Enhancing the Written Performance of Diploma Students with Congenital and Profound Hearing Impairment in Nigeria

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Abstract *The written performance of diploma students at the University of Jos, born with profound hearing impairment is grossly inadequate for their level of education. This affects their general performance in the courses they undertake because the sentences they write can hardly be understood by the lecturers who mark their scripts. This paper gives a report of an experimental study involving five students with congenital and profound hearing impairment with the aim of improving the quality of their written performance for inclusion. The study is premised on Pennebaker's Expressive Writing Therapy and it adopted the ABA single subject experimental design where the students were exposed to twelve weeks of remediation involving reading, retelling, discussion, and comprehension exercises. The data collected were analyzed using simple percentages. The study revealed that the students made remarkable improvement in word arrangement, wrong capitalization, and in the use of unrelated language units, in their sentences.*

Keywords: Written Performance, Congenital Deafness

Background of the Study

The ability to read and write is often referred to as literacy. An individual is said to be literate only if he/she is able to read and make meaning out of a given text and he is equally able to express his/her opinion or give information through writing Egenege and Amarachi (2006). This skill is difficult in particular for the congenitally hearing impaired. Hearing impairment which is a type of sensory disorder is an umbrella term referring to the presence of a problem in the hearing organ of an individual. It covers the subsets of deafness and hardness-of-hearing. While deafness refers to a condition whereby the organ of hearing is disabled to an extent that preclude the understanding of speech sound through the ear alone, with or without amplification for ordinary purposes of life, hardness-of-hearing on the other hand, refers to a condition whereby an individual has difficulty in hearing speech sound. A deaf individual therefore is one who does not hear speech sound at all, while a hard-of-hearing has partial hearing (Babudoh, 2008).

This study pertains only to the congenitally deaf diploma students. These individuals who were born with a very severe hearing impairment have poor experiential background which grossly affect their acquisition of language and their ability to do continuous writing. According to Hornby (2001), continuous writing refers to the process of creating meaningful texts by describing things and situations in simple and correct sentences. Hart (1978) for instance, says

that students who lack sufficient background in a topic, will have difficulty writing about it. This is the situation with many congenitally deaf students at the University of Jos, hence, they can hardly write simple coherent sentences expressing their thoughts and feelings about things and situations.

The structure of their sentences are such that their teachers can hardly make meaning out of their write –ups. The result is that most of such students 'carry over' courses or repeat levels again and again. An interaction with some of the students revealed that most of them actually understand a little of the content of their courses, but do not know how best to put down their thoughts. They complain that lecturers do not like them because they are deaf, so the lecturers fail them in their courses. The truth is that no lecturer intentionally fail any student in his/ her course. The deaf students fail rather conspicuously because of their inability to adequately express themselves.

It follows therefore that the major problem of these deaf students is their inability to write simple and coherent sentences. This study investigates the nature of their writing errors, with the aim of improving the quality of their performance in continuous writing.

Purpose of the Study

The purpose of this study is to enhance the written performance of diploma students with congenital and profound hearing impairment in Nigeria. The specific objectives are:

- To find out the nature of the writing errors of the diploma students born with hearing impairment at the University of Jos.
- To undertake a remediation exercise that would improve the quality of the written performance of the students.

Research Questions

- What are the forms of writing errors made by the diploma students with congenital and profound hearing impairment?
- To what extent will the remediation exercises reduce the writing errors of the students thereby improving their ability to write simple and correct sentences?

Methodology

The population of this study was made up of 30 hearing impaired diploma students at the University of Jos. Five of the students were selected from the population using personological variables such as sex, age at onset of the problem, and degree of hearing loss. The study was made up of two girls and three boys with congenital hearing impairment (born with a hearing problem), whose hearing loss was measured to be profound, meaning, they are deaf.

The study adopted the A-B-A single subject experimental design which helped to establish the effect of the remediation exercise on the few students. This design was preferred in this study because the focus of change was on the individual and not on groups as required by quasi-experimental designs. Besides, the sample used was very small. This is in line with the assertion of McMillan (2000) that single subject design is the most effective in studies that deal with exceptional children where the population involved is very small.

