

UNIVERSITY OF EDUCATION, WINNEBA

**DEAF STUDENTS' READING COMPREHENSION: A CASE STUDY OF
PRESBYTERIAN COLLEGE OF EDUCATION**



VIVIENNE OCRAN

MASTER OF PHILOSOPHY

UNIVERSITY OF EDUCATION, WINNEBA

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VIVIENNE OCRAN

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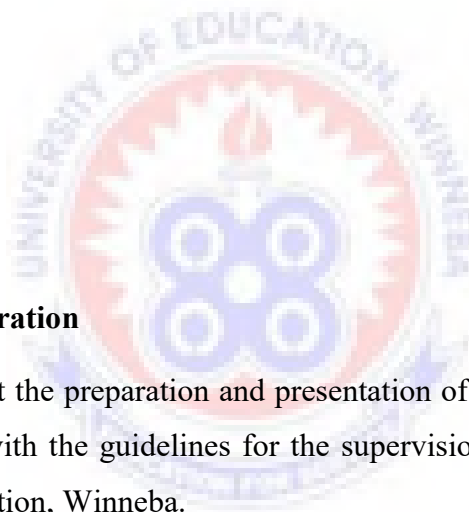
DECLARATION

Student's Declaration

I, **VIVIENNE OCRAN**, hereby declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole for another degree elsewhere.

SIGNATURE:

DATE:



Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised by me in accordance with the guidelines for the supervision of thesis laid down by the University of Education, Winneba.

NAME OF SUPERVISOR: **DR. REBECCA AKPANGLO-NARTEY**

SIGNATURE:

DATE:

DEDICATION

I dedicate this work to my family.



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ABSTRACT

The study set out to investigate challenges deaf students of Presbyterian College of Education encounter in reading comprehension. Twenty-eight participants made up of sixteen deaf students, seven Sign language interpreters and five English language tutors were involved. The Mixed method was used and data was gathered by interview, questionnaire and test then analyzed into mean and standard deviation whilst the interview data was presented by description. The study found that the students faced challenges in using vocabulary, using sign language to interpret the comprehension texts, accessing and utilizing incidental information and cultural background of the targeted language as well as answering the comprehension questions. The challenges stemmed from factors including deafness, communication with the larger community, the nature of academic materials available to the Deaf, language tutor factor and sign language interpreter factor. However, strategies such as accompanying texts with visuals, use of moderated texts, conscious activation of schema during lessons, vocabulary instruction could curb the deaf students' challenges in reading comprehension. The study recommended training workshops to equip the English language tutors with deaf appropriate comprehension strategies, upgrading of Sign language interpreters' skills, provision of resources that support visual learning and also a stronger collaboration between the language tutors and the interpreters in the planning and delivery of English language lessons.



CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter of the research serves as an introduction to the entire work. It presents the background of the research, the problem statement, the objectives, the research questions, significance, the delimitation and limitations of the study. It ends on the organization of the work.

1.1 Background to the Study

Though generally individuals learn their home language through exposure in their environment, in recent times, the school is deemed the main avenue for enhancing competencies in the spoken language and for the acquisition of the requisite reading and writing skills for continuous learning and personal development. As such, countries the world over have developed language-in-education policies that would sharpen the language skills of their citizens. In multilingual countries, such policies would indicate the language(s) to be used as the medium of instruction and at what stage those languages should be used. The policies also tell the other languages that would be taught at the various levels of education (Anyidoho, 2018).

Being a multilingual country, Ghana has tried to implement several versions of multilingual education since independence and has relied on a language other than the local vernaculars as instruction in formal education. English, a colonial legacy, is the official language, the prescribed language for all formal and official communications (Ansah, 2014).

The place of English language in Ghana is very central: the language by which every official transaction is undertaken. It is the language by which both international relations and businesses are transacted. English is the language of education (Owu-Ewie 2013). The language-in-education policy therefore mandates English as the language of instruction in the classroom from basic four upwards once the focus of the lesson is not another language. (Anamoah-Mensah 2004).

Per the standards of the nation, any person enrolled in formal education in Ghana must perform well in the English language: to enable access to books, other resources that support learning, to effectively engage in and benefit from the classroom interactions, to express ideas and attain high scores in examination (Language and Literacy Course Manual, 2019/2020). To gain admission to the Senior High School, a candidate must have passed the core English language paper and for a candidate to enter the College of Education, a minimum of grade C6 in English language is required of the applicant.

Candidates of low performance in English language in many instances score low in the other subjects especially subjects that demand explanation of facts and ideas. Amoako (2019) indicates that this high premium on English in formal education demands that students' performance (including that of the deaf) in the language meets the standards of whatever level of education they find themselves at. The Reading Comprehension aspect of the English language paper tends to be very challenging to especially deaf students yet that aspect is obligatory to all candidates. According to research, the deaf students globally have had to grapple with the variety of tasks within reading comprehension because of their peculiar situation (Abdul Rahim, Renate, Nordin, & Noreha, 2018).

In Ghana Deaf education could be traced to Foster's missionary and charitable work which took him frequently to Adamorobe (a village located between Aburi and Nsawam in the Eastern region and dominated by deaf people) to preach to the deaf people (Amoako, 2019). On realizing that the village folks had a unique sign language but could not be understood by other deaf, he worked towards the establishment of the first school for the deaf in Ghana in 1957 (Amoako, 2019). Following this, in 1961 the government enacted the 1961 Education Act, which made education for all children of school age free and compulsory (Okyere, 2003). In 1965 a college called the Deaf Education Specialist Training School was established as a department under the College of Special Education through the benevolent efforts of Ann Hewitt of the Commonwealth Society for the Deaf (Amoako, 2019).

Currently, though the basic and secondary schools of the deaf in Ghana are segregated, they are also bound by the Language policy of the country. For this reason, many of the deaf after the secondary school have had very slim chances of continuing to the tertiary level due to the rather stiff competition they face with their hearing peers. After the Senior High School, the deaf have the traditional Universities, a few Technical Universities and only one College of Education as the Tertiary Institutions available to them (Amoako, 2018). Presbyterian College of Education is the only College of Education that admits deaf students. Over the years this category of students has exhibited difficulties in English language especially Reading Comprehension.

According to Spencer and Marschark (2010), "literacy acquisition among deaf pupils is thought to be the most long-term and vexing challenge for deaf education" (Spencer & Marschark, 2010, p: 81). General comprehension also presents challenges for deaf pupils (Harris, Terlektsi & Kyle 2017). Again, research on the performance

of the students who are deaf in standardized reading comprehension tests suggests that on average, the learners encounter great difficulty in processing Standard English that is in print (Friend, 2008).

At the same time, studies point that there are strategies that could be employed to help these students improve in the reading comprehension. Thus, there is a need for implementing effective reading strategies to improve reading comprehension for the deaf students. These strategies when used, is hoped to help the deaf students of PCE attain better comprehension which would consequently transcend to their general academic work.

1.2 Statement of the problem

Presbyterian College of Education (better known in the educational circles as P.T.C.) has championed the education of students with special needs since 1934 (History of the Presbyterian College of Education, unpublished). In this direction, the first deaf student was admitted to the college in 1997 and since then numerous deaf students have enrolled each year. At present there is a total of eighteen deaf students in the college (unpublished College records, 2019). These deaf students like their hearing counterparts take all the core courses in English Language and are expected to sit and pass the required papers in English.

However, the deaf students in most instances do not perform well in the English language papers. In several instances, many of them re-sit those papers. Also, many of them do not perform above average in class work and internal assessment tasks (unpublished college records). Those who strive above average in internal assessment still come out with grades below C+ in the end of semester examinations. Their

responses to especially reading comprehension assignments and quizzes suggest that they have difficulty in comprehending many of the English language tasks given (personal observation). Consequently, it has become common knowledge in the college that the deaf students perform poorly in English language.

Indeed, a number of researches have been carried out on Special Education with specific attention on Deaf Education. Agyire-Tettey, Cobbina and Hemanoo (2011) for instance examined the academic challenges of students with hearing impairment (SHI) in Ghana. This research sought to elucidate challenges that prevent SHIs from high academic achievements using the case of students in Tetteh Ocloo State School for the Deaf in the Greater Accra Region of Ghana. Amoako, (2019) focused on the state of Deaf Education after sixty years of its inception with special attention on deaf students in selected universities.

However, there is no literature on the academic performance of these students: the particular challenges in Reading Comprehension, the causes, the magnitude and ways to minimize these challenges. Also, such research have concentrated on sectors of education other than the Colleges of Education.

This study sought to focus on the reading comprehension of the Deaf with emphasis on bringing to the fore such pertinent details that would be useful in supporting this category of students to improve their performance in Reading Comprehension.

1.3 Purpose of the study

The aim of this study is to investigate the challenges the deaf students of the Presbyterian College of Education, Akropong face in reading comprehension.

1.4 The Objectives of the Research

The specific objectives of this research are to:

- Find the challenges of Presbyterian College of Education deaf students in working reading comprehension questions.
- Investigate the factors that contribute to the challenges.
- Find out strategies that could help to check the challenges.

1.5 Research Questions

The research is guided by the following questions:

1. What challenges do the deaf students of P.C.E. face in English reading comprehension?
2. What factors account for the challenges of the deaf students in English reading comprehension?
3. What strategies could be employed to curb the challenges the deaf students face in reading comprehension?

1.6 Significance of the study

A study into the challenges faced by the deaf students of the Presbyterian College of Education will provide insights into the difficulties this category of students meets in their reading comprehension exercises and examinations. The insights would inform language tutors and expose them to some of the support and or strategies they could employ to help the deaf students. The work would also inform curriculum planners and implementers to meet the specific needs of the deaf students with respect to reading comprehension. The study will help fill some literature gaps

about deaf education in Ghana and provide facts and information that can be used by the academic and researchers in Ghana. The study would also be useful to inform the learners on some of the strategies available to them.

1.7 Organization of the Study

The study is made up of five chapters. The chapter one has the general background to the study, the statement of the problem, objectives of the study, research questions, and the significance of the study, the scope and ends on the organization of the thesis. The chapter two looked at the review of related literature. It included researches done on the topic and what this study intended to do. Chapter three presents the research methodology adopted by the study. This includes the research design, the study area; population, sampling procedure, data collection instruments, and procedures of data analysis. In the chapter four the interpretation of data and findings in the light of the research questions are presented. The findings indicated that the deaf students of P.C.E. were faced with numerous challenges which also resulted from a number of factors. The findings made it clear that the English language tutors lacked knowledge in comprehension strategies that worked for the Deaf. In addition the Sign language interpreters were inadequately equipped to execute the academic interpretation task. The last chapter, chapter five, has the conclusions, recommendations and pedagogical implications of the study for the field. Finally, the chapter presents proposed areas for further research if need be. The research concluded that training workshops for the English language tutors in the management of mainstream language lessons and continuous training of the Sign language interpreters is imperative.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

This chapter is made up of two sections. Section one presents the theoretical framework that was utilized to anchor the study while section two looks at the literature review. The literature review explores what reading comprehension entails, importance of reading comprehension, challenges that the deaf face in reading comprehension as well as the possible contributing factors to the challenges. In addition, literature on strategies that are useful in reading comprehension by the deaf are presented.

2.1 Theoretical framework

A theoretical framework is generally based on one overarching theory (Ngulube 2018 cited in Ngulube, 2020). Thus, all the concepts or constructs in a single theory underpin a study when a researcher uses a theoretical framework (Ngulube, 2020). A theoretical framework is a structure that guides research by relying on a formal theory constructed by using an established coherent explanation of certain phenomena and relationship (Eisenhart, 1991 cited in Grant & Osanloo, 2014). The theoretical framework consists of the selected theory (or theories) that undergirds the thinking of the researcher with regard to how he/she understands and plans to research his/her topic, as well as the concepts, tenets and definitions from that theory that are relevant to the research topic (Grant & Osanloo, 2014). The Schema theory and the Social Model of the Disability theory were utilized to anchor this study.

2.1.1 Schemata theory

Schema is a knowledge structure containing slots, or place holders, for each of the component pieces of information subsumed under the more general idea, or structure (Anderson, 1977). A schema indicates the typical relations among its component parts; comprehending a thing, event, or relationship occurs when a sufficient number of slots in a schema are filled, or instantiated with particular examples of events (Anderson, 1977). Schemas, or schemata, are seen as cognitive constructs by which we organize information in our long-term memory (Widdowson, 1983). To comprehend a thing, event, or relationship is to find a one-to-one correspondence between the slots in a schema and the message (Anderson, 1977). The Schema Theory therefore, posits that knowledge is organized into structures embedded in more dominant and more abstract structures.

Comprehension is possible when the features of an event can be matched with slots in one's schemata. Since reading is a process, a person learning to read is developing a schema for reading. Embedded within that dominant schema should be sub-schemata, such as schemata for graphophonic relationships, for syntactic and semantic constructions, for materials used during reading, and for the settings under which reading can/cannot occur (Canney, 1979).

The fundamental principle of the schema theory assumes that a written text does not carry meaning by itself. Rather, a text only provides directions for readers to know how they should retrieve or construct meaning from their own previously acquired knowledge (An, 2013; Anderson & Pearson, 1986 cited in Ali, 2016). In this case the most paramount activity in this process is the reader's ability to organize information and relate new knowledge to the knowledge he/she already possesses. The theory stipulates that when people comprehend, they need to combine their own

background knowledge with the information in a text. In this process, the prior knowledge and knowledge structure works effectively in people's cognitive activities. All knowledge is packed into units, and these units are schema (Rumelhart, 1980). The previously acquired knowledge is also called the readers' background knowledge (prior knowledge), and the structures of this knowledge are called schemata (Barrlett, 1932; Adams & Collins, 1979; Rumelhart, 1980). This means the schemata is more or less a collection of schema. The schemata of a reader are organized in a hierarchical manner, with the most general at the top down to the most specific at the bottom (An, 2013).

2.1.2 Comprehension schemata

The Schema theory asserts that the comprehension of a reader about a text is determined by three distinct schemas. These are formal schema, content schema and language schema (Carrel & Eisterhold, 1983; Che, 2014).

2.1.2.1 Formal schemata

Formal schema refers to background knowledge of the formal rhetorical organizational structures of different types of texts (Carrel & Eisterhold, 1983). It is the abstract, encoded, internalized, coherent patterns of meta-linguistic, discoursed, and textual organization that guide expectations in our attempts to understand a meaningful piece of language (Carrell, 1983). In other words, it is the knowledge of different text genres and their respective structural organization, language structures, vocabulary, grammar (Zhao and Zhu, 2012). Formal schemas are the degree of a reader's knowledge on the style of the text. Thus, the readers have to differentiate between the various styles, pages and structures. In this case the exposition,

description and narration are the general types which are explained in writing books for students. However, the reading materials that they come across are of various subcategories such as newspaper reports, poems, short stories, editorials among others.

2.1.2.2 Language schema

Language schemas refer to the degree to which a reader possesses the language of the text emphasizing the effect of background knowledge in the macroscopic side and the linguistic factors in the microcosmic side (Che, 2014). In other words, it refers to readers' prior linguistic knowledge, including the knowledge about phonetics, grammar and vocabulary as traditionally recognized (Zhao and Zhu, 2012). Good readers know the language (Eskey & Grabe, 1988).

To comprehend text readers should decode both the lexical units and syntactic structures they encounter in texts (Eskey & Grabe, 1988). Consequently, second language readers should master certain linguistic knowledge to decode the text (Carrell & Eisterhold, 1983) in order to comprehend the text.

2.1.2.3 Content schema

Content schema refers to background knowledge of the content area of the text (Carrell & (Eisterhold, 1983). It contains conceptual knowledge or information about what usually happens within a certain topic, and how these happenings relate to each other to form a coherent whole. It is an open-ended set of typical events and entities for a specific occasion. For example, schema for going to a restaurant would include information about services, menus, ordering dishes, paying the bill (giving a tip), and so on. Content schema are largely culture-specific. Therefore, cultural schema is

usually categorized as content schema (Ahmad, 2011). Cultural knowledge is also important because to comprehend some types of writing, humor, for example, knowledge of the culture must be taken into consideration. Some researchers argue that if people lack the content schemas or the capacity of allocating schemas, they will have difficulties in building hypothesis and reading although they have specified capacity of language (Ahmad, 2011).

Various studies (Hudson, 1988; Floyd & Carrell, 1987; Carrell, 1983; Qi & Wang., 1988) investigated the effect of language competence/complexity and prior knowledge on reading comprehension and found that background information is more likely to determine the comprehension of a passage than linguistic factors.

For instance, Ali (2016) found that the text, which is provided with background knowledge, was a little bit easier to the students of his study than the text which was administered without background information. On the other hand, the students' performance in the two texts with either background knowledge or without it was relatively low. The mean for both texts for the condition groups was 32.5 and 44 respectively; whereas the mean for both texts for the experimental groups is 46.5 and 63.5 respectively

Some researchers (Gatbonton & Jucker, 1971; Steffensen & Joag-Dev, 1984; Levine & Haus, 1985; Kintsch & Franzke, 1995) also determined how content familiarity affected reading comprehension and revealed that subjects familiar with the reading passage recalled and inferred significantly more ideas while those unfamiliar forgot or misinterpreted significantly more ideas.

Again, other studies (Alderson & Urquhart, 1988) were carried out to investigate the role of EFL students' background discipline or the knowledge of a particular academic field in reading comprehension and the findings supported the view that

students from a particular discipline would perform better on tests based on texts taken from their own academic discipline than students from other disciplines.

2.1. Disability theory: The social Model

Disability is a condition of the body or mind (impairment) that renders it more difficult for a person with the condition to do certain activities (www.cdc.gov). According to the World Health Organization, “disability is the interrelation between individual with health conditions and personal and environmental factors (negative attitudes, limited social support etc)” (www.scope.org.uk).

The Disability theory is a tool for defining impairments and ultimately for providing a basis upon which government and society can devise strategies for meeting the needs of disabled people (www.theweb.ngo.ncarticles.mod). The two most popular models of the disability theory are the Medical and the Social models.

The Medical model views disability as a problem that belongs to the one who is disabled but the Social model on the other hand holds that, it is the society that renders people disabled. It is not the impairments that make them disabled but it is rather the barriers in society. In their day-to-day activities, these people have had to struggle with attitudes of other people and unfavorable access to facilities among others. The Social model admits that there are differences between people with disabilities and those without disabilities (Garther, 1987).

There is the recognition with the social model that there is so much that society could do to reduce and ultimately remove some of the disabling barriers. The social model holds society responsible for put measures in place to favour those with

disabilities. It adds that if the barriers are removed, there would be equity and more independence to those with disabilities ([www. scope.org. uk](http://www.scope.org.uk)).It maintains that social settings must be revised to make individual traits less disabling. (Adam M. Samahaf)

A central principle of the social model is that, it should be duly acknowledged that the individual (with the disability) is the expert of their requirement in a particular situation, and it should be respected, regardless of whether the disability is obvious or not. Thus the disables or the people with the disability should be highly involved in the planning and implementing the support systems for the disabled (<https://www.2.ie.ac.uk/University>).

2.2 Subheadings of the reviewed literature

Literature reviews help researchers limit their scope of the inquiry and convey the importance of studying a topic to readers. A literature review aims to review the critical points of current knowledge on a particular topic. It seeks to describe, summarize, evaluate, clarify, and/or integrate the content of primary reports (Cooper, 1988). The literature review of this study covers the following topics:

- Reading comprehension
- The Deaf and reading comprehension
- Challenges the Deaf face in reading comprehension
- Factors accounting for the challenges the deaf face in reading comprehension
- Strategies that can be used to control or curb the challenges

2.3 Reading comprehension

Reading is a self-discovery process during which readers interact with written materials by investing both cognitive and meta-cognitive efforts to decompose new knowledge so as to make or infer meaning. From this point of view, reading comprehension can be seen as the final product (Hellyer, Robinson, & Sherwood, 2001; Kalayci, 2012) of the process. It is a complex, active process of constructing meaning (Texas Education Agency, 2018). Reading skills are important for the individuals since they foster comprehension in reading. If the students do not have knowledge of reading skills, they cannot be expected to be successful readers. Thus, they cannot achieve the level of comprehension required to pass examinations. For this reason, Kaya, (2015) recommends that reading skills should be taught in universities for the students to be able to cope with comprehension problems.

Reading comprehension is a ‘thinking process by which a reader selects facts, information, or ideas from printed materials; determines the meanings the author intended to transmit; decide how they relate to previous knowledge; and judge their appropriateness and worth for meeting the learner’s own objectives’ (Veeravagu, et al., 2010, p.206). The International Encyclopedia of Education (2010) defines reading comprehension as a process of simultaneously constructing and extracting meaning through interaction and engagement with print.

Reading comprehension is the ability to process text, understand its meaning, and to integrate with what the reader already knows (Grabe, 2009). Janzen and Stoller (1998) identified ten processes or strategies that are involved in reading comprehension. These are; identifying a purpose for reading, previewing, predicting, asking questions, checking predictions or finding an answer to the questions,

connecting the text to prior knowledge, summarizing, connecting one part of the text to another, and recognizing text structure.

Word recognition has also been identified as an important aspect of comprehension. Good readers are able to process words quickly and accurately. Comprehension more or less comes as an automatic process to good readers (Pressley, 1998; Stanovich, 2000). Pressley (1998) again found that good readers are able to read more difficult texts at the rate of 200 words per minute and for relaxed reading about 250 to 300 words per minute.

Further, reading comprehension involves a cognitive process. A reader engages in complex array of cognitive processes involving simultaneous use of awareness and understanding of phonemes, phonics and ability to comprehend or construct meaning from text (K12 reader.com. 2008-2018; Walter, 2007 cited in Mckee, 2012). Walter, 2007 (cited in Mckee 2012) identified three processes that are involved in reading comprehension. These processes are laying a foundation for a mental structure, mapping new information onto the developing mental structure, and shifting to build a new substructure. These seemly automatic, unconscious processes utilize memory nodes which are referred to as building blocks in the development of comprehension. These memory nodes are activated through (a) information in the input, (b) the comprehender's world knowledge, and (c) the comprehender's language knowledge (Walter, 2007 cited in Mckee, 2012).

Reading comprehension is also associated with the amount of the vocabulary the reader acquires. Hsueh-Chao and Nation (2000) estimated that readers must know about 98% of the words in a text to be able to understand the text without any other assistance. Additionally, the exposure to new words must be repeated for understanding to develop. It is estimated that ten exposures or more are required for a

new word to be acquired by the reader (Nation & Wang, 1999). Thus, vocabulary knowledge can influence reading comprehension in two ways. These are directly through its effect on semantics of the text as well as indirectly through its effect on word reading skills (Babayigit, 2011). According to Grabe and Stoller (2002) reading ability is more than just phonemic awareness and phonic skills and that vocabulary size needs to be addressed by teachers.

