characteristics of facts, logic and evidence. The facts provide the basis for presenting content through introducing the content to be learnt or covered through observable objects or phenomenon.

The planning and implementing of learner centered lessons depend mainly on considering the scientific approaches to be used in a lesson. In line with this, critical consideration of the stages of the lesson, assumptions, strategies and learning materials to be used becomes very important. Several components were identified by both the trainers and the participants as effective teaching practice and skills in a learner centered lesson. Our observation instruments focused on these strategies as we all agreed that they are effective in the classroom. One of the strategies we focused on was that of allowing learners to encounter a phenomenon that can be observed in such a way that it creates a dialogue and an enquiring mind. We believe that the phenomenon motivates the thinking that leads the learners on what they would like to learn about it. This was a common practice to all the Japanese teachers' lessons, while it was missing in the African teachers' lessons. The Japanese teachers further motivated the learners by creating opportunities for the learners to predict what they think would happen in an experiment or activity. In order to test and to confirm their predictions, the teachers allow learners to manipulate concrete materials on the given task as individuals or in groups.

We discovered that African teachers agreed on the theoretical practices of teaching effective learner centred lessons but little or no realization that allowed learners to express their own ideas and the formulation of the lesson's objective. It was all given by the teacher which made it impossible to evaluate the teaching assumptions and its effectiveness in the lesson. This practice made us to conclude that their lessons were teacher driven and we saw them as teacher centred although initially they themselves saw no difference between their lessons and those of their counterparts. Their concern was that less work was done by the Japanese teachers in the classroom instead of the learners. They linked this behaviour as insufficient preparation done by the teachers.

The African teachers' major emphasis was on the terminology and scientific terms. The African teachers relied more on the textbook and emphasized the terminology and concepts that appear in their syllabus. Science being abstract, the teachers just

gave the definitions instead of allowing the learners to encounter the phenomenon. Their justification of emphasizing the terminology and concepts was the way in which assessment is done in Africa where most questions require learners to define terms and concepts. The African teachers came to their classrooms with objectives of the lesson and wrote it on the chalkboard for the learners. They argued the fact that they know exactly what they are to teach. They never realized that the learners should be in charge of their own learning in a learner-centred lesson. The objective given will thus be around the teacher and his teaching assumptions which are not translated to effective learning. It is very important to have learners to formulate their own objectives for the day's lesson because if the lesson's objectives are given by the teacher, the learners' motivation and participation is closed. Usually, generally objectives that are developed by the learners signify their level of understanding, their interest, motivation and curiosity. Challenging questions that promote thinking and curiosity were lacking in the African lessons. This issue of phenomenon and learners creating an objective was a new encounter for them.

In Japan, learner centered lessons are conducted with the teacher having the view of learners in mind. In order to capture the interest of the learners as well as motivate the learners towards learning, the teacher is expected to create a situation (phenomenon) relevant for the day's content. The teacher's intention is to allow learners to think and wonder about the encountered phenomenon. The necessity of the phenomenon is key because it provides the direction for the day's work in terms of content. When learners encounter a phenomenon at the beginning of the lesson, their interests, motivation and curiosity is aroused. This becomes the starting point for acquisition of new knowledge. The learners therefore develop many questions for the JISHOTEIJI (situation) and have their own prospects for solving the problem.

Allowing learners to manipulate concrete materials was one of the strategies that we focused on. The lessons that were taught by the African teachers prepared from their country, had some materials that were brought from their countries and to be used during their prepared lessons. Most of the materials were catered for demonstration which was done by the teacher in most cases or selected two learners to demonstrate in front of the class. They mentioned that they usually choose the brilliant students to handle the materials. Not all children are given the opportunity to manipulate materials because of the time and the availability of the materials. The use of concrete materials during the lesson brings in the aspect of facts and evidence based learning. The learners' understanding of concepts becomes deeper if they are using the real familiar objects. This process allows the learners to appreciate and own their learning. Concrete materials promotes hands on activities and learners usually don't forget what they learn when they are allowed to fully participate in the learning process using the concrete materials. In Japan the use of concrete objects by learners is very important because the materials provided to the learners help them to confirm their predictions and help to direct the learner's findings.

We also discovered that the African teachers' learners are allowed to work as individuals for assessment purposes in order to evaluate how much has been achieved by the learner in the form of an exercise or activity. It is usually done at the end of the lesson as written work. Sometimes worksheets are provided, but they are used to help the teacher to meet his or her objective. In Japan, when learners are given the tasks to work on, pupil interaction is very much encouraged and this is what learner centeredness is all about. Assessment of learner's performance is done by checking individual work, group work as well as work done in pairs on the worksheet provided by the teachers. This activity is very important because it provides a direction for the teacher on the learners who need help. Group work is one of the strategies highly used by the Japanese teachers because the learners freely share the ideas through discussion among themselves thus helping the slower learners. Individual work is used to allow for free expression and the teacher uses this to come up with learner achievement results.

Learners' expression of own ideas is a very important skill which each learner is expected to possess. Free expression of learners' own ideas helps to identify the rate at which the learner has reached in terms of academic achievement. Learner free expression helps build learner confidence more especially when the teacher praises the learner. When responding to the interview question on teaching strategies that helped them to change their teaching practice, the African teachers mentioned the formulation of the lesson objective by learners, teaching assumptions and evaluation. They also mentioned the importance of a detailed lesson plan that accommodated learners' expected questions and responses which promoted participation and motivation in the classroom. The understanding of the teaching assumptions was not easily understood by the African teachers as this was emphasized by the course leaders several times by giving different examples and different contexts. Teaching assumptions are teacher's expectations of learner behavior on the presented particular content. The teaching assumptions are based on the teachers' view point and are set by the teacher as targets for learner academic achievement in the process of learning. These teaching assumptions are indicated in the teachers' lesson plan in the form of learners' expected questions and responses. The assumptions are very important in that they provide a direction for teaching and learning. Usually teaching assumptions are set and evaluated at every stage of the lesson. Therefore, evaluation of teaching assumptions is based on: learner's facial expression and verbal expression, judged in terms of learner's interest and motivation; interaction with the teaching materials with reference to the results obtained after a demonstration or experiment and learners work as it is displayed on the worksheet. These assumptions are evaluated based on the phenomenon in relation with the objective setting by the learners. In cases where there is a big margin between the phenomenon and the objectives set by the learners, then the teacher's intention for learning need to be revisited. If it happens that a good number of learners have a variety of ideas for their objectives, then the teacher's intention (assumptions) is good and has been met.

Results and the Outcome of the training

During the last two weeks of training, the African teachers were expected to show how their practices had changed. The following clip indicates the implementation of an effective learner centered lesson by an African teacher in a Japanese classroom that we observed and documented.

Topic: **Magnetism**

(a) Examples of learners formulating an objective

Learners observe a demonstration on the behaviour of metallic paper clip.

Teacher. (After the jishoteiji), from what you have observed, what do you think is today's lesson about?

P1. Let us examine the relationship between the magnet, the nail and the clip.

P 2. Let's examine the reason why the clip is falling down when the nail is

moved closer or fixed between the magnet and clip.

P 3. Let's think of why the clip is moving away and falling down

P.4. Let us examine the mechanism of the magnet

Teaching assumption : Students visualize and critically think about what is happening to the metallic paper clip. This became evidence of learners encountering the phenomenon that made them to think critically and came out with the above responses.

Objective: Teacher using learners' ideas to formulate the objective

Let's study and examine why the paper clip moves away when iron nail is brought near it.

(b) Using the demonstration on the phenomenon of clip attracted at a distance by a magnet, iron nail is inserted in between them , the clip moves away or falls down, learners are interested to find out the reason behind the clip`s behaviour.

Teacher: Which metallic materials will/will not make the metallic paper clip change position when they are brought near the magnet?

(What have you observed? Is there anything you are wondering?)

P. 1.Paper clip is running away from nail,

P. 2. paper clip is being pushed away,

P. 3. paper clip falls down when nail is inserted in between it and magnet.

P. 4.paper clip is attracted to magnet at a distance.

P. 5 I am wondering why paper clip is moving away.

Teaching Assumption: Students will nature the ability to think logically.

The teacher gave learners a chance to confirm their responses and thinking through group discussion and experimenting. This practice made the lesson to be effective as was evaluated by both the Japanese teachers and the researchers. It was given an overall score of 75%. The suggestion was that more questions should have been paused to allow the learners to share their views.

