

UNIVERSITY OF EDUCATION, WINNEBA

**CLASSROOM COMMUNICATION AMONG DEAF STUDENTS,
INTERPRETERS AND LECTURERS OF THE UNIVERSITY OF
EDUCATION, WINNEBA.**



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EDUCATION, WINNEBA.

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DECLARATION

CANDIDATE'S DECLARATION

I, Dora Anokye Asare, declare that this Thesis, except for quotations and references contained in published works, which have all been identified and duly acknowledged, is entirely my original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

SIGNATURE.....

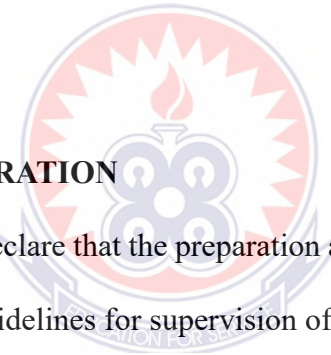
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SUPERVISOR'S DECLARATION

I, Dr. Daniel Fobi, hereby declare that the preparation and presentation of this work were supervised following the guidelines for supervision of the Thesis as laid down by the University of Education, Winneba.

SIGNATURE.....

DATE.....



DEDICATION

I dedicate this work to my deceased father, Mr. John Asare for his encouragement and support.



ACKNOWLEDGEMENTS

I extend my heartfelt gratitude to my research advisor and supervisor, Dr. Daniel Fobi, for his support and patience. Every encounter with him enhanced my understanding and professional growth in research. I also appreciate the efforts of Mr. Obed Appau, Mrs. Joyce Fobi, as well as, Mr. Nathaniel Ayiku, and Mr. Robert Anane Diamond for their support. I would like to express my profound appreciation to my brother, Mr. Isaac Anokye Asare. All the Executives of SSA-UoG, I appreciate your contributions and love shown towards me and all those whose names were not mentioned but played key roles in the completion of this work. God richly bless you all.



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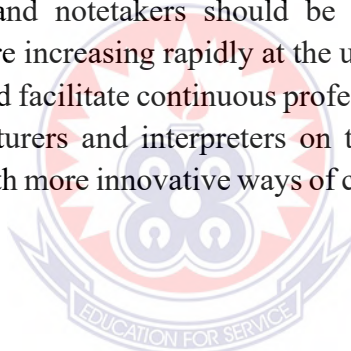
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ABSTRACT

This study employed a case study design to explore classroom communications among lecturers, interpreters, and deaf students at the University of Education, Winneba (UEW). The data for the study were gathered from 20 participants comprised of 10 deaf students, five interpreters, and five lecturers from five academic departments at the University of Education, Winneba. A one-on-one semi-structured interview was used for data collection, and the data were coded and analyzed using a thematic approach. Findings from the study indicated that different communication approaches that included sign language interpreting, note-taking, body gestures, facial expression, fingerspelling, speech reading, and word interpreting were used at the UEW among deaf students, interpreters, and lecturers. It was also revealed that there no structured procedure for communication regarding classroom communication. Again, it was evident that the lighting system in some lecture halls is not supportive for evening lectures which makes interpreting discomforting because deaf students hardly get the communication due to the state of the lights. Based on the results from the study, it is therefore recommended that the Sign language interpreters at UEW should build on their proficiency in sign language to make classroom communication effective and more encouraging. Also, more professional interpreters and notetakers should be given the opportunity since the population deaf students are increasing rapidly at the university. Finally, the Department of Special Education should facilitate continuous professional development seminars and in-service training for lecturers and interpreters on the education of deaf students to enable them to come up with more innovative ways of communicating with deaf students.



CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Communication, which is the act of exchanging ideas, both orally and nonverbally, is one of the most significant aspects of human life. Although communication is a skill that comes naturally to people, it takes a variety of abilities to effectively convey thoughts and feelings, and, of course, avoid misunderstandings (Langga et al., 2021). Communication is a two-way mode of expression between the encoder and the decoder. The role of communication in human society is sharing the affective and cognitive attributes to interact. Research has proved that a lack of skills in communication results in false understanding (Uvaraj & Mumtaz, 2011). Consequently, communication is extremely important to the overall successful education of all students including deaf students. It has been reported that classroom communication is a very important component in the teaching and learning process for deaf students in tertiary education (Nwachuwu, 2020).

Classroom communication does not happen all of a sudden, it needs a speaker, receiver and the known subject or object going to be discussed. Concerning the education of deaf students, communication is a very key requirement for a successful teaching and learning process. Duncan (2010) asserted that the usage and development of verbal language and communication are significantly influenced by the sense of hearing. Similarly, to this, Ainscow (2007) claimed that communication involves gathering, processing, and storage of relevant information in short and long-term memory, as well as the retrieval of that information.

In Ghana, the majority of deaf students who belong to the deaf cultural community accomplish their secondary school education in a segregated public senior

high/technical school for the deaf. At Mampong Akwapim Senior High/Technical for the Deaf, the official mode of communication and medium of instruction is signing in the form of Ghanaian Sign Language (GSL) (Fobi & Oppong, 2019). A quite considerable number of deaf students who successfully graduate from the Mampong Akwapim Senior High/Technical for the Deaf continue to further their tertiary education at the University of Education, Winneba (UEW). The UEW is a public tertiary institution in Ghana that practices inclusion with support services, including sign language interpreting, note taking, tutoring, and information and communication technology (ICT) to make the curriculum accessible to deaf students (Fobi & Oppong, 2019). Educating deaf students successfully depends on interventions and targeted approaches to teaching and learning, both at home and at school, that take into account the characteristics of deaf children and the physical, economic, cultural, and social contexts in which they grow up (Fobi & Oppong, 2019; Harry Knoors et al., 2019). The interventions and targeted approaches are ways of communicating and transferring information peculiar to change in an individual's life. However, communication becomes a pivot so far as the education of deaf students is concerned.

Communication promotes thinking, classroom learning, and participation among learners (Fobi & Oppong, 2019). Through communication, teachers disseminate information to students, which enable them to be abreast with any current information. At all levels of education, particularly the tertiary level, communication may serve as a major factor that influences the academic achievement of deaf students. Therefore, classroom communication contributes greatly to the education of deaf students and must be considered with urgency.

Classroom communication is one of the most important aspects to consider when discussing the successful teaching and learning of learners who are deaf

(Marschark, 2003). In this study, classroom communication comprises interaction and interpretation of information between lecturers, interpreters, and deaf students in the lecture hall. Classroom communication provides more access to education for deaf students. Therefore, it is necessary to establish the classroom communication modes, the understanding lecturers, interpreters, and deaf students have about classroom communication, the supportiveness of the classroom environment, and the strategies and resources that can contribute to classroom communication for deaf students. Deaf students do not begin the tertiary education with the same amount of common information as hearing peers within the education setting, because multiple researchers have concluded that deaf students enter the tertiary classroom with less general knowledge (Marschark et al., 2004).

In Ghana, deaf students frequently depend on sign language interpreting, note taking, and tutoring services for academic, and social information (Fobi & Oppong, 2019). UEW offers these services to deaf students, yet the deaf students still have difficulties, perhaps due to communication barriers. Therefore, the purpose of the study was to explore the various communication modes employed by lecturers and interpreters in tertiary-level education for deaf students.

1.2 Statement of the problem

Classroom communication in educational mainstream is predicated on the idea that deaf students' access to information in the classroom depend on a skilled sign language interpreter who acts as a voice and gives them access to communication with hearing students (Marschark et al., 2005). However, deaf students experience a significant number of barriers related to learning in the classroom. These barriers are associated mostly with classroom communication among deaf students, interpreters, and lecturers since students' understandings vary regarding language and communication

modes within the classroom setting. These wide ranges of barriers they are confronted with place them at an ongoing disadvantage with other students. This has affected the academics of some deaf students at the tertiary level (Bell & Swart, 2018). Research has revealed that deaf students have consistently trailed behind their hearing counterparts in academic performance due to communication constraints in the classroom or during instructional hours (Adoyo, 2002; Marschark, 2006). Again, lecturers' mode of instruction, teaching, and examinations, where communication is the expression of ideas and thoughts and the time allocated during examinations for deaf students becomes a challenge to their education (Kigotho, 2016).

In addition, research has revealed that communication and interaction as the gap between deaf students, interpreters, and lecturers in the classroom (Knoors & Hermans, 2010). Kigotho (2016) also emphasized that incompetent interpreters, inadequate infrastructure, and social isolation and loneliness have prevented deaf students from classroom communication and attaining positive learning outcomes which seems to be a hindrance to the education of some deaf students at the tertiary level.

In Ghana, deaf students usually rely on sign language interpreting, note-taking, and tutoring services. Since there is no national policy on the modes of communication for deaf students, there have been swings in the modes of communication throughout time, which hasn't truly helped deaf education in Ghana regarding classroom communication (Fobi & Oppong, 2019). Moreover, a study conducted by Adu (2021) on the social and academic experiences of students who are deaf at UEW revealed that, deaf students are typically evaluated academically on subjects they have learned, and examinations are also made more challenging when sign language interpreters are not present. This suggests that deaf students' academic achievements are significantly impacted by excellent lecture-hall communication among students, instructors, and

classmates. Also, a study by Appau (2020) revealed that deaf students prefer certain interpreting styles, and some interpreters are not equipped with the necessary skills to interpret all subjects, including Math, Science, and English, due to insufficient knowledge in these subject areas. It seems that insufficient knowledge of interpreters in course content does affect the understanding of deaf students regarding their area of study.

In 2018, I had the opportunity to engage with deaf students while serving as an intern and interpreter for the deaf students at UEW. During classroom sessions, when instructors asked the students, "Do you understand?" they consistently responded affirmatively. However, when it came to completing exercises, they rarely finished them. Another significant encounter with deaf students took place in an exam room where I inquired about their exam experiences. The deaf students expressed that the disparity between lecture content and exam questions made the exams exceptionally challenging. This experience served as motivation for me to initiate the study.

1.3 Purpose of the Study

The purpose of this study was to explore classroom communication among lecturers, interpreters, and deaf students at UEW.

1.4 Objectives of the Study

The study specifically sought to address the following objectives:

1. To find out the communication modes for the education of deaf students at
 - a. UEW.
2. To examine the understanding interpreters, lecturers, and deaf students have about classroom communication for deaf students at UEW.
3. To ascertain the classroom environment support for classroom communication at UEW.

4. To find out the strategies and resources that can contribute to classroom communication for deaf students at UEW.

1.5 Research Questions:

The following research questions were raised to guide the study:

1. What are the communication modes for the education of deaf students at UEW?
2. What understanding do interpreters, lecturers, and deaf students have about classroom communication for deaf students?
3. How does the classroom environment support communication for deaf students at UEW?
4. What are the strategies and resources that can contribute to classroom communication for deaf students at UEW?

1.6 Significance of the Study

The results of this would reveal the various classroom communication modes among deaf students, interpreters, and lecturers at UEW. This would enable interpreters and lecturers to know more about the classroom communication modes suitable for deaf students at the tertiary level and in schools for the deaf, as well. The results of the study would also reveal that lecturers, interpreters, and deaf students' understanding concerning classroom communication modes for deaf students at the UEW. This would enable interpreters and lecturers to make more accommodations for the education of deaf students.

In addition, the findings of the study would help UEW and the Department of Special Education to ensure a supportive classroom environment for communication for deaf students at the university, which makes evening lectures more conducive for both lecturers, interpreters and deaf students. Finally, the results of the study would reveal the strategies and resources to ensure classroom communication for deaf students and, this

would enable the Department of Special Education to ensure training programs or seminars for lecturers and interpreters. Also, it would be added to the deaf education literature and existing theories on classroom communication for deaf students in tertiary institutions and serve as a source of reference to researchers who may be interested in conducting similar studies.

1.7 Delimitation

This study was delimited to classroom communication among deaf students and hearing people (interpreters and lecturers). The level 200 and 300 deaf students were considered for the study because they had spent more than two semesters at the UEW and these students typically had benefitted from sign language and were most likely to have diverse encounters with different lecturers and interpreters. Level 100 and 400 deaf students were not included because the level 100 deaf students were in their first semester and had not been involved much in lectures and academic activities in the university while the level 400 deaf students were on internship.

1.8 Limitations of the Study

In the course of conducting the present study, I encountered some difficulties because the sample was smaller than had been anticipated. To obtain information on classroom communication at the university, the researcher also had to exclude level 100 deaf students because they had not had many encounters at the lecture hall and the 400s were also on internship assignments. Also, scheduling appointments with lecturers, interpreters, and deaf students for the interview was a challenge. The researcher overcame these challenges by consulting participants to schedule the interview on their free days and leisure time. However, despite these limitations, the research findings and conclusions were not compromised significantly.

1.9 Operational Definition of Terms

Classroom communication: A web of interaction and interpretation of information between lecturers, interpreters, and students who are deaf.

Communication: Imparting or exchanging of information by speaking, writing, or using some other medium within the classroom.

Sign Language: Natural and non-voiced language of deaf students.

Deaf Students: Students whose level of hearing acuity range from severe to profound and solely depend on sign language interpreting services for academic information.

Communication Modes: Method or technique used in combination with others to communicate or instruct students who are deaf. In other words, is the various ways of transmitting information.

Modes: Communicating or transferring information.

Interpreting: This is the transfer of one spoken word or sign language to another.

Hearing people: UEW lecturers and interpreters.

1.10 Organization of the Study

This thesis was presented in six chapters. Chapter one comprised the background to the study, statement of the problem, objectives of the study, research questions, significance of the study, delimitations of the study, limitations, operational definition of terms, and general layout of the study. Chapter two occupied the literature review taking into account the research objectives and the theoretical framework of the study. Chapter three dealt with the methodology including research design, population, sample and sampling techniques, instruments used in data collection and analysis, and description and distribution of instruments. Chapter four covered the presentation and analysis of data collected and Chapter five focused on the interpretation and discussion of results. Chapter six constitutes the summary, conclusions, and recommendations.

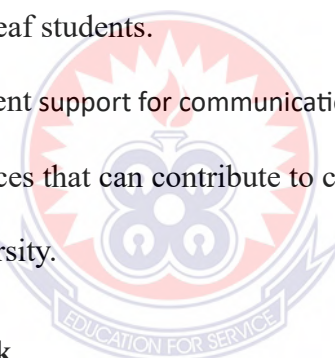
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter highlighted the review of related literature on classroom communication for deaf students, interpreters and lecturers. The literature reviewed included related literature based on earlier researchers' findings and the theoretical framework. The chapter was organized in line with the study objectives.

1. Theoretical framework
2. Classroom communication modes for the education of deaf students.
3. Understanding interpreters, lecturers, and deaf students have about classroom communication for deaf students.
4. Classroom environment support for communication of deaf students.
5. Strategies and resources that can contribute to classroom communication for deaf students at the University.



2.1 Theoretical Framework

Kress's Theory of Multimodality

The study was guided by Gunther Kress's Multimodality theory (1993). The theory looks at how students engage and communicate with one another through gestures, eye contact, signals, posture, and visual media (videos and images), in addition to writing and speaking (Kress & Leeuwen, 2001). Kress (2011) indicated that Multimodality is an interdisciplinary approach that understands communication and representation to be more than language. It was developed over a decade ago to systematically address much-debated questions about changes in society. In the context of this study, it was relevant to understand the use of different modes or mediums to make meanings through

communication among deaf students, interpreters, lecturers, and note-takers in the teaching and learning process. In the life of every human being, the things our eyes capture are difficult to erase from our memories. Therefore, the communication done through the use of gestures, videos, images, or signs could be relevant to how deaf students connect with sign language interpreters and lecturers in higher institutions and could influence their studies in the education process (Skyer, 2021).