Metacognition is another concept that has been linked to reading comprehension. Metacognition has been defined as having two dimensions: knowledge of cognition and regulation of cognition. Carrell, et al (1998) stated, regulation in reading includes the awareness of and ability to detect contradictions in a text, knowledge of different strategies to use with different text types, and the ability to separate important information from unimportant information. Carrell, et al (1998) identified the following specific metacognition strategies; (a) establishing objectives in reading, (b) evaluating reading material, (c) repairing misconceptions, (d) evaluating the developing understanding of text, (e) analyzing the text and paragraph structure to clarify the author's intention, and (f) adjusting reading speed and selecting cognitive strategies accordingly. All these factors are considered to be critical in comprehending a text.

2.3.1 Why is reading comprehension so important?

The essence of reading is comprehension. Therefore without understanding what is read, reading is nothing more than tracking symbols on a page with your eyes and sounding them out. People read for many reasons but understanding is always a part of their purpose. Reading comprehension is important because without it reading does not provide the reader with any information safely. Again the absence of

comprehension denies readers the productive and continuous social, emotional and intellectual development they require (K12reader.com, 2008-2018).

Reading comprehension is also important to especially students in the later elementary grades (Sweet & Snow, 2003) because it provides the foundation for further learning in secondary educational level. A student's academic progress is profoundly shaped by the ability to understand what is read. Students who cannot understand what they read are not likely to acquire the skills necessary to participate in the 21st century workforce.

Reading comprehension is a serious skill that is needed for attainment in school and beyond, yet many students are reading below their grade level. Research has shown that poor reading ability has been associated with poor school performance in general, behavioral problems and poor mental health (Abdul Rahim et al., 2018). This is also due to the fact that many tests have reading portions specifically written to evaluate comprehension skills. Without developing English reading comprehension, higher education and research are very difficult (Iqbal et al. 2015). Consequently, a reader who is unable to develop comprehension skills is very likely to have problems in making meaning of what is read.

2.4 The Deaf and Reading Comprehension

Given the importance of reading and the pleasure that reading brings to individuals, learning to read should be a joyful and successful undertaking (Holdaway, 1979). Regrettably, this has not been the case for most individuals who are deaf or hard of hearing. While many students who are deaf or hard of hearing become skilled readers, throughout history research has documented the fact that the

majority of individuals who are deaf or hard of hearing complete their education without being able to read well (Myklebust, 1960).

English reading comprehension is very important for the education of even the Deaf and hard of hearing. On acknowledging the importance of reading in today's highly technical society, Stewart and Clarke (2003) contend that the acquisition of proficient literacy skills is the most important educational task facing students who are deaf or hard of hearing. Paul (1996) therefore argued for the development of appropriate reading vocabulary knowledge instruction for deaf/hard of hearing students as this represented the primary cause for poor vocabulary knowledge (Paul, 1996 as cited in Dockery, 2013).

For a person to comprehend or understand what they read, they need to set objectives for reading, relate their knowledge and experiences to the text, read words and phrases fluently, use approaches and assistance to construct meaning during and after reading, familiarize with approaches that match the text and their objectives, uphold task perseverance, know the author's purpose, differentiate between truths and untruths, and come up with analytical conclusion (Abdul Rahim et al. 2018).

Hearing impaired students unfortunately face challenges in many areas that are serious for a prosperous reading comprehension (Abdul Rahim et al., 2018). Students who are deaf or hard of hearing often struggle with reading comprehension skills. They also have unique needs as their first language is visual instead of auditory (Bickham, 2015). The language of a hearing impaired person is normally considered below that of a hearing person of the similar age as well as experiences. Most of the hearing impaired students have reading difficulty (Bickham, 2015 as cited in Abdul Rahim et al., 2018).

A review of the literature suggests that deaf students demonstrate lack of one, several or many pertinent skills of reading comprehension. Some of these deficiencies are effortful word recognition, limited vocabulary, a lack of understanding of figurative language, weak topic knowledge, a slow reading rate, inadequate understanding of syntax, limited knowledge of different genres, a lack of awareness of text organization, a limited repertoire of comprehension strategies, failure to monitor comprehension, lack of motivation, avoidance of reading as much as possible (Marschark, & Harris, .1996; Kelly, 2003).

Further, it is asserted that the average deaf graduate reads poorly. In other words, the average deaf child leaves school with a reading level that hovers around the fourth-grade level (Gallaudet Research Institute, 2016 as cited in Abdul Rahim et al 2018). Traxler, 2000; Karchmer & Mitchell, 2003; Qi & Mitchell, 2007 also came to the same conclusion: that the average student with a hearing loss graduates from high school with reading comprehension skills at about the fourth-grade level. Approximately 20% (some 2,000 annually) are estimated to leave school with a reading level at or below second grade (Dew, 1999).

It is speculated that deaf students may read at a slower pace, spend more time understanding what they've read, and have less awareness of mistakes in comprehension compared to their hearing peers (Marschark et al 2012 cited in Abdul Rahim, 2018). In general, the research has documented that the majority of deaf populations have not developed skills deemed necessary for the attainment of grade appropriate reading comprehension skills. Recommendations have been forthcoming from many of the studies conducted, highlighting one or several areas that need to be focused on (Dockery, 2013, p.30-31).

Meanwhile Thaler, Ebner, Wimmer and Landerl (2004) maintain that failure to read at the appropriate level is indicative of difficulties in processing at the lexical level, in which representations correspond to words. This difficulty to process at the word level ultimately translates into a difficulty to process at the level required for text comprehension. Difficulty with word recognition results in a slower reading rate and thus reading fluency is disrupted. Therefore, there is little or no automaticity in word recognition, the reader's effort is placed on the recognition of words, and the comprehension of the text is lost in the process (Dockery, 2013, p.36).

Miller (2005) asserts that there is no doubt that severe hearing loss from early childhood places individuals at risk of developing reading problems. The reason is that all participants identified as deviant readers were either hard of hearing or deaf. It is worthy to note, however, that not all individuals with hearing loss manifested a deficient understanding of the test sentences, and that those who did were evenly represented by participants from both the hard of hearing and the deaf groups. Findings indeed suggest that focusing on reading strategies of individuals with hearing loss may be a more fruitful approach to understanding the under-lying causes of their reading problems (Miller, 2005).

It is required of the deaf students (just as the hearing students) that they must understand passages, stories and sentences from various school subjects. In other words, all students should be able to make a distinction of the important facts and ideas from words they are reading and recognize words that are unimportant. At times this remains difficult for hearing impaired students for the reason that they may be reading words or sentences they cannot comprehend (Abdul Rahim et al., 2018).

2.4.1 Challenges of the deaf in reading comprehension.

Various researchers have come out with different challenges confronting deaf students in reading comprehension. Some of these challenges are related to dealing with written language, lack of incidental information, the nature of the school curriculum, the nature of sign language grammatical structure, lack of oral skills by deaf students, the nature of comprehension questions, lack of cultural knowledge about the target language, lack of vocabulary, inadequate syntactic and phonology awareness.

2.4.1.1 Dealing with written language

Most of the people with hearing problem have difficulties in dealing with a written language they have not mastered verbally. If the degree of hearing loss is significant, it prevents normal speech development. Thus, they take much longer time to gain oral language and even what they gain is usually estimated to be below expectation. Consequently, when they meet written texts whose language they have not mastered, they have difficulty in recognizing it (Ortiz et al 2009).

It is estimated that over thirty percent of hearing impaired people leave school functionally by the old standard (Lederberg et al., 2013). This compares to a functional illiteracy rate of less than one percent among their hearing peers (Abdul-Rahin et al., 2018).

2.4.1.2 Acquisition and use of incidental information

Incidental learning is a situational, contextual, and social interaction without any agenda/plan and without an audience. It results from external stimuli in the

surrounding or environment interactions. These stimuli can be auditory, visual, or kinesthetic (Hopper, 2019). The literature however, revealed that deaf people lack incidental information (knowledge). That is, they lack a huge amount of information accessible in the environment which is very essential for text interpretation.

This incidental information could have been gained from media broadcast, family, other children at school, conversations, music among others. Thus, they have limited stock of gathered prior knowledge or schemata to link what they read, but this helps very much in text interpretation in reading comprehension (Dockery, 2013; Hopper, 2019). Studies also indicate that to allocate meaning to texts, readers depend on previously kept knowledge, the domain and specific knowledge about different text structure and types (Kamhi & Catts, 2012).

Without incidental learning, a child who is deaf or hard of hearing may have limited knowledge of the vocabulary and grammar that print represents, and even a limited general knowledge of their world. Hence, it is often more difficult for them to predict or infer meaning. Multiple meaning of words and idioms depending on the context may present particular challenges to the deaf.

In 2009, a team of researchers in Seville University, Spain led by Isabel de los Reyes Rodriguez Ortiz did an analysis of reading comprehension process of deaf youngsters. The study had the hypothesis that initially people with higher levels of verbal language, have better reading comprehension brought important insights to the fore. Their findings include lack of incidental information by the deaf, which means lack of information present in the environment and therefore huge amounts of essentials for interpreting text: media broadcast, family, other students at school, conversations in relation to the above assertion, they are not able to link what they

read to prior knowledge or schemata but this helps very much in text interpretation in reading comprehension (Ortiz et al 2009).

2.4.1.3 The nature of the school curriculum

The school curriculum for the hearing impaired individuals, which is no different from that of hearing individuals, is problematic for the students with hearing impairment. This poses a challenge for these pupils because their abilities are different from that of the hearing individuals. On investigating the challenges that hearing impaired students face in their English composition and comprehension work, Kodiango and Syonwene (2016) pointed out the fact that the hearing impaired individuals are subjected to the same curriculum that the hearing pupils in regular primary schools follow although there are some aspects of that syllabus which they cannot cope up with because of their special needs.

Moore (1978) noted that the Hearing Impaired children's language development is more frequently assessed through written language because of their problem with spoken language. These same students, as pointed out earlier are not well grounded in the oral language which would facilitate their written language so they are in many instances found wanting in terms of the demands placed on them by the general school curriculum.

People who have hearing loss are able to hear only 25 or less decibels of sound (Duthey, 2003; Alberta Education, 2004; Shemesh 2010 as cited in Agyire-Tettey, Cobbina & Hemanoo, 2017). This process is slow and laborious and may not develop good speech for learning and hence may be a challenge for the hearing impaired in coping with some aspects of the school curriculum (Kodiango & Syonwene, 2018).

Many of them have hearing parents so it takes a longer time before the deaf children are exposed to the sign language as well as oral language.

2.4.1.4 Using Sign language to interpret comprehension texts

Furthermore, the deaf have problems in interpreting the texts used as reading comprehension passages because the Sign language has a grammatical structure of its own which does not necessarily follow the spoken or written English (Ndurumo, 1993 cited in Kodiango & Syonwene 2018). It has its own grammar which is different from that of the English language. An example is that the normal English language structure follows Subject, Verb and Object (SVO) such as 'Tom eats bread'. The sign language structure is however, completely different as it follows Object, Subject and Verb (OSV) such as school 'bread Tom eat'.

English uses specific pronouns for gender but with Sign language, the signer has to indicate that he/she is talking about a man or a woman (Grushkin, 2013). As a result, the deaf students would have to make meaning of the texts by using Sign language which is different from the language used to write the text. The situation presents a big challenge to them because the differences in the language structures negatively affect how hearing impaired learners answer comprehension questions.

Kodiango and Syonwene (2018) found the performance of the hearing impaired learners in composition writing and in answering comprehension questions to be low. Many studies have also revealed that signing does not enhance reading comprehension, by itself, because of the disconnection between the signs and critical language elements such as phonology, morphology, and syntactic structure of the language to be read (Paul, 2009; Paul et al., 2013). A study conducted by Paul (2009) revealed that sign language systems such as American Sign Language (ASL), Signing

Exact English (SEE), or Signing Exact English-II (SEE2) do not adequately aid English proficiency, though it is necessary, in part, for improving reading comprehension.

The hearing impaired is considered to be among a group of learners referred to as Learning Disabled (LD). LD is a condition in which one or more of the basic psychological processes involved in understanding or using language are deficient. They therefore require special attention or additional instructional support in order to escape the labeling of impaired academic performance which is a major element in most current definitions of LDs (Hallahan, 2002 cited in Kodingo and Syowene, 2018).

2.4.1.5 Oral language skills

Language is the process and means through which learning takes place but deaf people have difficulties in oral skills hence they may not acquire enough receptive and expressive language which is needed in reading for comprehension. The development of reading and writing depends on the satisfactory language foundation and is facilitated by a reasonable speech vocabulary. As noted by (Otiato, Kithure and Osong 2007 cited in Kodiango & Syonwene, 2018), a child who is hearing impaired will not hear sounds and words from his own parents and hence neither imitates them nor attaches any meaning to them. He/she does not learn to speak by ordinary channels and has to use other routes which are tedious, if he/she is to learn to speak.

Deaf children have significant difficulties in comprehending written text due to the hearing loss that prevents them from being exposed to oral language when they were infants (Mana, 2013). In other words, hearing loss reduces deaf students'

audibility, impacts their perception of temporal fine structure cues, and degrades the spectral characteristics of auditory signals (Moore, 2008; Souza, Wright, Blackburn, Tatman, & Gallun, 2015).

In a study to determine the influence of LI on learning a second language, Csizér and Kontra (2020) found that the lack of solid LI by deaf students affects their reading comprehension level. Thus, L1, a language that is acquired in the course of primary socialization inside the family during the period from birth to right before formal schooling and literacy enter children's lives is needed since a strong foundation in LI is necessary for the transfer of skills to an L2 (Marschark & Lee, 2014). Deaf and severely hard-of-hearing people therefore, experience the consequences of a lack of a solid L1 throughout their foreign or second language learning experience (Csizér & Kontra, 2020).

2.4.1.6 Answering the comprehension questions

It is estimated that comprehension questions test a student's ability to read and understand information (Vikiru cited in Oya, Manalo and Greenwood, 2009). The comprehension questions are therefore designed in such a way as to elicit answers either out of memory or through inference. The questions should be able to test the ability of the learner to infer the meanings of the words used in a particular way and not to take the literal meanings of the words as used in the passage.

In a study by Doran and Anderson (2003) they found that deaf adolescents could make causal inferences when reading passages for comprehension, but they were poorer than a group of hearing adolescents broadly matched for chronological age. In their studies children were required to read a short passage and then answer a simple yes or no question to test their comprehension of the passage. Their accuracy

and reading rate were virtually identical regardless of whether the information that the comprehension question was testing was stated explicitly or implicitly, therefore requiring an inference (79% vs. 80% correct).

In Walker et al. (1998) study of 195 severely and profoundly deaf children aged between 9 and 19 years, they found that deaf children were more accurate on literal questions than on inferential questions; however, the extent of this discrepancy depended upon reading comprehension level. Poor readers struggled more with inferential questions, but there was no difference between performance on literal and inferential questions in deaf children with average or above-average reading skill.

In contrast, Pinhas (1991) found that even relatively skilled deaf readers were slower and less accurate when answering inferential questions than answering literal questions about a text. However, although they were slower than reading-grade-matched hearing peers when answering inferential questions, the skilled deaf readers did not differ in accuracy.

Contrastingly, Kyle and Cain (2015) findings revealed that deaf children can make both local cohesion inferences and global coherence inferences when reading the text, but they are less efficient than hearing children matched for either chronological age or word-reading age. The findings further showed that deaf children's comprehension skills do not appear to be qualitatively different from that of hearing children: All three groups showed the same profile of performance across the different comprehension questions, with accuracy highest on the literal questions, followed by the local cohesion questions, and then the global coherence questions. Thus, deaf students may perform less well on reading comprehension tests than their word-reading ability would indicate they should (Mathews & O'Donnell, 2018). From

these findings it could be said that deaf students find it difficult to answer comprehension questions that involve making inferences.

2.4.1.7 Application of prior background knowledge on the target language

Background knowledge also plays a significant role in comprehending texts. Floyd and Carrell (1987) show that students who have lack of cultural knowledge about the target language, can enhance their reading comprehension ability by being taught explicitly the cultural knowledge of target language. Students can perform better if prior knowledge and topic interest is high than students whose topic interest and background knowledge are low (Carrell & Wise, 1998). The background knowledge and topic interest show a significant role in understanding the information given in texts (Brown et al., 1986; Iqbal et al., 2015).

Readers who have a large amount of prior knowledge relevant to the topic are able to answer questions better than readers with a low amount of prior knowledge, especially when it comes to inferential questions (Raphael & McKinney, 1983). Schirmer & McGoug (2005) stated that the use of prior knowledge influences the reading comprehension of individuals. It appears that many deaf or hard to hear students have limited prior knowledge, lack of skills in order to use the prior knowledge, and few chances to use prior knowledge (Trezek et al., 2010).

For instance, in a study of prior knowledge and reading comprehension ability of deaf adolescents, Jackson, Paul & Smith (1997) found that in-depth probe of previous knowledge was a better predictor of the deaf students' comprehension of the information presented in a passage.

Comprehending, learning, and remembering information during reading are markedly influenced by prior knowledge of topics and cultures those readers bring to

the texts (Jackson, et al 1997). In another study Paul (2009) found that a number of deaf students do not utilize their prior knowledge during the reading process or while answering comprehension questions. In other words, students struggle with reading comprehension because they do not possess much prior knowledge about the topics.

In the same way a study conducted by Koh (1986) to show the effects of familiar context on students' reading comprehension supports the notion that one's comprehension of a text depends on how much relevant prior knowledge the reader has about the subject matter of that particular text. He went further to suggest that students must be made conscious of what is involved in successful reading. This means they must activate their content schemata for the recreation of meaning from the text rather than focus on the word-for-word deciphering which characterizes much ESL reading material (Ahmad, 2011, p.43).

2.4.1.8 Vocabulary usage

Vocabulary, in addition to many others, is a factor which affects reading comprehension. Research has shown that there exists a very strong connection between reading vocabulary knowledge and reading comprehension ability, though the exact nature of, or mechanism for, this relationship is still being debated. It is also widely accepted that good readers have large vocabulary stock. Reading comprehension in people with hearing loss tends to be poor, owing among other language variables, to their limited vocabulary knowledge (Castillo et al., 2008). Vocabulary knowledge remains a critical component of reading comprehension while difficulties in the development of a rich vocabulary knowledge base lie in the instructional practices of educators of the deaf (Dockery, 2013, p. 38-39).

Paul and Gustafson (1991) indicated that young hearing students perform better than the deaf students (age 10 to 18 years, inclusive) in selecting multiple meanings for identical words. Different researchers suggest different amount of vocabulary for reading comprehension in L2. Laufer (1989) for example concluded that 95 percent tokens of the text should be familiar to the reader to comprehend the whole text. Nation (2001) on the other hand suggests approximately 98% as necessary for comprehension.

Daza, Phillips-Silver, Ruiz-Cuadra, and Lopez-Lopez (2014) investigated the language skills (including vocabulary) and reading comprehension in students who were deaf or hard of hearing. Their findings indicated that vocabulary knowledge may be notably significant in the area of developing reading comprehension. The findings of various studies also revealed that vocabulary knowledge of deaf students is quantitatively lower than that of their hearing peers and that this lower knowledge affects their reading comprehension skills (Walter, 1978; Paul, Stallman, and O'Rourke, 1990).

These researches show that vocabulary is an essential factor for reading comprehension of the text. If students' vocabulary is weak, they will not be able to understand or comprehend the whole meaning of any texts. Based on the above it could be said that deaf students who have problems in reading comprehension have poor or limited vocabulary.

2.4.1.9 Syntactic knowledge

Another difficulty in reading comprehension for the deaf is their inability to use syntactic knowledge. Syntactic (or grammatical) awareness refers to the ability to manipulate and reflect on the grammatical structure of language (Cain, 2007).

Syntactic awareness has been hypothesized to relate specifically to both word reading and reading comprehension (Cain, 2007). It is asserted that it aids word recognition skills by enabling a reader to use the syntactic constraints of a sentence to decode unfamiliar words (Tunmer and Hoover, 1992; Rego and Bryant, 1993) as well as aiding reading comprehension by facilitating sentence-and text-level integration and monitoring skills (Tunmer & Bowey, 1984).

The acquisition of such structural knowledge is assumed to result from repeated exposure to a speech act uttered in relation to a concrete experienced action or event (Miller, 2005). For hearing individuals, such opportunities become available from early childhood, promoting the gradual internalization of syntactic knowledge regarding the spoken language of their surroundings.

In the presence of (severe) pre-lingual hearing loss, the conditions underlying speech perception seems to put deaf individuals at risk of failure in internalizing syntactic knowledge which is crucial for proper processing of words at the sentence level (Miller, 2005). However, sentence-level comprehension is necessary to understand at the level of the paragraph and syntactic knowledge is correlated with passage comprehension (Goff, Pratt, and Ong, 2005). A review undertaken by Russell, Quigley, and Power (1976) indicated that deaf children have challenges with English syntax which is necessary in reading comprehension.

2.4.1.10 Phonological awareness

Phonological awareness is yet another challenge for deaf students in reading comprehension. Phonological awareness refers to the capacity to effectively employ correspondence between the sound structure of oral language and the alphabetic orthography of written language. Phonological awareness is part of a larger set of

‘word attack skills’ which enhance readers’ ability to comprehend text even when unknown words are presented. This very important requirement of reading comprehension is virtually absent in the Deaf.

According to Lederberg, Schick & Spencer (2013), there are two major skill sets that influence outcomes in reading-general underlying language ability, and the ability to use spoken phonological knowledge for decoding printed words. The skills involved in ‘underlying language ability’ include background knowledge, vocabulary, language structures, verbal reasoning, and literacy knowledge. The second skill set includes phonological knowledge and decoding. Trezek, Wang & Paul (2010 as cited in Mathews & O’Donnell 2018) refer to these two skill sets as processing print (for word identification and decoding) and the knowledge domain (for comprehending). These two domains or skill sets represent what is known as the Simple View of Reading (SVR), a formula originally presented by Gough and Tunmer in 1986.

This SVR formula was re-conceptualized by Rose (2006) as a broad model for understanding reading in which two teachable skills D (Decoding/ Word recognition) and LC (Language Comprehension) are placed center stage along a continuum. The SVR formula makes clear that strong reading comprehension cannot occur unless both decoding skills and language comprehension abilities are strong (Mathews and O’Donnell, 2018). Again, Hudson, Lane, & Pullen (2015) stated that a student who is incompetent to decode words correctly will be incompetent to comprehend a text. Without automaticity, a reader’s slow and choppy pace inhibits their comprehension of text.

The way a reader with poor prosody groups and expresses words causes’ confusion (Abdul Rahim et al., 2018). However, a search through a host of literature indicate that both skill-sets present problems for hearing impaired students because

many of them struggle with multiple components of literacy including word recognition (Kyle & Harris, 2010), comprehension (Luckner & Handley, 2008), reading fluency (Luckner & Urbach, 2012), morphological knowledge (Trussell & Easterbrooks, 2017).

