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Original Article

Deaf Students' Experiences of Sign Language Interpreting Services in Tertiary Education in Ghana

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Abstract

The increasing enrollment of deaf students in tertiary education has heightened the demand for sign language interpreting services as a means of facilitating access to teaching and learning. Despite the growing provision of these services in Ghanaian higher education institutions, little is known about how deaf students experience and evaluate them. This study explored deaf students' experiences of sign language interpreting services at the University of Education, Winneba, Ghana. Using a qualitative research design, semi-structured interviews were conducted with 13 deaf students, and the data were analyzed thematically. The findings revealed three key factors shaping participants' experiences: interpreter competence, interpreter content knowledge, and interpreting styles. While most participants viewed interpreting services as essential for accessing classroom instruction and participating in academic activities, some reported challenges related to unfamiliar terminology, omissions during interpretation, and interpreters' limited knowledge of specialized subject areas. Participants also expressed varying preferences regarding interpreting styles, with the majority favouring a flexible approach that combines both literal and meaning-based interpretation depending on the nature of the course content. The findings suggest that the provision of interpreting services alone does not necessarily guarantee meaningful access to learning; rather, effective communication access depends on the quality of interpreting services and their responsiveness to students' linguistic and academic needs. The study highlights the need for improved interpreter preparation, continuous professional development, and institutional support to enhance educational access and participation for deaf students in higher education.

KEYWORDS: Deaf students, Sign language interpreting, Higher education, Educational accessibility, Ghana, Inclusive education

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1.0 INTRODUCTION

Persons with disabilities, including deaf students, are facing an increasing worldwide problem of access to higher education. In many countries, legislative reforms, inclusive education policies, and disability rights movements have made it easier for deaf students to participate in tertiary education with hearing students (Richardson, Marschark, Sarchet, & Sapere, 2010; Schroedel, Watson, & Ashmore, 2003). With more deaf students applying to colleges and universities, those institutions have been required to provide support services that make it easier for deaf students to communicate and participate in academic activities. Sign language interpretation remains one of the most popular ways deaf students get support in higher education institutions accessible to all.

International law has stressed the need for persons with disabilities to have equal access to education. The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) states that persons with disabilities have the right to fully participate in society and they should be consulted about things that affect their lives (United Nations, 2006). In many countries, legislation relating to disabilities requires schools to make appropriate adjustments for deaf students to participate in teaching, learning, and testing activities. These changes have made it easier for deaf students worldwide to get into college and university and have increased the demand for trained sign language interpreters.

Ghana has a number of laws and policies that aim to promote the rights of persons with disabilities and inclusive education. These include the 1992 Constitution, the Persons with Disability Act (Act 715, 2006), and the Inclusive Education Policy. These frameworks and policies protect the rights of persons with disabilities for equal opportunities for training and inclusion in society. So, many colleges and universities opened their doors to qualified deaf students and established support services to make it easier for them to be a part of academic life. The University of Education, Winneba (UEW) was the first public university in Ghana to admit deaf students on a regular basis and provide sign language interpretation services to help them in their studies. Since 2006, when the university admitted its first cohort of deaf students, the university has continued to admit more and more deaf students into its undergraduate and postgraduate programs. Other institutions have since followed suit with their welcoming methods. These include the University of Ghana and the Takoradi Technical University. These initiatives have opened the door for deaf students to be educated alongside their hearing peers within shared learning environments.

In spite of these improvements, there are still significant challenges in the provision of sign language interpreting services within Ghanaian tertiary institutions. In other countries, educational interpreting is considered a professional job with formal licensing and approval systems (Napier, 2004). However, Ghana has not yet developed a formal national framework for the qualification of educational sign language interpreters (Adade et al., 2022). Most interpreters learn their skills through teacher education programs, community practice, or work experience, not through specific training to become an interpreter. Furthermore, interpreter shortage frequently requires interpreters to work across multiple disciplines, including areas in which they may have limited academic background knowledge. The fact that many interpreters are also employed on a part-time basis can make it more difficult to provide a consistent and continuous service.

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These contextual realities made Ghana an important and good setting to explore the quality and effectiveness of sign language interpreting services in higher education. Although previous studies have examined the academic and social experiences of deaf students in tertiary education (Fobi, 2016; Oppong et al., 2016), comparatively little attention has been given to deaf students' perspectives on the sign language interpreting services provided to facilitate their access to teaching and learning. It is important to understand students' views because interpreting services are the primary mode of communication for many deaf students in inclusive classrooms. Educational institutions in Ghana are increasingly providing sign language interpretation services. However, there is little research on the perceptions of deaf students about these services and how their experiences shape their learning and engagement in higher education settings. This gap means institutions cannot improve their interpreting services or find evidence-based ways of helping deaf students. This gap is especially critical in Ghana, where interpreters are in short supply, there are no certification systems in place, and interpreters are often used in areas beyond their specialty, which may affect the quality of communication access provided to deaf students.

