

# **Providing Quality Education for All: The Dilemma of Deaf students in a Mainstream Technical University**

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## **Abstract**

Technical and Vocational Education and Training (TVET) requires that students comprehend and turn theoretical knowledge into practical skills within the shortest possible time, if not immediately. This dictate of TVET however, is a major challenge for most Deaf students who largely rely on others to benefit from classroom teaching because of communication challenges. It is for this reason that this study considered the experiences of the Deaf pursuing TVET programmes in a mainstream Technical University and how they could be supported. A qualitative approach (face-to-face interview) was adopted and thematic analysis was used in analysing the data. Generally speaking, the Deaf students had academic, financial and socio-cultural challenges. Nonetheless, what is so intriguing to read in this study is the communication challenges they experienced. The study's findings suggest the need for Sign Language (SL) to be promoted at least, among those who come into contact with Deaf students pursuing TVET in a technical university.

Keywords: Academic challenges, financial challenges, socio-cultural challenges, the Deaf, Sign language, TVET

## **Introduction**

Providing quality education for all, including the socially marginalized has been a driving force behind many national and international laws, policies and regulations. The United Nations (UN) is at the forefront of this internationally. Marginalization is caused by many factors, nonetheless, disability is one of its leading causes (Wapling, 2016; the United Nations Educational, Scientific and Cultural Organisation, UNESCO, 2010). According to the United Nations (2006: 4), Persons with Disabilities (PWDs) are 'those with long-term physical, mental, intellectual or sensory impairments which

### 115 *Providing quality education for all*

in interaction with various barriers hinder their full and effective participation in society on an equal basis with others.’ These disabilities, among others, include various forms of visual impairment, physical disability, mental health conditions, intellectual disability, acquired brain damage, Deaf or hard of hearing. Worldwide, there are more than a billion people (about 15 % of the world’s population) living with disability. Eighty percent (80%) of these reside in low-income countries (World Health Organization’s report, 2015). In Ghana, PWDs constitute about 3% of the entire population. They are made up of the following: Visual impairment (40.1%), physical disabilities (25.4%), psychosocial disabilities (18.6%), intellectual disabilities (15.2%) and other forms of disability (0.7%) (Kassah, & Phillips, 2018; Casely-Hayford & Gharthey, 2007).

Globally, there is a general consensus that Technical Vocational Education and Training (TVET) is the key to expanding opportunities for PWDs. TVET is a comprehensive term covering those aspects of the educational process involving general education, the study of technologies and related sciences, and the acquisition of practical skill, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life (Ayonmike, Okwelle & Okeke, 2015; Murgor, Keter & Changa’ch, 2014). Its practical nature specifically, makes it easy for many PWDs to manage and get employment – either as an employee, self-employed or an employer. Accordingly, the International Labour Organization (ILO, 2017), emphasizes the importance of TVET by arguing that disabled people need skills in order to improve their labour market opportunities and/or engage in economic activities.

There are different approaches to educating the Deaf, based on the following three theoretical concepts - segregation, integration and inclusion. *Segregation* refers to separating the disabled from the non-disabled and providing them with special education. *Inclusion* encompasses the removal of all barriers that marginalise and limit the participation of both the disabled and the non-disabled (Amoako, 2019). *Integration* on the other hand, involves joining the disabled with the non-disabled in mainstream education but supporting them with the following to function effectively: tutoring, real-time captioners, FM systems for amplification, manual and electronic note-taking, Sign Language interpretation, one-to-one tuition, sign-supported English, spoken speech among others (Amoako, 2019; Cavender, Bigham & Ladner, 2009).