Gee et al. (2011) asserts that ‘language’ is just one among the many resources for making meaning. This implies that the modal resources available in culture need to be seen as one coherent, integral field, of nevertheless distinct resources for making meaning. The point of a multimodal approach is to get beyond approaches where mode was integrally linked, often in a mutually defining way, with a theory and a discipline. In such approaches, writing was dealt with by linguistics; image by art history; and so on. In a multimodal approach, all modes are framed as one field, as one domain. Jointly, they are treated as one connected cultural resource for (representation) as meaning-making by members of a social group at a particular moment. All are seen as equal, potentially, in their capacity to contribute meaning to a complex semiotic entity, a text, and each is treated as distinct in its material potential and social shaping. Each, therefore, needs to be dealt with as requiring apt descriptive categories which arise from that difference.

Multimodal approaches provide concepts, methods, and a framework for the collection and analysis of visual, aural, embodied, and spatial aspects of interaction and environments, and the relationships between these (Bezemer, 2012). Kress (2010) stressed the pragmatics of communication; namely, sign-maker issues a “prompt” (e.g., a gaze, a gesture, a spoken sentence, a touch) to an addressee or audience, and the latter will then start interpreting the sign and respond to the prompt following their interest

(Kress, 2010). In another study, Lin (2021) stated that, texts, as the basis for translation, are composed of a combination of different modes rather than only linguistic texts (monomodal). Therefore, apart from traditional verbal texts, other non-verbal modes should also be highlighted.

The practice of translation is a process of correlation and interaction between different semiotic resources which allows people to overcome cultural barriers (Skyer, 2019). As the focus is shifted to the cultural-semiotic dimension of texts. Sign language translation, as one of many subfields of translation studies, is related to the theory of multimodality. This idea has been explored by several studies in recent years.

Kress (2010) advocated a dynamic view in the following way:

... *socially*, what counts as the mode is a matter for a community and its social-representational needs. What a community decides to regard and use as the mode *is the* mode. Formally, what counts as the mode is a matter of what a social-semiotic mode requires a mode to be and to do.

Kress's theory considered the field in which semiotic work takes place, a domain for inquiry, a description of the space and of the resources that enter into meaning in some way or another (Kress, 2011). Kress views multimodality as common semiotic principles which operate in and across different modes, and in which it is therefore quite possible for music to encode action, or images to encode emotion (Kress & Leeuwen, 2001). Social semiotics is concerned with "the way people use semiotic resources both to produce communicative artifacts and events and to interpret them in the context of specific social situations and practices" (Zahirah & Sukyadi, 2018).

Communicationally, the social semiotic model brings a rhetorical approach; that is, rhetoric as the politics of communication demands an attitude that enquires about the social environment of communication and its participants, about their relations in terms

of power and their social characteristics. It focuses on what is to be communicated and, on the means, available for materializing the meanings at issue and the means most apt in terms of the social environment and of the characteristics of the audience (Gee et al., 2011).

2.1.1 Implication of Kress's Theory to the study

Kress (2011) viewed multimodal resources as signs which are both motivated and conventional. Thus, the various modes conducted by UEW lecturers and interpreters with respect to deaf students, could be related to each other in conveying a particular message based on the learning (academics) and social contexts.

At UEW, many of the lecturers and interpreters support the education of deaf students through the consistent use of sign language as the language of instruction, by providing conceptually accurate translations between the two languages (spoken and sign), and by presenting language in a multimodal way through sign, words, print, videos, and pictures that help to make instruction meaningful to deaf students. Regarding the teaching-learning process of deaf students, Evans (2004) also stated that sign language can also be seen as one of the multimodal resources and functions the same as oral language in the sense that it can allow people to request, command, argue, and persuade, as well as to express feelings, tell jokes, and create poetry. However, though the signs can carry those functions, they can also be interpreted differently based on certain contexts. Kress (2011) supported the previous statement by pointing out that signs change from time to time. Moreover, the varied multimodal resources such as verbal, written, and simple pictures, and factional mode (including body movement, vector, gesture, and posture) can work together harmoniously so that teaching materials can be more comprehensible. This means, multimodal understandings of literacy require a thorough

elaboration of the full multimodal ensemble used in any communicative event, which in this case is the teaching-learning component, especially, for deaf students (Zahirah & Sukyadi, 2018).

Multimodal analysis is integral to various aspects of deaf interactional research, including interpretation. This model is applicable to interpretation, as communication is considered complete only when both articulation and interpretation have occurred. Delving into the specifics, one could argue that communication relies on an 'interpretive community' acknowledging the articulation of some aspect of the world for it to be interpreted. Consequently, interpreters play a crucial role in providing semiotic knowledge for a successful teaching and learning process.

2.2 Classroom Communication Modes for the Education of Deaf Students.

2.2.1 The Concept of Communication

Communication among individuals is the sending and receiving of a message, and it often should involve two or more people. In other words, communication is the exchange of ideas or information that involves the decoding of the intended message by the sender and receiver (Hunt & Marshal, 2002). Through communication, needs, feelings, desires, and ideas are expressed. Information is given and received through communication and in this way, one establishes one's own identity. Effective communication is an important step toward building good relationships and involvement in a family, community, institution, or nation at large.

Lewis (2009) emphasized that communication is the solid, compelling force in the biological existence of all human beings as well as in our social, cultural, and personal lives. The vital purpose of communication in human beings is the pursuit of knowledge. The importance of communication in the human species cannot therefore be over-

emphasized, because it is the fundamental aspect of all human interactions. It is through language that humanity has been able to record its history and transmit its culture from one generation to the next. Furthermore, the ability to communicate has enabled humans to build societies, organizations, and social groups that are needed for survival and better living.

The need to communicate is indicated by the fact that all human societies have developed signal systems for communication-based on the spoken word, using the aural/oral channel for reception and expression. According to Reed (2009), most members of societies gain the language of their group effortlessly throughout the first few years of life. He pointed out that a child will effortlessly internalize an auditory-based language system if the infant has a reasonably intact sensory system. The infant must also not have severe intellectual or cognitive deficits and should be exposed to a reasonably stimulating environment. The parents or caregivers of the infant also ought to be reasonably verbal, providing a reasonably warm and loving atmosphere, and communicate reasonably fluently with the infant. The importance of communication in the human species cannot be over-emphasized as the fundamental aspect of all human interaction. It is through language (communication) that humanity has been able to record its history and transmit its cultures from one generation to the next. Furthermore, the ability to communicate has enabled humans to build societies, organizations, and social groups that are needed for survival and better living (Okeke, 2003). Therefore, communication is the pattern of sharing ideas between two or more people that gives an understanding. According to Afful-Broni (2006), it has been reliably discovered that one of the most potent means of psychologically and socially killing a person and cutting him off from any community or organization is through negative communication. In this context, we are referring to the deliberate refusal to communicate valuable information

to a person or a group of persons for their survival. Negative communication is also understood to mean the situation where information flow is so poorly done, so deliberately twisted through improper transmission, or where the information is intentionally or incompetently made to arrive so late that it is of no use to the recipient.

Forms of Communication

The forms of communication are formal types of communication, informal types of communication, oral communication (face-to-face), oral communication (distance), written communication, non-verbal type of communication, grapevine communication, feedback communication, visual communication, and active listening (Kapur, 2020). Sign languages are the languages of the deaf community. When individuals suffer from speech disabilities and hearing impairments, they make use of sign language in communicating. While communicating, the individuals must keep normal facial expressions. The individuals need to be well aware in terms of the types of communication. Furthermore, they need to be aware that what types of communication will be appropriate and suitable in various settings and environments. The types of communication that are put into operation are dependent upon the needs and requirements of the individuals and the purposes that need to be acquired through the implementation of types of communication.

- **Formal Types of Communication**

The formal type of communication is also known as official communication. This type of communication is conducted through a pre-determined channel (Kapur, 2020). Formal communication forms the core of the professional lives of individuals. In the effective implementation of this type of communication, there are various factors which need to be considered. These include the purpose of communication, following the well-

defined structure of knowing one's audience, keeping the tone open and professional, taking into consideration the time limit, and thanking the audience for listening. When individuals are giving presentations or speeches, then they need to thank their audience for listening. Formal types of communication lead to the adequate performance of job duties. Therefore, individuals need to be well aware of this type of communication to augment their professionalism and achieve organizational goals.

- **Informal Types of Communication**

Informal communication is put into operation within the organizations among colleagues as well as among superiors and subordinates. This type of communication is also known as unofficial or grapevine communication. Word-of-mouth information is regarded as the primary characteristic of this type of communication. The main features of this type of communication are, it is spontaneous and free-flowing without any formal protocol or structure. Hence, the level of accuracy and reliability is less in this type of communication. The individuals do not have to follow the rules or take into consideration, the time limit. In most cases, it is carried out orally and does not require documented evidence. Informal communication is considered user-friendly and advantageous to individuals when it is put into practice wisely. Within the organizations, individuals are carrying out this form of communication, they encourage positive ideas and expressions. As a result, they develop motivation toward their work. Therefore, informal types of communication are important in creating amiable and pleasant working environmental conditions.

2.2.2 Communication Approaches for Deaf Students

As previously stated, one of the important facets of human life is the process of sharing ideas verbally and non-verbally (communication). It is a necessity to establish a

harmonious relationship with other people to survive. The ability to communicate is innate; however, there are various skills that humans must possess to convey ideas and feelings and, of course, to avoid misunderstanding. One of these important skills is listening, which is needed in learning a language. As such, deaf students lack listening, which leads to problems as far as social interaction is concerned (Langga et al., 2021). Therefore, there is a need for a medium or an approach that will help them live freely as everyone does.

Communication approaches refer to all the forms of speaking or signing that deaf students use to socially interact with others. Communication modes are methods or techniques used in combination with others to communicate or instruct deaf students. To enhance the learning of students who are deaf, and thus make education inclusive, it is essential to determine best practices for communication that can help them to engage with others, maintain interactions, and build friendships with hearing students. Despite this plethora of research, there is very limited research so far which discusses the translation of sign (communication) from the perspective of multimodality. The significance of such a study is of particular importance for the area of sign language translation. According to Heward (2006), most learning occurs through interaction with other people. Such learning is possible only when individuals can communicate with understanding. Likewise, the quality of the relationship between deaf students and her/his teacher is dependent on the quality of communication existing between them. Thus, the choice of communication mode that will be most effective is of utmost importance. The main benefit of communication approaches is that they can open all avenues and modes of communication for deaf students. Teachers might be reluctant to choose one mode of communication over another. These approaches include the following.

2.2.2.1 Sign Communication

Sign language is a manual communication commonly used by deaf students. A method of communication using signs (gestures) and finger spelling to make meaning in communication, also referred to as manual communication (Nwachuwu, 2020). Deaf individuals use this method of communication; however, it is not universal because deaf people around the world use different sign languages. Each gesture in sign language is referred to as a sign, and the motions or symbols are arranged linguistically. As a method of communication, signing depends on sign language as a primary language for the deaf. Poe (2006) defines 'sign language' as a means of communication by which the deaf use their hands to interact with others without using spoken words. This method is visual and frequently used by the deaf community as the first element of their culture. This covers finger selling, written communication in its entirety, Sign Exact English, and other practices. Writing in the air is finger spelling. It creates hand shapes that correspond to the 26 letters of the English alphabet and can be used to manually spell words. It calls for a precise presentation of written language when speaking with deaf students (Nwachuwu, 2020). A single benefit of fingerspelling is the absence of the limitation of the number of words that can be spelled. A conflict that may result between the English signing and the students who are deaf mother tongue (sign language) may be solved by the application of finger spelling. Heward (2006) indicated that communication by finger spelling for students who are deaf is one of the oldest known forms. He observes that fingerspelling is sometimes used to connect signs into sentences or to add stress in sign languages. To communicate a speaker's thoughts, sign communication uses visual-spatial modalities that include simultaneous use of hand gestures, movement, the orientation of the hands, arms, or body, and facial expressions.

Also, sign communication is expressed with the hands and body and received visually by deaf students. According to Fobi and Oppong (2019), deaf students in Ghana mostly communicate using either Ghanaian Sign Language (GhSL) or Adamorobe Sign Language and Nanabin Sign Language. Sign communication makes advantage of available space. It is common to make use of the area in front of the body that extends from the shoulders. For those who are profoundly deaf, sign language is said to be their natural form of communication. Sign language also helps most deaf children develop socially and academically (Fobi & Oppong, 2019).

Fingerspelling is particularly useful for introducing names, neologisms, and technical terms. The manual alphabet is a one-to-one cipher for letters of an alphabet on the fingers. In the United Kingdom, the manual alphabet is two-handed, but elsewhere it is usually displayed on one hand. In Ghana, the one-handed American manual alphabet has been adopted. There are twenty-six positions or combinations of finger placements and hand shapes corresponding to the twenty-six letters of the English alphabet. These, therefore, are shown without ambiguity and can be used to spell out a word with the fingers, as with the conventional spelling of English letters (Fobi & Oppong, 2019). Fingerspelling, as reported by Heward (2006), is a slow form of communication, with a maximum transmission rate of approximately "sixty words per minute." This rate is roughly three times slower than that of fast speech or signed communication.

It is for this reason that instructors ought to use finger spelling together with signs; such knowledge will enable clear and precise communication with deaf students. Fingerspelling can be used in other ways. Besides its direct use for names and technical terms, it has a role as a lexical tool for learning such items and can reinforce the written form of new words. Despite the importance of this method, a study conducted by Picou et al. (2011) in the Netherlands found that it is a very unpopular language, especially

among those who have hearing abilities. This may imply that deaf students find it difficult to communicate with hearing learners, and this can negatively affect their academic performance, particularly, language practice such as English.

2.2.2.2 Verbal Communication (Aural/Oral)

It is an oral approach that emphasizes auditory training, articulation ability, and lip-reading, the oral/aural approach is historically the oldest (Nwachuwu, 2020). Pure Oralism strongly emphasizes no signing and speech is the only acceptable means of response. The goal of auditory verbal practice is for deaf students to grow up in a typical learning and living environment that enables them to become independent participating and contributing citizens in a complete mainstream society. This is because all deaf students deserve an opportunity to develop the ability to listen and use verbal communication with their families and communities, (Marschark et al., 2006). Listening skill is developed to increase spoken language competence. In this case, speech is the primary stimulus for communication.

Similarly, Ekwama (2003), who carried out a study in Nigeria reported that oral communication facilitates more meaningful teacher-student interactions than any other form of communication. This makes learning more readily mediated than writing, signing, gesticulating pantomiming, or any other medium. Research conducted in schools for the deaf, especially in the United States of America, showed that the oral approach performed quite poorly in academic achievement apart from less than 10% who performed well since they were partially hearing (Reed, 2009). Oralist advocates have argued that deaf students are best served by instruction in reading, maximum use of residual hearing (through amplification and auditory training), and articulation to improve speech verbal communication. Verbal communication is based on the principle

that a large majority of deaf students can be taught to perceive sounds and use voice to communicate orally when the child is identified early and given early intervention through consistent training to develop their residual hearing (Leeson, 2006).

Oralism requires patience and, in most cases, deaf students feel frustrated and humiliated in the process of learning. Lip reading is the ability to read lip patterns. Duncan (2010) reported that it was very difficult for most students with hearing impairment to rely solely on lip-reading to communicate as they could only pick up a small percentage of what was being said. Therefore, lip-reading was usually used alongside other communication modes. Duncan (2010) noted that lip-reading involved utilizing clues from the topic of conversation, facial expression, the eyes, the rhythm of speech, and body language. It must be noted that students with moderate hearing usually did not understand what the teacher said without using hearing aids.

Educators of deaf students are encouraged to vigorously use speech reading (lip-reading) to aid the communication of deaf students. In speech reading, deaf students are made to construct meaning from the face and lips of an oral language speaker. Deaf students prefer the aural/oral approach to any other form of communication and usually rely heavily on speech reading and conscious efforts to communicate with others; but since speech reading is largely guesswork, the majority of deaf students often have to consciously think of ‘what’ to say and ‘how’ to say it ‘without knowing how to do very well. Despite its shortcomings, some research reports have indicated that students who are deaf whose preferred mode of communication is that of the aural oral, perform significantly better than the average deaf students in other Special Education programs on measures of academic achievement, language, literacy, and socialization.

