

Effect of hearing impairment on academic achievement of secondary school students in Abeokuta North Local Government Area of Ogun State

(scientific paper)

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Abstract: *This study investigates the effect of hearing impairment on academic achievements of secondary school students with hearing impairment in Abeokuta North Local Government Area in Ogun State. To achieve the purpose of the study, three hypotheses were formulated. The experimental design was adopted for the study. A total sample of thirty respondents (15 normal hearing students i.e. a control group and 15 hearing impaired students i.e. an experimental group) were randomly selected for the study. The selection for the control group i.e. normal hearing students was done through simple random collection to match against the 15 hearing impaired students available in senior secondary school 1 (SSSI). The teacher-made tests in English language was used as instrument for data collection. To test the hypotheses, and to ascertain whether to accept or reject them, Pearson Product Moment Correlation Coefficient(r) analysis was used. The 0.05 level of significance was used for the statistical testing of each hypothesis with critical value and degrees of freedom. The results show that there is a significant influence of hearing impairment on language development, poor language development on academic achievement and the use of instructional methods on academic achievement of the hearing impaired students.*

Based on the findings of the study, recommendations were proffered.

Key words: *hearing impairment, academic achievement, social problems, academic problems, skills of teaching*

1 Introduction

Education, in all its ramification has been associated with one form of evaluation criterion or the other, for assessing the achievement level of those acquiring it, be it adults or children. It is from this purpose that tests and examinations are adminis-

trated at all levels of schooling and at given intervals to ascertain whether the learners are progressing or retrogressing. Since different individuals also have varying abilities, educationists have been wise enough to stratify education, and as well design eligibility test to determine who should proceed to next level of schooling and who should not.

It is well established that the educational achievement of the hearing impaired has attracted the attention of so many individuals. Scholars have consistently pointed to the difficulties experienced by both teachers and the hearing impaired students in their academic work.

Hearing impairment during childhood years causes a serious decline in academic progress, which is compounded by their inability to speak or to express themselves and the lack of language to communicate. As such, the hearing impaired student suffers a setback due to inability to communicate in the chosen language effectively. Often, teachers find difficult to communicate ideas and other abstract concepts which utilize verbal communication. This has greatly impeded their ability to comprehend abstract concepts.

Nwazuoke (1993) in his study of academic and social problems of hearing impaired students agreed that they suffer some academic setback which he attributed to the lack of skills of teaching the hearing impaired students by most teachers. Consequently, the gap between the vocabularies of students with normal hearing and those with hearing loss widens with age. Students with hearing loss do not catch up without intervention. American speech language hearing association (ASLHA), (2005) posits that there are four major ways in which hearing impairment affects the hearing impaired academically. These are:

- It causes a delay in development of receptive and expressive communication skills (speech and language)
- The language deficit causes learning problems that result in reduced academic achievement
- Communication difficulties often lead to social isolation and poor self-concepts
- It may have an impact on vocational choices.

Clearly, ASLHA affirms that the hearing impaired students have difficulties with all areas of academic achievement especially reading and mathematical concepts. Students with hearing loss often cannot hear quiet speech sounds such as “s”, “sh”, “f” and “t” and therefore do not include them in their speech, thereby making their speech difficult to understand. Also, the hearing impaired students cannot hear words ending with “s” or “ed”. This leads to misunderstanding and misuse of verb tense, pluralization and non agreement of subject and verb.

More, the hearing impaired students may not hear their own voices when they speak. They may speak too loudly or not loudly enough. They may sound like they

are mumbling because of poor stress, poor inflection of poor rate of speaking when compared with the normal hearing students.

Okuoyibo (1993), supporting the above views maintained that educationally, hearing impairment has some adverse effect on its victims. On the long run, hearing impairment translates into the feelings of academic inferiority with their hearing counterparts.

It is generally believed and obvious that the hearing impaired students are found to be underachievers and delayed in academic achievements. The foreign problem has prompted the researcher to look into the root of these problems which is believed to be caused by difficulties in acquiring language, inability to adequately relate in the school setting coupled with the methods used in teaching the hearing impaired students.

In this study, an attempt is made to highlight the effect of hearing impairment on academic achievement of secondary school students with hearing impairment.

2 Purpose of the study

The purpose of the study was to examine the effect of hearing impairment on the academic achievement of secondary school students in Abeokuta North Local government Area, Ogun State, Nigeria. Specifically, the study was aimed at determining the:

- Effect of poor language development on academic achievement of the hearing impaired students
- Influence of the use of instructional methods on academic achievement of the hearing impaired students. Influence of hearing impairment on language development of the hearing impaired students.