From a study on meta-analysis on acquisition and development of literacy skills, Spencer and Marschark (2010) point to a wide range of sources showing deficits in phonological awareness, vocabulary size and syntactic knowledge among deaf pupils. Kelly (1996) cited in Spencer & Marschark (2010) demonstrated that delays in one area (e.g. syntactic knowledge) can prevent students from successfully using skills in another area (e.g. vocabulary).

Additionally, Dillon and Pisoni (2006) cited in Mathews & O'Donnell (2018) confirm that delays in one area, such as phonological skills, has been shown to correlate with lower skill level in the other major domains, such as vocabulary knowledge. From these assertions it could be said that lack of syntactic and phonology knowledge by deaf students are part of the challenges confronting them in reading comprehension.

Similarly, Harris, Terlektsi and Kyle (2017) assessed forty-one children with severe-profound pre-lingual hearing loss on single word reading, reading comprehension, English vocabulary, phonological awareness and speech reading at three time points, 1 year apart (T1– T3). Their progress was compared with that of a group of hearing children of similar nonverbal IQ, initially reading at the same level. Single word reading improved at each assessment point for the deaf children but there was no growth in reading comprehension from T2 to T3.

Also they found no differences between children with cochlear implants and those with hearing aids on either reading measure but orally educated children had

higher scores than children who signed in the classroom. English vocabulary and speech reading were the most consistent longitudinal predictors of reading for the deaf children. Phonological awareness was the most consistent longitudinal predictor for the hearing group and also a concurrent predictor of reading at T3 for both groups. The study further showed that there were many more significant correlations among the various measures for the deaf children than the hearing at both T1 and T3, suggesting that skills underpinning reading, including phonological awareness and vocabulary, are more closely related for deaf children (Harris et al 2017).

2.5 Factors that account for the deaf students' challenges in reading comprehension

From the literature it could be deduced that some of the contributing factors to the challenges of the deaf in reading comprehension are how the deaf are taught reading comprehension, the Sign language Interpreters and English language tutors.

2.5.1 Teaching deaf students reading comprehension

Some authors attributed factors accounting for the challenges of deaf students in reading comprehension to how deaf students are trained to do the reading comprehension. It is opined that sometimes teachers emphasize reading skills slowly instead of boosting the development of strategic thinking and problem solving in connection with reading. As a result, students battle with reading because of a weak foundation of first language-sign language (Abdul Rahim et al., 2018). In her review of literature, Strassman cited in Hartma, Nicolarakis & Wang (2019) revealed that

many deaf readers took a passive approach to reading because they were not taught or encouraged to become independent readers.

Poor comprehension monitoring has also been suggested as an area of deficit in hearing impaired students. In a study of reading habits among deaf and hearing college students, Marschark et al, (2012) as cited in Abdul Rahim et al, (2018) found that deaf college students were more likely to spend greater hours on reading, but they recognized fewer books and magazine titles compared to hearing college students.

2.5.2 The sign language interpreter

The sign language interpreters offer one of the most crucial supports given to deaf students is sign language interpretation. Sign language interpreting is the medium that provides deaf students access to the study of all subjects. The presence of an interpreter in the lecture hall/classroom enables deaf students to effectively get involved and actively participate in the learning/teaching environment (Fobi & Oppong, 2015).

However, research points out the sign language interpreter accounting for the challenges of deaf students in reading comprehension and learning in general. Some of the concerns raised were Sign Language interpreter's knowledge about deaf culture, personal and professional qualities of interpreters and interpreter training curriculum program among others (Oppong, Fobi, & Fobi, 2016).

2.5.2.1 Sign Language interpreter and the deaf culture

The deaf community experiences great frustration over hearing professionals refusing to accept deafness as a linguistic minority (Mccray, 2013). Deaf children

experience isolation at home and in school by parents who do not learn to sign and by teachers or interpreters who sign very little (Lane et al., 1996; Seal, 2004; Winston, 2004). Again they suffer occupational discrimination Lane, (1992). This discrimination can impact the relationship between the deaf student and the interpreter as the deaf student needs to overlook unfairness from individuals with hearing. In order for the working relationship to be successful, there has to be mutual respect and trust between the deaf student and the interpreter (Ostrove & Olivia, 2010). Interactions between hearing and deaf individuals are packed with power dynamics due to auditory deficiencies and linguistic differences (Mccray, 2013).

Most interpreters are hearing and as such are members of the majority culture and not native ASL users (Taylor, 1990). They must be able to make appropriate cultural adjustments that lead to accurate and reliable interpretations in the target language (Witter-Merithew et al., 2004). Accuracy in interpretation requires an intercultural awareness (Ontario Ministry of Education and Training, 1998a) and the ability to establish rapport with a wide variety of people and to understand the implications of working with various populations (Resnick & Hoza, 1990). It entails reflection and understanding of their own expectations and of the socio-cultural attitudes and structures that exist (Witter-Merithew et al., 2004).

Haug, Bontempo, Leeson and Bermeerbergen (2017) explored the perspectives of 14 deaf leaders on signed language interpreters across seven countries (Australia, Belgium, Ireland, the Netherlands, Switzerland, United Kingdom, and the United States). The results suggest that Deaf leaders share similar but not identical, perspectives about working with interpreters, despite differing conditions that hold regarding how interpreting services are provided in their respective countries.

The findings indicate some positive trends in Deaf leaders' experience with interpreters; however, results also point to a need for further work in creating an atmosphere of trust, enhancing interpreters' language fluency, and developing mutual collaboration between Deaf leaders and signed language interpreters.

Likewise, McDermid (2008) found that an understanding of deaf culture, ethical behavior, community involvement and willingness to pursue lifelong learning are important concepts that students who are training to become interpreters must learn. Thus, the implementation of trans-cultural methods to narrow the cultural gaps between the interpreter and deaf students is very crucial.

2.5.2.2 Training and professional development of the sign language interpreter

Researchers are concerned about the professional training and development of the sign language interpreter (Napier, 2004; Yager, 2004; de Wit & Sluis, 2014; Fobi, & Fobi, 2016; Amoako, 2019; Krause & Murray, 2019; Oppong,). According to Amoako (2019), Ghana lacks national policy document on deaf education. Consequently, there are no legal principles that guide the recruitment of teachers into schools for the deaf. Therefore, teachers who are not skilled in Ghanaian Sign Language (GhSL) or who have no training in special or deaf education are often posted to schools for the deaf. Such staff postings negatively affect the quality of teaching because sign language is the official medium of communication used in the schools for the deaf in Ghana.

Again, it has been argued that the teaching and learning of sign language has not been made part of the standard curriculum for education programs in Ghana. At the basic level, most teachers in mainstream schools cannot sign (Mprah, 2013) because of the absence of sign language tuition, and the opportunity to learn it at all

levels in the education curriculum (Amoako, 2019). Likewise, at the tertiary education level, the qualification and GhSL competencies of the interpreters is a deaf education challenge (Consortium for Research in Deaf Education, 2017).

Various studies have been undertaken to investigate the training and quality of sign language interpreters' work. Opong, Fobi, & Fobi (2016) investigated the views of deaf students about quality of Sign Language interpreting services rendered them at the University of Education Winneba. The study revealed that the quality of Sign Language interpreting services was a major issue of concern to deaf students who use interpreting services in teaching and learning, and that the interpreters were not qualified enough since they did not undergo the requisite training.

Similarly, de Wit and Sluis (2014) explore the quality of sign language interpreters in the Netherlands from a deaf user perspective. The results of the study revealed that many deaf sign language users lack awareness regarding the professional requirements of the interpreter, and also many interpreters lack insight regarding the expectations of the deaf sign language use. In a similar direction, Hermans, Dijk and Christoffels (2007) as well as Sluis (2011) undertook a study to compare the quality of new graduate interpreters of a bachelor program and more experienced interpreters in the Netherlands. Their findings revealed no difference in the quality between recently graduated interpreters and more experienced interpreters.

Schick, Williams and Kupermintz (2006) evaluated approximately 2,100 educational interpreters from across the United States. The results show that approximately 60% of the interpreters evaluated had inadequate skills to provide full access. In addition, educational interpreters who had completed an Interpreter Training Program had EIPA scores only .5 of an EIPA level above those who had not, on average. In general, the study suggests that many deaf and hard-of-hearing students

receive interpreting services that will seriously hinder reasonable access to the classroom curriculum and social interaction.

Similarly, Yarger (2004) examined the experiences, preparation, and perceptions of 63 educational interpreters employed in two rural states, using surveys and subsequent in-depth interviews with selected subjects. Only 10 of the 63 interpreters had completed interpreter preparation programs, with 5 of these having no course work related to education. None of the interpreters working in elementary or secondary schools held certification from the Registry of Interpreters for the Deaf or any other certifying body. From these findings it is clear that many interpreters are not qualified to work in the educational system however, they are hired due to shortage of interpreters (Winston, 2004; Schick, Williams, & Kupermintz, 2006). This lack of quality signing skills can result in reading comprehension challenges for deaf students.

2.5.3 The English language tutor

The English language teacher has also been identified as a contributing factor to the challenges deaf students encounter in reading comprehension. This is partly due to their perceptions on deaf students and how these perception inform their choice of strategies adopted in teaching deaf students reading comprehension in addition to the teachers' training background.

2.5.3.1 English language teacher perception and selection of reading comprehension strategy

Teachers based on theories and personal experiences hold different perceptions with regard to literacy development for deaf children (Reed, 2003).

Many researchers have maintained that English instruction (including reading comprehension instruction) should be designed around the child's needs because different children have different needs with respect to recognizing, decoding, and understanding various components of English reading (Trezek et al., 2010). With respect to instructional intensity and appropriate instructional timeframes, reading interventions should be differentiated according to the needs of the child based on specific reading comprehension problems he or she has demonstrated in the classroom and on formal assessments (Paul et al., 2013).

2.5.3.2 Training background of English language teacher

This study reports on the experiences of teachers of the deaf and hard-of-hearing students in a special needs high school for the deaf in Eswanti, Tanzania. Teachers reported to experience gaps in professional competencies to teach the mainstream curriculum for which they needed further education. Variation in sign language impacting learner engagement hindered teachers' communication with the deaf and hard-of-hearing students and their parents. Teachers reported to have in-service professional training needs which included collaboration, consultation, assessment instruments and language skill Mtuli (2015).

In a similar study majority of the teachers teaching deaf students in the mainstream setting in Mombasa County, Kenya were found not trained to teach such students. Yet research maintains that one requires a background in teaching deaf students so as to be useful that category of learners Operti et al, (2013) cited in Hassan, Mwangi & Maneno, (2020).

English teachers of the deaf are mostly hearing people. They work either in mainstream or special schools. Most of them have no specific qualifications. In this

context, they are faced with the tremendous challenge of how to adjust their teaching to their students' impairment and at the same time develop the latter's knowledge and skills in English. In order to analyze teaching practices in English classes, questionnaires, interviews and in-class observations in several special and mainstream schools were conducted. Findings show that different teaching strategies are used in order to make English lessons accessible to D/HH students: teachers have to adapt their teaching language and also use written and visual supports to accommodate D/HH students. Obviously teacher training needs to be improved (Mtuli, 2015; Hassan, Mwangi & Maneno 2020).

2.6 Strategies that could improve reading comprehension of the deaf

Various researchers have come out with some strategies which should be adopted to teach deaf students reading and reading comprehension. Some of these strategies are centered on combining auditory information with information gained through speech reading, visual phonics and direct instruction, pre-teaching vocabulary, the use of concept maps, re-reading, and guided reading, texts with visuals aids and vocabulary instruction among others.

2.6.1 Combining auditory information with information gained through speech reading

It is asserted that deaf children are able to gain knowledge about speech sounds through combining auditory information with information gained through speech reading (Kyle & Harris, 2010). Encouraging children to look at the way sounds are made on the lips - perhaps with the additional information that can be

provided by visual phonics (Trezek, Wang, Woods, Gampp, & Paul, 2007; Narr, 2008).

2.6.2 Visual phonics and direct instruction

There has been an increase in studies in young deaf children using visual phonics and direct instruction. Most of the results have been promising, but with the caution that most of the work has been done with children who are second graders or younger (Hempenstall, 2019). Similar to earlier research, some current studies demonstrate that deaf children learn best through explicit and direct instruction (Davenport, Alber-Morgan, Clancy, & Kranak, 2017; Douglas, & Schuele, 2015) and in meaningful contexts (Lederberg, Miller, Easterbrooks, & Connor, 2014).

Hempenstall (2019) found that direct instruction programs in comprehension, spelling, and writing have been shown to produce considerable test-score gains for deaf and hard-of-hearing high school students in self-contained classrooms. However, in order to make these programs work efficiently with deaf and hard-of-hearing students, adaptations must be made in how the programs are taught.

2.6.3 Morphological and phonological instruction

Some authors suggest that pairing phonological and morphological instruction may be a promising practice for teaching deaf students reading. Instruction in both skills rather than one skill alone may be beneficial in that deaf students need both skills to become literate (van Hoogmoed, Knoors, Schreuder, & Verhoeven, 2013). Furthermore, Direct Instruction incorporates explicit instruction, communication between the teacher and the students, and scaffolding.

Hempenstall (2019); Trezek & Malmgren (2005); Trezek & Wang (2006) investigating other uses of the Direct Instruction curricula with deaf or hard of hearing students emphasized the need to accompany phonological instruction with accommodations such visual cues.

2.6.4 Texts with visuals aids

Other studies have suggested that there are some strategies not common in regular classrooms but tailored to suit the needs of deaf students. Examples include making a screen shot of passage and then a video recording of someone using sign language to that text, adding pictures to text to help the deaf deduce meaning of text by connecting text to picture, signing the story and comprehension questions (Abdul Rahim et al., 2018).

The claim is that students' access to the text in their first language enables them to more easily comprehend the story and therefore answer the comprehension questions more successfully. With their first language being visual instead of auditory, using texts with pictures would be highly beneficial to the deaf students (Abdul Rahim et al., 2018).

Durkin (2018) asserts the ears of the hearing impaired are their eyes. As visual oriented people they depend so much on what they see. In order for them to learn or improve their reading, therefore, visual aid such as text with pictures should be used, because words cannot be presented or used in isolation, they need to be used in meaningful contexts (Durkin, 2018). In the same direction (Abdul Rahim, et al., 2018) maintain that a picture is worth a thousand words. They advocate that when it comes to reading comprehension visual display helps readers understand, organize, and remember much of the written thousand words.

A study by Abdul Rahim et al. (2018) to determine whether using text with pictures is effective to improve reading comprehension for students with hearing impairment found that text with pictures could help to improve reading comprehension for students with hearing impairment. Text with pictures motivates students with hearing impairment to read. The Sign language, their first language, being more visual, when pictures accompany the text, the comprehension is likely to be enhanced. They also have unique needs for use of such visuals as they are more accustomed to visual rather than auditory language.

Likewise, the results of Mutakhirani (2018) investigation to find out whether the use of picture with the KWL technique would improve students' reading comprehension of the hearing impaired revealed the experimental class scoring higher on the reading comprehension in post-test than their peers did in the control class. The researcher concluded that the technique was successful in improving the reading comprehension performance and recommended that the technique should be integrated into the English Syllabus specially in teaching reading comprehension.

2.6.5 The use of concept maps and boxes

Some researchers indicate that concept maps may be able to support hearing-impaired children to achieve better reading comprehension skills, by providing a means to improve their reading vocabulary as well as helping them follow sequences of ideas present in ordinary texts. The structure of concept maps may facilitate reading comprehension because the sequences of ideas and how the ideas relate are presented in a graphic format which is more accessible to deaf students because it is visual. Since concepts are not repeated in concept maps, those with hearing loss

would get less confused than they would with ordinary texts, in which anaphoric expressions are commonly used.

Furthermore, the ease to search for and include images in concept boxes offered by programs such as Concept Map Tools helps those with hearing disabilities to form mental images of concepts and visualize relationships (Cañas et al., 2004). Sequences of ideas can thus be followed more easily thereby improving comprehension of deaf students (Castillo et al., 2008).

The above gives reason to believe that concept maps can be helpful in improving reading comprehension among people with hearing impairments (Novak and Cañas, 2008). This is more especially when sometimes the deaf get lost in the course of the reading comprehension exercise and are unable to keep track of the sequence of events in the texts. In a study by Castillo et al (2008), in which they compared an ordinary reading passage with comprehension of its transcription to a concept map format, both with and without illustrations it was found that the deaf were more comfortable with transcription to a concept map format than the regular comprehension texts.

2.6.6 Pre-teaching vocabulary, re-reading, and guided reading

Bickham (2015) on trying to find strategies that could successfully support and improve reading comprehension of deaf students found that many typically reading comprehension strategies including those for struggling readers work for the deaf. Pre-teaching vocabulary, re-reading, and guided reading are successful in increasing the reading comprehension of the deaf.

2.6.7 Vocabulary instruction

Vocabulary instruction is also necessary in order to help students with hearing loss to become independent word learners (Paul, 2001). However, some vocabulary instruction techniques such as the definition-sentence approach, which consists of looking up and/or writing down word definitions, along with using words in short sentences, are limited. This type of instruction leads to only partial knowledge of the word, which is often inadequate for reaching meanings, particularly in situations in which for alternative figurative, or metaphorical meanings are involved (Paul, 2001). It is therefore, recommended that the knowledge model of instruction, a method that promotes an in-depth knowledge of words through semantic maps and other semantic elaboration techniques should be used (Castillo et al, 2008).

2.7 Summary

The chapter reviewed literature on the main issues of the study. It presented literature on the Schema theory. The theory holds that prior knowledge is very cardinal in reading comprehension because it provides a solid background to current information, incidental learning is highly useful in text interpretation but the deaf are hardly able to access it as a result of their deafness. Their reading comprehension is characterized with slowness, effortful reading, low vocabulary, lack of understanding of figurative expressions as well as reading far below grade level (Myklebust, 1960; Dockery, 2013; Bickham, 2015 & Abdul Rahim et al., 2018).

Deaf learners face multiple challenges including reading comprehension. For instance they face the task of dealing with written language they have not mastered (Ortiz, 2009), accessing incidental information to aid text interpretation (Hopper, 2019) as well as going by the general curriculum for mainstream schools (Kodiango

& Syonwene, 2018). Most of the Deaf have Sign language as their first language and they rely on it to interpret the reading comprehension passages meanwhile there are structural difference between the two languages and the differences tend to be a problem to the Deaf (Ndurumo, 1993 cited in Kodaingo & Syonwene, 2018). The comprehension questions to be answered after the reading task have also been challenging to the Deaf in that they are better with literal questions but in several instances they would be required to deal with questions that demand inferred information. However, struggling readers, which includes the deaf, are found to have problems with inferential comprehension (Walker, 1998).

Deaf readers are also said to have poor vocabulary stock and therefore operate much below the approximately 98% of the text read (Nation, 2001; Dockery, 2013). At the same time they have challenges in the acquisition and application of cultural background knowledge of the target language. In many instances, they do not possess the requisite background information for a text (Brown et al, 1986; Ahmad, 2011).

The contributing factors to the challenges are equally numerous. The deaf students tend to have weak foundation in their first language and are found to spend greater hours on reading (Abdul Rahim et al 2018; Marschark et al, 2012). Additionally, the Sign language interpreters who are supposed to be the greatest support to the deaf learners could also be a factor to the difficulties. Many of the interpreters are not well trained in the effective teaching of the Deaf (Ostrove & Olivia, 2010). The learning environment in the mainstream settings are usually not planned to accommodate deaf learners (Fobi & Oppong, 2015). The interpreters lack adequate knowledge in deaf culture because they are themselves hearing and belong to the linguistic majority (de Wit & Sluis 2014 ;).

The English language teachers were also found to be another factor to the Deaf students' challenges in reading comprehension in the sense that, many of them do not have the training in teaching the deaf. They do not have knowledge on assessment of deaf learners either (Paul et al, 2013). The teachers do not have adequate exposition in the appropriate strategies to teach the Deaf in a mainstream setting (Hussa, Mwangi & Maneno, 2020).

A variety of strategies have been tried as far as remedying reading comprehension challenges of the Deaf are concerned. As visual learners, it is asserted that adding visuals to their texts helps them deduce meaning from the texts by connecting the texts to pictures (Douglas & Schuele, 2015; Abdul Rahim et al, 2018). With the young Deaf, using Visual Phonics to teach them reading makes it possible for them to observe how the sounds are made on the lips instead of the traditional listening which they are disadvantaged in (Kyle & Harris, 2010).

Again, concept maps could be used in reading comprehension by the Deaf so that it would be easier for the learners to follow the sequencing of ideas to enhance easy comprehension of text (Novak & Canas, 2008). A combination of Morphological and Phonological instruction may well ground the Deaf in reading comprehension (Hoogmoed, Knoors, Schreuder & Verhoeven, 2013). Paul, 2001 advocates vocabulary instruction for deaf students so that they would gain independence in reading.

2.8 Conclusion

Using English in the classroom has over the years been reported by varying researches as challenging to the Deaf (Ortiz et al, 2009; Lederberg et al, 2013; Dockery, 2013). Many of the deaf have difficulty in contending with the demands of

the English language, especially Reading Comprehension. This area has also received great attention from research in and outside the nation.

Attention on reading comprehension becomes more imperative when one considers the policy of language use in the classroom. The deaf like all other Ghanaian students must by necessity perform in the English language. However, they have had to contend with series of challenges. As comprehension tends to be a requirement in understanding in materials read even in subjects other than English, the dire need to be grounded in reading comprehension cannot be an exaggeration.

Presbyterian College of Education is the pioneer in training deaf students in the College of Education, but the college's deaf students still experience abysmal performance in English Language Studies, especially reading comprehension. Though the situation is worrying, there has been no scientific study carried out about the situation towards finding measures to control the situation.

For this reason, the current research is appropriate to close the gap in literature and also offer recommendations based on its findings to inform stakeholders. It is hoped that by exploring the tenets of the schema theory and its usefulness in reading comprehension, English Language tutors of the college would be able to adjust their classroom interaction strategies to suit the comprehension needs of the deaf students.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents the methodology of the research: the research design, the research population, the sampling technique, sampling procedure, the sample and the data collection instruments.

3.1. The Research Approach

The approach of the research is the Mixed Method. The Mixed method research uses both the qualitative and quantitative approaches simultaneously to create a research outcome that turns out to be stronger than either method individually (Malina, Hanne, Nørreklit and Selto, 2011). The mixed methods designs are “procedures for collecting, analyzing, and mixing both quantitative and qualitative data in a single study or in a multiphase series of studies” (Creswell, 2012: p22).

The mixed methods approach makes for researchers to design a single research study that is able to solicit participants’ point of view to answer questions about both the complex nature of a phenomenon and also the likely relationship between measurable variables. It is generally believed that the mixed methods approach aims at “doing what works within the precepts of research to investigate, to predict, to explore, to describe, to understand the phenomenon” (Carr, 1994 cited in Williams, 2007 p70).