This study, therefore, explores deaf students' experiences of sign language interpreting services in Ghanaian higher education. This study examines deaf students' perceptions of interpreters' skills, subject matter understanding, and interpreting styles in higher education classes. The study highlights the real experiences of deaf students, thus enriching current discussions on educational access, communication access, and effective inclusion of deaf students in higher schools. The study was guided by the following research question: What are deaf students' experiences of sign language interpreting services in tertiary education in Ghana?

1.1 Sign Language Interpreting and Educational Access

Sign language interpreting is widely recognized as one of the primary support services that help facilitate access to education for deaf students in inclusive settings. Sign language interpreting involves mediating communication between spoken and signed languages to facilitate access to information and interaction between deaf and hearing individuals (Napier & Goswell, 2012). Within tertiary education, sign language interpreters provide deaf students with access to spoken classroom communication, including lectures, discussions, presentations, and other academic interactions, thereby facilitating their participation in the teaching and learning process (Marschark et al., 2005). Thus, interpreting services are often considered a crucial part of improving higher education accessibility. However, scholars have cautioned that the **mere presence of a sign language interpreter does not necessarily ensure equitable access to teaching and learning for deaf students**.Research has shown that having an interpreter in the classroom does not always mean everyone fully understands what is being said. Harrington (2000) argued that it was not only the number of interpreting services available but also the quality and the school setting in which they are offered that affects students' ability to get information. Marschark, Sapere, Convertino, and Seewagen (2005) also mentioned that even with interpreting services, deaf students may receive partial access to classroom information. These findings suggest that interpreting should be seen as part of the process of getting educational access, not as a guarantee of fair participation. Therefore,

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it is crucial to comprehend deaf students' perceptions of interpreting services in order to assess the effectiveness of accessibility measures in higher education.

1.2 Interpreter Competencies and Educational Outcomes

The competence of sign language interpreters plays a significant role in facilitating communication and learning. Educational interpreters are expected to have high language skills, know how to do their job, be efficient, and be able to deal with difficult situations in the classroom. Without these skills, deaf students might have difficulty following classes, participating in conversations, and getting interested in course material. Research has shown time and again that deaf students place a very high value on the skills of interpreters. Napier and Barker (2004) found that deaf college students viewed professionalism, interpreting skills, ability to get along with students, and good communication skills as important for educational interpreters. Research looking at interpreter quality from the standpoint of deaf consumers also indicates that accuracy, clarity, and understandability are some of the most important qualities of an interpreter. Recent work by Prinzi (2024) argued that the role of interpreters in educational settings can have an impact on the level of participation and the level of autonomy of deaf students. When interpreters enable effective communication for deaf students and stay within professional boundaries, they improve the learning and classroom experience.

1.3 Interpreters' Content Knowledge and Educational Interpreting

Besides the linguistic skills, the knowledge of the subject is one of the main factors that determine the level of educational interpreting. Educational interpreters are often required to interpret across specialised academic disciplines, including business, information technology (IT), engineering, science, and mathematics. Such assignments require adequate preparation and familiarity with discipline-specific terminology and concepts to facilitate accurate interpretation of academic content. As Lang, McKee, and Conner (1993) noted, interpreters with greater subject matter knowledge are better able to explain complicated concepts without using fingerspelling. In the same way, Harrington (2005) stated that many university classes employ scientific terms and vague ideas that some interpreters may not understand fully. When interpreters do not have enough information about a subject, communication breakdowns may occur, leading to omission of information, oversimplification, or wrong readings. Research has also indicated that deaf students become frustrated when interpreters struggle with technical terms or fail to explain technical concepts clearly. The job performance of interpreters is closely related to students' perceptions of their learning and their engagement in the classroom (Powell, Hyde and Punch, 2013). These findings suggest that the interpreters' understanding of the topic is an important factor that influences their ability to benefit from education and succeed in school.