Conclusion

During the two months intervention the African teachers were exposed to the Japanese classroom lesson presentations and discussions that led them to change their classroom practices. The changes focused on the teaching assumptions and evaluation for each segment of the lesson. For example, the effective introduction bringing the phenomenon that links to their daily experiences or previous lessons that connect and give direction to the new information or knowledge. Coaching and assimilation activities helped to improve the teachers' practices. The individual teacher was given a chance to improve their lesson plans that they had prepared and brought from their countries. As gaps were identified from their lessons, these were discussed by teachers as peers and modified. The improved lessons were taught, studied and discussed as they were changed four times to perfection. The fifth improved lessons were taught in Japanese classrooms. The Japanese teachers together with researchers evaluated the lessons as highly effective. These are some of the comments that were given by the African teachers during an informal interview:

Interview: What aspect of the training that supported your changes from your initial lesson to the final lesson at the school?

Response: "*I thought I was teaching a learner centred lesson but when I came in Japan, I felt that my lesson was teacher centred. At first I did not like teaching the same lesson four times to the same people. I felt it was unnecessary and boring, but I later realised that practice in the ways that encourage sharing, reflection and taking the risk to change which sometimes led to confusion made my lesson to be effective. Revisiting videotaped lessons and working as a team collectively generated new ideas for effective practice of a learner centred lesson.*"

While the lessons taught by the African teachers were evaluated as effective by the Japanese teachers and researchers, we still experienced too much talking in the classroom. The teachers still felt that they were in control of the lesson. For example, while learners were given opportunity to air their views but some learners were ignored when the teacher had got the right response from one or two learners.

Handling of materials by teachers as part of their preparation is still a big challenge. Preparing and doing experiment before presentation to determine how long is going to take and that all the materials were in order is still a big challenge. Teachers saw this as a waste of time and too demanding on their limited time. After revising and changing the lesson several times, they assumed that they had mastered the handling of materials and no preparation of materials was needed. Construction of high order

challenging questions that lead to the development of depth knowledge that has value beyond the classroom was still seen as a big challenge.

This study explored the theoretical and practical understanding of the learner centred lesson practiced in the African countries with the aim of supporting them with teaching practices that are effective. The observation of classroom practices of the Japanese counterparts made them to cope with the experiences of detailed lesson plans, effective teaching practices, assumptions and evaluation. While there is evidence that they benefitted from this training, we are still not sure how they will be implementing such processes back home. The implications from all above is that the authoritarian classroom culture and classroom practices should be replaced by a more democratic one, in which learners are in charge of their own learning. The teacher just needs to facilitate the process of learning by developing lesson plans that bring about realistic teaching assumptions that are measurable. We believe that we have just scratched the surface on how effective teaching and learning should occur in order to be meaningful.

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Putting Foreign Language Learning Policies into Practice

Elizabeth Yoshikawa

Naruto University of Education

Abstract: *A common theme within higher education is the notion of the internationalization of its course of programmes. However, the actualization of a country's educational policies concerning the internationalization of curricula is a dynamic process. Influences outside the education arena, such as economics and politics as well as social pressures contribute to the actualization of internationalization within an education system. This paper, using Bourdieu theories of cultural production, offers a pluralistic method of analysis of how policies on foreign language learning are conceptualized in the Japanese teaching context of higher education. This will include a discussion on issues concerning the teaching of a foreign language. Through understanding how abstract ideas are put into practice would facilitate understanding role of various forces in education and how as educators we must consider the situation holistically.*

Increasingly the ideals of internationalization are being adopted within higher education. The idealization of internationalization is increasingly influences how the higher education (HE) systems of a nation's are incorporating the concepts of internationalization within their curricula. As the process of internationalization is dynamic, and educational policies are not politically neutral, how an individual institution is able to internationalize their curricula is influenced by a number of different sources. These include governments who create foreign language policies with the appearance of satisfying both local and international economic goals. Furthermore, the demands of the market place for a workforce with skills and knowledge that would facilitate competition in the globalized economy are another contributing factor in the internationalization of a nation's curricula. These two points are further influenced by the ability of a higher education institution (HEI) to implement educational policies. Any policy, as it aims to satisfy a number of simultaneous goals, must be recognized as being broad and incomplete. It is without questions that it can be stated that an educational policy inherently has gaps. These gaps however are what enable a HEI to develop its own interpretation of a policy and to implement it within the influences of their context. An educational institution, through the course of its practice, develops a set of social rules, which are dynamic. These social rules combined with the ebbs and flows of policy implementation contribute to how an institutions and realizes educational policies within their context as well as contributes to the identity formation of that institution. Using Bourdieu's (Swartz, 1997) concept of the field, the following paper will address how the field of education is anchored in social interaction through the three forces of capital. First, the conceptualization of Bourdieu's theory of capital and the field in relation to higher education (HE) will be explained. This will be followed by definitions of internationalization, globalization, and the knowledge society, which are all influences in the field of HE. This background will provide the basis for the discussion on the realization of Bourdieu's theories through the conceptualization of foreign language learning in the field of HE in Japan. Specific attention will be drawn to the Japanese context of foreign language educational policies and teaching. This will lead to a subsequent discussion of issues foreign language instructors must be aware of when teaching English as a foreign language (EFL) in Japan. Understanding how abstract ideals are put into practice using Bourdieu's (Swartz, 1997) theories of the field and capital

will facilitate an understanding of the forces in HE and their roles in practice through exemplifying the Japanese situation.

Bourdieu: The field and capital

The current economic situation is contributing to the market force's demand that foreign language learning in Japan emphasizes the communicative develop foreign language skills by students. The focus on the type of English skills emphasized for students to learn changes frequently in Japan. Articles concerning EFL education in Japan note that historically the type of English taught, American or British, and the focus, either on reading/written or conversation skills has typically been heavily dependent on the politics of the time (Liddicoat, 2007; Sasaki, 2008). This would support Becher and Trowler's (2001) notion of managerialism where values and beliefs about social arrangements influence the distribution of resources, or in this case what is considered to be knowledge. The economy shapes the direction of the educational policy, and managers of the economy (business and politicians) in a top-down manner distribute new educational policies. What is of importance here is that within this sub-field of EFL education. within the larger field of Japanese HE, not only is a social realm but also an economic realm influencing how EFL policies are being implemented. As the influences of these realms fluctuates so does the validation of knowledge through educational policies which influences instructional practices within this sub-field. However, these ideals are abstract and to account for them we must understand how they are put into practice. Bourdieu's (Swartz, 1997) theories of social capital and the field offer a position from which the abstract ideals of EFL policies as influenced from the economic, social, and business realms can be analyzed in practice.

The Field

In analyzing the field Bourdieu (Swartz, 1997) starts with the individual. The individual enters into society, which consists of many different spaces such as school, work, and friends. These different spaces are what Bourdieu calls 'fields'. The field is comprised of contexts such as social groups, institutions, and workplaces. When an individual enters a field they have their 'habitus'. The habitus uses specific realms of influences, which informs how we behave or utilize the social codes within a specific field. Bourdieu refers to each of these influences as a type of capital. There are three forms of capital. First there is economic capital, which is the power over economic resources such as assets or money an individual has in a specific field. Secondly, there is also cultural capital, which is equated to knowledge, experience or connections that we, as individuals have gathered throughout our lives, and which enable us to succeed to a greater degree than another individual with a different set of cultural capital within a specific field. Thirdly, there is social capital, which are the resources available to an individual based on group membership, relationships, or networks of influence and support. Individuals use their social capital to function effectively within a specific field. Combined these three forms of capital transform into symbolic capital and inform us how to behave in different fields. The symbol capital equates to the unspoken and spoken rules which guide our behaviors in specific fields. This is an automatic process which happens when we enter into a specific field. The rules which bind each field also influence our behavior and our positions as individuals within specific fields. These rules and how they influence our behavior are influenced by both our past and present experiences. As fields continually grow and change, so do the rules; the rules are dynamic.

The field represents the abstract ideas about society and social interaction. Society is a rule bound place and these rules vary according to position and the specifics of the field. The individual's position within a

specific field and the resources available to them, as realized in the three forms of capital, vary according to the field they are in at a specific time. This is where Bourdieu (Swartz, 1997) becomes of importance because through the boundaries given to how abstract ideals are put into social practice, they can thus become measurable. Accordingly, we are able to observe abstracts which are conceptualize in terms of habitus, capital, and the field. In this paper the interest is concerned with the field of HE, and within this the subfield of EFL learning. Bourdieu's (Swartz, 1997) theories will be used to analyze how the habitus and forms of symbolic capital influence the development and implementation through practice of EFL policies in Japan.

Key Concepts Defined

In order to understand how the habitus and symbolic capital of EFL learning in Japan are developing, it is important to understand what globalization and internationalization are within the field of HE. These are both terms that are commonly used in HE in relation to policies and practice. Yet, precisely what these terms mean and how they can be employed in specific situations are often implied; they are not clearly defined or outlined.