The core argument for a mixed methods design is that the combination of the two forms of data grants a better understanding of a research problem than what either quantitative or qualitative data would offer by itself (Creswell, 2012). Thus both numerical (quantitative) and narrative (qualitative) data are analyzed and used to

address the research question(s) defined for a particular research study (Williams, 2007). Malina et al, 2011 suggest that in many studies, using a mixed method approach provides the best opportunity for addressing research questions.

The current study engaged in an in-depth examination into the deaf students' challenges in reading comprehension. The mixed method afforded the opportunity to gather necessary data both qualitatively and quantitatively so that the outcomes of the analysis could serve complementary purposes in answering the research questions.

3.2 Research Design

A research design is “the overall strategy that a researcher chooses to integrate the different components of the study into a coherent and logical way, thereby ensuring that one will effectively address the research problem” (Williams, 2007). The collection, measurement and analyses of data is based on the particular design of the research. The design of the research is a case study.

According to Creswell (2012), in case study research, the researcher explores a “real-life contemporary bonded systems overtime through detailed in-depth data collection involving multiple sources of information” (Creswell, 2012 p97). A hallmark of case study research is the “use of multiple data sources, a strategy which also enhances data credibility” (Yin, 2003 as cited in Baxter and Jack, 2010 p. 554).

According to Baxter and Jack, (2010), unique to case study research is that, “the investigators can collect and integrate....data for the purpose of holistic understanding of the phenomenon under study” (Baxter & Jack, 2010p.554). Again, the data from the multiple sources are “converged in the analysis process rather than handled individually so that each data source is one part of the puzzle” (Baxter &

Jack, 2010p.554). The convergence promotes a better understanding of the case thereby strengthening the findings.

Although the opportunity to gather data from various sources is rigorous and therefore appealing to researchers it is not devoid of disadvantages. The management and analysis of the huge amounts of data often becomes very demanding on researchers (Baxter & Jack, 2010 p.556).

Stake 1995 (as cited in Baxter & Jack, 2010 p. 547) suggested the setting of boundaries in case studies to prevent going off tack and thus ensuring that the study remains reasonably in scope. Again, according to research, the qualitative case study makes it possible to explore a phenomenon within its context by using different kinds of data sources. “This ensures that the issue is not explored through one lens, but rather a variety of lenses which allow for multiple facets of the phenomenon to be revealed and understood” (Baxter & Jack, 2010 p 544).

The Case Study research design was chosen because the current research aimed to collect data/ solicit information from multiple sources: the deaf students, the Sign language interpreters and the English language tutors. It also aimed at investigating and reaching a holistic understanding of the phenomenon: Deaf students’ challenges in reading comprehension. This is hoped to afford the researcher and other tutors’ insights that would be useful in their practices as English language tutors in a mainstream language classroom.

3.3 The population

A population is a group of individuals who have the same characteristics. A target population (or the sampling frame) is a group of individuals (or a group of organizations) with some common defining characteristics that the researcher can

identify and study. It is from this target population, that researchers select a sample for study (Creswell, 2001).

The population of a study refers to “a large collection of individuals or objects that is the main focus of a scientific query” (academia.edu). The population is also referred to as a well-defined collection of individuals or objects known to have similar characteristics. Researches are usually undertaken for the benefit of the population of the study.

The population of a study includes the people believed to be knowledgeable about the phenomenon to be researched. There is need to use a population that relates to the problem and also the purpose of the study. Again, the population should be accessible to the researcher (Prakash,). The population of this study is the one thousand five hundred and nine (1,509) students, sixty-two tutors (62) nine (9) Sign language interpreters of the Presbyterian College of Education, Akropong- Akwapim.

The deaf students of the college were selected as part of the population of the study because they are those the researcher identified the problem with. Also the Presbyterian College of Education is currently the only College of Education in the country that trains the deaf so that is where the Deaf in College of Education can be found. Again, the researcher is a tutor in that college and has had a long teaching experience with the deaf students as far as English language and reading comprehension is concerned.

Again, the Sign language interpreters, in the educational institution, are the closest persons to the Deaf. They understand the language of the Deaf and are trained special needs educators, so they have a better exposure in issues concerning the Deaf. Therefore, apart from the students themselves, the interpreters are the most appropriate people to consult for rich information on the Deaf.

The research focused on the deaf in reading comprehension and the English language tutors apart from the Ghanaian language tutors are those who teach reading comprehension. The research included only the English language tutors because the Deaf do not read the Ghanaian languages. Again, some of the English language tutors by virtue of the classes they have taught have never experienced teaching the deaf. Thus, only the English language tutors who have experienced teaching the deaf students were involved in the study.

3.3.1 Sample

In conducting a qualitative inquiry, the sample size depends on what you want to know, the purpose of the inquiry, what is at stake, what will be useful, what will have credibility, and what can be done with reference to available time and resources (Patton, 1990). Varying views exist with reference to sample size. Some argue that as few as three is accepted whilst other authorities think thirty should be acceptable. The sample size of this research was twenty-eight made up of sixteen deaf students, seven Sign language interpreters, and five English language tutors of the Presbyterian College of Education, Akropong-Akwapim.

The population of the study is presented on the table below:

Table 3.1: Population of the study

Participants	Male	Females	Total
Deaf students	8	8	16
Sign language interpreters	4	3	7
English language Tutors	3	2	5
Total number of participants	15	13	28

3.3.2 Sampling Technique

The sampling technique used in this research is the Purposeful Sampling technique. By the purposeful technique, the researcher involves people who particularly satisfy the targets of the research. In purposeful sampling, according to Creswell (2012), researchers intentionally select individuals and sites that would help them learn or understand the central issues: “we identify our participants and sites on purposeful sampling, based on places and people that can best help us understand our central phenomenon” (Creswell, 2012 p142). The standard used in choosing participants and sites is whether they are “information rich”. A case is information-rich when one can learn a great deal of information about the “issues of central importance to the purpose of the research” (Patton, 1990, p. 169).

Thus the sampled participants were all purposefully selected because they were believed to fit the demands of the research as they are ‘information rich’ in the deaf students’ challenges in reading comprehension. The student participants were all deaf. All the students attended Special schools until they enrolled in the college. Also, all of them studied English language and wrote the English language paper in the various examinations. Therefore, they had similar characteristics and experiences at least in relation to reading comprehension in English language. Again out of the sixty-five (65) academic staff, only the seven Sign language interpreters and the five English language tutors with experience in teaching the deaf participated in the study.

Research recommends that to get very salient information, the setting or context must be deliberately and purposefully selected. Thus random choices do not apply because that would mean reliance on luck to see what the research is interested in. Also instead of the “average”, experts or those rich in experience should be

targeted else “the characteristics of the phenomena are diluted and less evident” (Atieno, 2009 p.16).

Among the interpreters one holds an M.Phil. Special Education and a P.H.D. candidate, one has M.A. Health Science, two hold M.A. Guidance and Counseling, and three have B.Ed. Special Education and are at different levels of M.Phil Special Education. Each of them has more than six years’ experience in Sign language interpretation. The interpreters were selected because they are the persons with closest contact with the Deaf of the college. They have very rich experience and are well informed and resourced in issues particularly relating to the deaf students of the college.

With the English language tutors, one holds an MPhil, in English, the remaining four hold M.A. TESL and are all pursuing MPhil programs. Those that participated in the study as indicated earlier have either taught or are presently teaching the Deaf. Their experience in teaching the Deaf ranges from two to eight years. These English language tutors are rich in information on the Deaf participation in reading comprehension.

The above categories of participants were purposefully sampled for the study because they were the people that had information and experiences that were very needful for the research. As indicated by research, the groups of people sampled should be those who are within the context and site and can also best help the investigation (Creswell, 2012).

3.3.3 The sampling procedure

The Sign language interpreters, and the English language tutors were engaged in a discussion to be pre-informed of the pending questioning and interview. The

researcher via a WhatsApp platform asked the English language tutors who have taught the deaf for at least two years to indicate so by raising their hands and those in the category responded by doing that. They were then informed on the research topic and the need to solicit information from them. An agreement was reached with them with regard to the schedules for the interviews. Each person was given a different day and time depending on their personal schedules.

Also the Head of Department of the Education department and the Unit Head of the Special Education Unit were both consulted for information on the Sign language interpreters. The deaf students in level hundred and two hundred through the support of an interpreter were also engaged in a pre-informing discussion. The level three hundred group was also engaged in preparatory discussions at the college's Resource Center for the special needs students. All engagements with the students were done with the assistance of an interpreter.

The level three hundred group was also engaged in preparatory discussions at the college's Resource Center for the special needs students. This category of students was on the School Attachment Program so permission was sought from the Supported Teaching in School coordinator. Then verbal permission was sought from the head teachers of their practicing schools: Mampong and the Koforidua Schools for the Deaf.

Researchers must seek permission from the authorities concerned before they can have access to a research site. In this study permission was sought from the Principal of the college and all appropriate authorities (Creswell, 2001).

All the deaf students of the college participated in the study because even though they may have varying degrees of deafness, all of them partook in the English language lessons via the Sign language interpreters. Again each of them, it was

estimated, would have one difficulty or another as far as Reading Comprehension is concerned. Also, it had been observed that none of the deaf students had an appreciable grade in English Language.

Again, all the seven Sign language interpreters were involved because they were the persons always present with the deaf students in the language classroom. They were the ones through whom the deaf students asked or answered questions on reading comprehension during lessons. They were deemed the people who could give the needed information as far the deaf students of the college were concerned. They were, the tutors closest to the deaf students and had first-hand information on their peculiar challenges. Apart from this, their assistance was indispensable in all the engagements with the deaf students.

3.4 The data collection instrument

The research instrument is the tool by which data is gathered for a research (Creswell, 2012). In order to obtain adequate information for this study, data was collected using a questionnaire, interviews and test. The deaf students, the tutors and the Sign language interpreters were interviewed. In addition, a questionnaire and a test on Reading Comprehension were administered to the students.

According to Creswell, (2012), it is better to let the instrument allow the participants to share their views relatively unconstrained. Again it is helpful to collect extensive data though it may take long to do so. In line with Creswell (2012)'s suggestion therefore, different instruments were used to collect data for this research and at the same time participants could share their views without constraints. For the same reason, there were open-ended questions at the end of the questionnaire because

open-ended response to a question allows the participant to create the options for responding.

3.4.1 Interview

A qualitative interview occurs when researchers ask one or more participants general, open-ended questions and record their answers after which the researcher transcribes and the data for analysis (Creswell, 2012).

Some advantages are that they provide useful information when you cannot directly observe participants, and they permit participants to describe detailed personal information. The interviewer also has better control over the types of information received, because the interviewer can ask specific questions to elicit this information.

In a survey interview, there is “a conversation between interviewer and respondent with the purpose of eliciting certain information from the respondent” (Moser & Kalton 1971 p. 271 cited in Bell, 2006 p.157). A major advantage of the interview is that it can be adapted and the interviewer can follow up ideas, probe responses and investigate motives and feelings, which the questionnaire can never do” (Bell, 2006 p. 157). The way in which a response is made (the tone of voice, facial expression, hesitation, etc.) can provide information that a written response may not reveal (Bell, 2006). The interview as an instrument was chosen with the hope of accessing relevant information critical to the research.

3.4.2 Focus Group Interviews

A focus group interview is the process of collecting data by interviewing a group of people. Focus groups can be used to collect shared understanding from

several individuals. In such an instance, the members of the group give responses to the questions posed by the researcher on a phenomenon in an interactive manner (Creswell, 2012).

According to Creswell, 2012, when a researcher has limited time on hand, it is better to use the focus group interview. Again, when the interaction among the members will likely yield the desired information and when interviewees are similar to and cooperative with each other, the focus group discussion is the better option.

Despite the high chances of probable difficulties in the management of turn taking in focus group interview, it was deemed an appropriate tool as the participants' interaction was important in the data. In addition, the time of the data collection was during the End of Semester Examinations and students were extremely conscious of time conservation. Thus, one could not interfere with students' time management plans so individual engagements was not feasible.

3.4.3 Test

Tests are “commonly used in quantitative research to measure attitudes personality, self-perceptions, aptitudes and performance of research participants” (SAGE p 182). When used, tests make possible to assess students' achievement, evaluate teachers' teaching methods as well as other curricular programs of schools. Research points that if relevant test is already available that measures the variables of the research interest, then that test should be seriously considered for use (SAGEp182).

The current research used test as a data collecting tool with the aim of getting first hand on-the- ground information on issues on the challenges of the deaf students with regards to Reading Comprehension.

3.4.4 Questionnaire

A questionnaire is a “self-report data collection instrument filled out by research participants” (SAGE p183) as part of a research study. By it, information on the thoughts, feelings attitudes, values, beliefs, perceptions, personalities and behavioral intentions of research participants are obtained (SAGE p183). The questionnaire gathers written data which respondents are required to provide based on clearly defined questions (JBS International, Inc 2007p2).

A likely problem with questionnaires is the difficulty to maintain specific and general questions and also ensuring that vital issues are not overlooked. However, the current research used it to collect data because it sought respondents’ written data on thoughts and perceptions on their challenges in English reading comprehension. Again there was need for soliciting both closed-ended and open-ended responses from participants.

3.5 Data Analysis

This research used the mixed-method approach and as a result, numerical statistical data were employed in the analysis of the quantitative data which were descriptively analyzed for frequency of occurrence (Creswell, 2012). The IBM’s SPSS version 20.0 was used to process the quantitative data collected. The interview sessions were recorded and transcribed. The transcribed records were thematically analyzed, looking for trends in their responses. Codes were assigned to the data gathered for organized discussions.

3.6 Validity and Reliability

Validity and reliability are critical elements of any research study; however, there has been much discussion among qualitative and quantitative researchers regarding these concepts. For example, Johnson & Christensen (2004) suggest that one potential threat to validity is *researcher bias*, which is the fact that researchers tend to find what they want to find and write up their results. In this study, there was active engagement in critical self-reflection about potential biases. Strategies that were engaged to maintain validity and reliability of this research included interpretive validation and internal validation in which case verbatim quotations were used to support the discussion as per Johnson & Christensen, (2004) in order to get accurate interpretive validity, a researcher has to get inside the heads of the participants, look through their eyes, see and feel what they see and feel. Further, to ensure internal validity, a multiple approach was used wherein questionnaire, interview focus group discussion were all adopted to create a balanced feedback.

3.7 Ethical considerations

Permission was duly sought from the appropriate authorities in order to have access to the deaf students, the English language tutors, the Sign language interpreters (Creswell, 2001). The purposeful sampling targets a population that the researcher identifies them with the needed information (Patton, 1990). The instrument should be flexible enough so that participants will not be stressed in the process of sharing information. Again the use of multiple data is a better alternative hence questionnaire, interview, focus group discussion were all employed in the data collection process: interview to allow for more probing (Moser & Kalton 1971 cited in Bell, 2006),

3.8 Summary

In this chapter the details of the research methodology used for the research was presented. It entailed the approach, the design, the population, the sampling technique and procedure as well as the sample. It also contained the data collection instruments used in carrying out the research.

The various instruments tend to be complementary in the sense that the researcher could build up the information obtained through one instrument with that which is obtained from another (Atieno, 2009). The population of a study is a group of people who the researcher see as useful to the study in terms of reaching rich information that would lead to strong source of data (Creswell, 2001). The population of a study includes the people believed to be knowledgeable about the phenomenon to be researched,

To decide on the sample size of the research population, one has to be guided by the purpose of the study, what is at stake, the usefulness of that sample size, credibility of that sample, availability of time and what the researcher seeks to know (Patton, 1990).

The focus group interview was used as it was deemed to generate a more fruitful interaction among the deaf students which was hoped would lead to the sharing of detailed information (Creswell, 2012). A test was administered in order to gather on the ground information on the students' participation in reading comprehension. The questionnaires gathered students' independent responses.

3.9 Conclusion

Research conduction requires comprehensive planning (Patton, 1990). Different researches require different methodologies and different approaches. The

information gathered so far point that the methodology of a particular research depends on many factors including the purpose, the research question(s), the site etc. It also points out the real need for scrutiny in the selection of a suitable methodology for a particular study

Multiple data source is preferable as they help to build a strong research. Flexibility in data collection is more likely to bring the desired details.



CHAPTER FOUR

DISCUSSION AND RESULTS

4.0 Introduction

This current study set out to find the challenges of Presbyterian College of Education deaf students in working reading comprehension questions, to investigate the contributing factors to the challenges and to find out strategies that could help to curb the challenges. This chapter therefore presents the results obtained from the data analysis.

4.1 The challenges of Presbyterian College of Education deaf students in working reading comprehension questions.

From the eleven- item questionnaire that sought information on the first objective, four themes emerged:

- Use of incidental information and cultural background of the targeted language.
- Using Sign language to interpret text.
- Vocabulary usage.
- Answering of comprehension questions.

The data on the first theme 'Use of incidental information and cultural background knowledge of the target language' were gathered through questionnaire, focus group discussion and interview. The deaf students responded to the questionnaire after which they were engaged in a focus group discussion. The Sign language interpreters and the English language tutors however partook in the interview only.

The respondents used a Likert scale of 1-5 where 1 is strongly agree, 2 is agree, 3 is neutral, 4 is disagree and 5 is strongly disagree to rate the various items under each theme. . The various responses are presented in tables and descriptions below:

4.1.1 Use of incidental information and cultural background of the targeted language.

The table below presents the responses of the deaf students to the various items on the questionnaire administered to solicit their views/ideas on the issues being researched into.

Table 4.1: Statistics on reduced transformed variable on the use of incidental information and cultural background

Statistics	Value
N	16
Mean	4.25
Median	4.50
Mode	4.50
Std Deviation	1.91

The respondents were asked about their challenges in accessing and using incidental information and background knowledge of the target language in their reading comprehension. From the table 4.1 above, all the sixteen (M=4.25, SD=1.91) students responded to the items that made up the theme. Thus, the deaf students disagreed that they were able to access and use incidental information and cultural background knowledge of the target language in their reading comprehension activities. The English language tutors were also interviewed on the reading

comprehension challenges of the deaf students. They (2) said the Deaf have difficulty in connecting their prior knowledge or schemata to the content of the text being read though the ability to do so is vital in reading comprehension. From the interview with the Sign language interpreters, three (3) of them indicated that the deaf are challenged with accessing and using incidental information for reading comprehension. According to an interpreter, “*the deaf in many instances lack incidental learning yet this would be very useful in answering the questions*”.

The English language tutors as well as the Sign language interpreters agree with the deaf students that this category of students are indeed challenged in the access and use of incidental information and cultural background knowledge of the target language.

The responses/ratings of the individual items.

Table 4.1.1: Statistics on the use of incidental information and cultural background of the target language

Statistics	I have adequate prior knowledge which helps me interpret passages.	I am able to use information from the environment to interpret comprehension passages.	I am able to relate content of passages to my own world view/experiences.
N	16	16	16
Mean	4.06	3.69	4.50
Median	4.50	4.00	5.00
Mode	5	4	5
Std. Deviation	1.289	1.195	1.033

From the table 4.1.1 above, the Deaf found it more challenging to relate what they read to what they already know or have experienced hence they strongly disagreed to the assertion.

4.1.2 Using Sign Language to interpret text

On the theme ‘Using Sign language to interpret text’ the students were asked to indicate their agreement or otherwise with respect to interpreting the comprehension text via Sign language. The table below presents the responses of the deaf students to the items on the questionnaire administered to them.

Table 4.2: Statistics on reduced transformed variable on the theme using Sign language to interpret text.

Statistics	Value
N	16
Mean	4.68
Median	4.5
Mode	4.5
Std Deviation	1.45

The table 4.2 above presents the responses with respect to the theme, ‘using Sign language to interpret text’. It can be observed from the table that $M=4.68$ which is strongly disagree and the $SD=1.45$ supports the rating. Thus, the deaf students strongly disagreed that when they read the comprehension texts, their competence in Sign language helps them to understand the content of the texts. The English language tutors indicated that the deaf students’ participation in reading comprehension was not strong. One tutor further explained that usually the contributions given by the deaf students have gaps in terms of “*grammar, vocabulary, and comprehension of what*

they have read'. Another tutor explained that, *'because they are limited, they don't speak with us always. They only have the opportunity to learn from whatever passage they are reading through the interpreters and by Sign language so these ones neither have full language nor the continuous flow of the language'*. Most of the participants of the research were of the view that the deaf students' Sign language competence did not reflect competence in the English language and therefore not helpful in reading comprehension. The Sign language has its own structures in terms of Syntax, phonology, Morphology etc that distinguishes it from the English language (Paul et al., 2013). They added that they tend not to fully understand the content of the passages written in the Standard English language as their Sign language competence often does not guarantee ability in the English language.

Table 4.2.1 Statistics on using sign language to interpret text

Statistics	My sign language competence enables me to answer reading comprehension questions	The structure of sign language helps me to interpret passages.
N	16	16
Mean	4.44	4.25
Median	4.00	5.00
Mode	4	5
Std. Deviation	.512	1.183

Despite the general knowledge that there is structural difference between the English language and Sign language, the data above indicate that the deaf students rated 'My Sign language competence enables me to answer reading comprehension questions' higher on the disagree table. Arguably, due to some pertinent differences between the two languages, sign language does not necessarily guarantee appreciable

performance in English language and reading comprehension specifically (Paul, 2009).

The next theme with regard to the challenges faced by the deaf students in reading comprehension is vocabulary usage. From the interviews and responses to the questionnaires it came out that vocabulary was a very serious issue in reading comprehension by the Deaf. The table below has the details of the students' responses to the items on vocabulary use.

4.1.3 Vocabulary usage

Table 4.3: Reduced transformed variable on vocabulary

Statistics	Value
N	16
Mean	4.12
Median	4.5
Mode	4.5
Std deviation	1.58

The issue of vocabulary is paramount in reading comprehension as the main business of reading comprehension anchors on vocabulary knowledge. Any lack in that direction therefore has serious consequences (Dockery, 2013). In contrast to the expected, the deaf students do not seem to have good vocabulary stock and therefore disagreed that they were well endowed with the amounts of vocabulary required to help them in reading comprehension. The $M=4.12$ and the supporting $SD=1.58$ indicate the students' disagreement to the assertion that vocabulary usage in reading comprehension was unproblematic to them. Again the deaf students reiterated during the focus group discussion that they had limited vocabulary and had difficulties in

making the little vocabulary they possess come to bear in their reading comprehension. The English language tutors agreed with the deaf students in this regard. Many of them (3) were of the view that the deaf were quite limited in terms of vocabulary and comprehension in general. One tutor indicated that *“looking at them, they are limited in a way the hearing is not. I am saying this because the deaf do not have the horizon of a combination of items that will help them at times”*.