1.4 Interpreting Preferences and Styles

Sign language interpreting is not always a uniform process. Depending on the context, subject matter, and preferred modes of communication of the deaf students, the approach educational

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interpreters adopt may vary. Interpretation and transliteration are two commonly discussed techniques. Interpretation utilizes the grammatical and syntactic features of sign language to convey meaning, whereas transliteration is more similar to spoken or written English in structure. Research has shown that deaf students have opinions on the style of interpretation used in academic settings. Napier and Parker (2004) found that deaf university students often preferred interpretation over spoken language because it was easier for them to understand and use. However, in technical classes, some students preferred transliteration, where they needed to use precise language and adapt to academic terms. The findings showed there is no one type of interpreting that works in all situations and that interpreters need to be able to be flexible in order to meet the needs of diverse students. Similarly, Marschark et al. (2004) found that deaf students understood both interpreted and transliterated information equally well regardless of the language they claimed to prefer. These findings highlight the importance of considering each student's interests and learning environment in choosing interpreting approaches.

1.5 Deaf Students' Experiences of Interpreting Services

The views of deaf students provide useful information on how well the interpreting services are working. Researchers from Australia, the UK, the US, and the Netherlands indicated that deaf students generally appreciate the role of interpreters in making education more accessible. However, they also mention some challenges caused by the skills, communication styles, professionalism, and understanding of the material of the interpreters. Napier and Barker (2004) found that deaf students preferred interpreters who knew how to work in academic settings, who were skilled, and who could adapt their interpreting to the needs of the students. Similarly, de Wit and Sluis (2014) found that deaf sign language users often selected interpreters based on their professional skills and ability to communicate and knowledge of particular educational settings. The skill of the interpreter was thus seen as a key factor in the quality of communication and participation. While these studies provide valuable information, many of them were conducted in settings where interpreter training programs, licensing systems, and professional regulatory structures are already well established. Little is known about how deaf students evaluate interpreting services when there are few or no such systems available.

1.6 Research Gap

Research has shown that the skills, knowledge, and interpreting styles of interpreters affect the learning of deaf students. However, much of the literature originates from countries with robust interpreter education programs and professional certification systems. There is little empirical study on deaf students' experiences of sign language interpreting services in higher education in Ghana. Sign language interpreting in Ghana is not yet a fully accepted professional field, and there is no national certification framework for educational interpreters. The quality of interpreting services for deaf students can be affected by issues such as a shortage of interpreters, part-time work, and using interpreters in subjects which are not their main field of expertise. In Ghanaian tertiary institutions, there are more and more deaf students, but little research has been done on

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how these students themselves view and rate these services. This study addresses this gap by examining deaf students' experiences of sign language interpreting services in higher education in Ghana, with particular focus on interpreter competence, content knowledge and interpreting styles.

1.7 Theoretical Framework: Social Model of Disability

The study was underpinned by the Social Model of Disability. The traditional Medical Model perceives disability as an individual problem. This view led to the emergence of the Social Model. The Medical Model says that the challenges persons with disabilities experience are caused mainly by their impairments, and interventions are aimed at treating, rehabilitating, or fixing the person. However, the Social Model argues that the disability is caused by the barriers in society, not the disability itself (Oliver, 1990). The Social Model distinguishes between limitation and inability. Impairment refers to a problem or significant deviation or loss in an individual's body function or structure, including physiological and psychological functions (World Health Organization [WHO], 2001). Impairments may involve, for example, sensory, physical, intellectual, cognitive, or psychological functioning. While impairment relates to a problem in body function or structure, disability arises from the interaction between an individual's impairment and environmental, social and attitudinal barriers that may restrict full and effective participation in society (WHO, 2001; UN, 2006). This way of thinking says that deaf people are not disabled simply because they cannot hear. Instead, they experience disability when communication barriers prevent them from accessing information, participating in discussions, or engaging fully in educational activities. Deaf students often have communication challenges in higher education because most of the teaching and learning is in spoken language. To solve these problems and to make it easier for deaf students to get academic information, sign language interpreting services are offered. However, the Social Model says that simply having an interpreter there does not mean everyone can participate on equal terms. How good the interpreting services are will determine how well deaf students will be able to communicate and learn.

The Social Model was relevant to this study because it changes the focus from the hearing loss of deaf children to the educational environments in which learning takes place. For example, if the interpreter lacks the appropriate skills to convey the message accurately, the deaf student is not at fault for the inadequate service. Similarly, if the interpreters are assigned to advanced subjects and they do not have enough knowledge about the subject, communication problems may occur, and it becomes more difficult for the deaf students to learn. Here the inability is not from the hearing loss but from the organization or the environment. The theory also helped to illustrate the importance of understanding styles and preferences. Deaf students come from various language backgrounds and have had different school experiences. Some students may want more direct interpretation with the technical language intact, while others may want a meaning-based version that focuses on conceptual understanding. Learning can be hampered even without an interpreter if the style of interpretation does not meet the communication needs of the students.