A study by Fobi and Oppong (2019) indicated that, in Ghana, stakeholders who believe in the medical model of explaining special needs education believe this approach should be encouraged for students who are deaf. However, practitioners who are familiar with the Deaf culture and push for the social model definition of disability argue that deaf students have language and should be encouraged to use it. The latter group further explained that to develop deaf students' language to an appreciable level and help them succeed in their education, the signed language should be officially recognized as the language for the Deaf and taught in all schools for the Deaf in the country.

2.2.2.3 Simultaneous Communication (Simcom)

Simultaneous communication (SimCom) is a form of contrived sign system developed to represent the morphosyntactic structure of spoken languages. This artificial communication mode differs from sign language (SL) in several ways. It is a bimodal communication in which the signs are executed simultaneously with speech. Speech is supposed to provide additional information through the use of intonation and other suprasegmental features. Sign language, however, uses non-manual signals to convey that linguistic and paralinguistic information (Adoyo, 2002).

SimCom is a procedure sometimes used by deaf, hard-of-hearing, or hearing sign language users in which both a spoken language and a manual variant of that language. SimCom is an approach that employs a combination of verbal and sign communication for effective interaction and education for deaf students (Fobi & Oppong, 2019). This approach thus involves the concurrent use of oralism and signs/ gestures to disseminate information and to receive information for learning and teaching. A study by Rozen-Blay et al. (2022) found that slower speech rate, lower lexical richness, and lower syntactic complexity in the simultaneous communication condition compared with the speech-only

condition. Sign-language vocabulary score and SimCom teaching experience explained speech rate and lexical richness. Students' ability to speak under a dual-task condition did not modulate performance. This suggests that the students' capacity to speak, while simultaneously engaged in another task (dual-task condition), did not have an impact or influence on their overall performance.

In Ghana, majority of specialized teachers of deaf students are hearing and prefer to use voice communication in their pedagogical pursuits. Simultaneous and Sign Communication were both used at various times or points in the history of the education of deaf students, which most likely inspired educators to combine the two strategies to maximize learning in the deaf student. Again, the majority of deaf students were of the profound kind; however, over time, public awareness campaigns and education increased the number of students with mild to moderate hearing loss who were enrolled in the same classes and attended school together (Fobi & Opong, 2019). The authors also found that deaf students preferred the use of verbal or voice communication between them and their teachers during the learning and teaching process. Johnson et al, (1989) reporting on the demerits of SimCom argues that it suffers not only from distortion but also from the omission of obligatory words, which do not fit the rhythmic pattern of spoken languages. A survey by Adoyo (1995) in Kenya also revealed that many teachers in schools for the deaf had great difficulties in communicating ideas to deaf pupils through SimCom. And here lies the whole problem with SimCom. Furthermore, it is not only the production of SimCom that is difficult for teachers. Deaf adults have also reported tremendous strains on the reception of SimCom information, arguing that while they can process each item as it appears, they also find it hard to process the message content as a whole when all the information in the sign stream is presented as sequential elements (Adoyo & Maina, 2019).

2.2.2.4 Philosophies Communication

Existing philosophies about how best to communicate with deaf students consider different communication approaches, languages, cultures, communication aids, and individual needs. These strategies are referred to as ‘philosophies’ or ‘approaches’ to communication, and not ‘methods,’ as the latter is included in the former (Alanazi, 2021). Total communication (TC) is noted to be philosophical communication, which looks at the full spectrum; namely, speech, formal signs, finger-spelling, speech reading, and writing as well as other methods that may be developed in the future (Reed, 2009). Lorraine (2006) stated that TC was well-established as a ‘philosophy’ of instruction in the United States of America in the early 1970s and has since become one of the predominant strategies for the education of students who are deaf in that country. TC cannot be referred to as a communication approach in and of itself. The concept of TC is neither an approach nor a method, but a philosophy of communication that uses a variety of approaches and methods, including sign, finger spellings, lip-reading, facial expressions, gestures, and images. Sign Systems include speech reading, facial and body language to promote learning and socialization among deaf students (Easterbrooks, 2002).

The TC philosophy is based on the idea that incoming hearing and visual information contribute to deaf students’ capacities related to the visual, hearing, and oral elements of a language (Mayer et al., 2006). TC philosophy may include one or multiple communication approaches, involving hands, oral movements, hearing, reading, lip-reading, or writing), depending on individual needs. This philosophy recommends the use of a variety of approaches and methods (sign and spoken communication), Sign Systems including Manually Coded English, speech reading, facial and body language to promote education and socialization among deaf students (Fobi & Oppong, 2019).

However, some educators recommend the use of different communication methods at the same time, such as sign language and speaking, thus confusing the deaf student as to whether to follow hand signs or lip reading (Alanazi, 2020). Arguably, using a combination of methods at the same time may not represent TC philosophy, and is rarely favored. If speaking is used first, then sign language or another form of communication should be used only after finishing speaking. The original expectation of TC was for teachers to use the communication mode most appropriate for particular students at some particular stages of development. According to Reed (2009), therefore, there would be situations where signing might be appropriate, others that would call for written communication, and still others where SimCom might work best. TC should help to reduce the dominant position taken in class by teachers of students who are deaf.

Another philosophy is the Bilingual-Bicultural philosophy based on the concept that sign language is the primary language for the deaf and that the deaf can use it to master the language and culture of the wider community. Deaf students use sign language for socialization outside the classroom and beyond the community's spoken language in the classroom (Dammeyer & Marschark, 2016). Through sign language, they can master their national community language as a second language and thus become familiar with two cultures. These developments are essential to the acceptance of the Bilingual Bicultural philosophy.

In Ghana, there had not been a single policy document on communication approaches for the education of deaf students though formal education for deaf students started in 1957 (Fobi & Oppong, 2019). As a result of the lack of a strong Government policy on communication approaches for the successful education of students who are deaf, each of the special schools for the deaf has adopted one of these communication approaches as a method of instruction for the students and the staff (Fobi & Oppong,

2019). In 2006, the Government of Ghana passed the Persons with Disability Act (Persons with Disability Act, Act 715, 2006). In the Act, special schools for profoundly deaf students were mandated to use sign language as the medium of instruction for the learners, though the Act failed to prescribe any communication approach as method of instruction for students who are deaf at all levels of education. For all learners such as students who are deaf, quality, and purposeful education hinges on quality communication approach for the students at all levels.

2.3 The Understanding Interpreters, Lecturers, And Deaf Students Have About Classroom Communication for Deaf Students

2.3.1 Sign Language Interpreters' Understanding of Classroom Communication

Interpreting is the facilitating of oral communication between different languages and an immediate form of translational activity, performed for the benefit of deaf students who want to engage in communication across barriers of language and culture.

The assumption underlying classroom communication in mainstream education is that for deaf students who depend on sign communication, a skilled sign language interpreter will provide them with access to classroom communication almost equivalent to that of their hearing colleagues (Langga et al., 2021). However, despite an increase in studies on sign language interpretation, little is known about how much an interpreter messages deaf student in the classroom understanding. One of the most salient characteristics of learning by deaf students in mainstream classrooms is the students' dependence on a third party to provide access to information. Information is received by the student through interpreting and/or real-time captioning during class sessions, or through notes (note-taking or printouts) outside of class (Stinson et al., 1999). Despite the importance of sign language interpreting for many deaf students, there is surprisingly little research concerning its effectiveness in the classroom. There is, therefore, a dire

need to evaluate the relationship between interpreting to learning (Marschark et al., 2006).

Content knowledge by interpreters, however, appears to be highly valued by deaf students, but perceptions of the importance of the interpreters' familiarity with content material have also not been investigated (Lang et al., 2002). Familiarity with the content may lead to more appropriate sign selections and fewer misinterpretations of an instructor's lecture emphases. Students who use interpreters may find that the lag time between the spoken and signed message prevents them from answering questions. By being overly helpful and responding to queries on their behalf, interpreters in class run the risk of unintentionally isolating deaf students from their peers and preventing them from actively participating in discussions. Interpreting for deaf students requires a lot of hard work and dedication and there is much to consider as an interpreter in making sure that the deaf and hearing students understand each other (Adade et al., 2022).

As mainstream academic placement has become the primary means of educating deaf students, a serious shortage of qualified sign language interpreters has developed and those who are available are either unqualified or underqualified (Jones et al., 1997). A study conducted in Kenya projected that the problem facing the interpreting profession in Kenya and Africa is that institutions offering formal training are almost non-existent. Furthermore, examining and accrediting bodies, and associations of certified interpreters are nonexistent (Wambui, 2015). Schick et al. (1999), in a study in public schools in the United States, found that less than half of the interpreters they evaluated performed at a level considered minimally acceptable for educational interpreting. The authors concluded that many deaf students were denied access to classroom communication because of the poor skills of their interpreters. Lack of knowledge on deafness, negative attitudes, and perceptions have perpetuated the barriers experienced by deaf students. The

Schick et al study confirmed that factors such as the lecturing mode of instruction, incompetent interpreters, inadequate infrastructure, and social isolation and loneliness prevent deaf students from attaining positive learning outcomes (Kigotho, 2016).

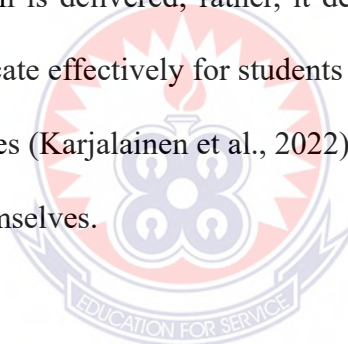
Sign language interpreters are used in some tertiary institutions in several countries across the world for the education of deaf students. This only benefits deaf students who use sign language. There is some difficulty in obtaining suitably qualified sign language interpreters who can correctly interpret the content of lectures to the students, but for deaf students who can only communicate utilizing Sign Language, they are an immense help (Cayton, 1987, cited in (Mazoue, 2011). Adade et al. (2022) also explained that interpreting is the facilitation of oral communication between various languages and a direct type of translational activity to help people who want to communicate across linguistic and cultural boundaries.

2.3.2 Lecturers' Understanding of Classroom Communication

Communication skills are most vital for interactions with deaf students as a lecturer because the act of teaching itself requires them. In the classroom, teachers and lecturers are responsible for comprehending and breaking down complex information, conveying this information clearly to your students (both verbally and in written resources), presenting in a manner that sustains their attention, and listening to and resolving their questions or problems (Sword, 2020). The lecturers' and teachers' knowledge about classroom communication helps to adapt content for different learning styles, motivate the deaf students to learn, build supportive relationships using encouragement and empathy, manage the classroom, and give feedback making the classroom a safe and supportive learning environment (GEÇERa, 2013). All of these things require good communication skills. Therefore, effective communication between

teachers/lecturers and students is extremely important. It allows them to perform their job well, with positive results for deaf students. An added benefit is that classroom instructors can use as a model for improving their communication skills, which are critical for their students' development and future learning. Effective coaching and mentoring can help boost instructors' communication with students as they tend to focus on three key areas; foundations, principles, and practice.

Communication refers to the method used while expressing one's ideas to another. For deaf students to learn effectively, a teacher must have strong communication abilities to assist deaf students and accomplish their professional objectives. Therefore, teachers and lecturers need to have effective communication skills. Technical proficiency is not a factor in how well a lesson is delivered; rather, it depends on the teacher's approach. Instructors must communicate effectively for students to grasp what they are learning in class and to avoid any issues (Karjalainen et al., 2022). Before instructing kids, teachers must first comprehend themselves.



2.3.3 Deaf Students' Understanding of Classroom Communication

Acquiring and developing good communication skills is crucial for deaf students and their families. The acquisition of good communication skills helps deaf students in all areas of their development, including intellectual, emotional, personal, and social skills (Marschark et al., 2005). For deaf students using sign language, as many people as possible in their social circle must be encouraged to learn to communicate fluently in sign language. Educational researchers frequently cite the dependence of deaf students on visual modality and encourage the use of visual materials and displays in the classroom (Marschark et al., 2005). Yet the introduction of visual displays would also appear to carry its challenges, as deaf students would have to divide their visual attention across

central and peripheral visual fields to be aware of information coming from the instructor, the display, and the interpreter while rapidly shifting among them. Marschark et al. (2005) also explored learning via sign language interpreting in a series of experiments in which deaf students at the tertiary level who varied in their sign language skills and preferences for ASL and English transliteration viewed lectures that were either interpreted or transliterated.

2.4 Classroom Environment Support for Communication Among Deaf Students.

2.4.1 Classroom Participation and The Environment for Deaf Students.

Classroom communication is significant for transmitting information and imparting knowledge for the betterment of learners. The communication process within the classroom is vital for effective teaching and learning within the classroom environment. Hence, effective classroom instruction, as indicated by Ainscow (2007) cited in Nwachuwu (2020), recognizes the importance of incorporating non-verbal cues, encouraging learner involvement, and fostering team communication to yield positive outcomes.

An important element in creating a communicative environment in an inclusive classroom is the sign language interpreter (Kigotho, 2016). A sign language interpreter is a unique addition to the inclusive classroom model for serving deaf students. As with a special education teacher, an interpreter participates in the life of the classroom. The interpreter's language expertise may prove valuable in making accommodations to curriculum and assessment for deaf students. To equally access the school curriculum as their hearing counterparts, students who are deaf must be allowed to access communication in a 'communication-rich environment'. Classroom participation refers to the student's ability to participate in classroom activities and discussions. Students need to participate as it is a good predictor of course grades (Kigotho, 2016).

Students who have difficulty communicating in the classroom may choose not to participate in classroom activities, which may in turn affect their learning and their academic success (Saur et al., 1983). This requires that deaf students have access to all lecturer and student communication and, also, that discussions and other activities are structured in a manner that allows the student to participate. Some of the barriers to classroom participation include the rapid rate of instruction and discussion, rapid turn taking, rapid change of topics, the high number of speakers involved in the discussion, and the use of space (physical arrangements in the classroom) (Stinson et al., 1996).

While teaching in classrooms, instructors must keep their faces visible, especially for deaf students. A preferable sitting place for them would be in the front. However, the left or right side of the room can be selected according to the better ear of the student. (Lockwood 2001). Instructors need to learn effective ways of communicating with deaf students as well as have guidance about the classroom acoustics and hearing devices used by deaf students (Lanfer, 2006). A deaf student misses out if an instructor instructs while writing on the board, therefore an overhead projector can be a good alternate solution as the instructor can face the class all the time he is talking whilst still providing visual support (Waayer-Engles, 1996). A study by Hyde and Power in 2003 revealed that most instructors were reluctant to invest time in training and professional development in how best to accommodate deaf students, citing the small percentage of these students in their classes.

The classroom environment and activities are what learners experience directly and they are the mechanism through which educational interventions are most likely to produce desired improvements in learners' performance (Ekwama, 2003). Peters (2004) in a study on inclusive education, and education for all strategy for all children revealed

that the environment played a significant role in disabling the majority of learners. Ademokoya (2008) in a study on classroom communication and placement of deaf students in an inclusive class, which was conducted in Nigeria, found that to support improved outcomes for learners with deafness it was important that, their direct experiences in the classroom were understood. Malunga (2007) studied the use of sign language and language by regular teachers teaching learners with deafness showed that concerning the learning environment, the best possible conditions were a quiet place with good lighting. This allowed learners with hearing impairment to concentrate and follow what was being lipread. Liwakala (2003) conducted a study in Mpika, Zambia, and found that learners with deafness were visual learners. As a result, an attractive classroom with talking walls such as interesting notice boards and charts around the room, and visual teaching aids such as pictures, diagrams, and world maps assisted the learners to learn. Regarding seating arrangement, Liwakala (2003) found that it was very cardinal that learners with deafness sat on chairs so that they could see both the teachers and their peers as much as possible. Liwakala attributed this to the fact that the learners could see the various signs, lip-read and interpret body language as they were in full view of all participants in the classroom.

In Nigeria, Ekwama (2003) found that to accommodate deaf students who used hearing aids, it was vital to minimize noise. If there was noise from outside, doors had to be shut and, in certain instances, windows were shut. These measures were put in place to reduce background noise. It was highlighted that background noise, reverberation, and distance from the speaker were real issues for learners with deafness, even those with mild or unilateral hearing loss who were able to hear in the classroom.