Two instruments were used for the study, namely: A demographic questionnaire and Assessment Tests. A 16–item questionnaire was used to get the students' biodata and their personal characteristics such as sex, the nature of their hearing problem (mild, moderate, or severe), and information on the time the hearing problem started (before birth (congenital) or after birth). Three different types of assessment tests were used in this study to get the entry point of the students. The tests were Audiological Assessment Test (AAT) which helped to differentiate the hard–of–hearing (people with mild hearing loss) from the deaf (people with severe to profound hearing loss); Reading Comprehension Test (RCT) which helped to specify the level of comprehension of the students (whether literal, inferential, or critical). The activities involved were the reading of 12 graded comprehension passages; and Continuous Writing Ability Test (CWAT) which helped to test the students' abilities to think logically and write, expressing their feelings and opinions about situations and people. The exercise was meant to reveal the nature of the students' write-ups in terms of sentence length (number of words used), number of sentences, and the correctness of their sentences, measuring their relevance to the topics. This implies that CWAT helped to expose the writing errors of the students. The topics used for this exercise were "my best food" and "my best friend". These topics were chosen because the students were familiar with the concepts. The activities involved were discussions, making of simple sentences, and the writing of compositions.

The remediation exercises which constituted the treatment was made up of literacy activities. The activities involved were reading of story books, re-telling of the stories in sign language and in writing, discussion of events and activities in the stories, and answering of questions based on the stories, in sign language and in writing. Other activities were construction of simple sentences (using the new words learned) in sign language, and the construction of simple sentences (using the new words learned) in writing.

After the treatment the students were subjected to the 12 graded reading comprehension exercises and the continuous writing ability tests which they did before the treatment. The reliability index of the treatment instrument was calculated using the pearson r to compare the performance of the student in 3 aspects of continuous writing namely: number of words used, number of sentences used, and the number of sentences with wrong word arrangements. The calculated r for all the variables showed a positive direction of the relationship between the pre-treatment and the post –treatment tests. Using the guideline provided by Ugodulunwa (2008), the magnitude of the relationship for the number of words (+0.68), and the number of sentences used (0.61) was high. The computed r for wrong word arrangement was 0.40 which could be regarded as medium. In other words, the treatment exercise was beneficial to the students

Procedure for Data Collection

The study adopted a pre-treatment test, treatment, and post treatment test design. The aim was to see the effect of the treatment exercise. The pre-treatment tests were conducted to establish a baseline in terms of ascertaining the nature of the students' hearing loss, and specifying the nature of the errors they made while writing their compositions.

At the pretest stage, students were subjected to an audiological evaluation during which a Pure-Tone Air conduction and Bone conduction threshold assessments were done to determine the level of their hearing impairment. This assessment helped to separate the deaf from the hard – of – hearing to enable the researcher make her selection.

The 16–item demographic questionnaire was then given to the students to illicit some personal information some of which helped to corroborate the audiological assessment report. To assess their reading comprehension ability, the five students chosen were made to read graded passages in the Umolu Informal Reading Inventory (UIRI) to determine their reading levels. Determining the reading levels of a student entailed assessment of the students' word recognition ability, and their performance on 12 comprehension exercises Umolu (1984). The determination of their reading levels informed the choice of the story books used for the treatment programme. The pre-treatment test lasted for one week, after which the treatment began.

The treatment exercise involved a number of activities such as the reading of 3 story books, re-tellings of the stories read manually (in sign language) and in writing, discussion of activities and events in the story books, answering of questions based on the stories, in sign language and in writing; and writing 10 simple sentences each, using new and interest words of their choice from the books.

The meaning of the new words as well as their signs were taught and practiced before the commencement of the reading of the story books. The books used in this study were "Round Round seed", "Ama's Bowl of food", and "The Lion is hurt". These books were selected based on the style of writing (they all have a trend), quality of print, number and quality of illustrations, clarity, and length of sentences. Using the Fog Readability Index, the books were assessed to be meant for primaries 4 and 5. These simple books were chosen because the pre-treatment assessment of the students' performance on the comprehension passages showed that the students' reading levels were at primaries 3 and 4. And the sentences they made in their compositions were very few and incorrect. The stories contained common nouns, verbs and adjectives frequently used by children and students.

The students were made to read each story after the researcher had given a summary in order to arouse the students' interest and curiosity. The students read the stories again and again silently and aloud using sign language. They discussed parts of the stories that captured their interest by describing events, activities and characters of people. The students were made to re-tell the stories in sign language individually after which they answered the questions asked at the end of each story. This they did in sign language and in writing.
Below is the summary of the treatment exercise.