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The social model, therefore, provides a useful lens for exploring deaf students' experiences of sign language interpreting services in tertiary education. The framework focuses not on deafness as a barrier but rather on how interpreter competence, content knowledge, and interpreting practices can either facilitate or hinder learning participation. The model also explains the idea that institutions should not only concentrate on the hearing condition of students to enhance the academic performance of deaf students but also tackle the problems within the support systems and learning environments. The Social Model was used to make sense of the participants' experiences by analyzing how interpreting services facilitated or constrained their communication, participation and learning in the classroom. The theory was particularly useful in understanding the effect of the institutional practices, the types of interpreters used, and the way in which students communicated on their education in higher education.

The Social Model of Disability informed the study in three key areas:

1. **Interpreter Competence**: The deaf students may face problems in accessing knowledge from the classroom if the interpreter is not skilled enough.
2. **Interpreter Content Knowledge:** Limited understanding of subject-specific terms and concepts related to the topic by the interpreter might affect the quality and accuracy of their work.
3. **Interpretation Preferences and Styles:** Interpretation methods that do not meet the communication needs of students can affect their ability to participate, understand, and learn.

Therefore, the study views deaf students' experiences not as a consequence of hearing loss alone but as outcomes shaped by the quality and effectiveness of the interpreting services provided within the tertiary education environment.

2.0 METHODS

2.1 Research Design

This study employed a qualitative research design to explore deaf students' experiences of sign language interpreting services in tertiary education. A qualitative approach was considered appropriate because it allows researchers to gain an in-depth understanding of participants' perspectives, experiences, and meanings attached to a phenomenon (Creswell & Poth, 2018). The study sought to understand how deaf students perceived interpreter competence, interpreter content knowledge, and interpreting styles within their learning environment.

2.2 Participants

Participants were recruited from the University of Education, Winneba (UEW), the first public university in Ghana to provide sign language interpreting services for deaf students. At the time of

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the study, 18 deaf students were eligible to participate. Thirteen students voluntarily agreed to participate, representing approximately 72% of the eligible population. To be included in the study, participants were required to have received sign language interpreting services for at least one semester. Students who had not yet experienced interpreted lectures were excluded because they could not provide information regarding interpreting services in tertiary education. Participants were enrolled in six academic programs and had experienced sign language interpreting services for a minimum of one academic year. The demographic characteristics of the 13 participants, including their gender, age, academic program, level of study, and experience with sign language interpreting services, are presented in Table 1.

Table 1: Demographic Characteristics of Participants (N = 13)

Characteristic	Category	Frequency
Gender	Male	7
	Female	6
Age Range	22–28 years	13
Level of Study	Level 200	5
	Level 300	3
	Level 400	5
Programs	Special Education	6
	Graphic Design	2
	Art Education	2
	Early Grade Education	1
	Basic Education	1
	Community-Based Rehabilitation and Disability Studies	1

2.3 Researcher Positionality and Reflexivity

The researcher and two research assistants had prior professional interactions with deaf students within the university setting. Both research assistants were graduates of Special Education and had experience communicating with deaf students through Ghanaian Sign Language. While this familiarity facilitated rapport and communication during data collection, it also had the potential to influence participant responses. To minimize potential bias, several strategies were employed.

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These included member checking, collaborative coding among members of the research team, participant verification of interview transcripts, and regular discussions during the analysis process to challenge assumptions and interpretations. In addition, participants were informed that their responses would remain confidential and would not affect any academic or support services they received from the institution.

2.4 Data Collection Instrument

Data were collected using a semi-structured interview guide developed from existing literature on educational interpreting and deaf students' experiences (e.g., Napier & Parker, 2004; Schick et al., 2006). The interview guide consisted of open-ended questions designed to explore participants' experiences with interpreter competence, interpreter content knowledge, and interpreting styles in lecture settings. Semi-structured interviews were selected because they provided flexibility for participants to discuss issues that were important to them while ensuring that all key topics were addressed across interviews.