2.4.2 Institutional-Based Challenges Regarding Classroom Communication for Deaf Students.

Although the goal of inclusive education is to promote the academic and social integration of students, regardless of hearing status, deaf students in public institutions often face social isolation and difficulties in academic participation. (Kigotho, 2016) Classroom participation and a sense of academic integration are acknowledged as important for the academic success of all postsecondary students but are often lacking for deaf students (Kigotho, 2016).

Certain factors affect a deaf person's ability to make the most of whatever hearing they may have. Background noise is very distracting to a deaf person, as are „reverberations“ in the venue. Additionally, the person speaking should be fairly close to the deaf person (Cayton, 1987). This means that many lecture venues are far from ideal as they are mostly large and rather noisy. The situation is further exacerbated by other students talking in the background, especially during lectures.

Mode of instruction

In a study of the history of Deaf education, Marschark and Spencer (2010), found that valuable techniques for instruction, such as providing meta-cognitive skills to enhance reading or using writing as a process to assist in learning the curriculum, were methods that were promoted by teachers of deaf students a century ago but are not applied extensively in classrooms today. Participation by deaf students in higher education classrooms may relate to the approach employed to communicate course content. Inclusion was found to have failed in part because instructors were unable to meet the demands of modifying and delivering an appropriate mode of teaching deaf students (Kigotho, 2016; cited in Fox & Ysseldyke, 1997). Instructors may speak extremely fast, move through material very rapidly, and may be insensitive to the needs of deaf students

trying to follow the lecture through an interpreter (Foster and Elliott, 1986). An instructor needs an understanding of deafness to modify the delivery of lessons appropriately and maintain natural speech patterns. The basic knowledge of hearing loss will make an instructor more comfortable working with a deaf student, they will be able to make appropriate adaptations and accommodations in teaching strategies, activities, and curriculum to meet the needs of students (Underwood, 2003).

A study with deaf university students revealed that students valued instructors who are knowledgeable about the course content and who use visual materials, communicate expectations and assignments, lecture at a good pace, make sure students understand, challenge students' thinking, and emphasize important information in the class (Lang et al., 1993).

Resources and Infrastructure

The need for additional funds for institutions to educate students with deafness has long been recognized by researchers. How institutions are organized and classrooms structured are often not conducive to effective learning for the majority of students (Kennedy & Fisher, 2001). The classroom environment is a very crucial aspect for a deaf student. If there is noise within or outside the classroom, it will impact their ability to use residual hearing through hearing aids, and the student will not be able to understand and interact in the classroom effectively (Sundeen, 2007). Teaching and learning in an acoustic-friendly environment will be very effective to speed up the learning of a deaf student and promote his or her participation in the classroom. In addition, the sitting location and lighting are also very important for interaction in a regular classroom. Some deaf students may need good visibility and facial cues for lipreading. Lip reading involves observing a person's face and mouth to understand what words are being said (Asif, 2008).

The ideal physical environment for deaf students should be away from the noise and controlled acoustics that affect hearing aids. Ainscow (1995) suggested that there is a need to add carpets, window treatments, or acoustical wall/ceiling coverings to absorb sound and reduce noise from furniture scrapping on hard surfaces by attaching rubber shoes to the legs of students' desks and chairs. The classrooms should also be well-lit to enable the students to lip read and to read the signing. Provisions for written or captioned school announcements should also be availed (Stinson & Whitmire, 2000).

Deaf students utilize a variety of assistive technologies that provide them with improved accessibility in numerous environments. Most devices either provide amplified soundlike hearing aids or alternate ways to access information through vision and/or vibration (Northern & Downs, 2002). Technology such as computers, televised announcements, sound field amplification systems, and interactive whiteboards can have positive impacts on deaf students. A successful inclusion occurs when an individual is given all of the supports needed, whether it is physical (assistive technology like hearing aids) or human (a trained assistant); and when the level of the disability matches appropriately the environment into which the individual is placed (WATI, 2009).

Aids to assist Deaf students to cope in a Tertiary environment

Assistive learning devices, where the lecturer and the student both wear a device, that helps the deaf student to hear what the lecturer says, facilitate effective classroom communication. Many lecturers do not like to wear these devices and students also have problems carrying the device around campus (Warick, 2004). At the University of Bath in the UK, there are venues with built-in hearing loop systems, which help enhance the residual hearing of some deaf students who do not sign and who have some hearing, good lighting in certain of the venues to make lip reading easier and additional level desk space

for professional note takers to work at (www.bath.ac.uk/learning-support/prospective/accesssupport.html).

2.5 The Effects of Classroom Communication

Classroom communication is important for transmitting information and imparting knowledge. The communication process is vital for effective teaching and learning within a classroom environment. Classroom instruction that produces positive results acknowledges the need for liberal use of non-verbal cues, learner involvement, and team communication (Ainscow, 2007). Luckner and Muir (2001) pointed out that learners' performance was usually defined by a learner's success in an academic discipline, an exhibited level of competency on some type of standardized test. Additional identifiers of learner performance included organization participation, leadership activities, and good conduct. Hearing contributed greatly to understanding, especially in a world where oral communication dominates. Avoke (2005) found out that hearing stimulates thinking, and that thinking may be an exercise that helps the brain to develop in quality as enough stimulation is given. Also, Avoke revealed that those who did not hear lived in silence, in isolation from the world of sound, and that sound was what guided us socially and intellectually.

Since sign language was rarely used in communication between teachers and learners, learners could not understand their lessons and found it very difficult to learn. Most teachers resorted to writing and pointing as their primary means of communication (Marschark et al, 2005). Their study in New York revealed that regardless of teaching pedagogy, philosophy, or classroom management style, effective communication was fundamental to the instructional process. Academic development, therefore, was the demonstration of learning of subject content and process. Consequently, while communication access was extremely important to the overall successful education of

learners with hearing impairment, no communication should be at the forefront of academic performance. EQUIP3 (2006) further reported that in developing nations, ninety percent (90%) of learners with hearing impairment were born into hearing families where there was no exposure to sign language or the existing culture of hearing impairment. These learners with hearing impairment were typically deprived of the communication skills they needed for social development, incidental learning, academic pursuits, and gainful employment. A study carried out in the United States of America by Reed (2009) on oralism, TC and American Sign Language revealed a shared characteristic of learner diversity in academic, cognitive, and communication needs to be cited (Wambui, 2015).

2.6 Summary of Chapter

This chapter reviewed related literature on the research topic, empirical literature, and the theoretical framework. The chapter discussed the following aspects: Communication and communication approaches for deaf students enrolled in tertiary education programs; Classroom participation and the classroom environment; Institutional-based challenges and the effects of classroom communication for deaf students enrolled in tertiary education programs. The theoretical framework was also elaborated.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This section of the study deals with the details of the research methodology. Emphasis was placed on the research approach, design, population, sample and sampling techniques, the instruments used for the data collection, trustworthiness, and data analysis.

3.1 Research Paradigm

Research paradigms describe the different ways of viewing the world and often form the foundation from which research is undertaken. They consist of a set of assumptions about what reality is, how knowledge is created and what is valuable to learn. Interpretivism paradigm was considered for this study because classroom communication among deaf students, interpreters, and lecturers is a social interaction within the university. Fobi (2023) stated that interpretivism focusses more on the interpretation of human experience, consciousness, sense-making and worldviews based on the pursuit of comprehension.

3.2 Research Approach

The study adopted a qualitative research approach because, the study explored the classroom communications modes among deaf students and hearing people (lecturers and interpreters) in an institution in Ghana, precisely UEW. The qualitative approach was considered to be suitable for the study because the participants were interviewed on communication modes within the classroom setting in UEW. Creswell (2012) defines qualitative research as an inquiry useful for exploring and understanding a central phenomenon. The primary purposes of qualitative research methods are to investigate people's lives, lived capacities, behaviors, emotions, and sentiments as well as

organizational functioning, social movements, cultural phenomena, and cross-national interactions Levitt et al. (2018). Avoke (2005) also posited that realistic researchers believe that gaining knowledge from sources that have intimate familiarity with an issue is far better than the objective distancing approach that characterizes quantitative approaches. The current study, therefore, sought to use a qualitative approach to have a detailed account of classroom communication for deaf students.

3.3 Research Design

To address the research questions of this study, I used an exploratory case study design and conducted an in-depth investigation of the phenomenon under study. A research approach that looks holistic and in-depth in a real-life context (case study) which enables the researcher to gather firsthand information from participants was employed. According to Orodho (2009), a case study can determine and report things the way they are and describe what is in a social system such as a school. This design was considered appropriate because it enables the researcher to look intensely at an individual or a small participant pool, concluding only about the targeted group in the context. Creswell (2012) also stated that a case study can be a person, an event, a social group, or an institution.

Therefore, in this study, I utilized an exploratory case study design to collect exhaustive information on classroom communication modes from lecturers, interpreters, and deaf students. The design was chosen because I explored particular communication modes among deaf students, interpreters, and lecturers within a concentration (Baxter & Jack, 2015). In this study, I interviewed individual respondents and allowed each respondent to express their views on classroom communication modes among deaf students and hearing people at UEW. Case study designs provide tools for researchers to study complex phenomena within their contexts.

3.4 Population

The study population was 35, comprising 17 deaf students, 7 interpreters, and 11 lecturers, from five departments at UEW. At the time of the study, the students were pursuing courses in the following departments; (i) Special Education, (ii) Basic Education, (iii) Early Childhood Education, (iv) Graphic Design, and (v) Art Education as their study area. Those five academic departments at UEW were chosen for the study because, at the time of the study, they were the departments where deaf students were pursuing programs.

Table 1

Population

Department	Frequency
Deaf Students	17
Interpreters	7
Lecturers	11
Total	35

Source: Research Centre for Students with Special Needs, Data, 2022

3.5 Sample Size

The sample size for the study was 20 participants, comprising 10 deaf students who had spent more than two semesters at UEW, 5 lecturers who were available and showed interest during the time for the data collection, and 5 interpreters, who were present during the time of the data collection for the study. All the participants were from the five departments where deaf students were pursuing academic programs.

Out of the 10 deaf students, 6 Level 200 and 4 Level 300 students were chosen because they had spent more than two semesters and had spent more time at lectures with much insight about classroom communication at UEW, and could provide information needed for the study. Level 400 and Level 100 deaf students were excluded because during the time of the study, the Level 400 deaf students were on internship, while the Level 100 deaf students were fresh in the system and had not been involved much in lectures and academic activities. All deaf student participants depend on interpreting services during lectures and examinations.

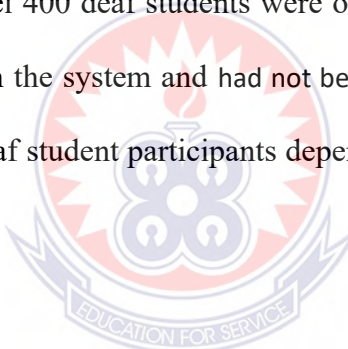


Table 2

Participants

Category of Participants	Number
Deaf students	10
Interpreters	5
Lecturers	5
Total	20

Source: Field data, 2022

3.6 Sampling Technique

A purposive sampling technique was used by the researcher to select the deaf student participants for the study. Under purposive sampling, homogeneous sampling was considered because the students shared precise similarities. The students were all deaf, and their language of communication was sign language. Also, the deaf students had been in the institution for more than two semesters, hence were in the position to provide relevant information relating to classroom communication among deaf students, interpreters, and lecturers at UEW. The deaf student participants were level 200 and 300 deaf students only who have spent more than two semesters in the university and whose desirable mode of communication was Ghanaian Sign Language (GSL) were selected for the study. According to Nikolopoulos (2022), homogeneous sampling is often used for selecting focus group participants who share similar traits or specific characteristics and aims to reduce variation, simplifying the analysis and describing a particular subgroup in depth.

With the help of two interpreters, we scheduled a meeting with the deaf students at UEW, but only 10 students showed up, and they were selected for the study. Therefore, purposive sampling allows the researcher to use cases that have the required information concerning the objectives of the study (Mugenda & Mugenda, 2003). According to Fraenkel and Wallen (2009), purposive sampling is a technique in which researchers use their judgment to select a sample that they believe, is based on prior information, and will provide the data they need. Avoke (2005) explained that in the purposive sampling technique, the researcher decides on a sample they think will offer the data they need based on their judgment.

The convenience sampling technique was used by the researcher to select the lecturers and the interpreters. Specifically, I selected lecturers who taught courses to Level 200 and Level 300 deaf students, respectively, at UEW, and were accessible and interested in the study. I met the Heads of Departments with an introductory letter from my department, and they in turn directed me to the lecturers who taught deaf students, and sought permission to take their contacts. I sent them, both SMS and WhatsApp messages, and the 5 lecturers who responded were selected to participate in the study. Also, interpreters who were available and expressed interest in the study were selected.

3.7 Instrumentation

The instrument for data collection was a semi-structured interview guide. The interview offered the researcher the opportunity to gather and explore relevant data about classroom communication among deaf students, interpreters, and lecturers in a tertiary institution in Ghana. Sykes et al. (2018) stated that, in the case of studies, the primary measuring instrument that could allow the participants to express their candid opinions about what they feel about a particular phenomenon is the interview. In this study, I employed interview to aid participants to express their views freely about their understanding in the classroom within the university. The interview guide was developed based on the research questions of the study. The semi-structured interview guide was grouped into three parts. These parts focused on the key strands of the research questions. Part 1 focused on deaf students, Part 2 of the interview guide focused on interpreters, and the Part 3 focused on lecturers.

Interview guidelines included questions/items on the communication modes appropriate for deaf students, the challenges they faced within the classroom communication at UEW, and measures for effective classroom communication. Their respective strands were obtained from the research questions. The major question items

had probes and prompts. The probes and prompts gave directions to respondents on the themes.

3.8 Trustworthiness

In qualitative research, trustworthiness has become an important concept because it allows the researcher to describe the virtues of qualitative terms outside of the parameters that are typically applied in quantitative research. Hence, the concepts of generalizability, internal validity, reliability, and objectivity are reconsidered in qualitative terms. These alternative terms include transferability, credibility, dependability, and confirmability were considered in this study (Given & Saumure, 2008).

3.8.1 Credibility

The interview guide was used to generate data that addressed the various aspects of the research questions. I discussed the interview guide with my thesis supervisor and another professional in the field of deaf education before it was administered. The thesis supervisor's suggestions helped me to rearrange the questions/items (Appendix A for the interview guide).

A credible study is one where the researcher has accurately and richly described the phenomenon in question, so obtained information regarding the study based on the research questions. After I had transcribed the data, I gave them back the participants to confirm whether the transcriptions accurately reflected their responses. Two skilled sign language interpreters at the UEW helped me to interpret the participants responses and also reviewed the audio-recorded interviews to ensure the accuracy of translations. The two interpreters had bachelor's degrees in Special Education (Education of the Hearing Impaired). This process of peer review included colleagues who reviewed some of the

audio tapes and assessed whether or not the findings were consistent with the data. This process also helped to ensure the correct representation of the findings.

3.8.2 Confirmability

Confirmability is one of the processes by which a researcher tries to avoid bias so as to ensure that the interpretations and findings match the data collected. Conducting qualitative research in an area in which the researcher is familiar raises numerous issues of confirmability (Creswell, 2007). To address confirmability in this study, I gathered data from all the participants (deaf students, interpreters, and lecturers). Furthermore, to ensure confirmability and to gain the trust of the deaf students, interpreters, and lecturers, and their willingness to participate in the study, I identified my role before and during the data collection process and explained the purpose of the study to the participants.

3.8.3 Dependability

To ensure that the findings of this study would be reliable, I laid out the procedure and research instruments in such a way that others would be able to collect data in similar conditions of study. The idea here is that if these similar conditions are applied, a similar explanation for the phenomenon should be found (Given & Saumure, 2008). The interview items were presented in a forum which enabled me to reshape all the questions before administering them. To increase dependability, I had assistance from two research assistants from other departments to help in transcribing the interview. Lincoln and Guba (1985) opined that the process of allowing for external audits is aimed at fostering the dependability of the data presented during the research process. In this study, to foster dependability, I allowed the two research assistants to evaluate the accuracy of the transcriptions and to evaluate whether or not the findings, interpretations, and conclusions were supported by the data.