Internationalization is generally associated with positive aspects in HE. This would include the raising of standards in education (Hawawini, 2011). It also addresses ideas concerning increasing access to HE (Yonezawa, 2011). Here the increase of access usually refers to the ideals of life-long learning and elevating an individual's career/ social status, as well as increasing access to HE. Furthermore, the internationalization of HE also is concerned with improving the assessment method as a result of an awareness of the role of HE in the international community (Yonezawa, Kitamura, Meerman & Kuroda, 2014). Thus, internationalization can be seen as contextually influenced. How internationalization develops is dependent upon how local activities are developing. If we look at the Japanese notion of internationalization it is often taken to mean to teach the world about Japan. Although dated Suzuki (1995 in Liddicoat, 2007) neatly summarizes the Japanese stance of internationalization as the "spreading [of] Japanese culture, values, and history internationally, and moving the other to see the world from a Japanese perspective, in order to preserve Japan's interests and promote the 'correct understanding of Japan'" (page 20.7).

In Japan two ideologies are behind Japanese foreign language policies: nihonjinron and kokusaika. Kokusaika is used to denote Japan's ideas behind internationalization while nihonjinron is used to describe the uniqueness of Japan, particularly its cultural identity. Many researchers to exemplify the linguistic homogeneity of the Japanese language have used the nihonjinron ideology. This plays into the notion that there is only one version of Japanese and this is common to all who are Japanese. Subsequently, this represents a barrier to foreigners as language is intrinsically linked to both race and culture (Crump, 2008). This then equates with the ideology that through learning a foreign language, Japanese would accordingly alter their 'Japanese-ness'. Meaning that as awareness of others expand, so does how one interprets oneself. To learn another language would therefore set one aside from their homogenous culture. Conveniently, the nihonjinron ideology provides a shield for why many Japanese are unable to speak English well, despite more than six years of instruction at the grade school level. It can be said that this ideology acts as a social capital resource by providing a validation for not achieving high levels of foreign language learning. Kokusaika, the other ideology contributing to Japanese beliefs regarding language learning is a reflection of the idealized notion of what it means to be international. Unlike other countries where internationalization is equated with the bringing in of new ideas to develop one's own culture, in Japan internationalization is

equated with the teaching of the world about Japanese culture (Gottlieb, 2005). The best way for Japan to interact on a global scale is by protecting its unique cultural heritage (Hagerman, 2009) and this is achieved through educational reforms. When addressing educational reforms in Japan the ambiguous nature of the language utilized in the reforms is a reflection of Japanese policy makers both wanting to protect their cultural heritage while also appearing to appease the international economic market's cries for Japan to have a more international outlook. Thus, while internationalization is typically valued for its positive impacts within the field of HE, in the international community, Japan's notion of internationalization is often equated with EFL education (McKenzie, 2008). These would represent a combination of both economic and social capital resources influencing the sub-field of EFL education within the Japanese education system. Globalization can be understood as being the on the other side of the coin from internationalization. Typically globalization is understood as a negatively impacting education in general. Under this category would fall the negative effects of the homogenization of education. This would include the idea that globalization facilitates the economic returns of education and efficiency in an agenda driven by the neo-liberal market (Rizvi & Lingard, 2011). Here, through the globalization of HE we can understand it as a principle within a nation's economic development and cohesion. Globalization processes can be seen through increasing access to higher education which in turn increases economic benefits for a nation through increasing knowledge and skills which can be used to compete in the global market place. This increase of access to HE is viewed negatively, as it is connected to the trend of universal access to HE (Kariya & Dore; 2006; Seargeant, 2008). Increasingly the market economy is demanding HE degrees for entry-level positions. The increased access to HE has not necessary resulted in students being prepared to enter a HEI, nor has it resulted in changes to the curricula to meet the needs of society (Kariya & Dore; 2006; Seargent, 2008). Accordingly from a social stance with regards to the globalization of HE, it must be questioned as to what is the purpose of HE and how have HEI addressed changes according to this perception? At the institutional level within HE, power relations in the form of economic capital and the financial resources available to universities influence how policies on foreign language learning are implemented. Understanding contexts helps to interpret how the idealization of globalization is influencing the development of EFL within the field of HE.

From this framework globalization can be understood as the deepening of connections between the distant and local. In HE, globalization can therefore be referred to as trends including diversification, privatization, access, and technology use in the knowledge economy (Rizvi & Lingard, 2011; de Witt, 2010). Whereas internationalization can be understood to be an outward looking process where a HEI not only aims to benefit from the knowledge developed in the globalized arena, but assesses what its own capacity is to contribute to the knowledge economy through its function as a place of education (Yonezawa, 2011; Hawawini, 2011).

The definitions of both globalization and internationalization each contribute to and influence the knowledge society. What the knowledge society is varies according to the habitus of the field it is employed in. If a goal of HE is to be outward looking and to acknowledge that contributing to the knowledge economy is as important as benefiting from it, then it is necessary to understand what intercultural knowledge in the knowledge society is within the subfield of EFL education in Japan. Under the framework of internationalization intercultural knowledge would equate to the skills to manage in a diversified knowledge economy (Bengoa & Kaufmann, 2014). However, how an intercultural knowledge develops depends on how it is valued within a specific localized context. If having an intercultural knowledge is considered as valuable

in the job market, it will consequently be of value within the educational arena, as it will have an impact on students as global citizens (Leondari, 2007).

Using Foucault as her backdrop, Devos (2003) suggests that knowledge is comprised of the normalization of concepts and theories within a specified boundary. This would then suggest that there is some sort of power structure which is used to legitimize the normalization of knowledge. In the case of internationalization we would also have to consider the market force, political structures, as well as social forces. In this light knowledge is a discourse. This where Bourdieu's conceptualization of the field becomes of significance, as it provides a structural framework from which different influences of capital compete with each other as well has how they compliment each other. Using Bourdieu's (Swartz, 1997) concepts of the habitus and the actualization of symbolic capital within the field, ultimately knowledge is shaped by three principle factors: 1) how it is defined within a given social setting, 2) who has the power to accept it as mainstream or not, and 3) its mobility. Thus, it can be said that knowledge is about relationships, and understanding these relationships would facilitate in how HE utilizes the conception of knowledge within its boundaries.

Playing the ELF subfield in the field of higher education

Traditionally HE has been coined as the ivory tower of education. However as outlined above, the relationship between HE, industry and the society-university relationship has been changing (Altbach, 2009). This equates to how the boundaries of the field of HE are understood now. Furthermore, this governs the way in which individuals in the field interact, and this is also dynamic and under change. The purpose of a HE at university has shifted away from developing a philosophical knowledge to one which focuses more on providing vocational needs. More bluntly this means providing students with a specific set of job skills as demanded by the market economy (McCaffrey 2010). This shift in focus in the educational needs of the field of HE has been seen by changes in both course programs and the curricula of a HEI. The argument seems to be here, as Svensson and Wihlborg (2010) discuss, that the curricula of HE is often equated with a goal from the political or economic fields. This maybe equated with increased mobility between HE systems, labour markets, and societies and a blurring of the boundaries of the field of HE. Nevertheless, this suggests that governments and the economic fields are aiming to achieve greater mobility between their sub-fields of specific specialties within HE, within the larger field of education. Accordingly, there must be a greater degree of standardization at the macro-level between different HEI, which is equated with curricula development. This would then mean that policies regarding HE are aimed at achieving standardized levels which would thus facilitate mobility between one country's systems and another country. Therefore, foreign language education is typically associated with the skills necessary to successfully interact in the international market.

In this light curricula objectives symbolize the formation of cultural capital in HE. More and more research is indicating that learning goals have been increasingly objectified (Barnett, 2004; Svensson & Wihlborg, 2010; Yonezawa, 2011). This levelization trend has not only arisen in specified educational areas, but has also been occurring through how nations develop their HEI systems to ensure comparability in the standards and quality of their universities in comparison to other nations. What this represents is a symbolic violence. Symbolic violence is a conflict of values and purposes (Bourdieu, 1984). The changes to foreign language policies are typically not transformational where the change is sought to change ingrained practices of symbolic capital gain. Foreign language policy changes result in a conflict of symbolic capital as the need to appear to appease to the globalized market force is much greater than the actual need to create a cultural

capital knowledge base in foreign language learning. It appears as if the symbolic goal of gaining international recognition is not aligned with the cultural capital ideology of knowledge acquisition in foreign language learning.