2.5 Data Collection Procedures

Permission to conduct the study was obtained from the relevant university authorities, including the Resource Centre for Students with Special Needs and the participating academic departments. Eligible students were contacted through WhatsApp and text messages and invited to participate voluntarily. Interviews were conducted at the Resource Centre for Students with Special Needs at times convenient to participants. Each interview lasted between 20 and 30 minutes. According to participants' preferences, all interviews were conducted in Ghanaian Sign Language. The interviews were video-recorded with participants' consent. One research assistant managed the recording process, while the second assistant documented field notes relating to contextual observations during the interview sessions. Questions focused on participants' experiences regarding interpreter competence, interpreter content knowledge, and preferred interpreting styles in tertiary classrooms.

2.6 Ethical Considerations

Ethical approval for the study was obtained from the Special Education Graduate Board of the University of Education, Winneba, before data collection commenced. Participation was entirely voluntary, and written informed consent was obtained from all participants. Participants were informed about the purpose of the study, their right to withdraw at any stage without penalty, and the intended use of the findings. To ensure confidentiality, pseudonyms were used during transcription and reporting, and all identifying information was removed from the dataset.

2.7 Data Analysis

Data were analyzed using Braun and Clarke's (2006, 2012) thematic analysis framework. Interviews conducted in Ghanaian Sign Language were translated and transcribed into English. To enhance credibility, participants reviewed the transcripts to verify their accuracy before analysis.

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The analysis followed six stages. First, the research team familiarized themselves with the data by repeatedly reviewing interview recordings and transcripts. Second, initial codes were generated from meaningful segments of data. Third, related codes were grouped into preliminary themes. Fourth, themes were reviewed and refined to ensure consistency with the dataset and research question. Fifth, themes were defined and named. Finally, the themes were organized into a coherent narrative and supported with direct participant quotations. The analysis resulted in three overarching themes relating to interpreter competence, interpreter content knowledge, and interpreting styles. Direct quotations are presented in the findings section to illustrate participants' experiences and perspectives.

3.0 RESULTS

This section presents the findings from interviews conducted with deaf students regarding their experiences of sign language interpreting services in tertiary education. The findings are organized under three themes that emerged from the thematic analysis: (1) interpreters' interpreting skills, (2) interpreters' content knowledge, and (3) interpreters' interpreting styles.

3.1 Interpreters' Interpreting Skills

Participants were asked to share their experiences regarding the interpreting skills of sign language interpreters in lecture halls. The interview data suggest that most participants perceived their interpreters as competent and believed that interpreting services contributed positively to their participation in classroom activities. Eight of the thirteen participants expressed satisfaction with the interpreting skills of their interpreters.

According to these participants, interpreters facilitated access to classroom information and supported their understanding of lecture content. For example, participant S12 remarked:

> *Sign language interpreters are very skillful and good because they help students who are deaf to know and understand everything that goes on during lectures.* S12.

Similarly, some participants (n = 3) reported that the pace and fluency of interpreting enhanced their understanding of lectures and enabled them to participate more actively in classroom discussions. Participant S3 stated:

> *Sign language interpreters are very good. Their pace of signing at lecture halls is very comfortable for me. They helped me to make meaningful contributions during lectures.* S3.

Although many participants expressed satisfaction with interpreters' skills, some participants reported challenges related to unfamiliar vocabulary used during interpreted lectures. These participants acknowledged the skills of their interpreters but indicated that understanding certain

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academic concepts remained difficult, particularly within the university environment. Participant S1 explained:

> *Sign language interpreters are very skillful and sign very well at lecture halls, but at the same time most of the vocabulary used by interpreters is not familiar to me. This place is not like the high school. Some of the unfamiliar vocabularies used at lectures confused me. I think I need to improve my signing skills because university signing is different.* S1.

The interview data further suggest that a few participants perceived that some information was occasionally omitted during interpretation. These participants attributed such situations to unfamiliar terminology and the pace of lecturers' speech rather than solely to interpreter ability. Participant S10 remarked:

> *I think their skills and delivery of information are okay for me, but interpreters must have more information on vocabularies and also interact with the deaf often. It is not all the information that the lecturer says that the interpreter signs because they do not know some of the concepts used in lecture halls. Also, sometimes the lecturer speaks fast and makes some of the interpreters ignore some of the information.* S10.

Likewise, two participants indicated that differences between spoken lectures and interpreted messages sometimes affected their understanding. Participant S2 explained:

> *The way the lecturer speaks and the way the interpreter interprets are different. The lecturer speaks at length, and the interpreter cannot interpret all because when the lecturer speaks, the interpreter needs to change it to sign language, which is very difficult. I think they don't sign at all because sign language interpreters normally fingerspell words that are unfamiliar to them. This always confused me.* S2.

Overall, while most participants viewed interpreters' skills positively, some reported challenges related to vocabulary, lecture pace, and the completeness of interpreted information.