Table 1 Summary of Treatment Exercise

OBJECTIVES	CONTENT	ACTIVITIES	EVALUATION TECHNIQUES
By the end of the programme, the students should be able to: - Read the story books	- The story books	- Reading of the story books	- Asking students to read the stories silently and aloud – using sign language

- Explain briefly the meaning of the new words and also give their signs		- Learning the meaning and signs of the new words.	- Asking students to give the sign and meaning of words produced on flashcards.
- Use the new words in sentences		- Using the new words in sentences in sign language, and in writing	- Asking students to use the new words in sentences using sign language and in writing.
- Answer questions on the stories read, using sign language and in writing.		Answering of questions on the stories read manually and in writing	Asking students to answer the questions at the back page of the different books, in sign language
- Discuss parts of the stories in terms of the trend.		Discussing parts of the stories	Encouraging students to discuss parts of the stories that interest them
- Retell the stories in sign language.		- Retelling of the stories in sign language and in writing.	Asking students to retell the stories in sign language logically.
Write at least 15 words each from each of the story books		Writing of individual words they can remember in each story	Giving students 10 minutes (at the end of each oral / manual retelling) to write down as many words as they can remember in each story
- Do the maze Exercises - Do the Cloze exercises.	- The Maze exercise - The Cloze exercise	- Learning how to use the maze and the Cloze exercises	- Encouraging students to do the Cloze as well as the Maze exercises.
- Write simple and correct sentences using the new words learned.		- Learning how to do the Maze exercises on each story	
- Retell the stories in writing.		Retelling the stories in sign language Retelling the stories in writing	Asking students to retell the stories in writing logically.

Results

The effect of the remediation exercise was judged based on the analysis of the research questions as given below.

Research Question One

What are the forms of writing errors made by the diploma students with congenital and profound hearing impairment?

This research question was answered using the results of the tests the students were subjected to before and after treatment. The table below gives the analysis of the nature of the sentences made by the students.

Table 2: Writing Errors of the Diploma Students

S/N	Student	Period	NWU	NSU	OMISSIONS					OTHER ERRORS				
					Verb	Con	PlM	WE	Det	WC	RS	IULU	WWA	UFA
1	Kudu	Pre	163	13	12	3	10	15	11	15	8	5	10	5
		Post	180	16	8	2	6	8	7	5	2	2	5	0
2	Bello	Pre	152	10	5	5	12	11	12	11	5	6	8	5
		Post	170	13	3	3	7	5	8	5	3	4	6	2
3	Joseph	Pre	170	15	5	5	9	10	7	10	11	5	12	6
		Post	190	17	2	2	4	4	3	4	5	3	7	0
4	Afene	Pre	71	11	5	5	7	6	7	10	10	6	11	0
		Post	100	8	3	3	5	2	4	6	4	2	7	0
5	Umar	Pre	140	8	4	4	7	8	4	9	8	5	8	3
		Post	180	14	2	2	3	6	4	6	4	2	7	2

KEY

Con = Conjunction
PlM = Plural Marker
W E = Word Ending
Det = Determinant
Pre = Pre-treatment
Post = Post treatment
RS = Rigid Sentence
WWA = Wrong Word Arrangement
WC = Wrong Capitalization
IULU = Inclusion of Unrelated Language Units
NWU = Number of Words Used
NSU = Number of Sentences Used
UFA = Unfamiliar abbreviations

Table 2 shows the types of writing errors made by the students before and after treatment. The findings tabulated were got from the analysis of the performance of the students on the continuous writing ability tests (CWAT) which were conducted before and after the treatment. The table shows that all the students in the study made different forms of omissions of different magnitudes while writing simple composition exercises. Their sentences were characterized by omissions of verbs, conjunctions, plural markers, word endings, and determinants. Other forms of writing errors made by the deaf students (as revealed by this study) in addition to the omissions include: wrong capitalization, addition of unrelated language units, rigid sentences, and wrong word arrangements. By this analysis, research question one has been answered.

Research Question Two

To what extent will the remediation exercises reduce the writing errors of the diploma students thereby improving their ability to write simple and correct sentences?

Table 3: Analysis of the Effect of the Treatment Exercise.