Moreover, I had the opportunity to do ensure that the data were dependable, the analysis of interviews were analyzed with the help of two assistants who supported the researcher to analyse the data. In the course of the analysis, the two assistants and the researcher agreed on the interpretation of what the participants said.

3.8.4 Transferability

Transformability implies that the results of the research can be transferred to other contexts and situations beyond the scope of the study context. To increase transferability, I focused on two key considerations: (a) how closely the participants were linked to the context being studied, and (b) the contextual boundaries of the findings.

To ensure the transferability of this study's findings, I provided a detailed description of the participants that is deaf students in level 200 and 300 only, who have spent at least more than two semesters in the University. Also, lecturers who taught Level 200 and Level 300 deaf students in their program of study, and interpreters who assisted deaf students at the lecture hall, were considered for the study. The research process enabled the reader to assess whether the findings could be transferable to their setting. According to Given and Saumure (2008), this process is called *transferability judgment*. In sum, trustworthiness provides qualitative researchers with a set of tools by which they can illustrate the worth of their project outside the confines of the often ill-fitting quantitative parameters.

3.9 Procedure for Data Collection

I sought permission from heads of the various departments, who had deaf students, interpreters, and lecturers for the interview, with an introductory letter from the Department of Special Education (Appendix B shows a copy of the introductive letter). The researcher visited each of the heads of the departments in their respective offices to

discuss the purpose of the study with them. They all agreed and permitted me to conduct the interviews with the various respondents within the departments.

I arranged a two- to three-day training to two sign language interpreters, who were assigned to the deaf students, on how to administer the interview guide for the study. The two interpreters at the resource center assisted with the interpreting in meeting the deaf students for the interview. Their contacts were used to book appointments with them. The researcher planned for them to meet at the Resource Centre for Students with Special Needs (Sign Language office), and after explaining the purpose of the study to the 10 deaf student participants, they agreed to participate in the study. Contacts of the deaf students who agreed to participate in the interview were given to me for follow-up. I contacted the deaf students through WhatsApp. An arrangement was made with the deaf students for the data collection at a negotiated date, time, and venue for the interview. The deaf students were assured that they had every right to withdraw from the study without any consequences and that their identities would remain anonymous throughout the reporting of the findings of the study. Verbal consent was sought from the deaf students who were interviewed face to face, which was recorded with a phone recorder before the interviews. The researcher audio-recorded the interviews with her phone recorder (*Techno Spark 4 & Infinix Hot 10*) whilst the interpreters sat face-to-face with the deaf students for a smooth conversation. The interview lasted between 25 and 35 minutes. The mode of communication for the interview was sign language interpreting with the assistance of two professional interpreters from the department of Special Education. The researcher was present at the interview session to ascertain that they interpreted the interview items as they were stated in the interview guide. The semi-structured interview guide enabled the researcher to analyze (a) the classroom communication modes for the education of deaf students, (b) the understanding interpreters, lecturers, and deaf students have about

classroom communication for deaf students; (c) the classroom environment support for classroom communication; and (d) the strategies and resources that can contribute to classroom communication for deaf students.

I visited the five lecturers and five interpreters at their various departments at an agreed time suitable to each of them before the day of the interview. I called the participants at least three days before the interview schedule. Verbal consent was sought from the lecturer's participants and interpreter's participants to do audio recordings of the data on classroom communication among deaf students and hearing people. The Centre for Students with Special Needs (Sign Language Office at UEW served as the venue for the interview session for interpreters. The days and times were negotiated with each participant (lecturers and interpreters) and the interviewer. Per the ethical consideration of the study, I conducted all the interviews face to face at each respondent's own convenient time and venue and they lasted approximately 40 to 50 minutes. Each participant was interviewed individually. On the day of the interview, I made phone calls to remind both lecturers and interpreter participants before the time discussed. Participants reflected on classroom communication among lecturers, interpreters, and deaf students at UEW. The interview was intended to gather primary data on classroom communication among deaf students and hearing people in the university. Participants' responses that were audio recorded were played back to them (lecturers, interpreters, and deaf students) immediately after the interview session to confirm the veracity of what had been recorded.

3.10 Data Analysis

In the analysis of data, the audio recording of the interview was transcribed into written English language. The researcher developed codes with the emerging themes from the transcriptions based on the research questions and data. Four themes emerged

from the research question and data which were then subdivided into sub-themes. The data were organized according to the various expressions of participants (lecturers, interpreters, and deaf students) on classroom communication modes, the understanding of classroom communication, the classroom support for communication, and the strategies and measures for classroom communication. Verbatim expressions of the participants were used for the analysis.

3.11 Ethical Consideration

Ethical considerations are very relevant in conducting research, they are a set of principles that guided the research designs and practices. These principles include voluntary participation, informed consent, anonymity, confidentiality, the potential for harm, and results communication that was placed by the researcher. Ethical considerations are a series of guidelines that the researcher followed. To obtain permission for the data collection, the researcher requested an introductory letter (Appendix B) from the Department of Special Education which gave me access to all the departments under study. I meet all the participants face to face, and the purpose of the study was explained to them and agreed with the participants on the scheduled dates and time for the data collection. The participants were informed that the information provided to them was kept confidential and is for the study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents the data analysis and presentation of findings based on the research question of the study. The data were gathered and analyzed to reflect the following themes as raised in the research:

1. What are the communication modes for the education of students who are deaf?
2. What understanding do interpreters, lecturers, and deaf students have about classroom communication for deaf students?
3. How does the classroom environment support communication for deaf students at the University of Education, Winneba?
4. What are the strategies and resources that can contribute to classroom communication for deaf students at the UEW? The various themes enabled the researcher to explore classroom communication among deaf students and hearing people (interpreters and lecturers) at the UEW, Ghana.

4.1 Research Question 1. What are the Classroom Communication Modes for the Education of Deaf Students?

To answer this research question1, the interview data collected from the three categories of respondents were used, which include students who are deaf: interpreters, and lecturers. The data analysis was done according to the theme below regarding classroom communications used by the respondents within the University setting: Mode of Communication at the hall.

4.1.1 Mode of Communication

Concerning the mode of communication for deaf students within the University of Education, Winneba, the response of deaf students, interpreters, and lecturers were

explored. Mode of communication refers to the way the lecturer packages and delivers course content during a class lesson, how interpreters also deliver that information from the lecturers, and how students who are deaf also receive information about their program of study.

Students' Responses

The responses from the deaf students concerning modes of communication revealed that the modes of communication at the lecture hall include sign language interpreting, notetaking, lip-reading, and sometimes videos with the help of interpreters. It was clear from the data that, communication, which is the process of exchanging information between two or more people, has become an issue of concern among deaf students, because at the UEW, interpreters are intermediaries for students through the provision of Sign Language interpreting at the lecture halls, so if an interpreter is not equipped with skills deaf students are at risk. They miss vital information about their academics. The deaf students (DS) stated that

Communication modes used during lectures are sign language interpreting, and note-taking, I communicate with interpreters through the use of Ghanaian Sign Language, though some are not all that skillful and perfect” (DS 4).

We access information within the classroom with the use of Ghanaian Sign language as a form of communication with the assistance of the interpreters at the lecture hall to get information that is been shared by the Lecturer at the lecture hall (DS 7).

The lecturer will be speaking and the interpreter will also sign to us through sign language” (DS 6).

Communication modes used during lectures are Sign Language and Note-taking. Some of the lecturers sometimes project for us to see and it helps a lot (DS 8).

Sometimes I lipread from the interpreters whiles they sign at the lecture hall which also helps me to understand more from them (DS 10).

Interpreters' Responses

The study deemed it important to explore the various forms of classroom communication mode and access to information in the lecture hall. The interpreters indicated that the mode of communication at UEW is Sign language interpreting. Other also emphasizes that the mode of communication used are body gestures, facial expressions, fingerspelling, lip-reading, and word interpreting within the classroom for the students who are deaf to gain understanding in lessons thought at the lecture hall.

The expressions from interpreters (ITP) were:

The classroom communication modes available at UEW are Sign language interpreting, facial expression, fingerspelling, and lip-reading (ITP 1&3).

"I use sign language interpreting, body gestures, and others. But I think there should be the addition of videos, charts, and images to give a clear explanation of things the deaf students study (ITP 2).

I use sign language as a mode of communication at the lecture hall. Though deaf students communicate with sign language it seems some of them are not advanced in sign communication (ITP 4).

There is no structured procedure for communication in the classroom, so communication among deaf students differs from one another (ITP5).

Lecturers' Responses

Mode of communication refers to the way the lecturer packages and delivers course content during a class lesson. Modes of instruction could be in different forms including lecturing, using classroom aids, computer instruction, web-enhanced learning, or online instruction. At the University, the mode that is most frequently used is the lecturing method. Concerning classroom communication modes for deaf students and their access to information at the lecture hall, it was revealed from the lecturers that

I did special Education in my first degree, so I know sign language interpreting as the communication mode for the deaf. But I only communicate orally through the interpreter to the deaf student (LT2)

I have thought in a school that Sign Language was a core subject, so I am preview about sign language and some signs.

But I don't communicate directly with the deaf students (LT 3).

Oral communication, slowly, repeatedly, and a lot of writing, when lecturing. I do lectures with the interpreters since I don't know sign language (LT 1).

I communicate orally to the class but in the absence of interpreters, I also sign for the deaf students dually. Sometimes I sign up for other lecturers in my department though I'm not from Special education, I learned sign language myself (LT5).

I mostly communicate to the whole class orally and with the assistance from interpreters they sign for the deaf students (LT 4)

Responses from the participants brought to light that different approaches are used concerning classroom communication. The modes of communication for deaf students within the classroom are Sign language interpreting, note-taking, fingerspelling, body gestures, and facial expression. At the lecture hall, deaf students communicate through the interpreters to the Lecturers and lecturers also communicate orally through the interpreter to the deaf students. Though some of the Lecturers teaching deaf students

do have an idea about sign language interpreting, most of them can't communicate (sign) directly with them.

4.2 What understanding do interpreters, lecturers, and deaf students have about classroom communication for deaf students?

Research question three (3) explored the understanding of lecturers, interpreters, and deaf students about classroom communication at the university. Classroom environment and activities are what learners experience directly. And they are the mechanism through which educational interventions are most likely to produce desired improvements in learners' performance. The themes that emerged were understanding regarding interpreting and challenges regarding the classroom environment,

4.2.1 Understanding concerning interpreting

Accessing information at the lecture hall is a critical requirement in the education of deaf students since they are unable to perceive oral information auditorily. The students expressed diverse views as to the challenges they face so far as interpreting is a concern in the university. Some of the students indicated that, although they had access to information at the lecture halls through their sign language interpreters, yet some of the interpreters were not skillful. Consequently, the deaf students could not get the help they needed because interpretation of some critical terminologies were problematic for those interpreters. Other deaf students explained that, since their main source of information at the lecture hall was dependent on their interpreters if the interpreters were absent, they missed everything. Some also stated that interpreters coming late to class also affected them. In their expressions, the students noted the following:

The interpreting is good, sometimes too the interpreting is not all that good. If the interpreter signs very fast and is not skillful I don't understand. When the interpreter does not know what is said by the lecturer, it affects our academics. Sometimes some of the interpreters along the line may deviate but is still

normal. I feel very sad in the absence of an interpreter at the lecture hall because I miss everything going on at the lecture hall. (DS 2)

Sometimes the student's interpreters are not so much experience in sign language, but they support us in the absence of the interpreters. Some of the terminologies used in some courses like Anatomy, and Art with all the big words, signing those words becomes a problem for interpreters, so they do finger spellings for us to understand. Also, some deaf students are far more advance in sign language than others, so some do understand based on the individual difference. (DS1)

Interpreters' Responses

The views of interpreters that emerge from understanding interpreting were:

Most of the Lecturers' pace of delivery at the lecture hall is very fast which doesn't help to interpret, since they are the key informant within the classroom. This is a result of most lecturers not being prone to teaching deaf students within the classroom, for that matter most of the lecturers do forget that there are deaf students within the classroom (ITP4).

Late submission of the timetable by the deaf students to us makes it difficult for me to make schedules for their lessons. Also, frequent change in time and venue for lectures is not encouraging at all. (ITP 1)

If the interpreter is proficient in interpreting the deaf students to get everything the Lecturer will say and when the Lecturers also cooperates with interpreters it helps. Sometimes if the interpreter is not all that fluent and the Lecturer does not cooperate or does not know anything about signs it will hurt the students. , because Sign Language is not a complete language, most words don't have a sign, and I have to fingers spell, and that too does not enhance their understanding. (ITP 2)

Note-taking is lacking because the University has only a few interpreters, and how can I interprets and at the same time take notes? So they do take notes from their friends to copy and if their friend didn't copy the right thing, they will do their best as an interpreter but they still lack some information. (ITP3)

The analysis indicates that interpreters face a series of challenges so far as interpreting is concerned. It was revealed that most lecturers' pace of delivery at the lecture hall is very fast, and late submission of timetables and course outlines by students who are deaf do affect the service the interpreters render to deaf students. Interpreting is a complex process that requires a high degree of linguistic, cognitive, and technical skills in both English Language and GSL. Sign Language interpreting, like spoken language interpreting, involves more than simply replacing a word of spoken English with a signed representation of that English word.

Lecturers' Responses

The comments of lecturers were also gathered concerning this subject. Their views were:

One day I had a problem, the interpreter didn't come for the lectures and one student stood in for the deaf students. (LT2)

Yes, one day the interpreter was late and the deaf students felt lost. I felt how sure am I that what I'm communicating is the same as what they are interpreting, that is my problem. (LT 3)

The communication (interpreting) at the lecture hall, since Art is a specialized area and the terms we used may not have a sign so communication becomes a problem. Also, the deaf students not having a background in their study area is a problem too. In the absence of the interpreter what happened is maker and board talk, paper and pencil talk, and writing. (LT 1)

The preparedness or the quality of interpretation by the interpreters given to the deaf students is very necessary because programs like Graphic Design have peculiar aspects or terminologies as compared to other areas of study and if the interpreter does not have the required knowledge in the subject area the interpretation becomes storytelling instead of communicating the content of the subject to the students (LT5).

4.2.2 Understanding regarding classroom environment,

The additional key issue that was explored in this study was to find out the understanding of deaf students' encounters within the classroom environment (lecture halls).

Students' Responses

The deaf students expressed different views concerning their classroom environments. Some of the students indicated that they were not comfortable with the environment due to the struggles with furniture such as moving chairs from one place to another and changing the venue as well. Other deaf students stressed that some of the lectures were in the evening, and the lighting conditions in some of the lecture halls were not good. For that reason, they sometimes struggled to see the interpreter signing. Examples of the views the deaf students expressed were as follows

I am not comfortable with the classroom environment because some of the fans are not working and the room becomes hot, sometimes too I struggle for chairs, and changing venues makes it difficult for me, and is boring. (DS2&3)

The lighting system within the classroom is bad, when the lecture is scheduled in the evening I do not get the interpreting well due to the lighting system. I am not lucky at all for P.E. only, I like sports but the environment does not favor me at all. I don't have any option but to join. (DS 5& 6)

In the absence of the interpreter, I ask my friends to write whatever the lecturer is saying to me. I also copy notes from them. (DS1)

"Sometimes the place is hot, sometimes too if I am late I have to carry a chair from another place and I have to carry some for the interpreter as well. (DS 7)

For me, I don't have a problem the only problem is that they have to support the physically challenged and the visually impaired students from the ground floor to the top floor. (DS 9)

Response from the majority of the students indicated that, even though the presence of an interpreter in a lecture was beneficial to deaf students, yet, not every

interpreter could provide services that were effective to all students. Again, it was revealed that although sign language and note-taking services were provided to deaf students, those services were not provided on regular basis.