3.2 Content Knowledge of Sign Language Interpreters

A prominent issue raised by participants concerned the content knowledge of interpreters. The interview data indicate that participants considered subject-specific knowledge to be an important factor influencing the effectiveness of interpreting services.

All participants emphasized that interpreters should ideally be assigned to courses or programs with which they are familiar. Participants perceived that prior knowledge of a subject area enabled interpreters to convey concepts more accurately and support better understanding of lecture content. Participant S12 stated:

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> *I think interpreters should be assigned to their second area courses and their main courses because they have prior knowledge in such courses than courses they have never learned.* S12.

Similarly, some participants suggested that interpreters who possessed knowledge of a particular discipline were better able to communicate specialized terminology and concepts. Participant S4 remarked:

> *If the interpreter has knowledge in the second area course, he can interpret, but if the interpreter does not have any knowledge in the second area course, he will find it difficult to interpret because of unfamiliar vocabularies.* S4.

Participants further noted that the nature of certain courses required both conceptual understanding and practical skills. Some participants perceived that interpreters without relevant background knowledge might experience difficulties when interpreting practical or skill-based subjects. Participant S9 explained:

> *I don't think they can interpret in all courses because it depends on the skills and knowledge of the interpreter. For example, if the interpreter does not have the skills and knowledge in physical education, he may not be able to sign well and exhibit the practical skills in the lecture.* S9.

Another issue raised by participants was the frequent use of fingerspelling when unfamiliar concepts were encountered. Several participants reported that excessive fingerspelling sometimes affected their understanding of lecture content. Participant S7 stated:

> *They cannot interpret in all courses; they often fingerspell in courses they have never learned. This always make it difficult for me to understand.* S7.

Taken together, the interview data suggest that participants perceived interpreter content knowledge as an important contributor to effective communication and understanding in tertiary classrooms.

3.3 Interpreters' Interpreting Styles

Participants also discussed their preferences regarding interpreters' styles of interpretation. The findings suggest that participants held varying views regarding whether interpreters should provide word-for-word interpretations or adopt a more meaning-based approach.

Some participants expressed a preference for word-for-word interpretation because it enabled them to learn new vocabulary and access the exact language used by lecturers. Participant S13 explained:

> *I prefer word-to-word signing because after interpreting for me, I acquired enough vocabulary and get their meaning from the dictionary.* S13.

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Similarly, participant S3 stated:

> *I like signing word-to-word.. I always like the exact information from the lecturer. It helps me to know the exact word the lecturer is using. If they summarize it, I miss key concepts or words.* S3.

In contrast, a smaller number of participants reported that they understood lectures better when interpreters focused on conveying meaning rather than signing word-for-word. Participant S9 remarked:

> *When they sign word-toword, I don't understand, but if they interpret it, it helps me to understand everything. I always prefer the interpreter to use his own gestures to convey the message.* S9.

The majority of participants, however, expressed a preference for a flexible approach that combined both styles depending on the nature of the lecture content. These participants suggested that some concepts required direct translation, while others needed further explanation or simplification to enhance understanding. Participant S4 explained:

> *I prefer both because at times when he uses only one way, I don't understand. I always want him to blend the two interpreting styles depending on the information or the course. Sometimes he needs to summarize and break the big words down, whilst at times he needs to sign word for word to benefit us.* S4.

Similarly, participant S7 stated:

> *I prefer both because sometimes the vocabulary used at the lecture is very difficult to understand, so when they blend the two, it helps them to break down some of the difficult words.* S7.

Overall, the findings suggest that participants did not share a single preference regarding interpreting style. Rather, they perceived flexibility in interpreting approaches as important for supporting understanding across different courses and learning contexts.

4.0 DISCUSSION

This study explored deaf students' experiences of sign language interpreting services in tertiary education. The findings highlighted three key issues relating to interpreter competence, interpreter content knowledge, and interpreting styles. These findings are discussed in relation to existing literature and the Social Model of Disability, which guided the study.

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4.1 Interpreter Competence and Educational Access

The findings suggest that most participants perceived their interpreters as competent and believed that interpreting services facilitated their participation in lectures. Several participants reported that interpreters helped them understand classroom discussions and contributed to their ability to engage in academic activities. These findings support earlier studies that found that deaf students value competent interpreters because they enhance access to information and classroom participation (Napier & Barker, 2004; Quinsland & Long, 1989).