Realization of the field

It appears the rules of the game in the field of HE have not adjusted to enable the cultural and symbolic capital to be realized in foreign language learning in Japan. This then leads to the question as to what is hindering the changes to the rules of the field in the Japanese foreign language acquisition within the field of HE? In Japan, structural changes to language teaching are far behind policy changes to language teaching. Current policies regarding EFL emphasize the teaching of communicative stills. Yet Yashima's (2002) complaint that English is viewed as a content-based language in many classrooms in Japan still holds true today (Seargeant, 2008, Kubota, 2011). Understanding where the rules of the game must adjust to facilitate the current foreign language policies emphasis on communicative language learning would reduce the clash between the cultural and social capitals of learning a foreign language and allow the social capital of resources to provide an adequate base for foreign language learning to be established. Allowing the social capital basis of resources to develop would necessitate that that the system changes. If communicative language learning is to be the true emphasis of foreign language learning in Japan, then the examination system must change. As long as the current examination system continues to emphasize grammar-based translation skills over communication skills, that will remain the focus of language instruction at the junior and high school levels: grammar-based translation learning.

In Bourdieu's (1984) conception of the field, context is of importance. Two forms of capital in relation to context will be addressed here. The first is form of capital in the field of HE is economic capital, which relates to a HEI's assets. When addressing where a university is getting its assets from we must remember that HE is not limited to only academic purposes, it is also being used to aid in the development of the world economy (Bloland, 2005). Therefore, it stands to reason that the HEI that has the flexibility to implement foreign language policies in a way that is of most benefit to their course of programs as well as stakeholders' interests stands a better chance of succeeding in the field of HE, particularly in with regards to internationalization. In the second form of capital in the field of HE, cultural capital reminds us that knowledge and previous experience of gaining knowledge combine and influence current actions. When addressing notions of global awareness and differences in cultural perspectives there are two points of view to consider: that of instructor and that of students' experiences of knowledge generation and utilization in foreign language learning. The idea that learning pasts influence current actions in a learning situation is part of how we play the field of foreign language learning in HE. It is not enough to express expectations of an instructor or students in specific actions. It is this way that the social capital of the group, to maximize how it manipulates the resources available to promote foreign language learning has been largely unsuccessful. Understanding how past learning experiences influence present actions should therefore be of importance in any learning situation, not only so that our cultural capital ~ our knowledge can increase, but so that our abilities to utilize our social capital effectively also improves.

It is from this stage that it could be understood why policies addressing English language learning are criticized for addressing surface issues. These policies are often criticized for be responsive to political or international business related demands, for fulfilling only the economic capital of the habitus within the field of HE. From the political perspective on EFL policies it is important to understand that in Japan there are

two distinct bodies which have the power to create either policies or policy directives; the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) and the Prime Minister's special cabinet on Educational issues. These two bodies are influential in the development of the social and economic capitals of the subfield of EFL education in Japan.

The Prime Minister's cabinet, with regards to issues related to globalization, is responsible for setting up flagship universities under the Global 30 project. The Global 30 project was initially set up in 2010 to promote top Japanese universities in creating English programs to specifically attract foreign students (Yonezawa, et al., 2014). Two specific points here are not addressed by Yonezawa et al. (2014). First, MEXT exercises far greater control over curriculum development at the grade school level than it does at the university level. At the grade school level, teachers are given ministry-approved textbooks and these are often accompanied by full instructional manuals (Yoshida, 2003). Conversely, at the university level, while notion of internal accountability is stressed, instructors have far greater freedom to create their own syllabus, and departments their own course of program. These are subjected to ministry approval, but the ministry does not directly influence the development of these programs. Secondly, with regards to the Prime Minister's cabinet on Educational issues, these tend to be geared to economics. The purpose of these initiatives appears to be linked with HEI world rankings, attracting foreign fee paying students, and attracting renowned foreign professors. This thus combines the emphasis on EFL education to fulfill the social capital of recognition and the economic capital of assets within HE. What can be seen here is that the development of the different types of capital within the subfield of EFL in Japan is drastically disproportionate. This is effectively means that the habitus of EFL in Japan does not match the field in which it has evolved. This represents a fish out of water concept. Where the fish, as represented by EFL teaching and learning has to figure out how to operate in the field, which is seen in how different HEI implement policies concerning EFL learning differently. This equates to symbolic violence, as the control of cultural mechanisms such as language, images, and symbolic meanings concerning EFL are dominated by fields outside of the field of HE.

It appears as if policies concerning the use of English at universities in Japan are centered on economics. In an educational marketplace where fee-paying students are increasing the primary source of income for most universities and added to this a society with an ever-decreasing birthrate, attracting students who can pay fees is increasingly becoming of importance. It appears that instead of addressing structural flaw within the university system and going beyond surface accountability measures to satisfy public outcries of mismanagement, the Japanese government and in turn HEI, are turning to outside sources to maintain finances. While policies concerning the use of English at the university level may initially create a sense of wellbeing, unless structural issues are also addressed, this wellbeing is bound to be short lived.

University EFL programs must develop from the mentality that by merely taking an English course is equated with being international. This would necessitate that communication is key within and between departments at the university level, to ensure that students learn the English communication skills relevant to their course of study, and that the cultural capital element of the habitus also develops. Yet, it also must be remembered that what is valued as interaction varies according to cultures (Hofstede, n.d. in Harumi, 2011). As described above, knowledge is not just a set of skills it is also a discourse of values, beliefs and experiences. Accordingly, it is important that students learn about global process and differences in cultural perspectives. Therefore, the subfield of EFL education, as realized through pedagogy needs to be designed to raise students' awareness of how their own cultural lenses shades their interpretations and conversations

on specific topics. The purpose would be to allow students through conversations to develop their interpretive lenses and subsequently to further develop their conversation skills. Instructional practices should aim to facilitate students in reaching their language goals and MEXT (2014; 2011) goals of fostering students with conversational EFL abilities. If the cultural capital of the policies on EFL teaching is realized then it would facilitate structural changes to the system of how EFL is taught. This would then allow HE to utilize the resources available to it within its field to create a more holistic balance in how it approaches foreign language teaching which would improve the overall learning dimension within its field.

Closing synthesis

The notion of globalization is increasingly becoming a catchphrase used by many countries around the world. Yet how these notions are implemented are heavily depended upon the cultural lens used to interpret them. English is often used as the common language for international interaction in science, technology, and economics as well as for general international communication. Japanese policies on EFL learning increasingly stress the dual importance of individuals developing EFL skills so that the Japanese population can participate in social global activity economically (Yamagami & Tollefson; 2011). The social cultural value of learning a second language receives marginal emphasis within the Japanese field of HE.

In the subfield of EFL learning in Japan the responses to learning a foreign language teaching tends to be for primarily gaining economic capital, for successful interaction in the global economic market. In this response increasing cultural capital receives less attention. The policies fail to address the ideals of internationalization as they do not address the elements of tolerance or open-mindedness. Thus, these policies are not focused on relationship building beyond that of an economic perspective. These policies, as a result fail to fulfill the cultural capital interest of gaining knowledge and combining this with past experiences to further knowledge accruement, as they are dominated by fields outside of the field of HE. Due to limited structural changes combined with experience to utilized knowledge flexibly, the social capital, the networks we are using in the field of foreign language learning, is weak and thus is limiting the success of policy changes with regards to improving communicative skills in a foreign language in Japan. Accordingly, in the field of foreign language learning, while all forms of capital influence how the field develops, there will always be conflict between the different forms of capital, as the logic behind each form of capital influences how it is realized. This competition is healthy as it favours the holistic development of HE and the programs it offers. Yet, when the balance becomes unfavourable stacked, such as is the case in Japan, with regards to economic capital, this negatively influences the holistic nature of HE and the overall development of FL learning.

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Investigation of Students' Natural Ways of Thinking in Mathematics Classroom Using Lesson Study and Open Approach

Pimpaka Intaros
Faculty of Education, Khon Kaen University, 40002, Thailand,
ipimpaka@kkumail.com

Sampan Thinwiangthong,
Faculty of Education, Khon Kaen University, 40002, Thailand,
sampan@kku.ac.th

Maitree Inprasitha,
Center for Research in Mathematics Education,
Khon Kaen University, 40002, Thailand
inprasitha_crme@kku.ac.th

Abstract: *The purpose of this study was to investigate students' natural ways of thinking in a problem solving mathematics classroom in which using an open approach as a teaching approach, and a lesson study as a way to improve the teaching approach (Inprasitha, 2015).*
Qualitative method was employed in this study. Video and audio recordings were used as methods for collecting data of a targeted group including 1st graders in 2014 academic year of a school participating the Students' Mathematical Higher Thinking Development Project in Northeastern of Thailand. Data were analyzed by using protocol analysis and analytic description.
The study results revealed that the students could think as their own ways by using various natural ways of thinking. It, therefore, could be considered that the problem solving-mathematics classroom enhances the students to think and develop their own mathematical concepts and processes.