However, the theoretical concept examined in this study is the integration. The decision to examine the integration of Deaf students in Ghanaian Technical Universities in particular, stems from inadequate information and/or research on the concept especially, those told by Deaf students who have actually had the experience. It appears studies in this area have remained few (see Amoako, 2019; Casely-Hayford & Ghartey, 2007). While research evidence on the Deaf in Higher Education (HE) continues to increase worldwide (e.g. Kermit, & Holiman, 2018; Barnes *et al.*, 2007), it appears that is not the case in Ghana. Even that, most of these studies have focused on the: characteristics of Deaf students (e.g., hearing thresholds, language fluencies, mode of communication, and predicting the academic success of the Deaf. For instance, Powers (2003) examined some of the student and family factors that influence the educational achievements of Deaf students in mainstream England. Marschark, *et al.* (2015) on the other hand, investigated the academic achievement of the Deaf as indicated by the Woodcock-Johnson III subtests in passage comprehension, mathematics calculation, science, and social studies.

Moreover, a growing number of studies have focused on students with disability's access to higher education and little mention has been made of individual student experiences (Tinklin & Hall, 1999). Instead, country reports (see Cruz & Calimpusan, 2018; Babbidge, 1965) which often provide a general overview are available. In other words, the detailed experiences of students in specific institutions are usually missing and this usually works against providing specific interventions that fit the needs of specific institutions. This also, informed the decision to investigate how effective Ghanaian technical Universities have been in integrating the Deaf into its mainstream education.

The term Deaf, describes individuals with predominantly profound or severe hearing losses without the use of hearing aids, though many Deaf also use hearing aids in their pursuit of HE (Lang, 2002). According to the Head of the Disability Support Services Unit (DSSU) of Takoradi Technical University (TTU), the first Deaf student was received into the university in 1987. The student graduated without any formal support. In 2006, another student from a family of seven with three additional Deaf siblings; was admitted but this time, the family decided to pay a part-time private Sign Language Interpreter (SLI) to assist him. Unfortunately, the interpreter was transferred just one year afterwards. Contact with the Ghana Education Service (GES)

### *117 Providing quality education for all*

for assistance was fruitless, given that per their policy, an interpreter could only be assigned when there are at least, 30 Deaf students in a university. SL teachers in the nearby School for the Deaf were subsequently, contracted privately by the family to assist. However, in 2009, one of the Deaf student's non-Deaf brothers became a staff of the university mainly to support his brother and other Deaf students. Currently, there are about 54 Deaf students at the university and a number of interventions has been put in place to support them. For instance, DSSU was set up in in 2017 to formalise support for PWDs on its campuses: Main campus at (Effia Kuma), the Business campus (Butumagyebu) and the Engineering campus (Akatakyi). The Student Representative Council (SRC) was also made to recognize the Association of Deaf Students in Ghana and to provide a slot on its Council for them. The current responsibilities of DSSU include (a) Developing data on PWDs from the admissions office and looking for scholarships for them; (b) Assessing their needs for academic success regularly and (c) Engaging them in social activities.

### **Issues with Deaf education**

Educating the Deaf is challenging in Ghana, because the welfare of PWDs is not seen as a budgetary priority (Amoako, 2019). Inadequate teacher professional development, ineffective monitoring systems, limited resources, the negative attitude of hearing peers, rapid give-and-take, cultural differences, appropriate use of space (physical arrangements in the classroom), and social integration are some critical factors that affect their persistence in HE (Kassah, Kassah & Phillips, 2018; Lang, 2002). As a consequence, Kersting (1997) reported feelings of isolation, loneliness, and resentment to be most intense during orientation in their first year. Distraction from audio/visual noise, students, objects and the environment may distort effective communication. Interpreters with inadequate interpreting skills may also, omit key concepts necessary for understanding a lesson (Langer & Schick, 2004). Additionally, Deaf students with minimal SL competence (speaking, writing, reading) may not easily follow interpreters because of the differences in signing by the SL interpreter (Omugur, 2007).

## **Specialised support services for the Deaf**

Many specialised support services are provided for the Deaf. These include:

Sign languages is a visual-gestured language which involves the use of hands, eyes, mouth, mimics, and body movements (World Federation of the Deaf, 1993). Often, teachers expect students to understand interpreted concepts in totality, however, this is often not the case. For example, when it comes to answering questions in the classroom some interpreters may misinterpret the sequences of utterances and create a time lag, thereby making it difficult for the students to answer (Gilakjani & Ahmadi, 2011).