At the same time, some participants reported challenges related to unfamiliar vocabulary, omissions during interpretation, and differences between lecturers' speech and interpreted messages. The interview data therefore suggest that access to classroom communication may vary depending on the interpreting situation and the complexity of lecture content. Similar observations have been reported by Marschark et al. (2005), who found that the presence of an interpreter does not necessarily guarantee complete access to classroom information.

From the perspective of the Social Model of Disability, these findings suggest that barriers to participation are not solely related to hearing loss but may also arise from the quality and effectiveness of communication support services. Thus, while interpreting services facilitate access, the extent to which they meet students' communication needs may influence their educational experiences.

The findings further support arguments within the educational interpreting literature that interpreting should not automatically be equated with full access to information (Swanwick et al., 2019; Russell & McLeod, 2009). Participants' experiences indicate that communication access is shaped not only by the availability of interpreters but also by the quality of interpretation provided within specific learning contexts.

4.2 Interpreter Content Knowledge and Communication Access

A prominent finding of the study was participants' emphasis on interpreter content knowledge. All participants expressed the view that interpreters who possess knowledge of a course or program are better positioned to communicate concepts and terminology effectively. Participants perceived that interpreters who were unfamiliar with course content experienced difficulties interpreting specialized vocabulary and explaining technical concepts.

These findings are consistent with previous studies that have highlighted the importance of subject-specific knowledge in educational interpreting. Lang et al. (1993) argued that content knowledge enhances the accuracy of interpretation and facilitates the communication of technical concepts. Similarly, Lang (2002) observed that the specialized knowledge required in many academic disciplines often exceeds the educational background of some interpreters.

Participants also reported that interpreters who were unfamiliar with particular subject areas frequently relied on fingerspelling. While fingerspelling is an important communication strategy

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in sign language interpreting, participants perceived that excessive reliance on fingerspelling sometimes limited their understanding of lecture content. Similar concerns have been reported in previous studies, which found that interpreters with stronger content knowledge are often better able to select appropriate signs and communicate concepts more effectively (Winston, 1996).

The findings can also be interpreted through the Social Model of Disability. Participants did not attribute communication difficulties solely to their hearing status. Rather, they identified aspects of the educational environment, including the allocation of interpreters to unfamiliar subject areas, as factors that influenced their access to learning. This suggests that educational accessibility may be enhanced when institutions consider both interpreting skills and disciplinary knowledge when assigning interpreters.

Although participants preferred interpreters to be assigned to disciplines in which they possess prior academic knowledge, implementing such recommendations may be challenging in contexts where qualified interpreters are limited. Ghanaian universities often rely on a small number of interpreters who serve multiple departments. Consequently, professional development and pre-lecture preparation may provide practical alternatives where discipline-specific assignment is not feasible.

4.3 Interpreting Styles and Learner Preferences

The findings indicate that participants held different preferences regarding interpreting styles. Some participants preferred word-for-word interpretation because it enabled them to learn new vocabulary and access the exact terminology used by lecturers. Others preferred meaning-based interpretation because it enhanced understanding of complex concepts. However, the majority of participants favoured a combination of both approaches depending on the nature of the course content.

These findings support earlier research that suggests that deaf students do not always share the same interpreting preferences (Napier & Parker, 2004). While some students value direct access to terminology, others prioritize conceptual understanding. The diversity of preferences reported in this study reinforces the need for flexibility in educational interpreting. Participants' preference for combining both approaches may reflect the linguistic demands of higher education. University lectures frequently involve specialized terminology, abstract concepts, and discipline-specific language. In such contexts, a flexible approach that balances conceptual explanation with access to key terminology may be particularly beneficial.

The Social Model of Disability also provides insight into these findings. Rather than viewing communication challenges as resulting solely from hearing loss, the model emphasizes the importance of adapting educational supports to meet individual needs. The findings suggest that interpreting services may be most effective when interpreters are responsive to learners' communication preferences and the demands of specific educational contexts.

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4.4 Implications for Inclusive Higher Education

Collectively, the findings suggest that deaf students' experiences of interpreting services are influenced by multiple factors, including interpreter competence, content knowledge, and interpreting style. Participants generally viewed interpreting services as valuable in supporting access to higher education. However, they also identified areas that may affect the quality of communication access within tertiary classrooms.

The findings reinforce the argument that educational accessibility extends beyond the mere provision of support services. Consistent with the Social Model of Disability, meaningful participation depends on the extent to which institutional supports effectively remove communication barriers and respond to the needs of deaf students. Consequently, improving educational access requires attention not only to the availability of interpreters but also to the quality, relevance, and responsiveness of interpreting services within higher education settings.