To one tutor, the Deaf are hardly able to learn from different audio sources. The Sign Language interpreters' sharing views on the different challenges of the Deaf in reading comprehension maintained that vocabulary usage was a problem those students experienced. One further explained that *“as visual learners when they meet words or expressions that have not been met previously, they find it difficult to assign meanings to them”*. In that case the whole exercise of reading comprehension becomes challenging to them. An example was cited by one that *“because the deaf students have low vocabulary levels, they find it difficult to provide appropriate explanations for words selected to be explained”*. Two students stated during the interview that unfamiliar words posed problems to them. An interpreter added, *“even the presence of some words makes understanding difficult and once that happens, it takes them off the reading”*.

4.1.4 Answering of comprehension questions

The forth theme under the first objective is ‘Answering of comprehension questions’. In English language papers, students are required to answer questions on passages read. The students are obliged to answer all the questions as there are no alternatives. However, certain aspects of the questions tend to be problematic to students especially the Deaf. (Abdul Rahim et al, 2018). This research therefore saw it

necessary to find the deaf students' challenges in answering of the questions on the reading comprehension texts.

Table 4.4 Statistics on transformed reduced variable on the theme deaf answering of comprehension questions

Statistics	value
N	16
Mean	4.81
Median	4.00
Mode	4.00
Std. deviation	1.14

The theme 'Answering of comprehension questions' was made up of four items: 'I am able to find synonyms of words in the passages', 'I am able to find antonyms of words in the passages', 'I am able to make meaning of the figurative expressions in the passages', 'I am able to give summary of the passages I read'. Respondents were asked to share their ideas on the challenges they have in answering the comprehension questions.

From the Table 4.4 above, the mean for the rating is 4.81 which is strongly disagree and the supporting standard deviation is 1.14. Thus, the students strongly disagreed that they had no difficulties in answering comprehension questions. This rating suggests that the deaf students have serious problems when it comes to answering the comprehension questions. Unfortunately, because the Comprehension section of the English language paper is obligatory, the deaf students have no alternatives to choose from.

The focus group discussions with the students and the interview of the Sign Language interpreters revealed that one major challenge that the Deaf face in reading

comprehension is making meaning of figurative expressions. One language tutor mentioned that “*the challenge is more with the questions that call for explanation of figurative expression used in the passages*”. The interpreters added that there are no figurative expressions in the Sign language so they are very unfamiliar to the Deaf. Even skillful Deaf readers are unable to less accurate in dealing with figurative expressions (Mathews & O’Donnell, 2018). Another added that the Deaf are not exposed to incidental learning so if at a certain point the passage they read has too many idiomatic expressions, the Deaf suffer to make sense of it.

Table 4.4.1: Statistics on items relating to the deaf answering of comprehension questions

Statistics	I am able to find synonyms of words in the passages.	I am able to find antonyms of words in the passages.	I am able to make meaning of the figurative expressions in the passages.	I am able to give summary of the passages I read.
N	16	16	16	16
Mean	4.25	3.81	4.44	3.31
Median	4.50	4.00	5.00	4.00
Mode	5	5	5	5
Std. Deviation	1.065	1.276	.814	1.580

From the table 4.4.1 above, the kind of questions on comprehension texts that are challenging to the Deaf are presented. It came out clearly from the table that ‘I am able to give summary of the passages I read’ had the least mean of 3.31. The information here reflects the assertion by one Sign language interpreter that summarizing a text is not too challenging to the Deaf because Sign language itself is

summary in nature. Giving antonyms of words in the passages also had a relatively low rating of 3.81 which is disagree though. Thus the students disagreed that they were able to find antonyms of the selected words in the passage without struggles.

The same table shows that working out meaning of figurative expressions was the greatest challenge to the Deaf. With a mean of 4.44 and a supporting standard deviation of .814, the data tells that the Deaf of P.C.E. have been contending with the challenge of explaining figurative expressions. A Sign language interpreter cited explaining figurative expressions as a very big challenge to the Deaf with the explanation that there are no figurative expressions in sign language. The Deaf use direct language so figurative language/expressions are very unfamiliar to them. Therefore, if they have to deal with such expressions in reading comprehension, those questions prove to be very challenging. Sometimes they even assign literal meanings to the figurative expressions. What is found here was confirmed by the students' performance in the test which showed that only three (18.75%) of them were able to get the correct answer to the questions on figurative expressions. Indeed, the data available points that understanding non-literal expressions is one very challenging task to the Deaf. (Evidence of students' test found in appendix V)

Discussion on the challenges that deaf students of P.C.E. face in English reading Comprehension

To this question the research found that the deaf students were faced with numerous challenges as far as reading comprehension was concerned. The prominent ones were use of incidental information and cultural background of the targeted language, using Sign language to interpret text, vocabulary usage and answering of the comprehension questions.

With a mean of 4.25 a supporting standard deviation of 1.91 the deaf students disagreed that they were able to access and use incidental information and cultural background knowledge of the target language in their reading comprehension activities. This assertion was confirmed by the English language tutors who also indicated in their interview that the students exhibited lack of use of incidental information in their reading comprehension lessons. Again from the Sign language interpreters the Deaf are greatly challenged in accessing and use of incidental information and background knowledge of the target language. *“The deaf in many instances lack incidental learning which could help them form the strong background needed in answering the questions”*.

The finding here agrees with Dockery, 2013’s claim that the Deaf rather have limited stock of gathered prior knowledge or schemata to link what they read. However, such knowledge helps very much in text interpretation in reading comprehension (Dockery, 2013). Research report asserts that deaf people lack incidental information, they lack a huge amount of information present in the environment essential for interpreting text: media broadcast, family, other children at school, conversations. (Dockery, 2013). Other studies indicate that to allocate meaning to texts, readers depend on previously kept knowledge, the domain and specific knowledge about different text structure and types (Kamhi & Catts, 2012).

The findings clearly indicate that the situation of the deaf students of PCE is disturbing especially where they have very little incidental learning and schemata. Incidental learning could be achieved by accessing unintended/undirected information through conversation, eavesdropping, from songs and various communication mediums. Children acquire and develop their incidental information/prior knowledge even before they enter school and begin to learn to read officially (Jackson et al.,

1997; Ozuru et al., 2009). As a result, understanding the factors that affect such information is necessary to facilitate learning for students, who often build their new knowledge based on what they already know and understand through their formal and informal experiences. This is equally important for teachers to understand so they can use effective instruction that associates deaf students' incidental information/prior knowledge to learning new content. According to Mayer & Trezek, (2015), a number of factors influence Deaf students' prior knowledge, foremost of which is hearing loss, which may prevent them from learning indirectly through daily interactions, such as engaging in oral conversation with others, engaging with the media, and reading independently. It is difficult for deaf students to learn indirectly because of their hearing loss and limited exposure to spoken language according to Sarchet et al., (2014).

Also indicated in the literature is the presence or absence of family members more especially those who are themselves deaf. The focus here is on adequate exposure as well as meaningful interaction between and among family members as it is believed that such interactions promote the acquisition of incidental information/prior knowledge especially where these members know and use the Sign language effectively. Anything short of the forgone renders the deaf limited in academic endeavor because the deaf persons miss most of the education that goes on whilst they look down on their paper/book Oliva (2012). The Deaf are unable to access information that is not directed at them. "Ultimately, if a student never has access to certain information, be it academic facts or social pragmatics, he or she cannot learn that information" (Lawson, 2012 p. 3). Meanwhile the particular information might be very useful in one way or the other yet the deaf students would be denied it.

The findings include lack of incidental information by the deaf, which means lack of information present in the environment and therefore huge amounts of essentials for interpreting text: media broadcast, family, other students at school, conversations in relation to the above assertion, they are not able to link what they read to prior knowledge or schemata, something that is supposed to be necessary in text interpretation in reading comprehension (Ortiz et al 2009).

Relating to the first research question: What are the challenges faced by Presbyterian College of education deaf students in working Reading comprehension?, it became clear that the deaf students of Presbyterian College of Education do not have Schemata, that they lacked adequate vocabulary, and again that they had no knowledge in figurative expression and essentially do not have the natural flow of language thereby making it difficult for them comprehend text. The implication then is that Deaf students need to be explicitly exposed to incidental information for them to build their schemata. They also need to be given a head start in vocabulary learning and grammar so that they may gather enough to aid their comprehension. The conclusion then is that, English teachers of the deaf must go all out to support their students in the areas where they have deficits so that they may overcome them.

4.2 Data on the contributing factors to the challenges.

From the fourteen-itemed questionnaire that sought information on the second objective, five themes emerged:

- Deafness.
- Communication with the larger community.
- The nature of academic materials available to students.
- Language tutor factor.

- Sign language interpreter factor.

4.2.1 Deafness

The first theme analyzed is Deafness. The research sought to find the contribution of the students' deafness as a factor to their challenges in reading comprehension. Two items, 'My deafness makes it difficult for me to interpret comprehension passages' and 'My deafness makes it difficult for me to access incidental information' on the questionnaire gathered data on deafness as a factor to the challenges. The Sign language interpreters and the English language tutors however partook in the interview only. The various responses are presented in tables and graphs and descriptions below:

Table 4.5: Results on reduced transformed variables on deafness as a theme

Statistics	value
N	16
Mean	1.85
Median	2.00
Mode	2.00
Std Deviation	1.55

With a mean of (1.85) and a standard deviation of 1.55, it was evidenced that the deaf students saw deafness to contribute to the difficulties they faced in reading comprehension. This finding is in agreement with findings of other researches on difficulties of the Deaf students when dealing with reading comprehension. At the interview, a tutor maintained that, the students' deafness hinders their capacities in reading comprehension: "*the Deaf are hardly able to learn from different audio sources to add to what they get directly from the texts*". Another tutor attributed the

students' challenges to the students' deafness denying them the needed verbal language experience. The Sign language interpreters also mentioned that because the students are deaf, they are slow at internalizing the syntactic knowledge relating to spoken language within their environment. Two of the interpreters indicated that the deaf, by being deaf, are slow at grabbing the concept in reading comprehension because they start with a rather weak foundation in the Sign language.

Table 4.5.1 Statistics on the two variables on the theme “deafness”

Statistics	My deafness makes it difficult for me to interpret comprehension passages.	My deafness makes it difficult for me to access incidental information.
N	16	16
Mean	1.81	1.85
Median	1.00	1.50
Mode	1	1
Std. Deviation	1.328	1.065

Out of the sixteen students, nine (56.25%) strongly agreed that their deafness was a factor to their reading comprehension challenges, five (31.25%) agreed, two (12.5%) strongly disagreed. None of the respondent was neutral. For the second item under the Deafness as a factor, eight (50%) respondents strongly agreed, six (37.5) agreed, one (6.25%) strongly disagreed whilst another one (6.25%) remained neutral. Thus the Majority (87.5%) of the respondents agreed that deafness hindered them from accessing information within the environment Thus, deafness was indeed a factor to their reading comprehension challenges. In many instances the texts read are reflective of the day-to-day activities of the hearing. The content is mostly

inconsiderate of Deaf peculiar issues and culture. Therefore, the deaf students are more or less unable to identify with the passages they read and the information they contain are far removed from the students. Similarly, (Otiato, Kithure & Osong 2007 cited in Kodiango & Syonwene, 2018), maintain that a child who is hearing impaired will not hear sounds. They are unable to pick from the oral information around them and this tends to hinder them from and words from efficient interpretation of the texts available.

4.2.2 Communication with the larger community

People who live in a community are expected to engage in constant and regular communication during their interactions. However, the Deaf do not always find themselves in Deaf communities. Many of the Deaf live in communities densely populated by people who are not deaf. With the knowledge that incidental information whether gathered formally or informally can be highly useful in reading comprehension, the question sought to find how communication with the larger community in which the deaf students found themselves was a factor to their reading comprehension challenges. The data gathered is presented in the table 4.6 below.

Table 4.6: Reduced transformed variables on communicating with the larger community

Statistics	Value
Mean	4.69
Median	4.75
Mode	5.00
Std deviation	1.74

Majority of the non-deaf lack competence in sign language. For this reason, when they have to communicate with the Deaf, they resort to using ‘improvised’ signs which the Deaf find very difficult to comprehend. In the same direction, the Deaf are unable to engage in effective communication with the non-deaf they encounter in their communities.

Table 4.6.1: Statistics on the response on the variables related to communication with the larger community

Statistics	The majority of the people in my community are able to communicate with me.	I am able to make meaning of what the people in my community communicate to me.
N	16	16
Mean	4.63	4.06
Median	5.00	4.50
Mode	5	5
Std. Deviation	.619	1.289

The Table 4.6.1 above shows that of the two items that make the theme, ‘The majority of the people in my community are able to communicate with me’ received the higher mean of 4.65 which is strongly disagree. The standard deviation of .619 is in support of the mean. Also the data indicate that many of the hearing people in the community where the deaf students found themselves were unable to engage in any meaningful communication with them. Indeed, a cursory look at the situation in P.C.E. points that apart from the Sign language interpreters and a few students who are learning the signing, these deaf students hardly experience any meaningful interactions with the other people in the community.

4.2.3 The nature of academic materials available to deaf students.

Another theme considered was ‘the nature of academic materials available to deaf students’. Like all other students, the Deaf are expected to consult different academic resources in their studies. These are deaf students who find themselves in a mainstream institution and with the general assertion that the Deaf have had to grapple with the issues of difficulty in accessing academic materials suitable to their peculiar needs, this research sought to ascertain the kind of academic materials available to the deaf students of PCE. Participants were asked to indicate whether the kind of academic materials used to teach them reading comprehension was a factor to their challenges in that aspect of the English language. Three items on the questionnaire addressed the theme: ‘Reading comprehension passages are written in Sign language’, ‘There are separate academic materials for the deaf’ and ‘Reading comprehension questions are set in Sign language’. The table below shows the details.

Table 4.7: Availability of academic material to the Deaf with the reduced transformed variables

Statistics	value
N	16
Mean	4.40
Median	4.30
Mode	4.00
Std Deviation	1.25

The Table 4.7 shows the data on the theme ‘The nature of academic materials available to the Deaf as factor to the deaf students’ challenges in reading comprehension. With $M= 4.40$, and $SD=1.25$, the students disagreed that the academic materials available for reading comprehension was suitable to them. The

English language tutors also revealed during their interview that indeed the materials/texts used for reading comprehension were for general use. They did not have texts that were specially designed to suit the Deaf. They observed that the deaf students showed willingness to participate in reading comprehension but that did not reflect understanding of the content. From a tutor: *“on countless occasions, the deaf students have displayed misunderstanding of the passages we have used for comprehension exercises. Certain punctuation marks that will tell you what to do at what time, they don’t have a grasp of those items very much. So they end up answering the questions wrongly and we think it is because they might not have understood the passage very well following whatever thing they may be lacking that might have helped them to understand”*.

Similarly, the interpreters indicated that the materials/texts for reading comprehension have not been the type that are suitable to the Deaf. According to two interpreters, the deaf only learn by sight by which reason they require passages that have visuals. One added that *“from observation, texts read by the students at this level of education hardly have any visuals in them”*. Again, the students themselves during the focus group discussion mentioned that the materials used for English lessons and reading comprehension specifically did not help them. Two of the students consequently asked for the use of Sign language written texts. One mentioned that *“teachers must use sign language to write comprehension passages”*.

The table below show the individual items’ contribution to the ratings of the theme.

Table 4.7.1: Statistics on the availability of academic materials

Statistics	The reading comprehension passages we use are written in Sign language.	Reading comprehension questions are set in Sign language.	There are separate academic materials for the deaf.
N	16	16	16
Mean	4.44	4.13	4.56
Median	5.00	4.00	5.00
Mode	5	5	5
Std. Deviation	.814	1.088	.629

The table above shows the means for the three items making the theme Deafness as 4.44, 4.13 and 4.56. The statistical figures indicate that the most contributing item was ‘there are separate academic materials for the Deaf’. The 4.56 which is strongly disagree highlights the existing situation/practice in the college where there are no specially generated/prepared teaching learning materials that specifically satisfy the learning needs of the Deaf. The mean of the first item was 4.44 and the standard deviation was .814 to indicate respondents’ disagreement that during reading comprehension lessons, the texts they read are written in Sign language.

With regards to the Deaf accessing academic materials other than what the hearing students use, the respondents did not agree. With a mean of 4.56, they strongly disagreed to the statement. The standard deviation of .629 supports the mean. According to Lane et al, (2011) “there is extensive research evidence showing that fluent ASL signers have heightened perception in the visual periphery, heightened abilities in spatial processing, and enhanced capacity for interpreting rapidly presented visual information” (p. 4). They are generally visual learners and therefore learn better when visual materials are accessible in their lessons. Thus the non-availability of deaf specific academic materials in the college is a sure setback to the

deaf students' academic endeavors. Lang, Stinson, Kavanagh, Liu, & Basile (1999, p. 17), for example, noted that “understanding the learning styles of deaf college students may assist educators in providing the most appropriate kinds of reinforcement and in devising strategies to teach their students more effectively”.

The third item for the theme under discussion had a mean of 4.13 which is disagree. Indeed, the standard deviation of 1.088 does agree with the mean to show that the students disagreed. With the general assertion that candidates' understanding of the examination questions matters in the answering of the questions, to demand questions which could be well understood by the deaf students is a right. However, the current practice is that they are given added time of half the total time allotted to the paper (Amoako, 2019). The added time is a great relief but it certainly does not address the problem of clarity of questions. Most questions on reading comprehension do not fit into the situation of the Deaf. The wording of the questions which is a major factor to its understanding is naturally set to fit the language capacity of the hearing rather than the Deaf. Thus, the Deaf are likely placed at a disadvantage by the questions themselves.

4.2.4 The English language tutor

In PCE the English language tutors who teach the regular students are the same who teach the Deaf. The research therefore sought to ascertain whether the English language tutors were a factor to the deaf students' challenges in reading comprehension.

Table 4.8: Transformed reduced variables on language tutors

Statistics	Values
Mean	4.31
Median	4.00
Mode	4.00
Std Deviation	1.88
N	16

The sixteen student respondents did not agree that the English language tutors were able to manage them very well in the mainstream classroom. As indicated per the data in the table 4.8, the $M=4.31$ and $SD =1.88$, and the ratings are indicative that the deaf students disagreed that their English language tutors are familiar with Sign Language, the English language tutors understand Deaf culture and that the Deaf understand what the tutors teach them. A student indicated during the interview that even at the Senior High School which was a Special school, they could not get much from their English language teachers because the teachers were not good at the signing. Though the Sign language interpreters sat in the various English lessons, the main information on the topics was tapped from what the tutors share.

Indeed, college records on examination results show that English language has proved to be one of the most challenging subjects to the Deaf in the college. The deaf students like the hearing are expected to actively participate in every academic endeavor but in several instances, they are observed to be lagging in this regard. More so what the data tells as it stands is that, the tutors were not knowledgeable in the peculiarities of the deaf students and the deaf culture. The tutors also lacked knowledge in Sign language. Thus they had difficulty whenever they needed to communicate with the deaf students. This inability could be a hindrance to effective relaying of vital explanations and details to the deaf students with regards to reading

comprehension. For the above reasons the language tutors teach their courses with less consideration for the Deaf. Their lack of knowledge in the Deaf culture did not help the tutors to situate their pedagogy within the parameters of the Deaf culture. In truth, the language tutors were usually found wanting when it came to issues about the Deaf. What the data in the table has presented does agree with the deaf students' assertion that they did not understand what the English language tutors teach them. It therefore does not come as a surprise that the deaf students are unable to get much from the English tutors as the tutors are not conversant with the Deaf culture and as such have difficulties in setting their lessons in that culture.

The next table shows the ratings of the individual items of the theme:

Table 4.8.1: Response on language tutors as a factor to the RC challenges

Statistics	English language tutors are familiar with sign language.	English language tutors understand deaf culture.	The deaf understand what English language tutors teach them.
N	16	16	16
Mean	4.44	4.00	4.50
Median	5.00	4.00	4.50
Mode	5	5	4
Std. Deviation	.814	1.265	.516

A critical observation at the table above 4.8.1 informs that out of the three items making the theme 'Language tutor factor', (as contributing factor to challenges of the Deaf in reading comprehension) 'English language tutors are familiar with sign language' had a mean of 4.44 and SD=.814. 'English language tutors understand deaf culture' had an M=4.00 and SD =1.265 whilst 'The deaf understand what English language tutors teach them' had M=4.50 and SD=.516. It is evident from the table that 'The deaf understand what English language tutors teach them' received the highest

rating with a mean of 4.50 and a standard deviation of .516 to indicate their strong disagreement to the statement.

4.2.5 Sign language interpreter

The Sign language interpreters are the personnel mandated to support the deaf students in their day-to-day academic activities in the college. They sit in every lesson the deaf engage in and serve as channel of flow of and exchange of information between the deaf students and all the hearing individuals they interact with. At lecture, the interpreters interpret what the tutors deliver to the deaf and interpret what the deaf says, asks or contributes to the lesson, to the tutor. There is virtually no lecture attended by the deaf without an interpreter. They are cardinal in the academic lives of the deaf students hence the need to investigate their contribution or otherwise to their reading comprehension challenges as presented in the table below.

Table 4.9: Reduced transformed variables Sign language interpreters

Statistics	Value
N	16
Mean	4.80
Median	4.25
Mode	4.00
Std deviation	1.96

From the Table 4.9 above, the deaf students have indicated that the Sign language interpreters contribute to the challenges faced in reading comprehension. With a mean of 4.80, which is strongly disagree and a supporting standard deviation of 1.96, they strongly disagreed that the interpreters and the interpretation go very well. The English language tutors also informed in the interview that some

comprehension questions demand that students think through the content of the passage and infer information to answer. Therefore, if the students are unable to get the import of the passage through the interpreter, then they would be lost. They would not be able to follow what goes on within the text. However, as the data stands, the deaf students do not seem to get as much information as they should from the interpreters.

An interview with the interpreters themselves revealed that many (4) of them felt inadequate in the interpretation: *“I think I am still in the process of becoming an interpreter”*. One went further to state that he thought the training at the university was inadequate to grant them the requisite skills to do the interpretation. He rated the training about 20% adequate. In fact, Antia and Kremeyer, (2014) cites Avery, & Hurwitz, (1989) as reporting that “few interpreter preparation programs readied students to work (as interpreters) in educational settings, although over 50% of their graduates eventually found jobs in such settings” (p.356).

The table below shows the individual items of the theme and the ratings by the students.