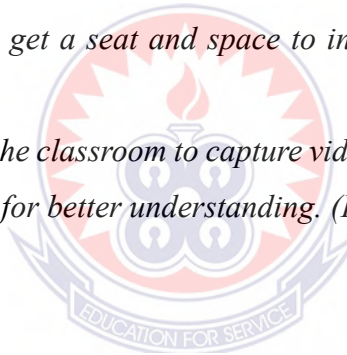
Interpreters' Responses

The data indicated that the available infrastructure was not accommodative for the signing during evening lectures as evidenced in the comments below:

To some extent the classroom environment support learning, if there is a proper lighting system and a good sound system it supports because I can hear what the Lecturer is saying and the deaf too can see me but when there is no such thing it doesn't help. When there are no proper lighting systems for evening lectures they complain. (IPT 1)

Due to a large number of students in some of my classes, sometimes the interpreters do not get a seat and space to interpret from because of the large class (ITP 2).

Fixing cameras in the classroom to capture videos for remedial teaching after the Lecture has closed for better understanding. (ITP)



Lecturers' Responses

Lecturers' opinions about classroom environment were also gathered. Sample of the responses by the lecturers on this subject were

The challenges are taken care of by the Special Education department. I think the support system so far in the University is good. (LT 1)

“Yes, interpreters have been coming late and sometimes absent. When the interpreters are late the deaf students mostly feel lost. The classroom environment is good so far (LT 3)

The classroom environment calls for improvement because combining special needs students and regular students is very tough. The lighting systems and the sound systems should be reconsidered by authorities (LT2).

4.2.3 Challenges with the writing quizzes and exams

Another key issue that was found in this study was the challenges students who are deaf face concerning writing quizzes and exams in the university. Some of the students indicated that exam questions were hard to understand, and many times, they found it difficult to answer exams question. Other students also stated that the interpreting at the lecture hall was different from the words that appeared in quizzes and exams. In their expressions, the students noted that:

Deaf students' Responses

“The way they put the exam questions, the sentences are hard to understand. Sometimes the words are big so understanding becomes a problem, but I try to answer. Sometimes the time is small for the quiz, so they have to add some time. (DS 1)

I face a lot of challenges during exams and quizzes because interpretation at the lecture hall comes with meanings but in the exams, I am to provide an answer. The choice of words in exams compared to what the interpreters sign is different. Though the interpretation is good sometimes they change the words in the question and it becomes hard for me (DS 3). Sometimes the interpreting at the lecture hall is nice, I do understand but the words in the power points and notes are conflicting. So, I find it difficult to understand the words that come with exams. (DS 4)

“Truly, sometimes the online exams will start and I will be getting problems with the network, sometimes too it may go off, I complain to the lecturer but he will not allow me to write again. (DS 6)

Sometimes the exam question and the words are big I do not understand, then I call the interpreter to come and explain them to me. Sometimes the question I don't even know, so maybe I will call the interpreter to explain to me before I can write, if not I write and the answer is wrong. The words interpret at the lecture hall change in exams. (DS 7)

With exams some words I don't know, I can read well but sometimes don't understand some of the words in exams. Unless the interpreter explains it to me before I can write at the exams hall. (DS8)

Lecturers' Responses

Concerning challenges with quizzes and exams, the lecturers were of the view that some deaf students were very lazy because interpreters and note-takers were available to help them. The following were some of the comments the lecturers made.

Most deaf students come to the classroom without learning materials. For instance, during practical work where laptops will be needed, some will come leaving their things at home all because interpreters are available (LT1).

Some deaf students are very lazy toward learning, they do not write notes with the notion that Note takers are there to write a note for them. Meanwhile, most of them struggle to read and copy what has been given to them (LT5).

Most deaf students hold on to what they know, when you tell them the right thing they do not go by it, instead they do what they know. (LT2).

4.3 How does the classroom environment support communication for deaf students?

Research question two was meant to explore the supportiveness of the classroom environment on effective communication for students who are deaf at UEW. Three sub-themes were raised to elicit data to support this objective for the three categories of participants. The sub-themes included the relationship among deaf students, interpreters, and lectures about communication at the lecture hall; the student's participation at the lecture hall; and the seating arrangement for students who are deaf at the lecture hall.

4.3.1 Relationship among deaf students, Interpreters, and Lecturers

Concerning the relationship among deaf students, interpreters and lecturers had different narration or experiences. When the deaf students were speaking about this issue,

most of them emphasized only the positive relationship between interpreters and lecturers. The majority of the students indicated that they felt good when they were with interpreters since they will give them the information that they needed to know. Others also revealed that communication with interpreters was fine, though some of the interpreters were not all that good, which sometimes makes communication difficult. Concerning the relationship between students and lecturers, it was revealed that some of the deaf students feel happy because some of the Lecturers try to learn Sign Language. It was analyzed that when communication was done right among students, interpreters, and lectures, students felt good, but when deaf students is vice versa, were the most disadvantaged. Some of the students' comments were

I feel good when the interpreter knows Sign Language. At the lecture hall if a lecturer is moving fast the interpreter prompts him to take his time (DS 9).

I feel happy because some of the Lecturers try to learn Sign Language, especially after Lectures. Some of the Lecturers can't communicate, and some also can but they don't have time for us.

Some will also ask you how are you. Some too will neglect the deaf students (DS 2).

Yes, is cool. When I am communicating and there is an interpreter around I feel ok because I get the information and it makes me comfortable. I communicate to lecturers through the interpreter, so after the lecturer has finished talking the interpreter also interprets for me (DS 7).

It is obvious from the comments from the deaf students that they were content with how interpreters and some lecturers related with them during lesson hours. Comments from the deaf students indicate that they are comfortable with the presence of interpreters at the lecture hall, and they can understand whatever has been thought with the assistance of the sign language interpreters.

Others were of the view that some of the lectures and sign language interpreters' attitudes were not encouraging, and respondents find it difficult to consult them for assistance both during and after lesson hours. The following comments were from students:

One student commented:

Communication with interpreters for me is disheartening, though sometimes the interpreters make busy due to their number; the attitude of some interpreters towards me is so bad. During lesson hours when I go to call them, they will be sitting down and doing their things. Some will also insult you (DS4)

Most times, some of the Lecturer's paces of speech are so fast when I complain they will be insulting me that you are lazy. It makes me feel sad most times and even regret coming to school because I feel left out" (DS5)

Some interpreters are not all that good so communication becomes difficult. Sometimes is ok, and sometimes is not. The lecturers do not relate to me because they do not know Sign Language. During the lecture, the interpreters interpret for us to benefit and are normal (DS 8)

Interpreters

The views of interpreters concerning the relationship among deaf students, interpreters, and lecturers had different narrations. The interpreters expressed diverse views concerning the relationship between lecturers and students who are deaf at the university. Some of the interpreters indicated that the interpreter serves as an intermediary for the students and the lecturers because the interpreters interpret what they hear from the Lecturers for the students who are deaf. Others also said, sometimes they will go to the lecture hall and some lecturers will ask them what do you want. Because some lecturers do not know much about deaf education, so some even don't recognize

the presence of the students who are deaf in the lecture hall. The presence of an interpreter in the lecture hall enables students who are deaf to effectively get involved and actively participate in the learning/teaching environment.

The interpreter is only serving as an intermediary for the students and the Lecturer, so I do interpret what I hear, what is left is for the students to go and learn more. The lecturers give us the course outline and that is all. I don't have access to the Lecturers notes or slide (ITP 1)

At the lecture hall, your consumers (deaf students) are paying attention, you have to look at their faces, so their facial expressions, body posture, and demeanor help me to know if they are understanding what I am interpreting or not and also the feedback they give. When I ask questions the response they give will help me to know if the students are getting the communication. We also give them remedial teaching for the things they could not understand in class (ITP 2)

Lecturers

Concerning the views of Lecturers about the relationship among deaf students, interpreters, and lecturers at the lecture hall, they stated that:

I do communicate with interpreters when I am teaching, I do ask them if the pace I am moving is okay for them or not. Mostly, I give information to the whole class and since the interpreters are there they also communicate with the deaf students as well. I communicate with the class generally. Sometimes I share information on their pen drive to learn them home (LT 3)

I don't communicate information personally to the deaf students, I do it for the whole class. At times I pick points things that are key to the interpreters and at times too I go to the interpreters to emphasize some things. I don't personally communicate with interpreters after lectures (LT 2)

Yes, I do outside interaction like how are you, the basic signs with the students. I do give the interpreter's course outline and during a lecture, I brief them with every information they need. I do lecture with the interpreter (LT 1)

There is a language barrier regarding communication between hearing students and deaf students but as teachers, we try to bridge the gap with the assistance of interpreters within the classroom (LT5).

4.3.2 The student's participation in the lecture hall

Classroom participation looks at the student's ability to join in classroom activities and discussions. From the data, it was revealed that students who are deaf do take part in the class lesson, assignments, and group discussions with the assistance of some of their college students and interpreters. The student's responses were:

Students

I do participate in group discussions, the hearing students do write the keywords on the board so that when an interpreter comes around he/she explains them to me. Sometimes they will explain but still, the understanding is not there so if there could be videos and pictures in addition to the oral and theories (DS 1)

I take part in class discussions only when the interpreter gives the information to me for me to answer. Through the interpreters, I can contribute or add my views to whatever has been said at the lecture hall (DS 5)

I do participate in class discussions, group work, and assignments. I have a group I belong to in the class. Sometimes I write for colleagues who cannot sign, others can sign so they use sign language to communicate with me (DS 4).

Interpreters

Concerning students who are deaf participation in the lecture hall, students who have difficulty communicating in the classroom may choose not to participate in classroom activities, which may in turn affect their learning and their academic success. This requires that deaf students have access to all lecturer and student communication and also discussions and other activities should be structured in a manner that allows the student to participate. The interpreters' response included

When I ask questions the response they give helps me to know if the students are getting what I am signing. They do take part in class discussions. (ITP 1)

When the interpreter communicates the right information to the students they can take part in class discussion. Through interpreting, deaf students can contribute or add their views to whatever has been said in the lecture hall. (ITP2)

Lecturers

Concerning classroom participation, the views of the lecturers were;

They (deaf students) are doing well, anytime I ask questions in class they respond. And they also do ask questions during lesson hours. (LT 1)

I engage them during class discussions and everything that goes within the class because I'm informed about Sign Language, at times they ask questions and they even contribute to the lesson. They are interested in drawing and because of that they try to learn more, so they do ask questions to know more. (LT 3)

Some of the deaf students are very lazy due to the perception that interpreters and note takers are available the effort they put towards their academics is so poor. (LT4)

4.3.3 The seat arrangement for deaf students at the lectures hall

Regarding the seating arrangement at the lecture hall for deaf students, the concerns of both lecturers, interpreters, and deaf students were gathered. The views of deaf students were:

Deaf students:

We always sit in front of the classroom for us to get every information from the interpreters during lessons hours (DS 1).

We are managing the classroom environment though is an inclusive setting, unlike the basic level where we have pictures and videos at the resource rooms but here nothing. The sitting arrangement is cool since is an inclusive university. (DS2) We sit in columns and front. But when I come late and there is no chair I stand at the back. I always sit in front of the class. (DS 4)

We do sit in front where we can see the interpreter sign and the visually impaired students also sit at a certain place but we all enjoy the lecture for general courses. (DS 6)

Interpreters

The interpreters also commented on how deaf students sit in the lecture hall. Their expressions were:

Most of the time the deaf are in front but when they come later and there is no seat available they stand at the back. (ITP3)

Ideally, the deaf students sit in front, they have a particular place they sit at the lecture hall and interpreters also have a place they also stand. They don't mix with the hearing students. (ITP 2)

We do sit in front of the class with the deaf students so that they can see whatever is been projected. (ITP1)

Lecturers

The response of lecturers about classroom sitting for deaf students was:

The deaf students sit in front, always they are in front. They do come very early to the lecture hall, is the interpreters that sometimes do come late. Most times we do search for interpreters. (LT 3)

Deaf students are always in front and they sit first before the lesson begins. (LT4)

Fortunately, I give them a separate class due to their numbers and the pace at which I teach them, adding them to the general class will be boring for the hearing student due to the practical aspect of the course. (LT 2)

Comments from the deaf students, interpreters, and lecturers revealed that deaf students sat in front of the classroom for easy communication with interpreters, and also to see from the board or the PowerPoint presentation.

4.4 What are the Strategies and Resources that can contribute to Classroom Communication for Deaf Students at UEW?

Research question 4 explored the strategies and resources that contribute to classroom communication regarding the education of deaf students at UEW. The views of lecturers, interpreters, and deaf students were assembled. The deaf students commented included

The university management should give more opportunities to Sign language interpreters since the number of deaf students is increasing. Also, training should be given to the Lecturers about us and the pace they teach at the lecture hall. (DS 1)

Some of the interpreters encourage us and teach us after lectures the things we did not understand so they should all learn and do the same (DS 3).

Motivation for interpreters during exams should be encouraged. I also want the hearing students to mingle with us so that we will teach them sign language and they will also help us in learning. (DS 6)

Interpreters should help with the registration of course because some of the words and English that appear need interpreters to help. (DS4)

One of the deaf students stated that the attitude of some interpreters should be looked at in order to facilitate classroom communication among deaf students and hearing people.

Some interpreters should change their attitude toward deaf students. Sometimes you will go to the resource to call them but they will not mind you rather they will be sitting there doing their own thing (DS 5).

Interpreters

The interpreter's views concerning measures to improve classroom communication were:

Adequate interpreters and Note takers, since the number of deaf students keeps on increasing more professional interpreters should be employed to assist the deaf students. So that they would have extra time for the deaf students after the lecture. The Lecturers should give cordial respect to interpreters because they are also there to help deaf students. (all the Interpreters)

Interpreters should be assigned to specific courses, a particular interpreter for a particular course because the more you are with them if there are any challenges you will be able to notice it earlier and inform the Lecturer about it to solve it as soon as possible. Every department should have, an interpreter. If every department is to have an interpreter it will improve the Ghanaian SL. (ITP 4)

One interpreter was of the view that, cameras should be fixed at the lecture halls for video recordings of lessons to facilitate remedial teaching for the deaf students.

Fixing cameras in the classroom to capture videos for remedial teaching after the lecture has closed for better understanding. The use of visual stuff like videos charts etc.

Organizing in-service training for lecturers for them to know and understand that the University is an inclusion setting so they should regard the deaf students as their students and support them. (ITP2)

Lecturers

The views of lecturers concerning this theme were:

The department of Special education should collaborate with other departments with deaf students to encourage both Postgraduate and undergraduate students

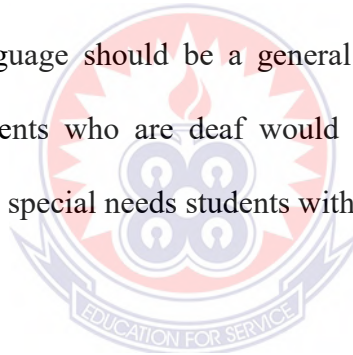
to conduct video research in line with the courses the study to be used for remedial studies and also enhance interpreting.