Hypotheses

Based on the stated purpose, these research hypotheses were formulated for the study:

- There is no significant influence of hearing impairment on languages development of the hearing impaired students.
- There is no significant effect of poor language development on academic achievement of the hearing impaired students.
- There is no significant influence of the use of instructional methods on academic achievement of the hearing impaired students.

3 Literature review

Hearing impairment and language development:

According to Ojile (2006), hearing impairment is a general term indicating a hearing disability, which may range in severity from mild to profound. It includes those known as deaf and hard to a hearing person. On the other hand, language is an important instrument of thought, for it enables us to systematize experience. According to Hallaham and Kauffman in Obi 2006, language is referred as the communication of ideas through arbitrary system of symbols that are used according to certain rules that determine meaning.

In discussing hearing impairment and language development, emphasis is placed on how hearing impairment is likely to affect the child's ability to develop language because of the close link between hearing impairment and delay in language development. Hearing impairment is based primarily on the basis of spoken language abilities. Davis (1988) observed that vocabulary skills differentiated students with hearing impairment from their hearing counterparts. On the average, children with hearing impairment seemed delayed two to three years in vocabulary development. This occurs because students with hearing impairment do not learn much incident vocabulary which facilitates language development as other students without hearing impairment.

In addition, they do not learn slang use of words necessary for conversation among classmates and friends. In a survey of 367 learners with hearing impairment in Iowa, Davis reported that over one fourth of these children had repeated at least one grade because they were less accepted by peers due to the hearing impairment that affected their language development. Also, the hearing impaired individuals develop language in a similar pattern like their hearing counterparts but slower and poorer.

At age 5, the hearing impaired child may acquire a vocabulary of 50 words while a normal hearing child acquires 2,000 words (Davis, 1988). This means that the inability of the hearing impaired child to convey or hear sounds or spoken words through the hearing mechanisms generally called the ear affects the child ability to acquire language.

More, Abednego (1995) and Ezugwu (1985) affirmed that hearing impairment manifests itself in retardation of language acquisition skills in the hearing impaired students when compared with their hearing counterparts. That is, the hearing impaired students are most profound in vocabularies and least apparent in mathematics computation. Deafness or loss of hearing creates a major handicap to the development of accurate communication because the hearing impaired child has no concept of language which is the basis for communication. As a result of this loss, hearing impaired students are already well behind their hearing age mates in both language development, cognitive and social development that comes from interactions with parents and peers using natural language.

Poor language development and academic achievement of hearing impaired students:

The hearing impaired individuals have been found to be underachievers and delayed in academic skills due to poor language development and lack of auditory exposure to their environment resulting from the impairment. Mba (1981) said that it is only through language that the individual make his/her feelings, motives, wishes, ideas, intention and understanding known to others. Since all academic functions are performed with good understanding and application of language, the hearing impaired students suffer a setback due to the lack of language for effective communication when compared with their hearing counterparts.

Also, Reamer in Ezugwu (1985) observed that hearing impairment constitutes a serious barrier to normal educational process. This assertion according to him may stem from the fact that inability to hear normally and develop language makes the task of schooling more difficult. The poor academic achievement of hearing impaired students may also result from the difficulties that they experience in acquiring language and communication skills. It is recognized that poor language and communication skills among these students have serious consequences on their reading abilities.

Due to the lack of or poor language to facilitate their learning, it becomes difficult for their teachers to communicate idea to them. As such they passed out of school and are seen by the society as academically inferior to their hearing counterparts. Poor language development or the lack of it is seen as the root cause of nearly all the problems hearing impaired students contend with later in life (Mba 1981). It is established that the hearing impaired students significantly performed below their hearing counterparts. This is manifested in English and language related skills, such as listening, reading, writing and speaking which are heavily dependent on language and not on abstract thinking such as mathematics as the major constraints to the academic achievement of the hearing impaired students.

Use of instructional methods and academic achievement of the hearing impaired students:

An instructional method used here encompasses the various approaches and ways adopted by the teachers to clearly impart knowledge to the hearing impaired students. The instructional methods used to instruct the hearing impaired students includes: lip reading, total communication, sign language, Rochester method, etc. Lip reading is the systematic way of deciphering the meaning of spoken words through the observation of the lip movement. Total communication is the use of various methods of communication that enhances and clarifies the understanding of the concept. Rochester method is the use of finger spelling simultaneously with speech, while sign language is the use of finger-spelling to form a word or sentences for meaningful understanding of the concept etc.