### ***Tutoring***

Tutoring refers to a more individualised direct instructional approach, (group tutoring is also possible); rather than reinforcing classroom learning (Lang, 2002). The purpose is to improve the understanding, studying, writing and reading skills of the Deaf and to clarify notes taken. There is also a focus on developing their independent learning strategies, confidence, preparations for class, and other general learning skills (Lang, 2002)

### ***Real-time captioning***

Real-time captioning simultaneously converts spoken word into printed format using computer-aided translation that appears on a large screen for anyone to see (Kawas, *et al.*, 2016). For example, what a lecturer says can automatically be transcribed near verbatim on the screen. One advantage is that transcripts produced may enhance teaching and learning and students can make up for missed lectures as well as corroborate the accuracy of notes taken during the lectures especially, if recorded audio/video and/or slides are available (Ranchal *et al.*, 2013).

### ***Note taking***

Note taking enables Deaf students to take their own notes. However, this can be a difficult task for most Deaf students because of the required language skills and the challenge of attending to multiple visual tasks (e.g., interpreters, teachers, students) at the same time. Stinson, Elliot and Kell, (2017), reported that in general, the notes were seen to be very helpful although some students did not integrate reading into their regular study routines.

### **The Purpose and Objectives of the Study**

The purpose of the study was to emphasize the importance of TVET or skills development for PWDs if they are to engage in economic activities.

### **Research questions**

The study had the following research questions:

1. What are the experiences of Deaf students in a mainstream Technical University using TTU as a case study?
2. What specific TVET career paths are chosen by the students?
3. How can Deaf students in TVET be supported during their study in a technical university?

### **Methodology**

A letter detailing the purpose of the study and its use was sent to the Vice Chancellor of the University to gain approval for the study. The Head of the DSSU was accordingly informed by the Vice Chancellor. A follow-up on the Head of DSSU further, led to verbal agreement to help us meet the Deaf by appointment. Another agreement between us and the Head of DSSU was that the real identity of the participants would not be made public - it would be hidden with acronyms with codes (alphabets) to safeguard their reputation.

The design of the study was phenomenological case study. This was done in recognition of the limitations of quantitative methods in providing holistic and in-depth explanations to social and behavioural issues. A phenomenological research deeply investigates what experiences mean to people. That is, it interprets participants' feelings, perceptions, and beliefs to clarify the essence of a phenomenon under investigation (Bliss, 2016). The design of phenomenological studies therefore, explores the views of those who have actually experienced a phenomenon; in this case, Deaf students in Takoradi Technical University. The case study approach used on the other hand, enabled a closer examination of the data collected within the specific context of TTU and the very few Deaf interviewed within the university.

The target populations were all 54 Deaf students, the three SL interpreters and the Head of DSSU. However, only six students, two interpreters and the head of DSSU participated in the study. The Head of DSSU, the interpreters and the students were chosen purposively because of the rich, deep and qualified views they had such that seeking their views was unavoidable.

Three separate semi-structured interview guides for the face-to-face interviews were respectively developed for the students, interpreters and the Head of DSSU. The face-to-face interviews proved very insightful – given that they encouraged the participants to talk at length, beyond what they would have ordinarily said, when a structured questionnaire was used. Simply put, the interviews provided an enabling environment for the participants to express themselves freely, while the researcher deduced the interviewees' feelings and thoughts through their facial expression and gestures (Byrn, 2013).

The first part of each of the instruments dealt with background information (e.g., faculty, department, programme, level, expected qualification, entry qualification, age, gender, parent's dead/alive, highest education & occupation of parents, number of people in the household, who pays fees, qualification of staff). The instruments for the students had an additional section divided into academic, financial and socio-cultural issues. The interviews with the interpreters had two additional sections (the challenges for student and the interpreters and recommendations for improvement). The interview with the Head of DSSU facilitated access to relevant information in addition to the provision of a detailed information on the history of the Unit and the management of the students. All the interviews were audio-recorded with the permission of the interviewees.