Keywords: Open Approach, Lesson Study, Natural Way of Thinking

Introduction

Teaching approaches in mathematics classrooms have been changed to a more insight-based problem oriented process during the last decades (van Oers, 2002). In order to enhance students' problem-solving process, a critical point is what kinds of authentically mathematical experiences that students should get through problem solving (Cai, Mamona-Downs & Weber, 2005).

A problem solving mathematics classroom, in Thailand context, is a mathematics classroom using an open approach as a teaching approach in which composed of four phases: 1) Posing open-ended problems, 2) Students' self-learning, 3) Whole class discussion and comparison, and 4) Summing-up by connecting students' emergent mathematical ideas (Inprasitha, 2011), in cooperated with using a lesson study as a way to improve the teaching approach in which composed of 3 steps: 1) Collaboratively plan, 2) Collaboratively do, and 3) Collaboratively see (Inprasitha, 2015).

In the problem solving mathematics classroom, most teachers encourage students' problem solving by starting the classes with an open-ended problems or problem situations, which are designed in according with students' experience or what the students have learned. In other words, the approach in this classroom necessarily nurtures the students to learn mathematics in meaningful ways, or is a mathematical practice that shapes concepts, meanings, processes, and values, whereby promoting a transformation from techniques (ways of doing) to meanings (ways of knowing) (Bishop, 1988).

From the same ideas, natural ways of thinking represents one example of cognitive practice. It is not a learning of particular procedure repeated in an automatic-unthinking way, but it involves development of mathematical concepts and processes (Nunes, Schliemann & Carraher, 1993). Therefore, it should be considered that natural ways of thinking are important for mathematical learning.

Purpose of the study

This study was aimed to investigate students' natural ways of thinking in the problem solving mathematics classroom in which using the open approach as a teaching approach cooperated with using the lesson study as the way to improve the teaching approach.

Research Methodology

Theoretical Framework

This study was conducted by employing 2 theoretical frameworks, as follows.

1) Problem Solving Classroom

Open Approach as the Teaching Approach (Inprasitha, 2011), is composed of four phases; (1) Posing Open-ended Problem; the open-ended problems are posed in the classroom and the students are often asked about a meaning of the problems and challenged to solve the problems,

(2) Students' Self-learning; this phase consists of a combination of two parts: individual work and discussion by the whole class,

(3) Whole Class Discussion and Comparison; the students' activities are crucial to further development of a lesson that the teacher should try to identify those students who do not understand the problems and provide more suggestions to stimulate the students in a whole class to think in according to the problems, and

(4) Summarization through Connecting Students' Mathematical Ideas Emerged in the Classroom; the teacher should include all students' prepositions and concentrate on one point view and lead to a conclusion by integrating and arranging them in according to particular point of view, in which used to identify phases of the case studied classroom.
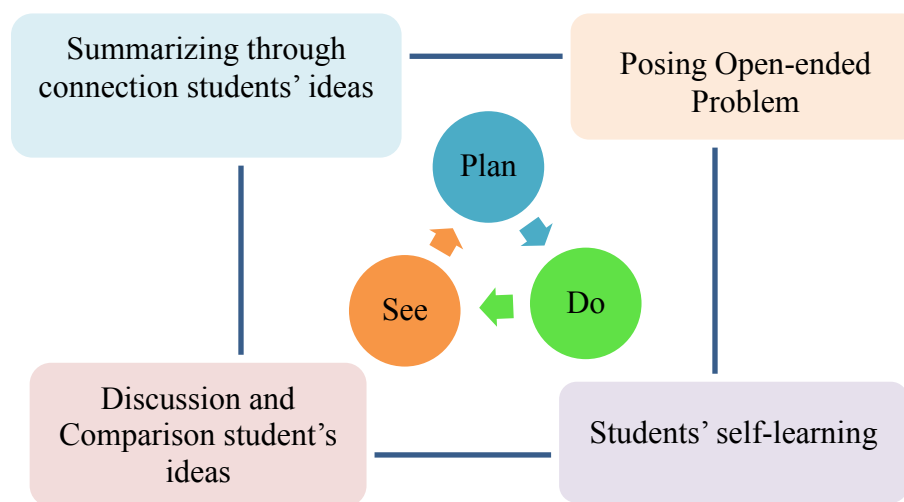
This approach is cooperated with the Lesson Study as the Way to Improve the Teaching Approach, composed of 3 steps;

(1) Collaboratively Designing a Research Lesson (Plan),

(2) Collaboratively Observing the Research Lesson (Do), and

(3) Collaboratively Discussing and Reflecting on the Research Lesson (See) (Inprasitha, 2015),

as shown in figure 1 below.

Figure 1. Open Approach as Teaching Approach Cooperated with Lesson Study
as Way to Improve Teaching Approach (Inprasitha, 2015)

2) Natural Ways of Thinking

Harel's (2008) description of mathematical knowledge as represented by the dual constructs of ways of thinking and ways of understanding to characterize students' thinking about mathematics, each of which influences the other.

A foundation of Harel's model of mathematical knowledge, illustrated in the duality principle, is that thinking and understanding are reflexive, that is, students develop ways of thinking through the production of ways of understanding, and, conversely, the ways of understanding they produce are impacted by the ways of thinking they possess.

2.1) Way of understanding as a particular cognitive product of a mental act carried out by an individual or subject matter knowledge.

2.2) Way of thinking as a cognitive characteristic of a person's ways of understanding associated with a particular mental act or conceptual tools.
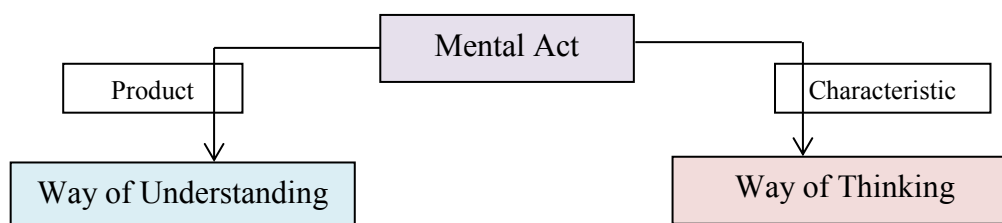
Figure 2. The Mental Act; Way of Understanding and Way of Thinking (Harel, 2008)

Target Group and Research Context

This study was conducted with a targeted group included 15 students of the first-graders in 2014 academic year of Nonjantuk Huaykae Wittaya School, Wangyai District, Khonkaen Province, where participating in the Students' Mathematical Higher Thinking Development Project in Northeastern of Thailand, Faculty of Education, Khon Kaen University, in which is the continuing project from the Project for Professional Development of Mathematics Teachers through Lesson Study and Open Approach which supervised by Center for Research in Mathematics Education (CRME), Khon Kaen University, since 2009 school year.

The schools participated in the project have been organizing learning activity by using the open approach as the teaching approach and the lesson study as the way to improve the teaching approach for six years.

Data Collection and Analysis

Data Collection: Qualitative method was employed in this study; a teacher, an observing teacher and a prospective teacher were planning a problem situation together by referring a problem in a mathematics textbook used in the project, after that they were observing the class taught by the prospective teacher, and they were then reflecting the lesson together, as a weekly cycle of the Lesson Study.

Video and audio recordings were used as methods for collecting data. The data were then transcribed into a protocol of the (prospective) teacher and the students who dialogue and act to each other in the classroom.

Data Analysis: Data were analyzed by using protocol analysis by using mentioned above theoretical frameworks, and its results were then presented by analytic description.
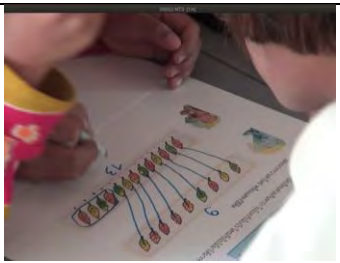
Example of Analysis

Problem Situation: Baibok (elephants' name) collect 9 leafs and Baibua (elephants' name) collect 13 leafs. Who can collect more leafs and how many leafs more? Let's show your ideas.

Figure 3. Problem Situation used in Classroom

Content: The activity is the sixth of all activities of a learning unit Subtraction (2) in which aimed to challenge the students to think about how to write an expression of subtraction while the problem situation is not ordered as normal, after they have learned methods of subtraction, and then they will be introduced to which one is 'minuend' and 'subtrahend'.

Examples of data analysis: The second phase of the Problem Solving Classroom (Students' Self-learning: Group Work), are in a table below.