Lecturers should be giving in-service training in Sign Language. I have to improve my Sign Language and I wish I would've taken Sign Language seriously where I was. (Verbatim expression from LT 3)

Sign Language should be a general course for all students. The missing Sign Language in the Education curriculum. Workshop for lecturers in basic S.L. (Verbatim expression from all Lecturers)

the need for sign language interpreters for every subject area Every department should have an interpreter with a background from the department. Interpreters with Art education background (Verbatim expression from LT 1&2)

From the analysis, it is indicative the deaf students, interpreters, and lecturers commented that sign language should be a general course offered at UEW so that communication with students who are deaf would be easier. Though students with deafness were not the only special needs students within the university,



CHAPTER FIVE

DISCUSSIONS OF FINDINGS

5.0 Introduction

Using the study's primary questions as a guide, the following sections present the major findings of the study:

5.1 Research Question One: What are the classroom communication modes for the education of deaf students?

Research question one explored the classroom communication modes for the education of deaf students pursuing various degree programs at UEW at the time of the study. Responses obtained from deaf students, interpreters, and lecturers who participated in the study revealed that different communication modes were used in the lecture halls. The communication modes were sign language interpreting, note-taking, facial expression, fingerspelling, speech-reading, body gestures, and word interpreting. This finding corroborates Langga et al. (2021), who reported that the success of deaf students' learning depends on their preferred communication mode. Bustos (2009) also recommended that the visual inclination of deaf students should be considered when choosing the communication mode for them. This was evident that, though sign language is the primary language for communication among deaf students, yet their modes of communication differ from one another concerning classroom communication. Also, a primary assumption underlying mainstream/inclusive education is that, in the case of the majority of deaf students who depend on signed communication, a skilled sign language interpreter will provide access to classroom communication comparable to that of their hearing peers. The study revealed that multimodal communication approaches were used among deaf students, interpreters, and lecturers. Skyer (2021) indicated the relevance of using different modes of communication (multimodal) for deaf students to make

meanings through communication with interpreters, lecturers, and note-takers in the teaching and learning process. The things individuals spot with their eyes are difficult to erase from our memories therefore the communication done through the use of gestures, videos, images, or signs becomes relevant to show how deaf students connect with the outside world. Kress (2000), indicated that, multimodality place more emphasis on the different modes that are used to disseminate information with each other and to express themselves. The multimodality theory is relevant as an increase in technology tools, and associated access to multimedia composing software, which has led to people (interpreters, lecturers) being able to easily use many modes in teaching and learning process and every-day interactions with each other in support of the education of deaf students.

The study also revealed that the nature of communication in the lecture halls was done triangularly; that is between the lecturer, interpreter, and the deaf students, and vice versa. That is the lecturers would be speaking, and the interpreters would concurrently interpret for the deaf students. Therefore, with the addition of videos, charts, and other approaches, deaf students could get a clear understanding of lessons in the lecture halls. A study by Wambui (2015) stated that classroom communication is important for transmitting information and imparting knowledge, and therefore, the communication process is vital for effective teaching and learning within a classroom environment. Classroom instruction that produces positive results acknowledges the need for liberal use of non-verbal cues, learner involvement, and team communication. Kress and Leeuwen (2001) emphasized that, multimodality is generally a communication channel that a culture recognizes. That is, writing, gesture, posture, gaze, font choice and color, images, video, and even the interactions between them to make meanings to students or groups of individuals.

5.2 Research Question Two: What understanding do interpreters, lecturers, and deaf students have about classroom communication for deaf students?

Regarding the understanding deaf students, interpreters, and lecturers have about classroom communication, it was revealed by the students that, the lateness of some interpreters at the lecture hall affected classroom communication because the deaf students missed every piece of information that would be shared before the interpreters came to the lecture. room The study also found that some of the interpreters were inexperienced regarding the subject area of some deaf students, so they were not able to explain or sign some terminologies to the students.. This finding is similar to findings made by Marschark et al. (2005) (. Marschark et al. stated that there is consensus that educational interpreting often falls short of deaf students' needs, especially at the postsecondary and tertiary levels. Also, the content knowledge necessary for interpreting in the subject area in the classrooms is sometimes beyond the educational backgrounds of interpreters and much attention has not been given to how deaf students cope with impoverished communication in the classroom. According to (Kress, 2000), multimodal theory posits a significant challenge to how education is understood and analyzed via social semiotics, therefore leading scholars claim that it is no longer possible to think about epistemology (language, information, communication) or education, without considering the proliferation of modes within texts and their contexts by both lecturers and interpreters.

Findings of the study also showed that different interpreters for different courses are not helpful to the academics of deaf students. This is because the constant change of interpreters in the classroom makes interpreting boring and does not ensure continuity. A study by (Oppong et al., 2016) also indicated that interpreting for deaf students requires a lot of hard work and dedication, and there is much to consider as an interpreter in

making sure that both deaf and hearing students understand each other. It was also revealed that, since their main source of information at the lecture hall was dependent on the interpreters, lateness and the absence of the interpreters at the lecturer hall does not encourage learning at the tertiary level. Marschark et al. (2005) stated that the presence of an interpreter in the lecture hall enables deaf students to effectively get involved and actively participate in the learning/teaching environment. Opong et al., (2016) stated that, in the face of the present challenges facing sign language interpreters, however, there is a need for them to be punctual so that students do not miss out on vital information in the lecture hall. The findings also revealed that the words used in the lecture hall are different from the words that do appear in the examination which is a big problem they are experiencing at the University. This is a result of interpreting been made as storytelling instead of projecting concepts in their field of study.

Regarding the Interpreters, it was revealed that late submission of the timetable by the students, and constant change of venue and time for lectures without their knowledge do affect classroom communication. It was also revealed that how some of the lecturers lectured without considering the presence of interpreters in the classroom. The findings revealed that the quality of interpretation by the interpreters given to the deaf students is very necessary because programs like Graphic Design have peculiar aspects or terminologies as compared to other areas of study and if the interpreter does not have the required knowledge in the subject area the interpretation becomes storytelling instead of communicating the content of the subject to the deaf students.

5.3 Research Question Three: How does the classroom environment support communication for deaf students at the University of Education, Winneba?

Research question 3 inquired about participants' concerns about the supportiveness of the classroom environment for communication. Findings of the study

revealed the relationship between lecturers, interpreters, and deaf students in the lecture hall. Most of the deaf students emphasized only the positive relationship between Interpreters and Lecturers. The majority of the students indicated that they feel good when they are with interpreters since they give them the information that they need to know, also communication with interpreters is fine, though some of the interpreters are not all that good which sometimes makes communication difficult. Multimodal resources are seen by Kress (2003, p. 36) as indicators that are both motivated and conventional. In order to deliver a certain message that is dependent on the learning and social settings, the interpreters or lecturers may use a variety of methods during the teaching-learning process. It was also revealed if interpreters interpreting with examples the understanding comes, and they feel better. Zahirah and Sukyadi (2018) researched that the multimodal resources implemented in the teaching-learning process for the deaf students can allow them to interpret as well as to make a request, command, argue, and persuade, even to express feelings and tell jokes. Concerning the relationship between deaf students and lecturers, it was revealed that some of the deaf students do feel happy because some of the lecturers try to learn sign language which serves as an encouragement. Some of the lecturers don't even talk since they can't communicate with the sign language, others too can communicate but they don't have time for deaf students. From the study, it came to light that when communication is done right among deaf students, interpreters, and lectures, students feel good but when is vice versa, deaf students are the most disadvantaged.

Also, some lecturers' relationship is not encouraging as a result of a lack of awareness and knowledge about the characteristics of students who are deaf. Therefore Wambui (2015), stated that Classroom instruction that produces positive results, and acknowledges the need for liberal use of non-verbal cues, learner's involvement, and

team communication, it was pointed out that learners' performance was usually defined by a learner's success in an academic discipline, an exhibited level of competency on some type of standardized test. The classroom environment and activities are what learners experience directly and they are the mechanism through which educational interventions are most likely to produce desired improvements in learners' performance (Wambui, 2015).

5.4 Research Question Four: What measures could be put in place to ensure effective classroom communication for students who are deaf?

Research question four (4) inquired of participants about the measures to ensure effective classroom communication. The outcome of the study as indicated in the analysis revealed by the Lecturers, Interpreters, and students was that more Sign language interpreters and Note takers should be given the opportunity by the University Management since the number of deaf student's number is increasing rapidly, more professional interpreters should be employed to assist the deaf students. According to Adade et al. (2022), the importance of sign language interpreters in the education of deaf students cannot be overstated; they are the "voice" of the deaf population. Lack of trained interpreters, service providers, training programs, and institutions, as well as the absence of a code of conduct to promote the professionalization of the interpreting industry, all increase the likelihood that the rights of deaf people will be infringed.

The study also revealed that Sign Language should be generalized, also more professional interpreters should be trained for all the departments for instance (Graphics Design and Art Education) having deaf students with them to make communication easier and more understandable. Also, the analysis revealed that there was a need to maintain experienced interpreters in the University who could avoid the consecutive signing approach and adopt the simultaneous signing approach for specific courses.

The findings of the study disclosed that fixing cameras in the classroom to capture videos for remedial teaching after the Lecture will enhance better understanding. Also visualizing lessons in a form of videos or charts can support the education of students who are deaf. The findings of the study revealed that Lecturers should be giving inservice training or workshop concerning Sign Language and deaf education since the University is an inclusive setting. And the Lecturers should also give cordial respect to interpreters since their presence at the lecture hall mounts some importance to the students who are deaf.



CHAPTER SIX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

6.0 Introduction

This chapter presents the summary, conclusions, and recommendations for future research.

6.1 Summary

The purpose of this study was to explore classroom communication among deaf students and hearing people at the University of Education, Winneba. Ten deaf students were purposively selected, and Lecturers and Interpreters were also selected for the study. Data were gathered through a semi-structured interview guide. Data were coded and analyzed using a thematic approach.

6.1.1 Classroom communication modes for the education of deaf students

Findings from the study on research question one (1) revealed that different communication approaches are used among deaf students, interpreters, and lecturers regarding classroom communication at the University of Education, Winneba. It was revealed by the deaf students and interpreters that, sign language interpreting, fingerspelling, lipreading, and note-taking are some of the communication approaches used in the lecture hall. Most of the lecturers also indicated that they communicate orally, slowly, repeatedly, and in writing in the lecture hall, which sometimes makes lessons boring for hearing students

6.1.2 The understanding interpreters, lecturers, and deaf students have about classroom communication for deaf students

The analysis of the interview data on research question two (2) indicated that some of the interpreter's lateness at the lecture hall does not encourage classroom communication at the university. Also, the inexperience of some interpreters and the negative attitudes of some interpreters is a challenge for communication in the lecture hall because it becomes difficult for the interpreters to sign some concepts related to their course of study. The study also revealed that interpreting at the lecture hall is different from what comes in exams due to that deaf students struggle in the examination hall. The interpreters also revealed that there are a series of challenges they face concerning their understanding of classroom communication. These challenges mentioned were late submission of the timetable by deaf students, lecturers' pace of delivery at the lecture hall, inadequate notetakers to take notes for the deaf students, and limited seats for interpreters at the lecture hall due to a large number of the class. The lecturers also revealed from the study that some deaf students are very lazy, they don't want to do anything on their own.

6.1.3 Classroom environment support for communication

The analysis of the interview data on research question three (3) revealed that the majority of deaf students feel good when they are with interpreters since they give them the information that goes on in the lecture hall. The findings revealed that deaf students participate during lesson hours and group discussions with the assistance of interpreters. It was also revealed from the interpreters that, the interpreter is only serving as an intermediary between deaf students and the Lecturer, so they interpret what they hear, and the rest is left for the deaf students to go and learn more. The study again revealed that there is a language barrier regarding communication between hearing students and

deaf students but as teachers, we try to bridge the gap with the assistance of interpreters within the classroom.

6.1.4 The strategies and resources that can contribute to classroom communication for deaf students

Findings from the study on research question four (4) revealed that More professional interpreters should be given the opportunity since deaf students are increasing rapidly. Also, Interpreters should be assigned to specific courses, an interpreter for a particular course, because the more you are with them if there are any challenges you will be able to notice them earlier and inform the Lecturer about them to solve them as soon as possible. Department of Special education should collaborate with other departments to encourage both undergraduate and postgraduate final-year students to do more videos of sign language as research for lessons to bridge the gap in terms of communication.

6.2 Conclusion

The study concluded that although there are different approaches to communication in respect of the education of deaf students at UEW, but there is no structured mode of communication regarding classroom communication among deaf students, interpreters, and lecturers in the university.

Also, deaf students', interpreters', and lecturers' understanding of classroom communication differed from each other at UEW so more opportunities should be given for professional interpreters and note-takers to provide regular services to deaf students since the number of deaf students at UEW continues to increase.. However, it is necessary for the university authorities to ensure that every department with deaf students should have at least two interpreters with a background in the course area these students pursue, to minimize challenges encountered by deaf students and interpreters.

Furthermore, the classroom environment did not support classroom communication at the University due to large class sizes and the lighting systems, which did not favour evening lectures. It was also concluded that the negative attitude of some interpreters and lecturers did not support classroom communication.

Finally, classroom communication among deaf students, interpreters, and lecturers calls for a multimodal approach to foster the education of deaf students at the University of Education, Winneba.

6.3 Recommendations

Based on the findings of the study the following recommendations were made:

- Sign language interpreters at UEW should build on their proficiency in communication modes to make classroom communication effective and more encouraging. Also, more professional interpreters and note takers should be given the opportunity since deaf students are increasing rapidly at the university.
- The Special Education department at UEW should facilitate continuous professional development seminars and in-service training for lecturers and interpreters on the education of deaf students, to enable them gain more understanding about classroom communication for the deaf students. This would also enable them to come up with more innovative ways of communicating with deaf students at the lecturer hall.
- UEW and the Department of Special Education should collaborate to ensure a supportive environment for an effective classroom communication.
- Interpreters at UEW should be assigned to specific courses to have content knowledge in the course before interpreting to interpret explicitly for deaf students to gain understanding in their study area. Also, Special education

department should collaborate with other departments to encourage both undergraduate and postgraduate final-year students to do more videos of sign language for lessons as research to bridge the gap in terms of communication and also serve as remedial studies for both deaf students and interpreters at UEW.

6.4 Suggestion for further studies

Through these research findings, other necessary research ideas have come up which can be worked on. These may include but are not limited to:-

1. Interpreter's attitudes toward the use of GSL as a language of instruction for deaf students should be investigated.
2. Research should be done to investigate the influence of lecturers' and interpreters attitudes toward the academic achievements of deaf students



REFERENCES

- Adade, R., Appau, O., Mprah, W. K., Fobi, D., & Marfo, P. S. (2022). Factors Influencing sign language interpretation service in Ghana: The interpreters' perspective,. *Journal of Interpretation*, 30(1).
<https://doi.org/https://digitalcommons.unf.edu/joi/vol30/iss1/1>
- Ademokoya, J. A. (2008). Classroom communication and placement of the deaf child in an inclusive class. *Journal of Human Ecology*, 23(3), 203-209.
- Adoyo, P. O. (2002). Emergent approaches towards sign bilingualism in deaf education in Kenya. *Vienna Journal of African Studies*, 2(3), 83-96.
- Adoyo, P. O., & Maina, E. N. (2019). Practices and challenges in deaf education in Kenya. In H. Knoors & M. Marschark (Eds.), *Deaf education beyond the western world* (pp. 73-86). Oxford University Press.
<https://doi.org/10.1093/oso/9780190880514.003.0005>
- Adu, J. (2021). *Social and academic experiences of students who are deaf at the University of Education, Winneba*. <https://doi.org/Afribary>. Retrieved from <https://afribary.com/works/social-and-academic-experiences-of-students-whoare-deaf-at-the-university-of-education-winneba>.
- Ainscow, M., (2007). *Teaching for diversity, the next big challenge in Connelly*. Sinneba; University of Education.

- Alanazi, M. (2021). Communicating with deaf students in inclusive schools: Insights from Saudi University Faculty. *Eurasian Journal of Educational Research*, 2021(95). <https://doi.org/10.14689/ejer.2021.95.11>
- Asif, M. (2008). Difficulties faced by deaf students and their interaction partners during interaction in inclusive classroom. Retrieved from <http://core.roehampton.ac.uk/repository/content/subs/P.SIMONS/P.SIMONS299/Final%20Dissertation%20by%20Muhammad%20Asif.pdf>. Retrieved on: 4/02/16.
- Avoke, M. (2005). *Special education needs in introduction to research in education. Ghana: Policy, practice research*. University of Education, Winneba.
- Baxter, P., & Jack, S. (2015). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*. <https://doi.org/10.46743/2160-3715/2008.1573>
- Bell, D., & Swart, E. (2018). Learning experiences of students who are hard of hearing in higher education: Case study of a South African university. *Social Inclusion*, 6(4), 137-148. <https://doi.org/10.17645/si.v6i4.1643>
- Cayton, H. (1987). The place of hearing aid technology in the education of deaf children. In T. Booth & W. Swann (Eds.), *Including pupils with disabilities* (pp. 104-113). Open University Press.