S/N	Student	Period	NWU	NSU	OMISSIONS					OTHER ERRORS				
					Verb	Con	PlM	WE	Det	WC	RS	IULU	WWA	UFA
1	Kudu	Pre	163	13	12	3	10	15	11	15	8	5	10	5
		Post	180	16	8	2	6	8	7	5	2	2	5	0
		Diff	17 10.4%	3 23%	4 33.3%	1 33.3%	4 40%	7 46.7%	4 36.4%	10 66.7%	6 75%	3 60%	5 50%	5 100%
2	Bello	Pre	152	10	5	5	12	11	12	11	5	6	8	5
		Post	170	13	3	3	7	5	8	5	3	4	6	2
		Diff	18 11.8%	3 30%	2 40%	2 40%	5 41.7%	6 54.5%	4 33.3%	6 54.5%	2 40%	2 33.3%	2 25%	3 60%
3	Joseph	Pre	170	15	5	6	9	10	7	10	11	5	12	6
		Post	190	17	2	2	4	4	3	4	5	3	7	0
		Diff	20 11.8%	2 13.3%	3 60%	4 66.7%	5 55.5%	6 60%	4 57.1%	6 60%	6 54.5%	2 40%	5 41.6%	6 100%
4	Afene	Pre	71	11	5	7	7	6	7	10	10	6	11	0
		Post	100	8	3	3	5	2	4	6	4	2	7	0
		Diff	29 48.8%	3 27.2%	2 40%	4 57.1%	2 28.6%	4 66.7%	3 42.9%	4 40%	6 60%	4 66.7%	4 36.4%	0%
5	Umar	Pre	140	8	4	6	7	8	4	9	8	5	8	3
		Post	180	14	2	3	3	6	4	6	4	2	7	2
		Diff	40 28.6%	6 75%	2 50%	3 50%	4 57.1%	2 25%	0 0%	3 33.3%	4 50%	3 60%	1 12.5%	1 33.3%

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Table 3 shows the difference in number and percentage between the pre and post treatment performance of the students in continuous writing as depicted by the number and forms of the writing errors made by the individual students. The difference in performance between the pre and post treatment scores per area of assessment represents the magnitude of improvement. Table 3 specifically shows the number of words and sentences used by each student (before and after treatment), in their write-ups. For example, the Table shows that Kudu (on Serial number 1), used 163 words in 13 sentences at the pre-treatment stage; and at the post-treatment stage, he made use of 180 words which were incorporated in 16 sentences. The figures on the table (for the different errors measured) reflect the actual number of errors observed in the students' write-ups. For example, the analysis on the table shows that Kudu omitted 12 verbs in the 13 sentences he used during the pre-treatment exercise, and had 8 verbs omitted in 16 sentences during the post-treatment evaluation. Similarly, he omitted 3 conjunctions, 10 plural markers, 15 word endings, and 11 determinants in 13 sentences at the pre-treatment test, while at the post-treatment, he omitted 2 conjunctions, 6 plural markers, 8 word endings, and 7 determinants in 16 sentences. The difference in performance shows 33.3% improvement on verb omission, 33.3% on conjunction omission, 40% improvement on omission of plural markers, 46.4% on omission of word endings, and 36.4% improvement on omission of determinants.

The analysis on Table 3 further shows that Kudu wrongly capitalized 15 out of the 163 words he used in the 13 sentences during the pre-treatment exercise, and after the treatment (post-treatment), he wrongly capitalized 5 out of the 180 words he used in 16 sentences. This represents 66.7% improvement. The table also shows that Kudu recorded 75% improvement on the making of rigid sentences, 60% improvement on inclusion of unrelated language units, 50% on wrong word arrangement in sentences, and 100% improvement on use of unfamiliar abbreviations. The description of the analysis of the errors given above for Kudu (serial number 1) is applicable to all the other students who participated in the exercise, whose scores and performances are recorded on Table 3.

It is worthy to note that since the table is analyzing errors made, a reduction of scores recorded in the post-treatment, shows there is an improvement, hence, where a student recorded zero (0) error under a particular trait, it means there was 100% improvement. This implies that when the pre and post treatment scores are the same, it means the student did not make any improvement in that aspect even with the treatment exercise. An example is the case of Umar (serial number 5) who omitted 4 determinants in 8 sentences at the pre-treatment, and repeated the same omissions at the post-treatment evaluation though he had 14 sentences at the post-treatment stage as against 8 in the pre-treatment assessment. Another example is the performance of Joseph (serial number 3) in 'unfamiliar abbreviations (UFA)'. The table shows that Joseph had 6 unfamiliar abbreviations at the pre-treatment assessment, while at the post-treatment, he recorded 0. This means that he heeded the corrections made during the treatment and ensured that he did not include any unfamiliar abbreviations in his write-up during the post-treatment test, hence he recorded 100% improvement on UFA. This in effect shows that the treatment exercise helped in reducing the writing errors of the students.