Students' Words (Students' Actions)	Picture	Note
(*Student draw lines to pair each couple of leafs of Baibok and Baibua*, and then *make a circle on other leafs which is left after pairing each couples*.) (Student count leafs in the circle.) Four		Difference
(Student count a number of leafs of Baibok (first row).) *(Another student point leafs of Baibua.)* *There are thirteen leafs.*		Two choices
(*Student make a trace under each leafs of Baibua* (second row) and count at the same time.)		Exact Knowing
How many leafs are here?		
Nine. (Student *try to make a trace over leafs of Baibok*.)		Exact Knowing
Nine (Another student write number '9' over leafs of Baibok.) Thirteen. (Same student write number '13' under leafs of Baibua.)		

Table 1. Example of Students' Problem Solving

Results and Discussions

This study found that there are various ways of thinking and understanding the students use to accomplish the problems, as a table shown below.

Way of Thinking (Characteristics)	Way of Understanding (Products)
(1) One-to-One Correspondence	(1) Difference
(2) Tracing	(2) Exact Knowing
(3) Leaving	(3) Two choices (when one is not, another is yes)

Table 2. Students' Ways of Thinking and Ways of Knowing

From the table;

(1) The students used the 'one-to-one correspondence' as the way of thinking to help them to think about the difference of subtraction; the students draw lines to make one-to-one correspondence between each one of those leafs, at the end it will be find the difference distinctly.

(2) The students used the 'tracing' as the way of thinking to make sure for them to think about the comparison for subtraction; the students make trace for persuade to exactly know how many are there.

(3) The students used the 'leaving' as the way of thinking to help them to think about the left number of subtraction; the students try to tell an exact number when they have already known the first number, therefore the next number is very clear for them (in case they already known whole or another number).

Concluding Remarks

The study results revealed that the students could think as their own ways by using various natural ways of thinking.

1) Each of way of thinking and way of understanding influence the others, as shown in the above table. This is congruent with the foundation of Harel's model of mathematical knowledge, illustrated in the duality principle, is that thinking and understanding are reflexive (Weber & Lockwood, 2014).

2) The students have their own natural ways of thinking if we provide an enough time and provoke them with the problem situations like those ones used in the mathematical problem-solving classroom (Inprasitha, 2011). It, therefore, could be considered that the problem solving-mathematics classroom enhances the students to think and develop their own mathematical concepts and processes.

For further researches, it could be emphasized on the natural way of thinking in other higher-graders, because of in more high levels of the students' way of thinking would be more interested.

Acknowledgements

15-638

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Lesson Study as a model for school based Teacher Capacity Development in Kenya;
A Case Study of Langata West Primary School

Stephen Njoroge, Catherine Kiyiapi, Ernest Ng'eny & Makoba E. Kizito
Centre for Mathematics Science and Technology Education in Africa(CEMASTEA)

ABSTRACT: *This paper proposes lesson study as a school based model for Continuous Professional Development of Teachers (CPDT) and its successful implementation. In Lesson study a group of teachers collaboratively identify a learning problem in their school. They then plan a lesson aimed at solving the identified problem. One of the teachers teaches the study lesson while others observe. After the lesson the team discusses it and make improvements to the research lesson. Lesson study is a form of CPDT for building the pedagogical and content knowledge of teachers. This paper describes the implementation of lesson study by primary school teachers in their school. It also describes their experiences and growth in terms of attitude, knowledge, skills and classroom practice as a result of implementing lesson study. We found that teachers who embraced lesson study improved their pedagogical and content knowledge as well as classroom practice.*

Keywords: Lesson study, continuous professional development, learning

Since independence, Kenya has prioritized education as a national goal. Kenya subscribed to international declarations of the need to develop education and enhance children's wellbeing, including the Millennium development goals (MDGs), Education for All (EFA) and the united convention on the rights of the child (UNCRC) alongside national policies and programs. Despite significant progress, achieving quality education for all is still an uphill task for the Nation.

A study done by UWEZO, (2011)..*Are our children learning*? and another on Monitoring of Learning Achievement for Class 3 in Literacy and Numeracy in Kenya" conducted by the National Assessment System for Monitoring Learning Achievement (NASMLA) a semi-autonomous section in the Kenya National Examinations Council (KNEC) (2010) revealed that the competencies of primary school pupils in numeracy and literacy was below the desirable levels.

On the other hand, some recent research has sought explanations of the poor quality of learning in primary schools. A recent study by the African Population and Health Research Centre (APHRC) assessed primary school teachers on their knowledge of mathematics as a subject. The report indicated that primary teachers scored poorly in the mathematics they teach and recommended that greater emphasis be paid on strengthening teachers mathematics subject knowledge (APHRC, 2010).Findings by (Pontecraft & Hardman, 2005) showed that teaching in Kenyan primary schools was dominated with teacher led recitation in which rote and repetition are dominant with little attention paid to understanding.

The above findings are a pointer to the critical role that teacher capacity development has in quality education and student achievement.

According to David and Bwisa(2013) teachers attend professional development courses for various reasons. Some of the reasons include interest in lifelong learning, a sense of moral obligation, a need to enhance professional competence and to keep abreast of recent developments in their field of work, the need to comply with mandatory government requirements, or for career advancement. However, Leithwood (1992) quoted in (Villegas-Reiners, 2003) recommends that programmes which promote professional development of teachers should focus on developing survival skills, becoming competent in basic skills of teaching, expanding ones instructional flexibility, acquiring instructional expertise, contributing to the professional growth of colleagues, exercising leadership and participating in decision making.

The government of Kenya recognizes the importance of student achievement in mathematics and science as a means to achieve vision 2030.In this vision, Kenya aspires to become a middle income economy by 2030.To realize this vision, the government has identified three pillars to drive the vision. These pillars are social, economic and political pillars. The social pillar is most critical since it includes the human resource and its development. In this case Education and training of the human resource is a critical factor. Under the social pillar, the government recognizes the importance of Science, Technology, and Engineering and Mathematics (STEM) subjects in a nation's development. Although science and mathematics are essential for future careers

in STEM oriented market, the level of achievement by learners in primary and secondary schools is still low. This performance is due to many factors such as inadequate learning infrastructure, school environment, socio economic background of learners among others. However learning time as a factor is the most important. Teachers on the other hand determine learning time. As a way of intervention, the government has implemented a number of teacher capacity development programs.

The most extensive programme is the Strengthening of Mathematics and Science Education (SMASE) in primary and secondary education levels. The purpose of SMASE is to change teachers attitude towards mathematics and science as well as building their capacity to implement learner centered teaching for effective learning. Despite the SMASE programme having been in place for 15 years at secondary level and 4 years in primary level, recent studies by the implementing body (CEMASTEA, 2013) still show a low level of skills classroom practice and neither has performance in mathematics and science significantly improved. A large percentage of primary school leavers lack functional literacy and numeracy skills.
One of the reasons that make teachers not to apply what they learn during INSET is because in most cases teachers are taken to training venues away from the actual school environment in which they work. Furthermore there are limited opportunities to practice what they learn in an actual classroom set up. Secondly once they are back in school, there has been no mechanism for follow up and support. The fact that teachers end up working in isolation contributes significantly to regression to the old practices of teacher centered classrooms.

Due to the above mentioned factors, school based lesson study therefore provides the most sustainable approach to contextualized teacher professional development

Literature Review

This literature review examines whether lesson study as a model for school based professional teacher development is a promising approach to improve quality of teaching and learning and subsequently the quality of education in Kenya. This shall be done by responding to the following questions:

- What are the perceptions of teachers about lesson study?

- What are the underlying factors for successful implementation of lesson study?

- What challenges do teachers face when implementing lesson study?

A lot of studies have been done on approaches to improve teaching, such as case studies of classroom practice, pre-service and in service professional development experiences however there are few studies on alternative Teachers Continuous Professional Development (TCPD) models at school level and their effectiveness. The studies that have been done on TCPD report workshops, seminars and conferences as the traditional models adopted. These approaches involve the use of experts to advice teachers on teaching and are usually a one-off shot. Because of this they are not sufficient because they do not offer enough time, activities and content necessary to increase a teacher's knowledge and to foster change in classroom practice (Desimone et al, 2001).This traditional approach to TCPD assumes that teachers subject knowledge or pedagogical skills can be improved using experts from outside the school(Boyle et al 2005).Such a view of TCPD has been the reason why many programmes on TCPD fail to achieve their intended objectives and goals. The so called experts come with predetermined solutions to teachers' problems without considering the teachers' needs, expectations and their working context. On the other hand for any TCPD to be successful teachers must be involved in the entire process from planning their own learning experience, implementing practices, providing feedback, and evaluating the programme. When this is done coupled by locating opportunities for professional development within a teachers regular work place, reform is more likely and is also more sustainable (Desimone et al, 2001).