The data collection from the students started after the instruments had been pre-tested using three Deaf students. That of the interpreters was done using an interpreter who did not take part in the study. The piloting improved the quality of the instruments. For example, redundant items were removed and ambiguous items were reconstructed. The actual data collection was done between October and December, 2020. First, the details of the study were explained to individual participants to gain informed consent in the case of the deaf students through the SLI. Only those who voluntarily consented, were allowed to participate in the study. The participants were also assured of confidentiality.

After the data collection, a password was put on both the audio and transcribed data to prevent unauthorised access and confidentiality. The data from the face-to face interviews was analysed using thematic analysis. The thematic analysis involved the identification of themes through 'careful reading and re-reading of the data' (Rice & Ezzy, 1999: 258). In other words, emerging themes become the categories for the analysis. The final report was discussed (the document was sent to

## 121 *Providing quality education for all*

them ahead of time) in a meeting to ensure the views presented were that of the interviewees. The data analysis involved the following five stages adapted from Fereday & Muir-Cochrane (2006).

### **Stage 1: Developing the code manual**

The recorded audio was listened to and transcribed, read and summarized in order to put them into the categories, based on the objectives of the study. Five broad themes were generated and coded to guide the analyses. Details of the codes, definitions of main themes, what they encompass and from which respondent are provided on Table 1.

**Table 1: The five broad themes, definitions and descriptions**

<b>Label</b>	<b>Definition</b>	<b>Description</b>	<b>Respondent</b>
A	Access to University education	The experiences of the students with respect to how they got into the university.	Students
B	Academic Challenges	Comprehension difficulties due to challenges with fellow students, SL interpreters, non-signing teachers and practical work.	Interpreters/ students.
C	Career paths	The various programmes the students are pursuing in the university.	Students
D	Financial challenges	Difficulty in paying fees, strategies adopted by students and why.	Interpreters/ students.
E	Socio-cultural challenges	Relationship challenges.	Interpreters/ students.
F	Suggestions for improvement	Improvement suggestions for institutional managements, researchers and educators in general.	Head of DSSU, interpreters/ students.



## Results

### The demographics of the respondents

In all 27 students, two SLIs (a male and a female) and the head of DSSU participated in the study. Many of the students (92%) were Higher National Diploma (HND) students made up of: first (41%), second (37%) and the third (22%) year students. The male students (56%) were more than the females (44%) and the majority (56%) were between 23 and 26 years. Many (74%) came from Senior High Schools instead of formal TVET institutions (14%) and traditional apprenticeship training (4%).

The experiences of the students are discussed under four key areas – access, academic, financial and socio-cultural challenges. Details are presented below:

#### A. Access to University education

The issue of access to University education is discussed from three key dimensions – The availability of institutions admitting Deaf students, entry requirements and programme options. Regarding the *availability of Ghanaian Universities accepting Deaf students*, the overall picture was that they were inadequate (see the comments of two of the students interviewed, SR3, SR5, SR8 and SR12 below). Besides, most of these universities are located in major cities or regional capitals, out of sight and knowledge of many Deaf students who like their counterparts in other parts of Africa, live in poor rural environments (Kiyaga & Moores, 2003). Besides, there are a limited number of directional signs on the location of some of the universities in Ghana. Hence, locating, getting information and accessing them were often problematic. The survey however, indicated that the majority of the admissions were facilitated by friends (30%), parents, and the University's outreach programme (22% each). See Table 1 in the Appendix. Below are some of the comments:

*Student Respondent (SR) SR3: ... "To some extent because if you are not living in the cities where technical institutions are located, accessing them become very difficult. 'If more technical institutions will be added to the existing ones, that will be fine.'*

*SR5: 'To some extent because it seems they are located only in the regional capital cities of Ghana. If you are not living in the cities where technical institutions are located, accessing them becomes very difficult'*

## 123 *Providing quality education for all*

With regards to *admission requirements*, two of the interviewed students indicated that poor grades in English and Mathematics (a key admission requirement for both hearing and non-hearing students) made their admission problematic. They therefore, had to re-write those papers or pass mature entrance examinations (if they were 25 years and above). Failure in English and Mathematics is a well-known problem that prevents not only Deaf students from entering tertiary education; but also, hearing students. This was one of the comments:

*SR6: All my grades were very good except English Language so I had to rewrite them.*

According to the SLIs interviewed, the Deaf have difficulties with all spoken languages including the English language because, SLI only translates ideas and so when a deaf person is wringing in say, English language, the rules of the English language may not be respected. See the comment by a Sign Language Interpreter A (SLIA):

*SLIA: 'We don't sign exact English language to them. Sign Language, if you are translating it I may say it is like a Ghanaian language. For instance, if I am signing the sentence "I am going to school" it's too long so you sign it, "me go to school", However, this is a direct translation in Twi. So, if you an Ewe, you speak it in Ewe and it will march the sign language. Sign language is like a blocking English (pidgin language). So seriously I just pity the students sometime because you teach me in Twi or Ghanaian language and you expect me to reproduce accurately in English'.*

With respect to Mathematics, the SLI explained that the frequent use of symbols, makes understanding difficult for the Deaf. The reason is that there are no SL equivalences for most of the symbols used (e.g.,  $\pi$ ,  $\sum x$  and so on). Hence, it may be extremely difficult for the SLI to sign to the understanding of the student. Unfortunately, most subject teachers assume that these symbols are known by, or are common to the Deaf students and so they are following whatever is being taught (they are there). Some lecturers may even move fast and clean the board quickly to the disadvantage of the Deaf. This makes it very hard for the Deaf to benefit from the lecture, especially, if they have to understand a first step to understand the rest of the lecture. The comment of the interpreters are stated below:

SLIA: 'This is because there is a possibility that not all that the lecturers are saying are interpreted to the students. There are certain terminologies that may not have certain things to sign and the interpreter will be compelled to break into parts to explain to the understanding of the students and by so doing some of the words will be left out.

SLIB: *'Another challenge has to do with mathematics. In mathematics, we don't have any sign language equivalences for  $\pi^2$ ,  $\sum x$  and so on. So, one day, I attended one Mathematics lectures at one of the lecture halls and this lecturer was speaking at a very fast pace. She will do like this 'do you get it and then she will clean the board', 'do you get it and then she will clean the board'. Let us go the second one ... and the deaf students were seating right at the front her. She will not take her time in lecturing let alone to pay special attention to the deaf students in the class. I think such way of lecturing is not fair to the deaf students.'*

With respect to programmes available to the Deaf, it was important to know that TVET was preferred by almost all the students. In fact, 89% of the interviewees were satisfied with the programmes they were pursuing. This was largely due to their perception that TVET provides a good platform for them to succeed in life. The students' decision to pursue various programmes at the University was informed by self-motivation. Two of the interviewed students mentioned that they had the inner motivation and confidence to come to the University despite the challenges. These were some of the comments by the students:

SR1: *'But me I don't think so. You can get access to the Universities if only you want'.*

SR 4: *'I had the vision of pursuing my education to the highest level. So, I came here on self-motivation'.*

Another factor was the university's outreach programme of visiting schools for the Deaf, churches and using WhatsApp platforms for Deaf students. this programme was highly appreciated and utilised by some of the students as it directs them to what they can do to further their education and the options available to them. In fact, all the students interviewed, saw the University's outreach programme as a great relief. All the students interviewed, except one, came to the University through that platform. One of the students commented:

## 125 *Providing quality education for all*

*SR3: 'When the Administrator of TTU came to my former school to market TTU, then I became relieved. I was now ok.'*

*RS5: 'One of the University workers came to my secondary school to talk to us about TTU.'*

*RS6: 'A worker of TTU came to my secondary school to market TTU to us and that is how I got to know TTU'*

Career guidance further influenced the students' decision. Interestingly, while the majority (4 interviewees) indicated that they had career guidance from their teachers and families before applying to the University, the others indicated that they had no such guidance. Some of their comments were:

*SR2: 'Yes. I got career guidance from one of my teachers'.*

*SR4: 'No. Nobody gave me guidance. Not even my teachers.'*

*SR5: 'Yes. I had access to career guidance from family members.'*

### **B. Academic challenges**

The first academic challenge mentioned by the students was inadequate interpreters during lectures and other teaching/learning activities. There were a number of sign-language related issues that affected the academic work of the students as argued by both the students and the interpreters. The views of the students and the interpreters are discussed together. According to the interviewed students, access to sign-language interpreters was a big issue. At the time of conducting this research, the University had three SLIs (two part-timers and one national service person). This number was sadly inadequate considering the total number of Deaf students, their different programmes, levels and time tables. Besides, the University's time table is often adjusted by individual lecturers when necessary. This usually results in clashes and difficulty in locating both students and interpreter during lectures especially, at the beginning of the semester. The comment below were given by some of the students and interpreters:

*SR1: 'Even if you get admission, you will face the problem of lack of interpreters to interpret what the lecturer is teaching'.*

*SR5: 'Most times, I don't meet an interpreter the classroom'*

*SR9: 'I have not had an interpreter in my classroom ever since I started schooling here'.*

*SLIA: 'Our work as SLIs is part time so we are not always there for the students.'*

Some of the lecturers who were aware of the Deaf students tried to help them by moving slowly so they could catch up. Nevertheless, there was a limit to the extent to which they helped because of time constraints and the volume of work to be completed in a given time. Another challenge was that they could not directly communicate with the students to get feedback especially, if the SLI were not there. The problem became worse during practical session. Nonetheless, during a practical section, an immediate comprehension of what was taught was necessary to complete a given assignment and, in most cases, the Deaf students were found wanting or frustrated. (see the comments of the some of the students interviewed below).

*SR4: 'Whenever we are having practical and I raise my hand to ask question or make enquiries, the lecturer will ignore me, sometime tell me to wait and I will wait but I will never be called to ask my question till we close.'*

*SR6: Most Lecturers do not care about our presence in the class or at the practical grounds.*

According to the SLIs, the academic problems of the students could be seen from different perspectives. First, the University environment is completely different from what the students have known before coming to the university. Back at then, most of the people around them (e.g., staff and student) understood and communicated in SL. In fact, the medium of instruction was SL and posed no academic challenge. Some of the comments were:

*SLI 2: 'Back at the Junior High School level and Senior High School level, the teachers there understand sign language and also know how to sign. The medium of instruction and communication is sign language. Therefore, the students (Deaf students) do not have any problem at all.'*

*SLI 1: 'When students who are Deaf on completion further their education to the tertiary level and there they lack lecturers or facilitators who can sign, then they have a lot of challenges understanding the lectures even when there is a sign language interpreter.'*

Unfortunately, most of the people (staff and students) in the University community have no knowledge of, and interest in SL; and the number of interpreters is often inadequate. Second, even when the SLI is present, the interpreter may not possibly be able to accurately capture

## 127 *Providing quality education for all*

all that a lecturer is saying because of not having adequate knowledge of what is being taught. Also, there could be certain terminologies that the hearing students might be familiar with but the Deaf might not (see comment below). The interpreter in this case, may be compelled to find a composite word, break it down or give a lengthy explanation for the Deaf to understand as the lecture is on-going. A possible consequence is that the interpreter may not be able to capture what is said while the unfamiliar terminology was being explained to the student. The student may as a result lose out on what was said within that period.

*SLI 1: There is a possibility that not all that the lecturers are saying are interpreted to the students. This is because certain terminologies that may not have certain things to sign and the interpreter will be compelled to break into parts to explain to the understanding of the students and by so doing some of the key words or ingredients may be left out.*

*SLI 2: 'The lecturer may mention some words and the hearing students might be familiar with it but the Deaf students will not be familiar with it so they will ask you the interpreter that what does it mean and you have to explain it to them.'*

*SR7: In a situation where the interpreters do not have a good knowledge about the courses, they find it very difficult to interpret them well to our understanding.*

The problem of what is called 'teaching pace' was also experienced. This requires teachers not to move too fast or too slow, but at a pace that the Deaf can follow. Unfortunately, most University lecturers do not pay attention to this – they often forget that the Deaf are among the hearing students when teaching.