Table 4.9.1: Statistics on variables related to sign language interpreters

Statistics	The interpreters are conversant with reading comprehension.	The interpreters are specialized in English language.	The interpreters are able to explain reading comprehension passages to the Deaf.	The interpreters interpret and sign clearly and understandably.
N	16	16	16	16
Mean	3.88	4.56	3.88	4.50
Median	4.50	5.00	4.50	4.50
Mode	5	5	5	4
Std. Deviation	1.500	.429	1.500	.516

The various items making the theme are all very essential when it comes to collaboration with the deaf especially in reading comprehension. Research points that it would be ideal to have the interpreters well versed in the subject they interpret (Antia, Stinson, & Gaustad, 2002; Marschark, Tang, & Knoors, 2014). In that case, the interpreter would be better positioned to support the deaf students because he/she would be able to explain certain vital information to the students whenever there was need for that. From one interpreter, *“when the interpreter is well grounded in the subject, he /she is able to explain concepts very well to the students. They are able to sign using the appropriate signs for even the technical terminologies”*. Per the literature, the Sign language interpreter should pursue quality in his/her work to ensure the inclusion of deaf students at school. The interpreter should be part of a multidisciplinary teaching team and engage collaboratively with teachers to guarantee education access for the deaf students so they can have a proper understanding of the whole school curriculum, including complex disciplines such as science and biotechnology (Smith, 2008; Rumjanek et al, 2012; Flores & Rumjanek, 2015).

From the data in the table 4.10.1 above, the students disagreed to all the items making the theme. The item with the highest rating was ‘The interpreters are specialized in English language’ with a mean of 4.56 and a standard deviation of .429 that supports the disagreement.

Discussion on RQ2

4.2.1b Using Sign language to interpret text

From the ratings on the table, it can be observed that $M=4.68$ is strongly disagree with $SD=1.45$ supporting the rating. Thus, the deaf students strongly disagreed that when they read the comprehension texts, their competence in Sign

language helps them to understand the content of the texts. The language tutors also revealed at their interview that mostly, the deaf students show gaps in their understanding of what goes on during comprehension lessons because often their contributions to class interactions points to that.

The finding here is in agreement with Abdul Rahim et al, (2018) finding that their participants' struggled with reading comprehension texts and therefore administered texts with pictures as support. Indeed, sign language serves as primary language to many of the Deaf and whatever they read is interpreted through that language (Bickham, 2015). However, there seem to be some fundamental differences between the Sign language and the English language which does not promote easy understanding of texts written in English language (Humphries & Padden 1992). Sign language is conceptual and the amount of vocabulary employed is small (Cristian +s Hartman,)For instance, Sign language has many ways of combining complex meanings into a single sign but in English language each meaning would be captured in a separate word ([www.linguistic society org](http://www.linguistic.society.org)). In the comprehension texts, students are likely to meet anaphoric information which would have to be related to other parts of the text to foster coherence and better understanding but such information rather complicate the content for the Deaf.

This study found the deaf students having difficulties in comprehending the texts and the finding is in sync with Agyiri-Tettey et al., (2017) finding that their deaf student participants found it very difficult in trying to establish the linkage that could aid the synthesizing of the said text. Also they faced serious challenges when it came to reading educational materials and understanding exam questions because of their poor reading skills, limited vocabulary and their inability to comprehend complex sentences and grammar.

Sometimes, the texts may contain expressions that the Deaf are not familiar with. In this regard, the deaf students would be found wanting in both trying to make sense of what they read and handling the questions on the text. Sign language is more direct so the Deaf are not very familiar with those expressions that are 'indirect'. An interpreter indicated in the interview that *“the Deaf use direct language so figurative language/expressions are very unfamiliar to them. Therefore, if they have to deal with such in reading comprehension, they prove to be very challenging. Thus, the Deaf are not so much accustomed to figurative expressions”*.

It came out that the Deaf cannot easily interpret figurative expressions per the words they are composed with and so they get them wrongly explained. What is found here was confirmed by the students' scores in the test which show that only three (18.75%) out of the sixteen students were able to get the answer to the question that demanded an explanation of a figurative expression. Indeed, the data available point that understanding non-literal expressions is one very challenging task to the Deaf. The finding is in line with Walker (1998) which study found out that deaf students were more accurate on dealing with literal questions than on inferential questions. Ballas, (2008) however reports that students who are deaf or hard of hearing have the ability to learn, understand and incorporate figurative language into story telling. This is however premised on the idea that deaf students will be exposed to appropriate experience with language in a classroom setting. She nevertheless cautions that if this practice becomes consistent with the deaf, they end up over generalizing and always seek metaphorical interpretations of superficially unintelligible language.

4.2.2b Vocabulary usage

The available data show a mean of 4.12 and the supporting standard deviation of 1.58 to indicate the students' disagreement to the assertion that vocabulary usage in reading comprehension is unproblematic to them. Again the deaf students reiterated during the focus group discussion that they had limited vocabulary and had difficulties in making the little vocabulary they possess come to bear in their reading comprehension. Both the English language tutors and the Sign language interpreters agreed that the deaf students had woefully inadequate vocabulary and that the situation tends to impede their progress in reading comprehension.

This claim above corroborates Abdul Rahim et al (20018) finding that sometimes hearing-impaired students do not understand what they read to be able to make a distinction of the important facts and ideas from words they are reading and recognizing words that are unimportant. Probably the problem emanates from the difficulty in situating some English language expressions in the Sign language. The finding of this study again is in agreement with Kyle & Harris, (2010) that many hearing-impaired students struggle with multiple components of literacy including word recognition. From Oya, Manola and Greenwood, (2009), the deaf have problems understanding many of the words they read.

An appreciable number of reviewed literature tend to be in agreement with the students' assertion in this regard: reading comprehension in people with hearing loss tends to be poor, owing among other language variables, to their limited vocabulary knowledge (Castillo et al., 2008). Rupley & Nicholas (2005) indicate that students with problems in reading comprehension have poor or limited vocabulary. These researches show that vocabulary is an essential factor for reading

comprehension of the text. If students' vocabulary is weak, they are likely not to understand or comprehend a greater portion of the texts. However, when it comes to reading comprehension, one is likely to encounter unfamiliar words in the text and the ability to make meaning of such words would be an added advantage to the reader.

The data as it stands is disturbing as evidence from research indicates that the opposite is better. Laufer (1989) for example concluded that, if readers will understand texts they read, then they must be familiar with about ninety-five percent tokens of the text. Nation (2001) on the other hand suggests about ninety-eight percent for the same purpose. Relying on the above, one can suggest that this could explain why the Deaf find it difficult to achieve full understanding of reading comprehension texts. Also from the focus group discussion it came out that most (14) of the Deaf accepted having a rather shallow vocabulary base or low vocabulary level. This assertion was corroborated by the tutors' and the Sign language interpreters' shared views on why they think the Deaf have varying challenges in reading comprehension. An example was cited by one that *"because the deaf students have low vocabulary levels, they find it difficult to provide appropriate explanations to words selected to be explained"*. The reason is that many of the deaf students have limited vocabulary and thus have challenges in selecting from that shallow stock to explain other words. The lack of a large stock of vocabulary consequently results in the students' inability to exhibit vocabulary knowledge during reading comprehension. Reaching meaning from the words and expressions in the texts relies much on vocabulary knowledge (Dockery, 2013).

The presence of many new words came up in the focus group discussions with the students. Interview with tutors and the Sign language interpreters informed

that unfamiliar words posed problems to this category of students. When the Deaf meet words or expressions they are not familiar with, they find it difficult to assign meanings to those words because they are not able to use context clues to determine meaning. In that case the whole exercise of reading comprehension becomes challenging to them.

Vocabulary knowledge in its varied forms from receptive vocabulary knowledge to provision of in-depth meaning of words has been cited to have a strong correlation, which has led to the determination of vocabulary knowledge as a key predictor in reading comprehension performance (La Sasso & Davey 1987; Paul & Gustafson, 1991 as cited in Dockery, 2013). The students' rating of disagreement tells that indeed vocabulary knowledge and usage is a huge challenge to the deaf students of the college.

4.2.3b Answering of the comprehension questions

With reference to the above theme, this research found that the deaf students had a lot of challenges because at the end of the reading task students have questions to answer but the numerous challenges culminate to aggravate their incapacities in handling the questions as expected. Thus with a mean of 4.81 and a standard deviation of 1.14, the students strongly disagreed that they were able to answer the reading comprehension questions. The focus group discussions with the students and also the interview of the Sign language interpreters revealed that finding appropriate answers to questions set on comprehension passages had been very difficult to the Deaf.

Comprehension questions that demand inferred information within and between the content seem to be one of the most challenging to the deaf students. Such

information is not normally found directly in the text. Thus, the students would have to infer from both text and their world knowledge to reach answers. From a critical look at the students' performance in the test, none of them got the answer to the question 'c' correct and only three (18.75%) got question 'a' right. It is worth noting that the questions 'a' and 'c' demanded inferred information in order to answer them. The other questions that called for inferred information equally had fewer students getting the answers right. However, almost every comprehension task has some questions demanding inferred information. The finding is in line with that of Walker (1998) that the deaf students were more accurate on dealing with literal questions than on inferential questions.

The focus group discussions further revealed that the deaf students seem to have serious challenges in handling reading comprehension questions that demand summary of the text. Some indicated that, they found it difficult to understand many of the reading comprehension passages in the first place so summarizing becomes very challenging since such a task requires a comprehensive understanding of the import of the passage itself. A greater number (5) of the interpreters also agreed that summarizing information in the passages was a more difficult task for the Deaf as far as reading comprehension was concerned. The data on students' responses to the questionnaire however does not seem to support that summary was a real challenge to the Deaf. With a mean of 3.31 and a standard deviation of 1.580, the students clearly remained neutral as far as their response to summary as a challenge to them in their reading comprehension was concerned.

Again from the focus group discussions some (4) said because they had problems understanding many of the selected words, they had challenges in being

able to provide synonyms to those words. From the data, some (2) of the students cited looking for synonyms or antonyms of selected words as more difficult. In respect to the above data, there is no information in the literature that discusses synonyms as a challenge to the Deaf.

The students' performance in the comprehension test showed that only three (18.75%) was able to get the correct answers to the questions on figurative expressions. Indeed, the data available point that understanding non-literal expressions is one very challenging task to the Deaf.

The research finding is in sync with many other researches: Doran and Anderson (2003) found their Deaf participants to be much poorer in inferential comprehension as compared to their hearing peers. Walker et al. (1998) found their deaf participants aged between 9 and 19 years, to be more accurate on literal questions than on inferential questions. Pinhas (1991) also found that even relatively skilled deaf readers were slower and less accurate when answering inferential questions than answering literal questions about a text.

From the above it is apparent that one major challenge faced by the deaf students of PCE in reading comprehension is answering the questions based on the texts.

4.3. b Discussion findings on the factors contributing to the challenges in reading comprehension

The next section is the presentation of the research findings on the second research question, 'What factors account for the challenges of the deaf students in English reading Comprehension?' The data gathered indicated that there was not just one factor to the students' reading comprehension challenges but rather a number of

them. The factors that emerged were, deafness, communicating with the larger community, the nature of academic materials available to the Deaf, the English language tutor factor, the Sign language interpreter factor.

4.3.1b Deafness

The deaf students' responses to the items in the questionnaire indicated that they deemed their deafness contributed to the challenges they faced in reading comprehension. With a mean of (1.85) and a standard deviation of (1.55) it came out clear that the deaf students strongly agreed that deafness was a factor to the difficulties they face in reading comprehension.

Also the English language tutors revealed at the interview that the students' deafness hindered them from accessing information from different sources that would help them gain the needed verbal language experience. The Sign language interpreters added that by being deaf the students are slow at grabbing the concepts in reading comprehension because they start with rather weak foundation in the Sign language.

This finding tend to agree with Miller (2005) who found that the conditions underlying speech perception seems to put deaf individuals at risk of failure in internalizing syntactic knowledge of spoken language crucial for proper processing of words at the sentence level which would be necessary for reading comprehension.

The research finding again is corroborated by both Mana (2013) and Moore (2008) who found that hearing loss impeded the deaf accessibility of oral language even from infancy and that the condition makes it difficult for them to be grounded in the oral language competencies required for reading comprehension.

4.3.2b Communication with the larger community

In responding to the questionnaire, the students maintained that they could hardly interact with the non-deaf within their communities. The 4.65 mean and the supporting .619 standard deviation are indicative that they strongly disagreed that they were able to communicate with the community. The language tutors asserted at the interview that apart from relying on the Sign language interpreters, they are unable to engage in direct interaction with the deaf students. They thought that was a major factor to the hindrance of this category of students to be well situated in the reading comprehension process.

Also the data indicate that many of the hearing people in the community where the deaf students found themselves were unable to engage in any meaningful communication with them. Any interaction had to be done through the interpreters but they did not always give all the details of a conversation the deaf students. In the process, vital information could be lost by the students. The finding in this regard agrees with Hopper (2016) and de Wit (2014) that the Deaf were denied access to information within their environment.

4.3.3b The nature of academic materials available to the Deaf

With reference to the nature of the materials available to the Deaf to carry out their academic work, the students rated $M= 4.40$, and $SD=1.25$, to disagree that the materials available for reading comprehension are suitable to them. At the interview, the students mentioned that they did not understand much of the content of the passages read. Sometimes the wording was the problem and at some other times the difficulty was with the context or background of the text. Both the language tutors and the interpreters mentioned during their interviews that the passages use for reading

comprehension are the exact passages used for the hearing and in most instances do not suit the Deaf.

What this research found in relation to the materials used by the deaf students in their academic work is similar to the finding of Abdul Rahim et al (2018) that the Deaf read texts that are written in Standard English and that the texts they read are same as that of the hearing students.

With the general assertion that candidates' understanding of the examination questions is important in the answering, questions which could be well understood by the deaf students is a right. However, the current practice is that the Deaf are given added time of half the total time allotted to the paper (Amoako 2019). Though a great relief, it certainly does not address the problem of clarity of questions. Most questions on reading comprehension do not fit into the situation of the Deaf. The wording of the questions mostly conforms to the language capacity of the hearing rather than the Deaf. Thus, the Deaf are likely placed at a disadvantage by the questions themselves.

The finding is also in agreement with Mtuli (2015) finding in his research on hearing impaired students in regular Primary and Secondary school in Tanzania that there was the lack of appropriate academic materials for the use of deaf students and that it was a serious setback to the students' academic performance.

4.3.4b The English language tutor

In P.C.E., the same English language tutors teach the Deaf and the hearing students. These tutors are expected to engage students in interactive ways to promote and enhance and improve students' capacities in the English language. However, it seems the same tutors tend to contribute to the deaf students' issues in reading

comprehension. The students stated during the interview that they were unable to get much from the English language tutors. They added that the presentation of explanations during English language lessons did not help them to gain the expected insights.

Additionally, the English language tutors and the Sign language interpreters' interviews revealed that the language tutors are less knowledgeable in matters relating to the Deaf especially in reading comprehension. The finding is corroborated by Oliva (2012) finding that teachers did not know how to use visual language to work with visual people. In her study on deaf students in mainstream K12 educational settings, Oliva (2012) found that the language teachers relied heavily on the interpreters for engagement with the deaf students and that they were woefully inadequate in their competencies in handling the Deaf in their language classrooms. The finding is also supported by Trezek et al., (2010) and Paul et al., (2013) insistence that English instruction should focus on learners' needs in line with exhibited comprehension problems.

4.3.5b The Sign language interpreter

The research found that the deaf students strongly disagreed that the interpreters and the interpretation of reading comprehension lessons were efficiently done. Some Sign language interpreters also intimated at the interview that they believed they were not able to execute their work as was expected. Again the language tutors indicated observed shortfalls in the interpreters' handling of the deaf students during lessons. Similar to this finding, Ostrove & Olivia (2010) found that the Deaf are sometimes agitating as a result of how the interpreters go about their tasks.

Another issue worth attention is the variations in Sign language (Lucas, C.; Valli, C. & Baylay, R. 2001). Over the years, languages undergo change. Therefore some expressions used today did not mean exactly what they meant some years ago. Research indicates that there are varieties in language and multiple reasons are assigned to this. In the same direction, variations can be identified in Sign language. Variations include regional, racial, age, sex, context etc (Stamp, R. 2016; Johnston, 2010; Schembri, A. 2010).

In United States of America for instance, the schools for the Deaf are regional based, so some signs used for a particular item may differ from region to region. For example, the sign for 'Halloween' in Louisiana differs from that of Virginia. Some studies found females to use older sign whilst male prefer to use newer signs. Thus the females sign 'help' at the elbow but the males sign at the hand. Again whilst older Deaf prefer older signs to newer signs, the youth prefer the new signs to the older signs (Baker & Cokely, 1991).

The Ghanaian Sign language is based on the ASL. In formal schools, pupils are introduced to the ASL and get grounded in it. Thus, for most deaf students, the Sign language is their primary language. The regional variations is not typically taught in the schools. However, the Ghanaian Sign language (GSL) is fashioned after the various Ghanaian languages (Oppong, Fobi & Fobi, 2016). Therefore both learners and interpreters will have the ASL so in the formal setting like the classroom, there may be no issues but when engaged in conversation or personal discussions, then the variations (of the students) may come in. The interpreters' exposure to the variety of Sign language as the interpreter signs according to their background and source of training, content knowledge of the subject matter very much here (interview with an interpreters).

In P.C.E. the interpreters and the students typically interact via the Ghanaian Sign language but when there is a concept or new technical term, the interpreters figure spell it to the Deaf. The tutors equally ask the deaf to sign the terminologies if the students already know and this gives the interpreters a clue on how the Deaf want that word to be signed. They keep to the standard Ghanaian Sign language.

The explanation as found by de Wit and Sluis, (2014) is that the interpreters are themselves not deaf and most of them were trained in educational institutions. Haung, Bontempo, Leeson and Bermeerbergen (2017) study on Deaf leaders in seven countries including the United Kingdom and the United States of America found Deaf leaders to expect the interpreters to exhibit more understanding of Deaf culture in their line of work. In sync with the above findings, the current research found that the Sign language interpreters of PCE have inadequate exposure in Deaf culture as they are hearing and were trained in an academic setting. The finding at the same time is consistent with Schick, Williams and Kupermintz (2006) who evaluated approximately 2,100 found approximately 60% of the 1,200 educational interpreters studied to be inadequate in the needed skills.

Relating to research question two, it became clear that Deafness hinder meaningful interaction in the English language classroom making internalization a slow process for the Deaf. Syntactic knowledge in spoken language was non-existent for the deaf and it made the grasping of concepts a huge challenge to the deaf. It also became clear that, improvised Sign language by non-deaf community members got in the way of effective communication and further that English teachers did not really plan for deaf students' learning; teachers were also not familiar with deaf culture and Sign language interpreters did not get adequate exposure in their line of duty. The implications then would be for training institutions to ensure that not only Sign

language teachers but also, English teachers who were likely to end up in institutions where the Deaf are prepared academically, should have the requisite knowledge before coming into their jobs. Teachers of the Deaf must periodically seek professional development to augment their knowledge in the best practices as far the training of the Deaf goes. Every individual in the society must learn Sign language for a proper integration of the Deaf in society. To conclude this section of the discussion, it becomes imperative for appropriate measures to be put in place for the learning of the deaf students.

4.4 Data on strategies that could improve reading comprehension of the deaf

This section is the presentation of strategies that are deemed useful in the reading comprehension of the Deaf. The information gathered for the section was purely qualitative. The themes that emerged from the interaction include “texts with visual aids, ‘concept maps and boxes’, ‘vocabulary instruction’, ‘pre-teaching vocabulary, re-reading, and guided reading’,

4.4.1. Vocabulary Instruction

On strategies to help the deaf students in reading comprehension, the participants came out with varying suggestions during the interviews. The students suggested that they should be given special remediation lessons on vocabulary. Some of them (6) added that because they do not have much vocabulary, some of the words to be worked on in the texts tend to be unfamiliar to them. They therefore think that when they have a large store of vocabulary knowledge, they would have greater chances of doing better in reading comprehension. From the students, key words or vocabulary should be well explained to the Deaf. One student was very categorical;

“teach deaf more vocabulary”. Two others called for extra tuition in English and techniques that would improve deaf students’ reading comprehension. Recent research has suggested that some forms of bilingual deaf education may provide deaf students with total, signed and spoken vocabulary quantitatively comparable to that of monolingual or bilingual hearing peers (Rinaldi, Caselli, Onofrio, & Volterra, 2014).

The English language tutors also indicated that a boost in the vocabulary levels of the deaf students would make a difference. Two tutors suggested remediation lessons in vocabulary building. One tutor hinted, *“I believe we can do something about the situation. At least when some measures are taken, they may enjoy the passages and also improve on their reading comprehension which I think would be useful in their general academic output”*. Some of the tutors mentioned the need for tutors to be well informed on the peculiar needs, to research, find and employ reading comprehension strategies that work for the Deaf. One tutor suggested that at the beginning of each reading comprehension lesson, key words should be signed and those words that would be deemed difficult to the Deaf should be well drilled. The tutors should be well exposed to the peculiar challenges of the Deaf in reading comprehension. One interpreter recommended remediation lessons that focus on vocabulary building and use for the deaf students. Another suggested that the wording of the comprehension texts should be moderated by interpreters so that the vocabulary levels of the Deaf would be factored in. He added that, *“in that sense you are not going to change the content but we can moderate it in a way so that the core of the content would be maintained”*.

4.4.2. Texts with visuals aids and concept maps

Three students mentioned that sometimes the mere length of the texts brings confusion because the information within the text could be winding. They consequently asked for the use of passages that they could better understand. Three students mentioned that English language tutors should give the Deaf comprehension passages that were different from that of the hearing peers.

The language tutors on their part gave different suggestions with regards to the texts for the Deaf. Some said tutors should use texts that suit the Deaf. Three tutors thought that because the Deaf students learn better with visuals, their comprehension passage should be of that nature. They added that text/graphic organizers would be appropriate: *“at least they would get some physical representation of the texts so that it would not be too abstract”*. Another tutor pointed the need for the use of texts that suit the situation of the Deaf. A tutor indicated that more appropriate Deaf friendly resources should be used during their reading comprehension lessons. Some (2) suggested that even the KWL strategy which combines simple visuals with written information could serve a good purpose with the deaf students. From the interpreters' interview it was revealed that because the Deaf are visual learners many of the grade level comprehension texts are not favorable to them. At the college level, most of the materials for reading comprehension are without pictures or visuals. The hearing students to a very large extent are able to follow the plots of the texts but that has not always been the case of the Deaf. From an interpreter, *“the Deaf listen with their eyes so an accompanying observable interpretation of the text would be of great use to them”*.

4.4.3. Pre-teaching vocabulary, re-reading, and guided reading

Per the demands of a standard Reading Comprehension lesson, vocabulary treatment is mandatory in every lesson. However, at the college level, that is hardly done with the assumption that students at the tertiary institutions by successfully going through education to that level have attained appreciable quantum of vocabulary. The situation with the Deaf does not always reflect this assumption though. The research for this reason sought to get participants' shared views on the various approaches /techniques that could be used during reading comprehension of the Deaf.