The sustainability is because by being involved in the entire process teachers develop deeper ownership of the process and by being school based,the chances of programme responding to their needs increase. Boyle et al (2005), outlined the advantages of school based TCPD over seminars, workshops and conferences. School based TCPD enables teachers to have the opportunity to discuss concepts, skills, and problems arising during TCPD experiences, to share common curriculum materials, course offering and assessment requirements, to

integrate what they learn in their work, to discuss student needs across classes and grade levels. They also agree that it is more sustainable over time and can change teacher practices. The results of a successful school based TCPD is enhanced teacher knowledge and skills instructional methods, improved classroom practice as well as deepening of subject knowledge and improved learning of challenging content by learners (Steyn,2009). The model of TCPD that captures the context of teachers work place is lesson study.

Lesson study
Teachers have the most direct, sustained contact with students, as well as considerable control over what is taught and the climate of learning, it is reasonably assumed that improving teachers knowledge, skills and dispositions is one of the most critical steps to improving student achievement (Knight& Newman 2001:86) quoted in (Steyn, 2009). Lesson study by virtue of its design provides the best opportunity for improving teachers' knowledge, skills and dispositions. As was observed by Cabin and Kopp (2006), teachers the world over work in isolation, when planning their lessons, this denies them opportunities to reflect and improve their practice.

Lesson study therefore offers teachers the forum to work in teams to plan, teach, observe, analyse and refine individual class lessons. It will also facilitate the shift from the common practice of teaching that involves memorizing of facts and not deep understanding of subject matter, to a teaching approach that requires teachers to emphasise understanding of subject matter and their own understanding about the subjects they teach and how students learn these subjects (Desimone, 2001).Lesson study is therefore a teaching improvement and knowledge sharing process with Japanese origins. It builds the capacity of teachers as classroom researchers and transforms practitioner knowledge into sharable public knowledge because of the documentations involved(Cabin & Kopp,2006). It brings about the deepening of content knowledge of teachers as well as changes in teacher individual belief and promoting active learning because teachers get engaged in meaignful discussions, planning and practice.They get chance to observe others teach and also get observed (Desimone,2001).

 In lesson study the focus is on student learning and adressing difficulties encountered by real students in real classrooms(Elmore, 2002). Although lesson study has promising prospects of improving learning, its successful implementation in a school requires effective leadership at the school. A leadership that is involved in it through identification and meeting of teachers needs, changing their norms, values beliefs and assumptions.

Methodology
The study adopted a qualitative method of a case study because of the opportunities it provides to collect descriptive data through the intensive examination of an event in a particular group or situation. Case studies are good at showing how things occur in practice and hence are good at informing decisions. They also give a more realistic understanding of phenomena and also provide flexible ways of collecting, analysing, and interpreting data and information (Rosham & Deeptee, 2009).

Sample
The study was conducted at Lang'ata West primary school with teachers at the school as study participants. Lang'ata west is an urban public mixed sex day school located in the capital city of Kenya, Nairobi. It has 1300 learners whose ages range between 5 and13 years. The learners' economic background is of low and middle income. The school has 32 teachers with a minimum qualification of Primary Teacher one(PT1).The participants to the study were all teachers who teach mathematics and science at any level. All participants had participated in lesson study more than five times. This means that most of the teachers in the school were involved in the study considering that primary school teachers do not specialise in a specific subject in Kenya. Among the 22 teachers who participated in this study, 12 teachers taught the upper classes(class 4-8) and the others taught the lower classes (Class 1-3).Nineteen teachers were female while 3 were male. Nineteen of the participants were classroom teachers, one a lesson study coordinator, one senior teacher and a deputy head teacher. The average number of teaching years was sixteen. Four interview participants were purposefully chosen. They included three teachers and the head teacher. Codes were assigned to both interview and questionnaire participants. The codes will be used throughout this paper for the confidentiality of the

participants. Table 1 shows a summary of the teaching experience and background of the interview participants.

Interview participant(ID)	Gender	Teaching level	Teaching experience(years)
T1	F	1-3	18
T2	M	4-8	21
T3	F	4-8	24
HT	F		

Table 1: Distribution of interview participants by gender and teaching experience

Data gathering procedure

In order to establish the usefulness of lesson study as a model for Continuous Teachers' Professional Development (CTPD), two questionnaires were administered. One questionnaire was administered to teacher participants and the other to the head teacher. An oral interview was made with four participants. The questionnaire consisted of items that asked participants' about their perceptions and experiences with implementing lesson study. It sought to establish the participants experience in lesson study, what aspects of lesson study they find useful, which aspects are challenging and the difficulties they have with implementing it. The items were open to allow participants to describe in detail their perceptions about lesson study. Focus group interviews were used to facilitate the collection of more data and to seek further clarifications. The focus group consisted of four teachers who were interviewed. The purpose of the interview was to give participants the opportunity to describe in detail their perceptions about lesson study as (CTPD) through further probing. The interviews were used to correlate what the participants said through the questionnaire since the items were developed based on the questionnaire. The total time for interview was averagely 30 minutes. Each interview was audio recorded and transcribed verbatim. All excerpts from questionnaires and interviews that were quoted in this paper were used verbatim.

The questionnaires and interview protocols were collaboratively developed by the study team through active discussion to ensure their content validity.

Data analysis

The qualitative data from the free responses of the questionnaire were coded as well as the interviews after being transcribed. The coding was based on an initial reading of the responses before identifying certain significant comments. These comments were grouped into major categories. Trustworthiness of the data was ensured by audio recording the interviews and transcribing them verbatim to ensure an accurate reflection of the participants' views. The main categories that were identified based on participant comments or statements were as follows; Pedagogical growth, planning, classroom practice, learning, reflective practitioner, community of practice and attitude change. The quantitative data was analysed using excel to determine the frequencies of responses for various items. The frequencies were expressed in percentages.

Findings of the study and discussion

Analysis of results established findings under the following categories concerning lesson study; its useful and challenging aspects, benefits, difficulties and possible intervention measures against the difficulties.

Useful aspects of lesson study

Lesson study is a process that involves several stages. These stages are lesson planning, where teachers meet to identify a learning problem in the school and plan lessons in groups to resolve the problem. The planning entails thinking through the problem area and working as a team to come up with the best teaching strategy that would enable learning to take place. Lesson planning is followed with the sourcing and development of learning materials. The materials are carefully selected to enable effective learning. Once the materials have been prepared, one member from the planning team implements the study lesson in a classroom while the other team members observe. The observers make notes which they will use during the follow up lesson discussion. Lesson discussion helps the study team to evaluate extend of achievement of set objectives as well as solving the identified problem. The observations made are used to improve the subsequent lesson.

When that participant asked to rate aspects of lesson study they find useful, discussion after lesson with colleagues was rated with the highest frequency(20,90%),lesson planning(17,77%) and suggestions by the teacher advisors(16,72%).Table 2 below shows the frequency rating of the various aspects of lesson study by participants. In conclusion these results show that participants are positive about lesson study and that discussion with colleagues after the lesson was a more favoured than other aspects. More than half of the participants seemed to experience some effects of lesson study on student attitude and achievement. This is likely to be a motivating factor for the sustainability of lesson study.

Aspect of lesson study	Lesson planning	Material development	Lesson observation	Discussion after lesson with colleagues	Suggestion by colleagues	Suggestions by teacher advisor	Student attitude change	Improvement of student achievement
No.	17	13	13	20	14	16	14	13
Frequency(%)	77	59	59	90	63	72	63	59

Table 2: Rating on usefulness of various aspects of lesson study

In order to determine why participants found certain aspects of lesson study useful in their work, the questionnaire had provision for free response for participants to explain their reasons for liking those aspects of lesson study. Their explanations about the benefits of the aspects were coded and categorised as follows;

Pedagogical growth

The statement made by participants that implied a teacher acquiring new skills in teaching, or improved classroom practice was categorised as pedagogical growth. They represent a teachers' own self confession on how lesson study has transformed their way of teaching as participant T1,T16 and T20 explains here:

> *T1-it has improved my lesson preparation. The other teachers are able to observe my lesson and advise. It has improved my teaching -I talk less as the children do and learn more.*

> *T16-I can now handle difficult topics easily because of the help I get from my colleagues. I don't get too tired doing everything as the pupils*
> *are now fully involved .My pupils are doing better in the subject.*

> *T20-ideas are pooled together making the lesson interesting, material development is easier, suggestions by colleagues makes me a better teacher, learners enjoy the lesson as it is more learner centered.*

This statements show that after participating in the lesson study at their school, these participants were able to associate some of the classroom practices with lesson study. As a result of lesson study they were able to apply teaching strategies previously not used in class.