Instructional methods affect the student academic achievement positively, but when it is misused, it grossly affects the academic achievement of the hearing impaired students. When discussing the use of instructional methods and academic achievement of the hearing impaired students, emphasis is placed on how the misuse of these instructional methods affects the hearing impaired students in their academic achievement. Atukum (2002) opined that teachers of the hearing impaired students are expected to possess sufficient knowledge of various methods of communication and should be able to use any efficiently when called upon to do so. The choice of any method however should be determined by the possibilities of its meeting most appropriately the need of the hearing impaired students. There must be flexibility of usage of these methods when instructing the hearing impaired due to their varying capacity of understanding.

The method of communication used does not determine the success or failure of the hearing impaired student, but the manner in which communication is used in teaching-learning processes. Salaam and Situ (2005) posited that a poor teacher's use of instructional methods results in failure on the part of the hearing impaired students and poor feedback for the teacher. The hearing impaired students suffer a grave handicap when this occurs because they become helpless in the face of unclear complex messages or concepts. For instance, sign language as an instructional method is said to have its own grammatical structure for effective communication. It has been used in educating the hearing impaired students in all the nations of the world from primary to tertiary level. It is regretted that in most schools observed the sign language skills of the special education teachers are grossly poor.

Raji (2003) defined sign language as a system of communication devoid of sound but movement of the fingers, hands, arms and the head simultaneously or at variance which produces meaningful messages. As sign language is a method of teaching devoid of sound, it is obvious that the hearing impaired students find very difficult to identify words that have similar sound. The case is similar with the hearing impaired students who could lip read. Word endings such as 's', 'sh', and quiet speech sound such as 's', 'f', 't' and 'k' are often very difficult to lip read. Also, where the teacher is speaking while facing the blackboard, the students will not be able to lip read what the teachers say, and may sometimes focus on the interpreter and not on the teacher that is speaking. This could lead to misunderstanding and misuse of past tense, verb tense, pluralization, non-agreement of subject and verb, and possessives.

Based on the foregoing, Wood, Griffith and Howarth in Fatakun et al, (2003) alluded that successful communication lies in the manner rather than in the mode of communication. Therefore, teachers of hearing impaired students need specialization in speech reading and should be able to receive and express themselves clearly and effectively through sign language. Thus, the teacher's ability to communicate effec-

tively will enhance their understanding and improve the academic achievement of the hearing impaired students.

Methodology

Design: In this study, the research used an experimental design which is meant to allow variable (independent) to be manipulated and their effect on some other variables (dependent) observed or measured.

Population: The population of this study consists of 200 students of Saint Peter's college Olomore, Abeokuta who are in the senior secondary school I, the population consists of hearing impaired and normal hearing students of the school.

Sample: A total number of 30 students were randomly selected, 15 are hearing impaired students (10 males and 5 female) presently in the senior secondary school I (SSSI), 2012/2013 academic session. The sampling technique employed in selecting the sample size was the stratified random sampling technique.

Instrumentation: The main instrument used for data collection was the teacher-made test in English language. The teacher-made test in English was constructed and administered to the respondents to enable them choose the alternatives that can best describe their opinions.

The teacher-made test in English contains three parts. Part I focused on words that contain sound represented by a given phonetic symbol while part II contained a reading passage and part III pronouncing of words and identification of their differences.

Validity of the instrument: the instrument used for data collection was validated using face to content validation. Each of the items on the teacher made test were formulated to relate hypotheses and topic under investigation.

Reliability of the instrument: to determine the reliability of the instrument used for this study, test-retest reliability was conducted on a smaller sample size using Pearson product moment correlation coefficient (r) and the result yielded 0.80. This shows a high level of reliability

Hypothesis one

There is no significant influence of hearing impairment on language development of the hearing impaired students. The result of the analysis is presented in table 1.

Table 1: Pearson product moment correlation analysis of hearing impairment on language development of the hearing impaired student (N = 30)

Groups	Σx Σy	Σx^2 Σy^2	Σxy	r-value
Normal hearing students (control group)	330	21,872	13,029	0.616
Hearing impaired students (experimental group)	195	18,399		

Significant at .05 level, critical $r = .361$, $df = 28$

The result of the statistical analysis as presented in table I indicates that the calculated r-value of 0.616 is greater than the critical r-value of .361 at .05 level of significance with 28 degrees of freedom. The result is significant and the null hypothesis was rejected. This means that there is a significant influence of hearing impairment on language development of the hearing impaired students.

Hypothesis two

There is no significant effect of poor language development on academic achievement of the hearing impaired students. The result of the analysis is presented in table 2.