When the students were interviewed, it came out that, they wanted the English language tutors to employ teaching-learning approaches that are suitable to the Deaf. One student mentioned, *“use teaching methods good to the deaf. What will help deaf students reading comprehension”*. Again four asked that the tutors should take their time and take them through the lessons step-by-step. One students mentioned the need for longer time to be spent on their reading and discussion of the text before going to the questions.

On the same theme, the English language tutors offered their ideas and suggestions. One tutor expressed the view that if tutors purposefully present reading comprehension lessons systematically to the Deaf, they may have a better grasp of the essential information contained in the passages and consequently do better in answering questions on the passages. Some (3) of the tutors suggested the use of strategies that have proved to work for learners with reading challenges. A tutor suggested a collaborate with the interpreters to select possible challenging vocabulary items in each passage and pre-teach or drill them before the reading of the passages. *“Well, I think in every reading comprehension we embark on explanation of difficult*

vocabulary items before the passage itself comes. I think for the deaf that aspect of comprehension lesson should be well grounded and extended so that the number of vocabulary items that are earmarked by the teacher to pose difficulty to the deaf students should be well drilled for them to understand before they venture into the main task of reading. To do this well, the teachers requires the assistance on the interpreter in selecting the vocabulary”.

The language tutors again mentioned that the passages could be read a number of times so that the meaning would sink well. Some (2) also suggested that the deaf students should be engaged in guided reading activities like shared-reading and paired reading. A tutor expressed the belief that *“this approach would allow for the advanced readers to support the upcoming ones and this may eventually help the Deaf do better at reading comprehension”*.

The Sign language interpreters also mentioned that if vocabulary items were taught prior to the actual reading comprehension activity, the deaf students would have some ideas about the words and their meaning so understanding the entire text could be enhanced. Three interpreters indicated that the deaf are almost always weak in reading comprehension so language tutors could try some of the strategies that work for children/less advanced learners. They added that even guided reading which has been proven to work well with beginners could be tried.

4.4. b Discussion on Research question three

4.3.3. Strategies

The next section is the presentation of the research findings on the third research question, ‘What strategies could be employed to curb the challenges the deaf

students face in reading comprehension?’ The data gathered for this question was solely by interviews. The prominent strategies that emerged were ‘using texts with visual aids’, ‘using concept maps’, ‘vocabulary instruction’ and ‘pre-teaching vocabulary, re-reading, and guided reading’.

4.3.3.1 Using texts with visual aids and concept maps

It was gathered from the interview of the students that the passages in many instances were difficult to understand because of their length and content. They mentioned that texts that have accompanying visuals in the form of pictures and illustrations are more interactive and helpful. Both the English language tutors and the Sign language interpreters maintained that once the Deaf learn better by sight, the texts with supporting graphic (visuals) would enhance the absorption of the information present in the texts. The research finding agrees with Abdul Rahim et al, (2018) finding that deaf students do better with texts that have supporting pictures. It is also in line with Durkin, (2018) conclusion that pictures should be used, because words cannot be presented or used in isolation, they need to be used in meaningful contexts in the form of picture so they would communicate better to the Deaf. Again the finding is in sync with what Castillo et al., (2008) found from their study on the effectiveness of concept maps in reading comprehension that the Deaf were more comfortable with transcription to a concept map format than the regular comprehension texts.

4.3.3.2 Vocabulary Instruction

The students’ responses at the interview acknowledged they had a rather low vocabulary stock. The students indicated that they did not understand many of the

words and expressions they read in the passages. The research found from the Sign language interpreters that the language lessons should focus on vocabulary building for the Deaf so as to help them better understand what goes on in the reading comprehension lessons. On the part of the language tutors, the low vocabulary levels of the Deaf hinder their active participation in lessons. They indicated that when their vocabulary is improved, the deaf students would gain much from the passages they read.

What this research found regarding vocabulary instruction agrees with Paul (2001) and Castillo et al, (2008) that vocabulary instruction among the Deaf should be given high premium and recommended that the knowledge model of instruction, a method that promotes an in-depth knowledge of words through semantic maps and other semantic elaboration techniques should be used.

4.5 This section is the presentation of the research findings in relation to the theories of the research, summary and conclusion.

4.5.1 Schema

The fundamental principle of the schema theory is that written text does not carry meaning by itself. Rather, a text only provides directions for readers to know how they should retrieve or construct meaning from their own previously acquired knowledge (An, 2013; Anderson & Pearson, 1986 cited in Ali, 2016).

The theory stipulates that when people comprehend, they need to combine their own background knowledge with the information in a text. In this process, the prior knowledge and knowledge structure works effectively in people's cognitive activities. The previously acquired knowledge is also called the readers' background knowledge (prior knowledge), and the structures of this knowledge are called schemata (Barrlett,

1932). The Schema theory asserts that the comprehension of a text by a reader is determined by three distinct schemas: formal, language and content.

Formal schema refers to background knowledge of the formal rhetorical organizational structures of different types of texts (Carrel & Eisterhold, 1983). In other words, it is the knowledge of different text genres and their respective structural organization, language structures, vocabulary, grammar (Zhao & Zhu, 2012).

Formal schemas are the degree of a reader's knowledge on the style of the text. In this case the exposition, description and narration are the general types which are explained in writing books for students. However, the reading materials they come across are of various subcategories such as newspaper reports, poems, short stories, editorials among others.

From the data gathered by this research, the deaf students of P.C.E. do not possess adequate formal schemata that are needed to help them in reading comprehension. In their ratings the students themselves disagreed that they have adequate vocabulary stock to help them make meaning of the expressions and words they meet in the passages. This means that in terms of formal schemata, the deaf students are lacking.

Language Schema refers to readers' prior linguistic knowledge, including the knowledge about phonetics, grammar and vocabulary as traditionally recognized (Zhao & Zhu, 2012). Good readers know the language (Eskey & Grabe, 1988). Second language readers are expected to master certain linguistic knowledge to decode the text (Carrell & Eisterhold, 1983) in order to comprehend the text.

However, what this research found was that the deaf students were not grounded in the English language. Their language competence was low and did not support them in reading comprehension. Their language competence level did not

enhance their interpretation and understanding of the texts read for reading comprehension. The deaf students indicated that they did not understand much of what they read: sometimes the content rather left them confused. At other times they had problems deducing meaning especially when confronted with the need to infer information.

The language they are trained in is the Sign language but from the information the students shared, the Sign language competence did not equip them with the requisite knowledge in the English language. Therefore, they did not prove to be knowledgeable in phonetics, grammar etc required for reading comprehension.

Content schema refers to background knowledge of the content area of the text (Carrell & Eisterhold, 1983). It contains conceptual knowledge or information about what usually happens within a certain topic, and how these happenings relate to each other to form a coherent whole. It is an open-ended set of typical events and entities for a specific occasion.

Ali (2016) found that the text, which is provided with background knowledge, was a little bit easier to the students than the text which was administered without background information. The current study also found that the deaf students had scanty or no background knowledge that supports reading comprehension.

As Deaf they were unable to interpret to gain much information from texts read. At the same time, they were unable to gather information from other sound sources within their environment. This means that apart from the information purposefully directed to them, the Deaf had very limited avenues for gathering information to serve as prior knowledge or background information.

Again, from the current study, much of the passages read were set in non-deaf culture which made it difficult for the deaf students to identify with and thus gain a

better understanding of the content. The finding is in agreement with (Levine & Haus, 1985; Kintsch & Franzke, 1995) who also determined how content familiarity affected reading comprehension and revealed that subjects' familiar with the reading passage recalled and inferred significantly more ideas while those unfamiliar forgot or misinterpreted significantly more ideas.

The strategies used by the English language tutors during reading comprehension did not focus on purposeful activating of deaf students' schemata. Consequently the deaf students' performance in reading comprehension, (evidence in appendix v) is below average. Students' scores in comprehension test on a passage for SHS 3 used as test to the participants shows that prior knowledge indeed serves as a platform aiding comprehension. Also the comprehension lessons failed to see to the development and expansion of the deaf student' vocabulary. Carrell, 1983; Qi & Wang., (1988) investigated the effect of language competence/complexity and prior knowledge on reading comprehension and found that background information is more likely to determine the comprehension of a passage than linguistic factors. Thus, the findings of the current study tend to confirm the tenets of the schema theory.

4.5.2 Social model

The Social model of the Disability theory maintains that people are not disabled because they have impairments but it is because society renders them disabled. It view a perfect world as one that has the disabled being in-charge in the planning and implementation of policies (Siebers, 2006).

Therefore buildings and other facilities should be made accessible to all people. Ramps for easy movement of wheel chairs, elevators, rails on buildings etc,

so that people who have impairments can use these facilities more independently (<https://www.2.le.ac.uk/>).

With regard to the social model, the general practices and the language classroom management of P.C.E. falls short of the demands of the model. The comprehension texts do not conform to texts the suits the Deaf: no pictures, no illustrations and they are devoid of concept maps. In addition, the English language tutors did not use interactive strategies that could get the Deaf to be better grounded in the reading comprehension. Structures had not been set to remove barriers to accessibility so as to meet the needs of the deaf students in reading comprehension.

Relating to research question three, the findings were that there are strategies that can be employed to support the deaf in their learning of English language except that English language tutors have been oblivious to them implying that the tutors need to lift up their game in their teaching of the deaf. The conclusion then is that, English tutors need specific training in how to teach the deaf English language and reading comprehension.

4.5.1 Summary

The chapter presented the data gathered by the research, the analysis and the results with respect to all the three research questions. It therefore examined the challenges of the deaf students in reading comprehension, what factors lead to those challenges and strategies that could control them. The section also looked at the research findings in relation to the schema theory, the anchor theory of the research.

4.5.2 Conclusion

The research findings indicate that indeed the students were confronted with many challenges as far as reading comprehension was concerned. They were faced with the problem of accessing and using incidental information and cultural background of the targeted language, using Sign language to interpret text, vocabulary usage and answering of the comprehension questions. The findings are consistent with several other researches on Deaf reading comprehension. Castillo et al., (2008) for instance pointed out that due to their low vocabulary level, the Deaf are challenged in reading comprehension. Dockery, (2013) maintains that the Deaf have limited stock of gathered prior knowledge or schemata to link with what they read. Also Oliva (2012) research on incidental information found the Deaf to miss a lot of information that would be useful in text interpretation as they are unable to pick from most of the verbal engagements that go on around them. Lawson (2012, p 3) concluded that “if a student never gets access to certain information he or she cannot learn that information”.

Oya, Manola and Greenwood, (2009) and Abdul Rahim et al, (2018) found that their participants’ struggled to make meaning of the reading comprehension texts. Bickham, (2015) and Agyiri-Tettey et al, (2017) revealed that Sign language competence did not guarantee competence in English language and therefore did not help the Deaf in synthesizing the texts.

The findings of the current research are disturbing as evidence from other studies indicate that the opposite is better. Laufer (1989) for example concluded that, if readers will understand the texts they read, then they must be familiar with about ninety-five percent (95%) tokens of the text. Nation (2001) on the other hand suggests about ninety-eight percent (98%) for the same purpose.

From the study it came out that several factors accounted for the reading comprehension challenges of the deaf students of P.C.E. Deafness was found to be a factor to the difficulties the students face in reading comprehension because being deaf makes the students slow at grasping the concepts in reading comprehension as many start with rather weak foundation in the Sign language. Again, deafness denied the Deaf access to direct interactions with the language tutors and the other students. Also the unavailability of comprehension texts that suit the Deaf was a factor to their challenges: the wording of the texts, background of the texts, settings of the texts were found to be especially not suitable to the Deaf.

The findings on the factors contributing to the challenges are in sync with findings of other researches like Abdul Rahim et al, (2018) who found that the Deaf are subjected to reading the same text read by their hearing peers. Again, Mtuli, (2015) found the hearing impaired in Tanzanian Regular Primary and Secondary schools to lack appropriate academic materials for the use of deaf students and concluded that it was a serious setback to the students' academic performance.

This study found the language tutors to contribute to the reading comprehension challenges of the Deaf. The students indicated that they were unable to get much from the English language tutors. They added that the presentation of explanations etc during English language lessons did not help them to gain the expected insights. Again the tutors and the interpreters revealed that the language tutors were less knowledgeable in reading comprehension for the Deaf. Consistent to the above is Oliva (2012) finding that the language teachers relied heavily on the interpreters for engagement with the deaf students and that they were woefully inadequate in their competencies in handling the Deaf in their language classrooms. However, it is

expected that English instruction focuses on learners' needs in line with exhibited comprehension problems (Trezek et al., 2010 and Paul et al., 2013).

With regard to the interpreters, some Sign language interpreters intimated that they believed they were not able to execute their work as was expected. The deaf students equally strongly disagreed that the interpretation of reading comprehension lessons was efficiently done. The findings above are similar to Ostrove and Olivia (2010) finding that the Deaf sometimes agitate as a result of how the interpreters go about their tasks. According to de Wit & Sluis (2014) because the interpreters are themselves not deaf, most of them were trained in educational institutions rather than deaf communities so they are not grounded in the peculiarities of Deaf culture. Haung, Bontempo, Leeson, and Bermeerbergen (2017) study also found the deaf leaders to expect the interpreters to exhibit more understanding of Deaf culture in their line of work.

With reference to the strategies, the research found that because the Deaf are visual learners teaching them in the abstract did not help them therefore the use of visuals in addition to the texts would be helpful in their reading comprehension. The finding is in agreement with Durkin, (2018) conclusion that words cannot be presented or used in isolation, they need to be used in meaningful contexts in the form of pictures so they would communicate better to the Deaf. Again, the finding is in sync with what Castillo et al., (2008) finding that the Deaf were more comfortable with transcriptions to a concept map format than the regular comprehension texts.

The research found that the low vocabulary of deaf students was factor to their challenges and that when their vocabulary is improved, they would gain much from the passages they read. What this research found regarding vocabulary instruction

agrees with Paul (2001) and Castillo et al, (2008) that vocabulary instruction among the Deaf should be given high premium and recommended the knowledge model of instruction because it promotes an in-depth knowledge of words through semantic maps and other semantic elaboration techniques should be used.

It came out from the interviews that if tutors systematically take the students through reading comprehension, the Deaf may have a better grasp of the essential information contained in the passages and consequently do better in answering questions on the passage. In addition, English language tutors should collaborate with the interpreters to select possible challenging vocabulary items in each passage and pre-teach or drill them before the reading of the passages.

They also suggested that the deaf students should be engaged in guided reading activities like shared-reading and paired reading. The deaf are almost always weak in reading comprehension so language tutors could try some of the strategies that work for children/less advanced learners. They added that guided reading which has been proven to work well with beginners could be tried.

In the same direction, the Laurent Clerc National Deaf Education Center (2015) also maintains that Rereading, Read Aloud and Shared Reading positively impact on the Deaf reading comprehension. Silvestri, (2016) also found that when the students engage in mental imagery, comprehension is enhanced.

After a close study of the findings in respect of the research questions it became evident that indeed the deaf students of the college are confronted with many challenges with reference to reading comprehension. The finding however is not different from the findings of other researches such as Abdul Rahim et al (2018) that the deaf students could not do much in reading comprehension because they were met

with several challenges including low understanding of the comprehension texts, providing appropriate synonyms etc to selected words. Agyiri-Tettey et al (2011) also did a study in the Tetteh Ocloo School for the Deaf. Their study though was on the general academic performance of the deaf students found that their English reading comprehension was particularly very low.

Regarding the factors that have contributed to the reading comprehension challenges, the study again found multiple of them: low vocabulary, deafness, inability to access and use incidental information, the classroom setting including the kind of academic materials available to them, the English language tutors and the Sign language interpreters. Similarly, Mtuli, (2015) found that deaf pupils in Tanzania used learning materials that did not suit their situation.

The findings of this current study suggest that so much of the issues regarding the deaf students' reading comprehension were either unknown or underestimated. The findings are very worrying as the college has since 1997 trained deaf students and most of them have performed poorly in English language and reading comprehension particularly. The academic materials available to the deaf (what the tutors use and those in library) are not necessarily suitable to them. The comprehension texts are same as what the Hearing peers use. The English language tutors whose task is to train the students to perform in that language have very little or no knowledge at all in Deaf reading comprehension. Indeed they rather tend to contribute to the problems this category of students face in their English reading comprehension. The teachers woefully lack the competence to teach the Deaf. Their training and orientations are far removed from what is required to teach the Deaf.

The Sign language interpreters are in no better situation either. There had been the general idea that their engagements supported the Deaf in great measures but

the research findings painted a different picture. It was evidenced that the interpreters lacked a solid background that would promote good delivery. Many of them have not lived in a deaf community so they lacked a good exposure to deaf culture, they were faced with the problem of adequate training and orientations in the interpretation. The study also found the interpreters do not possess the specialty/specialization required to interpret in a language classroom. Also the noted that there existed some variations in the some interpreters' signing and that of some students in certain vocabulary items.

Again the current study found that strategies that could be used to support the deaf students in their reading comprehension abounds and that most of them are simple and very easy to employ in everyday lessons. Some of the strategies tried with children as well as struggling readers could work well for the Deaf. The language tutors had no knowledge on the comprehension strategies that worked for the Deaf. Thus, their teaching methods in the mainstream classroom did not satisfy the peculiar needs of the Deaf. The Sign language interpreter rather exhibited knowledge in peculiarities in Deaf reading comprehension.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The research set out to investigate the challenges of the deaf students of the Presbyterian College of Education in their reading comprehension. The approach of the research is the Mixed Method whilst the design is Case Study. A questionnaire, interviews and a test were used to collect data from the twenty-eight respondents made up of sixteen deaf students, seven Sign language interpreters and five English language tutors. The responses were analyzed statistically into means and standard deviation by using the SPSS version 25. The responses to the interviews and the scores in the test were descriptively presented. The summary of the research findings, the implications for English language tutors and Sign language interpreters, and suggestions for further studies are presented in this chapter.

5.1 Summary of the findings

5.1.1 Challenges

The students themselves indicated during their focus group discussion that they encounter numerous challenges in answering the comprehension questions. Sometimes it is either they do not understand the texts (they are unable to identify with the content) or there are figurative expressions and other very unfamiliar words in the texts. At other times they get confused with the names in the texts especially when the text is not set in Ghana. They are also faced with the challenge of inferring information from texts.

From the gathered data on the challenges of the deaf students in reading comprehension, important insights were reached major among which are:

The use of incidental information and cultural background of the target language in reading comprehension. Different studies conducted have indicated that much of the information, experiences and prior knowledge of individuals are gathered indirectly or informally. Thus, we are able to gain a lot of useful information within our immediate environment mostly by unstructured means. Songs, conversations, broadcasting etc., could serve as rich sources of this incidental information. Due to their condition however, the Deaf are mostly unable to access such information thereby missing much of the chances of incidental learning. This is because unless information is specifically directed at them, the Deaf are unable to pick much from it. (Oliva, 2012). The incidental information on the other hand could serve as a foundation for easy understanding of the texts read. From the bits and pieces picked informally, one could build a good prior knowledge for later text interpretation (Jackson et al, 1997, Dockery, 2013). Again, the Schema Theory maintains that knowledge on the cultural background of the target language is very important to the learners of that particular language: a background, it is estimated to give a good base to the learner as far as that language is concerned (Ali 2016).

Many of the deaf have parents who are hearing. In most cases these parents have little or no knowledge in Sign language and therefore start communicating with their wards via the spoken mode rather than signing. Meanwhile, being deaf the children may have difficulties in making meaning of what the parents may want to communicate. For the above reason, many of the deaf are introduced to language when they are already grown, on the average at about eight years, especially in places such as Ghana. Thus they suffer delay in linguistic development that could enhance the language competence required for reading comprehension (Mana, 2013).

The structural differences between the English language and the Sign language pose challenges to the deaf. The Sign language grammar is characterized by simplification in usage and mostly devoid of essential ingredients like possessive pronouns, extensive use of prepositions, and the use of OVT/OTV (Object-Verb-transitive) rather than the English SVO structure. In reading comprehension however, the texts/passages used are written in the standard English so getting the import of the passage becomes very challenging to the deaf learner; they would have to try to understand the passage through the sign language but the disparities in the two languages tend to make it rather difficult to have a clearer understanding of the passages (Humphries & Padden 1992). The deaf consequently are quick to transfer the knowledge in Sign language into the English language usage but this only more often than not leads to misapplication and consequent penalization according to the marking scheme (Agyiri-Tettey et al, 2017). In this regard, the deaf have had to grapple with this rather very demanding task of interpreting and understanding the comprehension passages.

The nature of the questions to be answered as part of the reading comprehension is also problematic to the deaf. The regular practice is that each reading comprehension passage has a number of questions set on it. Each of these questions tend to seek a different kind of answer. The passage could have questions that demand explanation of figurative expressions which could pose serious challenge to the deaf. Some of the questions call on students to draw from their prior knowledge or world view. Such questions are also problematic because many of the Deaf have a rather narrow or very limited prior knowledge or verbal experience that would be consulted to serve this all important purpose (Dockery, 2013). Again, some of the questions require candidates to find synonyms or antonyms to words selected from a

passage. However, in many instances, the deaf students do not understand those selected words and so supplying an appropriate synonym or antonym proves challenging (Abdul-Rahim et al, 2018). Also some of the questions demand the use of inferred information as answers but again the Deaf have difficulties in accessing such (indirect) information.

The research found that the deaf students are challenged in utilizing their scope of vocabulary to make meaning of what they read in the comprehension passages. One needs a wide scope of vocabulary to be able to meaningfully interpret and understand the content of the texts for the reading comprehension exercises and examinations (Nation (2001). However, the deaf students of the Presbyterian College of Education are unable to understand much of the passages they read because most of them have a shallow stock of vocabulary. Thus, they were found not to be able to apply vocabulary knowledge during their reading comprehension lessons. Meanwhile good vocabulary knowledge and its application in text interpretation is required to achieve successful reading comprehension.

5.1.2 Factors to the challenges

This study found the deaf students' challenges in reading comprehension to emanate from different sources with the major ones summarized below.

Deafness was a major factor to the deaf students' challenges in reading comprehension. The condition hindered them from accessing information other than what was purposefully directed at them. Again being deaf puts them at a disadvantage in terms of speech perception that is very necessary in reading comprehension (Miller, 2005). Daza, Phillips-Silver, Ruiz-Cuadra, & Lopez-Lopez (2014) maintain that "low

reading levels in many deaf children are due to the fact that deafness prevents access to spoken language, resulting in deficiencies in phonological processing” (p.3526).

Relating to communication with the members of the larger community, the Deaf could hardly engage in any meaningful communication with them. Many of the Deaf are born to hearing parents who are unable to communicate meaningfully with them due to the parents’ lack of knowledge in Sign language. Again, in several instances the Deaf are a minority in their communities so effective interaction is impeded due to the language barrier (Hopper 2016 and de Wit & Sluis 2014). The Deaf for this reason often are barred from active involvement with the larger community who in many instances see the Deaf culture as a disability (Bickham, 2015).