Creswell, J. W. (2012). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th.ed.). Sage Publications, Inc.

Creswell, J. W., Ebersohn, L., Eloff, I., Ferreira, R., Ivankova, N. V., Jansen, J. D., et al. (2007). *First steps in research*. Van Schaik Publishers.

Duncan, J. (2010). Toward a family-centered approach. In E. Rhoades & A. Ellen (Eds.), *Auditory verbal practice* (pp. 167-186). Charles C. Thomas.

Easterbrooks, S. R. (2002). Annotated bibliography of cochlear implant research and publications. *Communication Disorders Quarterly*, 24(1), 31+. <https://link.gale.com/apps/doc/A97755410/HRCA?u=anon~61b0e749&sid=googleScholar&xid=d9997811>.

Ekwama, M. B. (2003). Communication systems used with the hearing-impaired for effective educational practices in special education. *The Special Educator*, 3(1), 46-51.

Evans, C. J. (2004). Sign language research contributes to a better understanding of language acquisition, a review of directions in sign language acquisition. *Sign Language Studies*, 4(4), 399-404.

Fobi, D., & Oppong, A. M. (2019). Communication approaches for educating deaf and hard of hearing (DHH) children in Ghana: Historical and contemporary issues. *Deafness & Education International*, 21(4), 195-209.

<https://doi.org/10.1080/14643154.2018.1481594>

Foster, S., & Elliot L. (1986). *The best of both worlds*. Rochester Institute for the Deaf. Rochester.

Fox, N. E., & Ysseldyke, J. E. (1997). Implementing inclusion at the middle school level: Lessons from a negative example. *Exceptional Children*, 64 (1), 81-98.

Knors, H, & Brons, M., & Marschark, M. (2019). Deaf education beyond the western world: An introduction. Oxford Scholarship Online.

<https://doi.org/10.1093/oso/9780190880514.003.0001>.

Knors, H, & Brons, M., & Marschark, M. (2019). Deaf education beyond the western world: An introduction. Oxford Scholarship Online.

<https://doi.org/10.1093/oso/9780190880514.003.0001>.

Heward, W. L., (2006). *Exceptional children: An introduction to special education* ((8th ed.). Pearson Ed. Inc.

Hunt N., & Marshal, K., (2002). *Exceptional children and youth; An introduction to special education* (3rd. ed). Houghton Mifflin Company.

Hyde, M., & Power, D. (2003). Characteristics of deaf and hard of hearing students in Australian regular schools: Hearing level comparisons. *Deafness and Education International*, 5(3), 133-143.

- Jones, B. E., Clark, G., & Soltz, D. (1997). Characteristics and practices of sign language interpreters in inclusive education programs. *Exceptional Children*, 63(2), 257-268.
- Kapur, R. (2020). *The elements of communication*. University of Delhi.
<https://doi.org/https://www.researchgate.net/publication/344235361>.
- Kennedy, C. H., & Fisher, D. (Eds.) (2001). *Inclusive middle schools*. Paul H Brookes Publishing Company.
- Kigotho, L. W. (2016). *Barriers faced by students with hearing impairment in inclusive learning environment: A case of the University of Nairobi*. University of Nairobi, Kenya.
- Knors, H., & Hermans, D. (2010). Effective instruction for deaf and hard-of-hearing students: Teaching strategies, school settings, and student characteristics. *The Oxford Handbook of Deaf Studies, Language, and Education*, 2, 57-71.
- Kress, G. (2010). *Multimodality: A social semiotic approach to contemporary communication*. Routledge. <https://doi.org/13:978-0-415-32061-0>.
- Kress, G. (2011). Multimodal discourse analysis. In J. P. Gee & M. Handford (Eds.), *The Routledge handbook of discourse and analysis* (pp. 3-50). Routledge.

- Kress, G., & Van Leeuwen, T. (2001). Multimodal discourse: The modes and media of contemporary communication *Multimodal Discourse* (pp. 21-22). Oxford University Press.
- Kress, G. (2009). *Multimodality: A social semiotic approach to contemporary communication*. Routledge.
- Kress, G. (2000). Multimodality multiliteracies: Literacy learning and the design of social futures, 182-202.
- Lanfer, E. (2006). A resource guide: Mainstreaming a child with hearing impairment; What teachers need to know. Washington University School of Medicine.
Retrieved from <http://dspace.wustl.edu/bitstream/1838/519/1/Lanfer.pdf>.
Retrieved on: 6/02/16.
- Lang, H. G. (2002). Higher education for deaf students: Research priorities in the new millennium. *Journal of Deaf Studies and Deaf Education*, 7(4), 267-269.
- Lang., H. G., Makee, B. G., & Conner, K., (1993). Characteristics of effective teachers. A descriptive study of the perception of faculty and deaf college students. *American Annals of the Deaf*, 1381, 252-259.
- Langga, P. M. M., Sabandal, K. N., Datu-Ulama, A. P. R. T., Guimba, A. P. D. W. D., Sialana-Nalla, A. N., & Alico, J. C. (2021). Communication approaches of

hearing-impaired students in an English language learning classroom: The case of a public elementary school. *International Journal of English Language Studies*. <https://doi.org/10.32996/ijels>

Leeson, L. (2006). Moving heads and moving hands: Developing a digital corpus of Irish Sign Language. *Ireland*, 25-26.

Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA Publications and Communications Board task force report. *American Psychologist*, 73(1), 26.

Lewis, C. C. (2009). To catch a liar: A cross-cultural comparison of computer-mediated deceptive communication.

Lin, H. (2021). Translation or creation? A case study of signed Chinese poetry from the perspective of multimodality theory. *The Journal of Specialised Translation*, 35, 209-230.

Liwakala, P. C. (2003). Inclusive schooling in enabling education network (EENET). Researching our experience: a collection of writing by teachers in Mpika Zambia. EENET.

Given, L. M., & Saumure, K. (2008). The SAGE encyclopedia of qualitative research methods (Vols. 1 & 2). (University of Alberta).

Lockwood, H. (2001). Hearing impaired children in the mainstream classroom: The effects on literacy and learning. In E. Bearne (Ed.), *Differentiation and diversity in the primary school*. Routledge, Taylor & Francis.

Lorraine, L. (2006). Signed languages in Education in Europe: A preliminary exploration.

Luckners, J., & Muir, S., (2001). Successful students who are Deaf in general Education settings. *American Annals of the Deaf*, 435-446.

Marschark, M., & Spencer, P. E. (2010). *The Oxford handbook of deaf studies, language, and education* (Vol. 2). Oxford University Press.

Marschark, M., Leigh, G., Sapere, P., Burnham, D., Convertino, C., Stinson, M., . . .

Noble, W. (2006). *Benefits of sign language interpreting and text alternatives for deaf students' classroom learning*. Oxford University Press

<https://doi.org/10.1093/deafed/enl013>.

Marschark, M., Pelz, J. B., Convertino, C., Sapere, P., Arndt, M. E., & Seewagen, R.

(2005). Classroom interpreting and visual information processing in mainstream education for deaf students: Live or memorex? *American Educational Research Journal*, 42(4), 727-761. Mazoue, P. (2011). The academic challenges facing

deaf students at Durban University of Technology. Durban University of Technology, South Africa.

Nwachuwu, I. T. (2020). Teacher communication modes and academic performance of students with hearing impairment in special education secondary school Ibom Layout, Calabar, Cross River State.

<https://doi.org/https://ssrn.com/abstract=3568254>

Okeke B. A., (2003). Communication practices in special education: Oral manual and others. *The Special Educator*.

Oppong, A. M., Fobi, D., & Fobi, J. (2016). Deaf students' perceptions about quality of sign language interpreting services. *International Journal of Educational Leadership*, 7(1), 63-72. (<https://www.researchgate.net/publication/322636038>)

Peters, S. J., (2004) *Inclusive education: An education for all strategy for all children*, World Bank November 2004. www.worldbank.org.

Reed, C. M. (2009). ASL, total communication and oralism: Identifying shared characteristics of school-based writing intervention programs for deaf and hard-of-hearing students, K-6.

Rozen-Blay, O., Novogrodsky, R., & Degani, T. (2022). Talking while signing: The influence of simultaneous communication on the spoken language of bimodal bilinguals. *Journal of Speech, Language, Hearing Research*, 65(2), 785-796.

Saur, R. E., Hurley, E. A., & Popp, M. J. (1983). Looking beyond basic communication needs: The achievement and class participation of mainstreamed, hearing impaired students. National Technical Institute for the Deaf students in inclusive settings. *Journal of Deaf Studies and Deaf Education*, 4(3), 163-175.

Schick, B., Williams, K., & Bolster, L. (1999). Skill levels of educational interpreters working in public schools. *Journal of Deaf Studies and Deaf Education*, 4(2), 144-155.

Stinson, M.S., & Whitmire, K. A. (2000). *Adolescents who are deaf or hard of hearing: A communication perspective on educational placement*. Oxford Press. Sundeen, R. A. (2007) Acoustical barriers to communication and hearing. Unpublished Dissertation for Doctor of Audiology, Washington University School of Medicine. Retrieved from [http://dspace.wustl.edu/bitstream/1838/585/1/Sundeen,+ Ali ne.pdf](http://dspace.wustl.edu/bitstream/1838/585/1/Sundeen,+Ali+ne.pdf).

Skyer, M. E. (2019). Multimodality in the Digital Environments of Deaf Education (DE2).pdf. <https://scholarworks.rit.edu/other/990> Skyer, M. E. (2021). Grounded theories about biosocial interaction and axiology for deaf educators.

Sykes, B. L., Verma, A., & Hancock, B. H. (2018). Aligning sampling and case selection in quantitative-qualitative research designs: Establishing generalizability limits in mixed-method studies. *Ethnography, 19*(2), 227-253.

Uvaraj, T., & Mumtaz, B. (2011). Cognitive semiotics approach for communication development of language learners. *Theory and Practice in Language Studies* <https://doi.org/10.4304/tpls.1.10.1420-1423>

Underwood, R. (2003). Educating deaf and hard of hearing students in the mainstream classroom, Unpublished Study for Master of Science in Speech and Hearing, Washington University, St. Louis, MO..

Waayers-Engles, P. (1996). *Learning to live in real life*. Sint-Michielsgestel. Institute voorDoven Dr. van Udenschool.

WATI. (2009). Assessing students' needs for assistive devices. Retrieved from <http://www.wati.org/content/supports/free/pdf/Ch1-ATAssessment.pdf>.

Wambui, M. L. (2015). Determining classroom communication and academic performance of learners with hearing impairment; A case of Kambui School for the Deaf, Kiambu County-Kenya. Kenyatta University.

Zahirah, F. S., & Sukyadi, D. (2018). Multimodal resources in teaching-learning process for deaf students. *Disability Studies*, . 2, <https://doi.org/10.14421/ijds.050201>.



APPENDICES

APPENDIX A

SEMI-STRUCTURED INTERVIEW GUIDE FOR DEAF STUDENTS, INTERPRETERS, AND LECTURERS AT THE UNIVERSITY OF EDUCATION, WINNEBA CONCERNING CLASSROOM COMMUNICATION AMONG DEAF STUDENTS, INTERPRETERS AND LECTURERS AT THE UNIVERSITY.

SECTION A

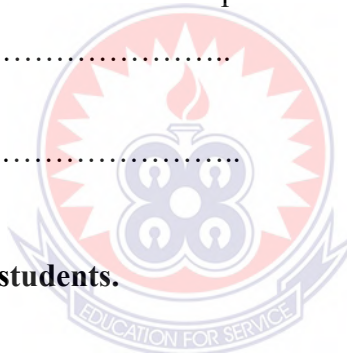
Biodata of Deaf Students

This interview is meant to collect information from deaf students on classroom communication among deaf students, interpreters and lecturers at the University of Education, Winneba. The items were developed on the themes in the research questions.

Department:

Level:

Interview guide for Deaf students.



Can you tell me how you the classroom communication modes that are normally used during a lecture?

Prompt:

Anyway, what classroom communication modes do you use?

How do you feel about communication in the lecture hall?

What are your views about how the lecturers communicate with students in the lecture hall?

What do you say about communication between interpreters and students?

How do you participate during discussions, if you do?

Do your colleagues understand you when you communicate with them? How

How do you relate with Lecturers in class?

What understanding do deaf students have about classroom communication?

I would like to know if you have an interpreter.

Is it for every lecture or some?

Do you understand the interpreter when signing for you? How

In the absence of the interpreter, how do you access information at the lecture hall?

In terms of writing quizzes and exams, what challenges do you face?

In your own opinion, what are the positive effects of classroom communication on your academics?

In your own opinion, what are the negative effects of classroom communication on your academics?

Can you tell me how the classroom environment supports learning?

How is the seating arrangement done at the lecture hall?

Are you comfortable with the classroom environment? Why

Do you take part in class discussions? How

In your opinion, what strategies and resources can contribute to classroom communication for deaf students?

What is your view that can be done to improve classroom communication?

Any other information that you may want to add as a reference to classroom communication?

APPENDIX B

Interview Guide for Interpreters:

This interview was meant to collect information from interpreters on classroom communication among deaf students, interpreters and lecturers at the University of Education, Winneba. The items were developed on the themes in the research questions.

Biodata:

Gender:

Can you tell me the communication modes available for deaf students at UEW?

What communication modes do you use when interpreting at the lecture hall?

What is your level of training as an interpreter?

How do students cope with interpreting in the lecture hall?

What other assistance do you give to the deaf students?

What courses do you interpret for the students who are deaf?

What is the difference between interpreting at a lecture hall and a Social gathering? Explain

Which classroom communication mode is mostly preferred by the students?

What understanding do interpreters have about classroom communication for deaf students?

Do you have access to the lecturer's notes before you come to the lecture hall? How / why?

What happens to the students in your absence at the lecture hall?

In your opinion, does classroom communication have any positive or negative effects on the academic performance of students who are deaf?

Is there any other problem facing the students who are deaf at the University of Education, Winneba in terms of interpreting? Explain

Is there any other service rendered to the students who are deaf aside from interpreting at UEW?

In your opinion, does the classroom environment support classroom interpreting?

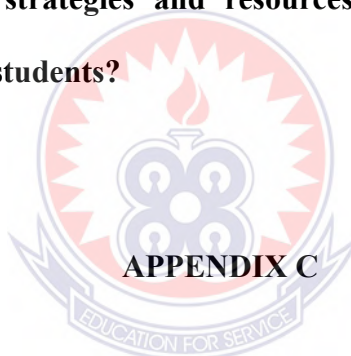
Prompts:

How is the seating arrangement done at the lecture hall?

Have there been any complaints from the students about the classroom environment? Why

Any other information that you may want to add as a reference to the classroom environment?

In your opinion, what strategies and resources can contribute to classroom communication for deaf students?



Interview Guide for Lecturers

This interview was meant to collect information from Lecturers on classroom communication among deaf students, interpreters and lecturers at the University of Education, Winneba. The items were developed on the themes in the research questions.

Department:

Interview Guide:

Do you have any idea about communication modes for the deaf?

Prompts:

Do you personally communicate with the students who are deaf in your class?

Why

Do you share your Lecture notes or power points with interpreters before you come to the lecture hall? Why

Can you comment on having one on one chats with interpreters concerning classroom communication? How often?

Do you give prior notice to the students who are deaf before quizzes or exams?
Explain

What understanding do lecturers have about classroom communication for deaf students?

Prompts:

What happens if an interpreter is absent from your class?

Do deaf students complain about your communication in class?

Any other challenges that you may want to add about classroom communication?

In your opinion, does the classroom environment support effective communication?

Prompts:

How are the deaf students coping with your subject?

Can you comment on the seating arrangement for the students who are deaf at the lecture hall?

Do the students ask questions in the lecture hall?

In your opinion, what strategies and resources can contribute to classroom communication for deaf students?

Prompts:

Would you accept training in deaf education?

APPENDIX D