Improved learning

The purpose of lesson study is to overcome learning challenges faced by learners through effective classroom practices. It was therefore recognised that some aspects of lesson study such as planning lessons as a team enables teachers to deliver lessons that enhance learning. Consider the following excerpt by participants T2,T3 and T9

> *T2- It helps pupils to discuss freely and learn more.*
> *T3- Lesson study helps the learner to understand concepts more as learning is made to be child centered and practical.*
> *T9-I have gained a lot from the lesson study as my learners have continuously improved academically.*

These statements are evidence that as a result of lesson study, the participants could notice some remarkable improvement in the achievement level of their learners. The level of participation in the teaching learning

process went up as learners became freer to work in groups as well as getting more opportunities to express themselves.

Reflective practitioner

Lesson study provides teachers with the opportunity to make self-reflection as well as group reflections. Becoming a reflective practitioner is an important practice for teachers. It enables them to look back at what happened during the lesson, what worked and what didn't work and the reasons. It thus forms a good basis for teachers' continuous self-improvement. Comments by participant T3,T11,T17 and T22 illustrate this;

> *T3-the lesson study helps to boost the teachers' confidence and to discover the strengths and weakness of the teacher*
> *T11-colleagues suggestions are useful for self-assessment*
> *T17-it makes me know my weak areas. I learn to evaluate myself, if the objectives have been achieved or not.*
> *T22-it helps you know what to teach and steps to follow .you can tell if you have achieved or not. Comments help you to correct yourself and improve the next time*
> .

These statements are an indication that prior to having experience of lesson study, these participants never used to take time and look back after teaching. However through lesson study they now recognise how useful it is to make a self-assessment to identify ones strong and weak areas to make improvements. Working as teams on lesson study also made them receptive to other colleague's evaluation as supportive of personal pedagogical growth.

Improved planning

Planning is an important process of lesson study. It enables teachers to think through the problem and brainstorm on various strategies to use in teaching. The excerpts below by participant T6,T13 and T19 shows how lesson study has improved their planning ability.

> *T6- enables me to minimize teacher talk and make the lesson child centered. Makes me to be prepared in advance and systematic in my teaching .It allows the slow learners to catch up with the fast ones*
> *T6- it makes the teacher to correct mistakes in his/her teaching. Helps in minimising teacher talk and makes the lesson child centered. It makes the lesson flow and even know the questions to ask. It makes the teacher prepared.*
> *T13-when you plan you are able to prepare materials in good time .Discussing the lessons helps to work on areas*
> *which need improvement.*
> *T19-there's a lot of discussion and broaden thinking.*

These statements are evidence that through lesson study participants realised the importance of team planning in improving classroom practice.

Community of practice

Lesson study provides teachers with opportunity to learn from each other and provide support mechanisms for their professional growth hence becoming a community of practitioners as attested by the following excerpts from T7,T8 and T15 given below

> *T7- I get to learn more from my colleagues which improves my teaching*
> *T8- when we plan as a team there is sharing of ideas and I own the lesson*
> *T15-teachers have chance to learn from others and promotes team work. It eases teachers work. It involves the learners.*

The statements are an indication that although participants may not have used the words community of practice, their descriptions imply that their was useful lessons that they learned from one another which they found useful in their performance.

Learner attitude

Learner's attitude is critical for effective learning because it determines their interest in the subject matter. A poor attitude towards a subject is likely to affect learner achievement in the subject area. The kind of attitude that a learner develops may be influenced by the teaching. Through lesson study participants realised that their teaching strategies had influence on learners attitude as was observed by participant T12 below;

> *T12-improved learners attitude*

Most challenging aspects of lesson study
The aspect of lesson study that participants found most challenging was the lesson planning. This aspect had a frequency rating of 66%.This was followed by development of materials for use in teaching and learning(26%),student attitude change and improvement of student achievement (4%) each. The Fig.2 below shows the frequency rating on various aspects of lesson study they found challenging.

Aspect of lesson study	Lesson planning	Material development	Lesson observation	Discussion after lesson with colleagues	Suggestion by colleagues	Suggestions by teacher advisor	Student attitude change	Improvement of student achievement
No.	18	7	0	0	0	0	1	1
Frequency(%)	66	26	0	0	0	0	4	4

Table 3: Rating on challenging aspects of lesson study

Difficulties of lesson study
The results of the study show that participants experienced difficulties in implementing certain aspects of lesson study. As observed in fig1 above, lesson planning was rated with the highest frequency as being most difficult. Planning was rated most difficult because participants took a long time planning lessons as the excerpt by participant T13 indicates;

> *T3-Is challenging because it consumes a lot of time that could have been used in class teaching thus there are learners that are not taught when the teachers are lesson planning one lesson*
> *T13-it consumes a lot of time to lesson plan. Planning sometimes takes even more than a week.*

Another difficult aspect of lesson study was identified as the development of teaching materials and activities by participants. They found it time consuming and challenging to come up with the materials in certain topics. Participant T1 and T10 captures their views on materials and activities

> *T1-Some topics are challenging when trying to come up with activities for them*
> *T10-gettting activities for the lessons, availability of materials, time consuming, working with the large numbers of learners in a class.*

Lesson implementation was also found to be a difficult aspect of lesson study. Participants reported challenges to teach a lesson within the stipulated time and to abide by the planned lesson.
Participant T22 remarks represent this;

> *T22- the difficulties are how to follow step by step on what you have written .If what you have planned to follow does not work. Changing will mean the lesson plan not followed.*

Lesson study being a new practice in the school it is natural that there will be early adaptors and late adaptors. The results indicate that some teachers in the school had not owned lesson study as a result of their attitude. Participant T22 seems to suggest that bringing about change can be a slow process;

> *T22-changing their attitude if they are used to one is not easy.*

Teacher transformation through lesson study
The interview schedule sought to establish how teachers have improved in their profession as a result of lesson study. Their responses were analysed and coded under the following themes; Attitude and initial experience, transformation, change in learners and advice to other teachers.
When lesson study was introduced to the school participants had mixed reactions about it as shown by the comments by participant T1,T2, T3 and HT below;

> *T1- At first it was difficult but later on we came to accept it as a school.*
> *T2-At first we didn't know what it entails and it was confusing.*
> *T3- At first it was challenging but with time have enjoyed it.*
> *HT- Many teachers were adamant to the idea and it was hard to convince the teachers that we can make it.*

These comments show that participants were initially not comfortable with lesson study since it was a new idea in their school. According to participant HT some teachers initially resisted the programme. This statement reflects teachers initial attitude towards lesson study.

> *T1: Because embracing change is normally difficult so when it was introduced we thought it was a lot of work i.e sitting down together to plan as a team which we saw as wasting time then teaching then going to observe the lesson as a team.*

Possible intervention measures for effective implementation of lesson study
Team work
> *T1- The subject team members have always come together to discuss ways of tackling the challenging topics.*

Science kits
> *T15- schools to have science kits where materials to be used in a lesson cannot be locally available*

Timing and frequency of lesson study
> *T13- can be conducted a lesson to lunch so that even if it extends, it does not affect the next lesson. Teachers can sacrifice their own time like mornings, lunchtime or evening to do the planning to avoid using learners' time*
> *T21- it should be done strictly once a term and may involve a smaller group of teachers at a time.*

Lesson planning
Initially Teachers did not make lesson plans with a focus on teaching/learning experience, by repeated practice the challenge in planning and use of lesson plan will be demystified.

Summary of findings
From this study it is clear that many teachers were at first reluctant to embrace lesson study because it was a new practice. The common practice in the school was one where teachers planned and taught their lessons individually and therefore working together as team in planning and teaching was a new development. It was also established that the role the school leadership plays quite important in giving teachers the confidence to try out new teaching methods. In this case the head teacher was a role model by actively participating in every study lesson activity. The findings further suggest that lesson study was not uniformly adopted by all teachers, there were the early adopters and late adopters. The fact that the head teacher choose to forge ahead with the early adopters motivated those who were still sceptical to come on board.

Conclusion

As their comments imply, they became confident working on lesson study as a school within the school set up. According to Lewis, Perry, & Murata (2006) there is evidence that through lesson study, the teachers' knowledge of subject matter, instruction and learner observation gradually improves. This could be attested from the teachers own comments. By working together as a team, their sense of community is improving as well as motivation and commitment to the profession. Since lesson study was school based, they are able to plan with the school context in mind and the observed change in their learners attitude and achievement is a greater source of motivation.

Recommendations and Implications

On the basis of the above findings it is highly recommended that for successful teacher professional development and for improved learning and learner achievement, school based lesson study should be adopted and supported. It should have teachers' subject knowledge and pedagogical skills as the focus as well as how students learn certain contents in their subjects. Because when lesson study is school based, its sustainability is much more assured.

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