Table 2: Pearson product moment correlation coefficient (r) of poor language development on academic achievement of the hearing impaired student (N = 30)

Groups	Σx Σy	Σx^2 Σy^2	Σxy	r-value
Normal hearing students (control group)	318	20,398	12,749	0.955
Hearing impaired students (experimental group)	200	8,610		

Significant at .05 level, critical $r = .361$, $df = 28$

The result of the statistical analysis as presented in table 2 indicates that the calculated r-value of 0.955 is greater than the critical r-value of .361 at .05 level of significance with 28 degrees of freedom. The result is significant and the null hypothesis was rejected. This means that there is a significant affect of poor language development on academic achievement of the hearing impaired students.

Hypothesis three

This is no significance influence of the use of instructional methods on academic achievement of the hearing impaired students. The result of the analysis is presented in table 3.

Table 3: Pearson product moment correlation analysis of influence of the use of instructional methods on academic achievement of the hearing impaired students. (N = 30)

Groups	Σx Σy	Σx^2 Σy^2	Σxy	r-value
Normal hearing students (control group)	298	17,680	10,829	0.939
Hearing impaired students (experimental group)	180	7,378		

Significant at .05 level, critical $r = .361$, $df = 28$

The result of the statistical analysis as presented in table 3 indicates that the calculated r-value of 0.939 is greater than the critical r-value of .361 at .05 level of significance with 28 degrees of freedom. The result is significant and the null hypothesis was rejected. This means that there is a significant influence of the use of instructional methods on academic achievement of the hearing impaired students.

4 Discussion of findings

This section deals with the discussion of findings of the hypotheses directing the study. The result of the first hypothesis indicates that there is a significant influence of hearing impairment on language development of the hearing impaired students. The finding of this hypothesis is in line with Davis (1988) who posited that vocabulary skills differentiated students with hearing impairment from hearing individuals because children with hearing impairment seemed delayed two to three years in vocabulary development. This is because students with hearing impairment do not learn incident vocabulary, which facilitate language development, as other students without impairment do. The result of the second hypothesis indicates that there is a significant effect of poor language development on academic achievement of the hearing impaired students. The finding of this hypothesis is in agreement with Mba (1981) who said that it is only through language the individual makes his/her feelings, motives, wishes, ideas, intentions and understanding known to others. Since the hearing impaired students could not develop language as others, they suffer a setback due to lack or poor language for effective communication when compared with their hearing counterparts. Also, Reamer in Ezugwu (1985) observed that hearing impairment constitutes a serious barrier to the normal educational process. This assertion according to him may stem from the fact that the inability to hear normally and develop language makes the task of schooling more difficult.

The result of the third hypothesis indicates that there is a significant influence of the use of instructional methods on academic achievement of the hearing impaired

students. The findings of this hypothesis is also in line with Salaam and Situ (2005) who observed that poor teacher's use of instructional methods result in failure on the part of the hearing impaired students and poor feedback for the teachers. The hearing impaired students suffer a grave handicap when this occur because they become helpless in the face of unclear complex messages or concepts. Also, Raji (2003) affirmed that sign language is a system of communication devoid of sound but movement of the fingers, hands arms and head simultaneously which produce meaningful messages. Due to this lack of sound in sign language, the hearing impaired students find it difficult to identify words that have similar sound. This greatly affects their sentence structure resulting in poor performance academically.

5 Conclusion and recommendation

Based on the findings, it is noted that hearing impairment affects language development due to the inability of the hearing impaired students to develop vocabulary and to hear normally like their hearing counterparts. Also, language development which is poorly developed in the hearing impaired students reduces their academic achievement because language itself differentiates human beings from animals and aids the actualization of oral communication, without it, individual faces the problem of inadequate learning, interaction and sharing.

More so, the misuse of the various instructional methods by their teachers has greatly impeded the academic progress of the hearing impaired students. Thus, the following recommendations are made:

- the hearing impaired students should be given ample exposure to language development processes with the help of appropriate speech therapist. They should be encouraged to interact with the normal hearing children to develop linguistic power.
- Parents should provide enabling environment for their children to communication with speech and develop language communication skills before school age. This could be achieved by attending workshops and seminars on hearing impairment.
- Well-trained special education teachers should be employed for proper use of instructional methods such that adequate instruction is given to the hearing impaired students.
- There should be in-service training for old special education teachers to enable them update their knowledge with the numerous innovation brought about by experts in the field.
- Federal and state government should offset the short supply of well trained special education teachers by providing grants and encouraging more people to study special education so that more professionals will be in supply.

6 References

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