Discussion of Findings

The analysis of the errors shows that though the students made some progress in their written expressions after the treatment, the success may not be regarded as remarkable. For example, all the students that participated in this research made all the errors discussed in the study even after the treatment, though at a reduced magnitude as shown by the content of the row tagged 'difference' for all the students. The study revealed that the students made the highest improvement in 'Rigid Sentences (RS)' where the improvement rate ranged between 40% and 75%. This was partially because their attention was drawn to the need to alternate their style of writing. This, they practiced manually in sign language before the writing exercises.

The lowest rate of improvement was recorded for word ordering (Wrong Word Arrangement (WWA)), where the improvement rate ranged between 12.5% and 50%. The reason for this low performance was because many of the students felt that there was nothing wrong with their sentences since the sentences contained all the words required. This is to say that the students felt the order of the words in a sentence did not matter. For example, *"My brother is junior dead"* meaning *"My junior brother is dead".* This is what Kretschmer and Kretschmer (1980) call violation of general transformation restriction. The authors in analyzing the expressive performance of deaf students opined that deaf children perform syntactically, semantically, and pragmatically at levels below that of their cognitive processing abilities. Supporting Kretschmer and Kretschmer (1980), Riekehof (1993) explained that deaf children

who are conversant with American Sign Language (ASL) often place words in sentences without considering the word order because ASL does not have strict rules for word order.

Another area where the students made appreciable improvement was in the addition of unfamiliar abbreviations (UFA) in their write-ups. They used abbreviations such as K/Namoda, B/Ladi, Poly, Laf and FSP. Severally, this researcher had to call the students to tell her what they were trying to say as she did not understand what they were writing or talking about thereafter, the researcher explained the need for the students to write out all their words if they knew their spellings. Hence, Kudu and Joseph were able to achieve 100% improvement in UFA because they heeded instruction, while Afene never gave any unfamiliar abbreviations at all.

Another very prominent error constantly made by the students was 'Wrong Capitalization'. Many of the students capitalized the first letters of any word of their interest, not minding the rules of writing in English language. The students sometimes did not capitalize the first letter of the word in a sentence, but rather capitalized the first letter of a word that interested them in the sentences. For example, "second senior Brother got Married my"; "my sister is Business as a Saloon"; "my Father have two Wife".

Conclusion / Recommendations

From the analysis of the performance of the students after the treatment exercises, it can be concluded that the treatment was helpful in enhancing the continuous writing ability of the students. Based on the findings therefore, it is suggested that the students should form the habit of reading story books and magazines (which provide a definite trend of activities), and try to retell in writing, the content of what they read. This will enable them put their thoughts down in writing, explaining ideas, addressing points and making analysis where required, in their course examinations. This implies that they will pass most of their courses, thereby making a headway in life. This is in line with the views of Pennebaker, Mehl, and Niederhoffer (2003) that linguistic styles (which is reflected in function words such as pronouns, prepositions, conjunctions, articles, and auxiliary verbs) can predict who benefits from writing. The authors observed that effective therapy often requires a therapist who is a strong believer in the methods he or she is using. This is probably because a feature that may work well with one group of people may not be effective for another. So teachers need to vary their methods of instruction for the benefit of these unique learners.

This calls for dedication on the part of the teachers. All teachers working with individuals with profound hearing impairment (the deaf) should try to encourage them to write logical and correct answers on paper, each time they (the teachers) throw questions to the entire class at the end of teaching for the day. This way, they will be able to monitor the progress of the students in continuous writing. Furthermore, it is suggested that all teachers of children with profound hearing impairment should make out time to apply the literacy activities discussed in this study making modifications where need be as was done in this study in order to enhance the writing skills of the students. For example, though the Expressive Writing Therapy of Pennebaker (which was the theory on which this work was based) was developed primarily to assist patients with psychological trauma, and the timescale was just 15 minutes of continuous writing for four consecutive days, the writing exercises in the present study were modified to meet the needs of the group of participants, in content and timescale.

Departmental heads should provide 'Read Me' texts in files containing current news for the week, and other important information. This file should be made accessible to the deaf students to enable them always have something to read. In addition, lecturers and heads of departments who work with hearing impaired students should insist on the students expressing themselves in writing where they cannot communicate in sign language. They should point out the students' writing errors after getting the information conveyed in the written text. This should be done with love to make the student understand that the teacher cares for him/her.

Finally, parent and relations of deaf students should try to buy story books for them. They should encourage the deaf students to read even at home and practice writing the summary of the stories they had read. No matter how poorly written the texts may be, care-givers should show interest in the content of the texts. This way, the students will develop great interest in reading and writing which will definitely affect their performance in the courses they do positively.

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