Additionally, the materials available within the academic setting were found to be an important factor to the students’ challenges. These are deaf students in a mainstream institution. Unfortunately, there were no special academic materials for their use. The books and resources used in English language lessons and reading comprehension were found to be same as what the hearing students use. Texts that could suit the deaf students’ linguistic capabilities as well as other supporting resources were found not to be in use for the Deaf in their reading comprehension. (Mtuli 2015; Amoako, 2019). Gentry, Chinn, and Moulton (2004/2005) noted in their results that “pictures were shown to be a powerful factor in the transfer of factual information during the reading process” (p. 401 cited in Bickham, 2015).

The English language tutors were found to be contributing to the deaf students’ challenges. They indicated inadequacies in handling this category of students in reading comprehension. None of the language tutors had been trained in teaching the Deaf. They thus used the same materials, texts and strategies for both the hearing and

the Deaf. It is very important however, that language classrooms are planned and managed to suit the peculiar needs of the Deaf (Trezek et al., 2010; Paul et al., 2013). From their responses the tutors seemed to have very limited knowledge on the strategies that are suitable to teach reading comprehension to the Deaf.

Similarly, this study found the Sign language interpreters to be a factor to the challenges. About 90% of them had been trained in the university rather than a Deaf community which suggests that they were not grounded in the Deaf culture (de Wit & Sluis, 2014). Again, they had Special Education background, but not English language as would have been more appropriate. The interpreters felt their training did not provide them with the requisite competencies to execute their responsibilities effectively. Also the study found that in certain instances, the students' signing of some vocabulary did not agree with that of the interpreters. For the above reason, the interpreters should endeavor to adjust to accommodate the demands of effective interpreting (Witter-Merithew et al., 2004).

5.1.3 Strategies that could curb the deaf students' challenges in reading comprehension

The deaf students themselves did not seem to know much about the suitable strategies either. With reference to strategies to deal with the students' challenges, the study found many easy to implement strategies. For example, educating the English language tutors on the peculiar challenges of the Deaf as far as reading comprehension is concerned would be a step in the right direction. From the interviews, it was gathered that the English language tutors did not know so much of the peculiar problems the Deaf faced in reading comprehension. In addition to it could be training the tutors in the strategies that could enhance reading comprehension by

the Deaf. The deaf students write the same English language papers as the hearing. They necessarily must perform well in the English language including reading comprehension. Therefore, the tutors who teach English language should have the requisite knowledge to teach this category of students effectively. They need a comprehensive exposure through training to help them plan lessons and deliver via approaches and strategies that work for the Deaf (Oliva, 2012).

The use of visuals in reading comprehension was found to work for the Deaf. Visual aids such as concept maps, pictures, drawings could work for the deaf students (Durkin, 2018). As visual learners such teaching aids will likely communicate better to them. Again the students would have physical materials to guide them in reaching meaning of the text. Concept maps for instance are believed to present information to the Deaf without the confusion that a mere printed text could cause (Abdul Rahim et al. 2018). The study found that interactive reading like the shared reading, the KWL and also the use of moderated texts (texts with words that could be easily understood by the deaf students), supported with conscious activation of schema as well as vocabulary instruction to the students could be helpful in reading comprehension by the Deaf (Cañas et al., 2004; Mutakhirani 2018).

5.2 Pedagogical Implications

The deaf students are unable to meet many of the demands of reading comprehension. The deaf are unable to do inferential comprehension. This is because children with slow, inaccurate, or inefficient word reading have fewer cognitive resources available to devote to the processing of the text for meaning (Perfetti, 1985).

According to Kyle & Cain, (2015) reading comprehension is the product of word-decoding skills and listening comprehension. As a result, reading comprehension can fail because of poor word decoding, poor listening comprehension, or weaknesses in both components. Deaf children are typically presented with difficulties in both components of the reading process. As a result, their poor reading comprehension has often been ascribed to their word-reading difficulties. In the light of the forgone it becomes imperative to employ developmentally appropriate strategies to ensure that such a problem is curtailed or ameliorated as the case may be.

Re-reading a passage is a strategy that has been recommended by Schirmer, Schaffer and Schirmer (2012); Bickham (2015) as successful for students who are deaf or hard of hearing. Re-reading has been indicated as helping students to pick up on details or information they miss the first time or picking specific information (Bickham, 2015) thereby helping deaf students to benefit from re-reading in multiple settings.

The differences in their primary language, the Sign language serves as a hindrance to both easy interpretations of text and consequent understanding of the text content. This suggests that the students need to be more grounded in the English language and also be provided with texts that have supporting illustrations that do not require excessive reliance on the English Language. Passages that are Deaf accommodating could be used to aid easy comprehension by the students. Teachers also reported that adding pictures to test was a successful strategy with deaf students as they were able to compare the words with the pictures and get the full meaning from the text.

The findings support the schema theory because these students are unable to perform most of the demands of the theory and it thus reflect in their reading comprehension. The schema theory requires the reader to bring on board a host of stored prior knowledge to serve as solid background to what they read. Unfortunately, the Deaf have very limited sources of gathering this very vital information as it is mostly by informal and oral means (de Wit & Sluis 2014). Due to their deafness, they are unable to access much of the information that flows within their environment and because the majority of the people are hearing, they hardly purposefully relay such incidental information to the Deaf. Thus, they come to the reading comprehension lessons ill resourced to undertake the accompanying tasks (Hopper, 2016).

Another revealing information from the study is that the English language tutors who handle the reading comprehension are not well informed on the peculiar problems of the Deaf. Again, they were neither trained nor equipped with the requisite skills to engage in reading comprehension with this category of students. Most of their responses in the interview clearly showed that they had very little knowledge on the issues in Deaf reading comprehension. In line with the above, they were hardly able to suggest strategies nor materials that would yield positive results in Deaf reading comprehension. However, the tutors had observed that the deaf students lagged behind the hearing, the students did not perform as was expected and that their contribution or participation was low.

Again, the study found that many of the everyday comprehension strategies could work for the Deaf. It came out that one important strategy is the use of visuals to support the texts. Strategies that work for learners with reading difficulties could equally work for the Deaf. Projection of the text, illustrations, pictures, text organizers like concepts maps make reading comprehension easier to the Deaf. In addition,

activation of specific schemata for a comprehension task would make a difference to the students. Comprehending, learning and remembering information are highly influenced by what prior knowledge on topics and cultures the reader has before engaging with the text. When readers have higher previous knowledge level on a topic, they demonstrate better comprehension than those with a lower level previous knowledge (Jackson et al, 1997). More so in-depth schema activation helps students to retrieve the stored information from memory. It aids in recalling of accurate background information which relevant to the particular text. What this means is that going forward, English language tutors of the Deaf in Presbyterian College of Education would have to employ a great deal of visuals in teaching their Deaf students. They may have to identify texts that could be appropriately used with those visuals in order to support the learning of the Deaf. They equally require special time in training their deaf student in developing schemata. A constant practice in activation of schema may help. English language tutors of PCE may also have to project texts, illustrations, pictures, text organizers such as concepts maps to make reading comprehension easier for their deaf students.

5.3 Recommendations

Training workshops should be organized for Language tutors to expose them to the students' challenges and their implications. They must be equipped with deaf appropriate pedagogic strategies. Tutors of the deaf need to be made aware of any methods or strategies they can use to successfully support the development of reading comprehension skills in their students. It is important that the English language tutors note that, there are strategies that work for the deaf and that some strategies do not work for the Deaf (Bickham, 2015). "These strategies are easily implemented in a

classroom and should be used on a regular basis especially with students who are Deaf ” (Bickham, 2015 p. 58). The language tutors should train the Deaf in the comprehension skills. They should help the students recognize that, reading comprehension demands understanding of the entire text rather than understanding of the words.

The Sign language interpreters should regularly attend training workshops to upgrade their skills. In addition, the interpreters could be assigned specific subjects so that they gain in-depth knowledge in their assigned subject. They would then be in a better position to support the deaf students in specific subjects.

The language tutors should collaborate with the interpreters in the planning of the comprehension lessons to ensure quality integration of the Deaf. In this way the interpreters could help in the selection of texts, vocabulary to be treated, appropriate visuals, moderation of questions etc. The interpreters are knowledgeable on issues relating to the Deaf and could share and exchange useful ideas with the language tutors in that direction. The interpreters would also have prior access to the texts to enable them prepare in advance for the interpretation.

Adequate and appropriate resources must be provided: projectors, interactive boards, big/picture books, deaf accommodating texts, animations etc. These facilities when used to support the texts, enhance understanding of the deaf students. The findings of the study indicate that they help present the concepts in more concrete forms which communicate better to the Deaf. At the same time, they make the content more explicit and therefore less confusing.

The institution should keep well documented data on the deaf students’ progress in English language and reading comprehension specifically. Such

information would be useful to the language tutors as feedback that could guide them in their practices.

5.4 Suggestions for further studies

For further research, the study recommends a study in the designing of institutional pedagogic strategy to teach reading comprehension to the deaf.

A research into the training and preparation of Sign language interpreters of the College would be useful in the bit to improve the management of the deaf students.

Another area for further research could be in the development of Sign language equivalents of high frequency figurative expressions.



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APPENDICES

APPENDIX 1: Questionnaire for deaf students

This questionnaire is meant to gather information on reading comprehension by deaf students. The information you give will be used only for the purpose of the research.

Please feel free to ask for the interpreter's assistance when you need to.

Gender: Male [] Female []

Age : 17-20 [] 21-24 [] 25-28 [] Above 28 []

Please tick [✓] to choose from 1-5 where 1: strongly agree,(SA) 2: agree, (A) 3: neutral, (N) 4:disagree, (D)5: strongly disagree(SD).

Challenges deaf students face in reading comprehension

Item	S A	A	N	D	SD	T
	1	2	3	4	5	
1. I have adequate prior knowledge which helps me interpret passages.						16
2. I am able to use information from the environment to interpret comprehension passages.						16
3. I am able to relate content of passages to my own world view/experiences.						16
4. The structure of sign language helps me to interpret passages.						16
5. I am able to make meaning from the sentences of the passages I read.						16
6. I have adequate vocabulary to interpret the reading comprehension passages.						16
7. I am able to find synonyms of words in the passages.						16

8. I am able to find antonyms of words in the passages.						16
9. I am able to give summary of the passages I read.						16
10. I am able to make meaning of the figurative expressions in the passages.						16

Factors of the challenges

Item	SA	A	N	D	SD	T
	1	2	3	4	5	
1. My deafness makes it difficult for me to interpret comprehension passages.						16
2. My deafness makes it difficult for me to access incidental information.						16
3. The majority of the people in my community are able to communicate with me.						16
4. I am able to make meaning of what the people in my community communicate to me.						16
5. The reading comprehension passages we use are written in Sign language.						16
6. Reading comprehension questions are set in Sign language.						16
7. There are separate academic materials for the deaf.						16
8. English language tutors are familiar with sign language.						16
9.. English language tutors						16

understand deaf culture.						
10. The deaf understand what the English language tutors teach them.						16
11. The interpreters are conversant with reading comprehension.						16
12. The interpreters are specialized in English language.						16
13. The interpreters are able to explain reading comprehension passages to the Deaf.						16
14. The interpreters interpret and sign clearly and understandably.						16

D. What do you think could be done to help reduce these difficulties?

D. What do you think could be done to help reduce these difficulties?

APPENDIX II: GUIDE FOR THE FOCUS GROUP DISCUSSION

The following are the outcome of the focus group discussions held with the deaf students on their individual challenges in reading comprehension.

1. Kindly tell me what you think of reading comprehension (in general).
2. (i). Are there aspects of reading comprehension you find easy to do?
(ii). Kindly tell what aspects they are.
3. (i) Are there aspects that you find difficult to do?
(ii) Kindly tell what they are.
4. What do you like about reading comprehension?
5. Kindly tell what you do not like about reading comprehension.
6. How do you want reading comprehension to be like?



APPENDIX III

Reading comprehension passage administered to the students

Comprehension passage

Section B

You are advised to spend about **30 minutes** on this section

For months, the robbers had ravaged the neighborhood. One household after another had been visited by the gang, night after night. Soon, their strategy was almost predictable. They would announce their arrival with shots fired into the air and call on their chosen host for the night to himself by opening the door. Then they would cart away their loot just before the break of day. They generally did not harm anyone who cooperated with them. For three months, they paid their regular visits to the neighborhood.

Thus, Jagun knew that sooner or later, he would be an unwilling host. He decided to prepare for their visit though when that would be, he could not say. He chose not to take things lying down, but he kept his strategy close to his chest.

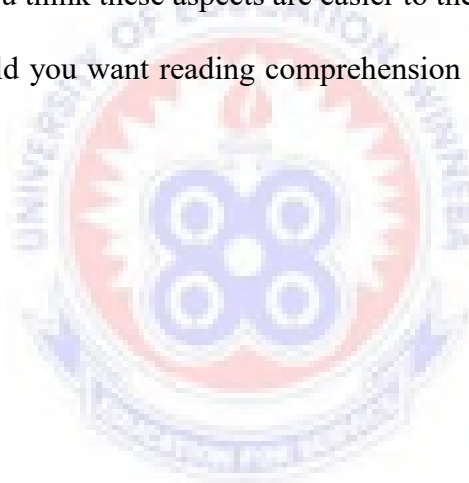
The robbers turned up at last. They called him by name and ordered him in his own interest to open the door. He hushed his wife children and directed them to the toilets upstairs. This back down the main door. He had double-plated the main door. The door resisted them. Well, they had brought machetes and a pickaxe. But their ...

- (a) Why was Jagun able to prepare adequately for the robbers' visit?
- (b) What two steps had Jagun taken to confront the attackers?
- (c) Why did Jagun succeed in chopping off so many hands?
- (d) What saved the driver from the gory ordeal?
- (e) Why did the robbers beat a hasty retreat?
- (f) ...he kept his strategy close to his chest. What does this expression mean?
- (g) Who was waiting in the get-away vehicle?
- (i) What is the grammatical name given to this expression as it is used in the passage?
- (ii) What is its function?
- (hi) For **each** of the following words or phrase, find another word or phrase which means same and which can replace it as it is used in the passage:
- (i) Ravaged (ii) harm (iii) hacked (iv) anguish

APPENDIX IV

Interview questions for tutors and sign language interpreters

1. Kindly share your general observation on deaf students' participation in reading comprehension.
2. What aspects of reading comprehension do you think are more difficult to the deaf students?
3. Why do you think these are the more difficult aspects?
4. What are the easier aspects of reading comprehension to the deaf students?
5. Why do you think these aspects are easier to them?
6. How would you want reading comprehension to be carried out for the deaf students?



Level 200

Section B
Comprehension
170 marks

You are advised to spend about 40 minutes on this section.

Read the following passage carefully and answer the questions on it.

For months, the robbers had invaded the neighbourhood. The householder had been warned by the police and taken night hours, then nothing was to be done. They would announce that they would not be disturbed and as for their cars, they would be the right to return to work by opening the door. Then they would cut away their lives just before the front of door. They generally did not harm anyone who accompanied them. The day was over, they paid their regular share to the neighbourhood.

That day he knew that someone had to be a willing host. He decided to prepare for the worst. He thought that would be his road to safety. He closed the door, he hung down, he locked his window, and he hid.

The robbers came up at last. They pulled the door open and asked for the keys. He refused to open the door. He hid, and his wife and children and directed them to be safe upstairs. It is

(a) He would be an unwilling host ✓

(b) i) Jason ~~was~~ cut his attacker's sword ~~was~~ off ~~he~~ ~~was~~ his wrist ✓

(ii) ✓

(c) He does not want the attackers to kill his family to rob his property ✓

(d) The driver ~~was~~ waiting in the jet-vehicle every vehicle outside ✓✓

(e) It was their fate time ✓

(f) groined ✓

(g) i) noun phrase ✓
ii) it modifies the verb "used" ✓

(h) i) entered ✓
ii) ~~checking~~ ✓
iii) ✓

(i) ~~scared~~ ✓
ii) cut ✓
iii) ~~four~~ ✓

2/6

4/6

knock down the main door. He was double-panted the main door. The door resisted them. Well, they had brought machetes and a pickaxe. But their tools proved sufficient.

Jagan then led them, deciding to make a hole in the wall. So, kneeling with a heavy canteen-slug for that serious job, the robbers' task was an old pickaxe and the machete was a to-morrow. At last, they made a hole large enough to let the man head in. Evidently, he wanted the leader of the gang decide to go through, but first, he had to clear the cabin of the broken blocks. As soon as the hand came through, Jagan hooked it off in the wrist, with just one stroke. The amputated hand was quickly withdrawn. The area captain, he announced that everything was well, and as he received in command should follow suit. Jagan waited. And, again, a second hand came through with the same result. The medical team was quickly withdrawn. A third hand met the same fate. With the fourth robber, a young man, but his hand, he screamed in agony. The others tried to hook it up, but he tried the noise. It was time to leave a hasty retreat. By then, only the driver, who was waiting in the get-away vehicle, was spared the grey ordeal. At daylight, the police arrived at the scene and get enough information to hunt down the robbers.

- (e) Why was Jagan able to prepare adequately for the robbers' visit?
- (f) What two steps had Jagan taken in connection with the attack?
- (g) Why did Jagan succeed in chopping off so many hands?
- (h) What saved the driver from the gang's ordeal?
- (i) Why did the robber's hear a noisy retreat?
- (j) ... *in best for strategy close to his elbow*. What does the expression mean?
- (k) ... *who was waiting in the get-away vehicle*.
 - (i) What is the grammatical name given to this expression as it is used in the passage? *PP*
 - (ii) What is its function? *subject*
- (l) For each of the following words or phrases, find another word or phrase which means the same and which can replace it as it is used in the passage:
 - (i) ravaged;
 - (ii) kern;
 - (iii) hooked out;
 - (iv) prodded;
 - (v) hooked;
 - (vi) any fish.

4-4-88

Section B
[20 marks]

You are advised to spend about 20 minutes on this section.

Read the following passage carefully and answer the questions on it.

For weeks, the robbers had ransacked the neighbourhood. One house held after another had been looted by the gang, right down right down the street, as almost for a mile. They would break down their doors with shot fired in the air and as they ran their chosen loot for the night, they believed well by opening the door. Then they would cut away their loot just before the break of day. They never did not catch a man who cooperated with them. For three months, they had the only drive into the neighbourhood.

Thus, they knew, but one man or two, he would be an answering for the trouble to prepare for their visit to get what they could not say. He chose not to take things lying down, but he kept his strategy close to his chest.

The soldier hurried out. They walked in his house and adjusted the door with one eye to open the door. He looked for a stack of their weapons, then let a whole episode. He

was not there.

$\frac{4}{20}$

- ⑧ It was time to host a hazy retreat - ✓ - 1
 - ⑨ The police arrived at the scene and got enough information to hunt down the robbers - ✓
 - ⑩ The driver who was realising in the get away vehicle - ✓
 - ⑪ Robber
 - ⑫ The robbers had ransacked the neighbourhood? ✓
- (h) Ravaged — stole ✓
 ii Harm — destroy ✓
 iii Barked out — killed ✓
 iv predicted — keep life ✓
 v attacked — against ✓
 vi Anguish — angry ✓

$\frac{1}{1}$

$\frac{2}{1}$

... they had a high chance of being caught. At last, they arrived at the house. Jagun had been there standing in the street for some time. The look of the group seemed to give him a good idea of what had happened. The man in the car was well and the car was still running. The man in the car was well and the car was still running. The man in the car was well and the car was still running.

- (a) Why was Jagun able to prepare adequately for the robbery?
- (b) Why was Jagun able to drop out of society easily?
- (c) Why did Jagun succeed in dropping off so many vehicles?
- (d) What were the drivers of the cars doing?
- (e) Why did the robbers have a heavy gun?
- (f) Why did the robbers have a heavy gun?
- (g) Why did the robbers have a heavy gun?
- (h) Why did the robbers have a heavy gun?
- (i) Why did the robbers have a heavy gun?
- (j) Why did the robbers have a heavy gun?

(c) Yes, Jagun knew the scene of the robbery, he would be an unwilling hero. He decided to prepare for their visit. Jagun had been there for some time. He had brought machetes and a pickaxe. As soon as his hand came through, Jagun hacked it off at the wrists with just one stroke. By then, only the driver who was wearing the get-away vehicle was spread in the gory order.

2

Section 2
Duration: 20 minutes

300

You are advised to spend about 30 minutes on this section.

Read the following passage carefully and answer the questions which follow.

For months, the robbers had ravaged the neighbourhood. One morning when motion had been restored by the gang, night after night, soon, their strategy was almost predictable. They would announce their arrival with a whistle, then the air and call on their chosen host for the night to hide himself by opening the door. Then, they would roll away their loot just before the break of day. They generally did not harm anyone who cooperated with them. For this reason, they paid different fees to the neighbourhood.

Thus, Jagan knew that sooner or later, he would be a victim of their law. He decided to prepare a plan which would help him when that would be he could not say. He chose to be a leg-lying down, but he kept his weapons close by his side.

The robbers took up their loot, they called them by name and entered the house. When they got the door, they called the wife and children and locked them in the toilet upstairs. The

END OF SECTION 2

300

Listening
(20 marks)

2/20

You are advised to spend about 20 minutes on this section.

ii Read the following passage carefully and answer the questions in it.

The members of a club had gathered for a reception. They had scheduled a list of activities for the evening. The group, which after eight years' hard struggle was almost disbanded, they would certainly have a final gala which had been planned for the evening. They had planned for the night to have a time of opening the door. They they would go away that night and before the break of day. They generally did not have anyone who expressed a desire for three months. They said their night was a dancing floor.

They began to know that some or later he would be an actor. He decided to appear in that night though when he would be to work but say. He was not to like things for he kept his strength going. He had.

The club was closed what time. They called him by name and entered him in his own name. He was the one. He had of his own. It was from his own mind that he to the other speakers. They

- (i) averaged - emptied ✓
- (ii) hair - destiny ✓
- (iii) barked out - voices ✓
- (iv) predicted - number ✓
- (v) hacked - tracked ✓
- (vi) anguish - angry ✓

word

Section II
(Composition)
(20 marks)

300

You are advised to spend about 30 minutes on this section.

Read the following passage **carefully** and answer the questions on it.

For months, the robbers had ravaged the neighbourhood. One household after another had been visited by the gang, night after night. Soon, their strategy was almost predictable. They would announce their arrival with shots fired into the air and call on their chosen host for the night to behave himself by opening the door. Then, they would cart away their loot just before the break of day. They generally did not harm anyone who cooperated with them. For three months, they paid their regular visits to the neighbourhood.

Thus, Jagan knew that sooner or later, he would be an unwilling host. He decided to prepare for their visit though when that would be he could not say. He chose not to take things lying down, but he kept his strategy close to his chest.

The robbers turned up at last. They called him by name and ordered him in his own interest to open the door. He dashed his wife and children and directed them to the toilets upstairs. This

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(2)

Thank you very much for your participation