4.5 Practical Implications

The findings of this study have important implications for universities, interpreter training programs, lecturers, and policymakers seeking to improve communication access for deaf students in higher education. The findings suggest that interpreter competence and content knowledge are important factors influencing deaf students' learning experiences. Universities that provide interpreting services should therefore consider assigning interpreters to subject areas in which they possess relevant academic knowledge and experience. Where possible, institutions should also provide opportunities for interpreters to familiarize themselves with course materials before lectures.

Participants emphasized the importance of interpreters understanding course-specific concepts and terminology. Interpreter education programs should therefore include components related to educational interpreting, subject-specific vocabulary development, and interpreting in specialized academic contexts. Continuous professional development opportunities may also help interpreters strengthen their content knowledge in emerging disciplines.

The findings indicate that communication access can be enhanced when interpreters have adequate preparation for lectures. Lecturers may therefore support interpreting services by sharing lecture notes, PowerPoint presentations, reading materials, and key terminology with interpreters before class sessions. Such collaboration may facilitate more effective communication of academic content.

The study highlights concerns regarding interpreter preparation and consistency of service provision. These findings suggest the need for discussions on the development of national standards, accreditation procedures, and professional guidelines for educational sign language interpreters in Ghana. Such measures may contribute to improving the quality and consistency of interpreting services across tertiary institutions.

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4.6 Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Tertiary institutions should provide interpreters with access to course materials before lectures to improve preparation and familiarity with academic content.
2. Universities should consider assigning interpreters to academic programs where they possess relevant educational backgrounds or prior content knowledge.
3. Continuous professional development programs should be organized to strengthen interpreters' skills in educational interpreting and specialized academic terminology.
4. Interpreter training programs should incorporate content related to discipline-specific interpreting and higher education settings.
5. Greater collaboration should be encouraged among lecturers, interpreters, and deaf students to improve communication access in classrooms.
6. Stakeholders should explore the development of national accreditation or certification mechanisms to promote professional standards in educational sign language interpreting.
7. Future studies should include the perspectives of interpreters, lecturers, and university administrators to provide a more comprehensive understanding of interpreting services in higher education.

4.7 Limitations of the Study

This study has several limitations that should be considered when interpreting the findings. First, the study was conducted in a single tertiary institution and involved a relatively small number of participants. Consequently, the findings reflect the experiences of deaf students within a specific institutional context and may not represent the experiences of all deaf students in Ghanaian higher education.

Second, the study relied on participants' self-reported experiences. The findings therefore reflect students' perceptions of interpreting services rather than objective assessments of interpreter competence or performance.

Third, only deaf students participated in the study. The perspectives of interpreters, lecturers, and university administrators were not included. Future studies that incorporate multiple stakeholder perspectives may provide a more comprehensive understanding of educational interpreting services.

Finally, the researcher and research assistants had prior professional interactions with some participants. Although several measures were implemented to enhance trustworthiness, including

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member checking, participant verification of transcripts, and collaborative coding, the possibility of researcher influence cannot be completely eliminated.

4.8 Conclusion

This study explored deaf students' experiences of sign language interpreting services in tertiary education in Ghana. The findings revealed that participants generally viewed interpreting services as an important mechanism for accessing classroom communication and participating in academic activities. However, participants also identified interpreter competence, interpreter content knowledge, and interpreting styles as factors that shaped the quality of their learning experiences.

The findings suggest that the provision of interpreting services alone may not guarantee meaningful access to learning. Rather, effective communication access appears to depend on the extent to which interpreting services respond to the linguistic, academic, and communication needs of deaf students. Participants particularly emphasized the importance of interpreters possessing adequate content knowledge and the ability to adapt interpreting approaches to different educational contexts.

The study contributes to the growing literature on deaf students' educational experiences by providing insights from a Ghanaian higher education context, where interpreter shortages, limited professional regulation, and the absence of national certification structures continue to present challenges. Through the lens of the Social Model of Disability, the findings highlight the importance of addressing institutional and communication barriers in order to promote meaningful participation and inclusion for deaf students in tertiary education.

Improving interpreting services requires collaboration among universities, lecturers, interpreters, training institutions, and policy makers. Such efforts have the potential to strengthen communication access and enhance educational opportunities for deaf students within higher education.

DECLARATION

Data Availability: Data will be made available from the corresponding author upon reasonable request.

Conflicts of Interest: The author declares no conflict of interest related to the conception, execution, analysis, or publication of this study. No external commercial, institutional, or personal influences affected the research process.

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