Additionally, SL has to do with focusing the eyes on an interpreter continuously, for a long time, say, one to three hours depending on the duration of the lecture. At a point, a student may get tired, move his eyes away from the interpreter, pay very little attention, begin to play with the phone and even dose off. Whatever, is said within this period is totally missed by the student. The interpreter may similarly, get tired because of the constant use of the hand and the other body parts used in communicating with the students. For instance, a SLI may on some days, sign for Deaf students from 7am to 7pm, because of having to attend to different students with different lecture times. In time, s/he may relax the hands at the blind side of the lecturer who may

go on teaching; and the student may lose out on what is said during this period. Per SL conventions, an interpreter should be replaced by another interpreter after signing for a maximum of two hours. However, because of the limited number of interpreters, an interpreter may continue to sign even after this period and that may result in the situation just described. Below are some of the comments:

*SLIB: Imagine signing the whole day from 7am to 9am, 9am to 11am, 11am to 1pm, 1pm to 3pm and so on, the pain in your shoulder the whole day and the pain we will go through and next day is so much. But you still have to continue in the same manner as an interpreter the next day.*

*SLIA: It is not their fault. As a human being, you can't gaze at a thing for more than thirty (30) minutes and the students go to lectures for more than 2 hours.*

Moreover, there could be differences in SL between educational levels and interpreters. Although SL is a distinct language with its own attendant characteristics - grammar, syntax and semantics; different schools/universities/persons may sign differently. The language also has parameters - signing space, hand shake and others that aid interpretation and understanding. For instance, the meaning of a signing space below the chest, is a little different from a signing space above the shoulder. These language characteristics often brings comprehension challenges to speakers from different environments (Murray, Klinger & McKinnon, 2007). For example, the preferred SL style of a student may not always correspond with that of the interpreter and this might create confusion or mitigate comprehension.

As earlier mentioned, the Real Time Captionist which translates and projects whatever is said on a screen for the students could have helped but, the technology is currently not operational in the country. Although there is a free app for the same purpose on the internet, the app has not attracted much attention because, practically, if a lecturer is not speaking clearly, the app may rather pick other clearly heard sounds around (perhaps from students and the surrounding environment) and translate them and this may end up confusing the student. Again, if a lecturer is speaking very fast, the students may not be able to cope with the space of translation and may be left behind.

*SLIA: Almost all the Deaf on campus have this app. When I came here and saw that the interpreters were not many,*

## 129 *Providing quality education for all*

*I had a conversation with a friend who then recommended this app to me. So, I downloaded it and sent it to some of the Deaf and asked them to share it among their colleagues but because of the situations mentioned earlier the students do not benefit much from this app.*

*... if an interpreter is unable to go to the lecture hall and the students are using this app, there could be problems. This is because English language is not their native language, and the app may be moving at perhaps, the faster pace of the lecturer and the student might be left behind.*

Hence, starting last year (2019), the SLIs went around all the examination centres and tried to interpret the questions into SL for the Deaf, based on the recommendation of DSSU. In this way, the Deaf were able to provide the kind of answers required by recalling what they read from their notes. For those who could not remember it from their notes, they were at least, able to remember what was being interpreted at the lecture hall.

*SLIB: “I remembered one student, she didn’t really read that area of her notes but she was able to remember what we interpreted to her so she was able to write something or the little she recalled from the SLI in the lecture hall. I read what she had written but I was not able to understand. So, I asked permission from the invigilator to correct the English but was not allowed. I guess the lecturer may similarly not understand when marking. I guess we should be involved in the marking of their examination scripts”.*

### **C. Chosen career paths**

A critical look at the programmes pursued by the students indicate that the students mostly preferred Fine-Art related programmes (Graphic design, Fashion design), programmes in the Applied Sciences (Tourism, Statistics, ICT, Hospitality) and Engineering-related programmes (Interior Design, Construction Management, Welding, Mechanical and Electricals Engineering). The decision to pursue these programmes however, was influenced by the career guidance the students received before entering the university. While the majority (63%) of those interviewed indicated that they had career guidance



from their teachers and family the rest (37%) had no such guidance. Some of their comments were:

*SR2: Yes. I got career guidance from one of my teachers.*

*SR4: No. Nobody gave me guidance. Not even my teachers.*

*SR5: Yes. I had access to career guidance from family members*

The students additionally had financial challenges as suggested by the survey. Only one (female) student was on scholarship. The majority had their fees paid by their fathers (33%) mothers (15%), spouses, guardians and brother/sister and others (7% in each case). A few (15%) however, had to pay their own fees. Some in this category had to collect money from different sources – spouse, mother/stepmother, guardian and brother/sister. In order to pay their fees. Interestingly, all such students were males. Gender wise, only 47% of the male had their fees paid by their fathers; 27% had to pay their own fees or had it paid by their mothers (20%) and others (7%). In contrast, none of the females had to pay her own fees. The fees were paid by fathers, mothers, spouses and others (see Table 2 in the Appendix). Below are some of the comments from the student interviewees:

the students' comments:

*SR5: 'Yes. There was no money to be used to pay for the fees.'*

*SR7: 'My father couldn't get the fees for me so I had to raise the money myself'.*

These financial challenges were perhaps due to the poor economic backgrounds of the students. In the first place, only about half (59%) of those surveyed had both parents alive. Those who were orphans constituted 11%. Nineteen percent (19%) had only their fathers alive and (11%) had only their mothers alive. Again, the majority (33%) of the parents had no formal education. The rest had up to basic (30%), secondary (15%), and University (11%) education. In terms of employment, the majority (37%) were self-employed while others were: professionals like nurses and teachers (19%), wage employees (11%) domestic workers (7%), casual workers (7%) and artisans (4%). A few (11%) were also unemployed. Taking up the financial burden of university education therefore might have been difficult for quite a number of them (see Tables 3 in the Appendix).

**D. Socio-cultural challenges**

The fourth major challenge faced by the Deaf was socio-cultural challenges. The fact that they could not communicate with the hearing students due to language barrier, brought them very few friends, mostly fellow Deaf students and the few who tried to communicate with them in some forms of SL. Interestingly, Deaf students are very curious about whatever happens around them – e.g., students laughing or complaining. The work of the interpreters therefore, goes beyond interpreting course content in the classroom. Even in the halls, outside class hours, the interpreters are expected to help the students. In fact, the interpreters become their guides and voices. They have to be with them most of the time – at lecture, halls of residence, churches, homes of friends and virtually, everywhere. They consistently act as the middle persons between the Deaf and any other person who cannot communicate in SL e.g., landlords and sellers. In the same way, if a department needs to have a discussion with them either by appointment or not, the interpreter must be there. These are some of their comments:

*SLIB: 'We are like their voice and their guide. We go to the lecture halls, their churches, among their friends, their home, everywhere. For their accommodation and everything you have to be their middlemen or middle women where the Landlord will speak through you to them and they also speak through you to the Landlord. So, whenever the Landlord is having problem with them way, let say they are not keeping their washroom well, the Landlord will not talk to them directly but will call you the interpreter wherever you are to come and talk to them that this is what they are doing so they should stop. So, you have to be with them on Sunday as well to interpret for them. So is like everywhere. If a department is having a program whether they gave you a notice or not, once a deaf has call you or send you a message I need an interpreter and if you don't go, to them (the deaf students), you are an enemy or you a bad person.'*

SR4: 'I sometimes fall on a friend in the class who is a hearing colleague and has a little bit knowledge in signing to sign some of the concepts to me during lectures and practical but when he signing to me, then the other hearing colleagues will be laughing at him and this discourages him from signing to me'.

## Discussion

The following three key issues were isolated and discussed in corroboration with existing literature – (a) access to tertiary education for the Deaf; (b) the academic, financial, socio-cultural challenges faced by Deaf students and (c) the way forward.

One of the key findings of this study was that few Ghanaian universities are currently admitting deaf students into TVET programmes are few. For instance, at the time of doing this research, only three (3) out of the thirteen (13) Ghanaian public traditional Universities are admitting Deaf students. These are the University of: Education, Winneba (UEW), Cape Coast (UCC), and Ghana (UG). The UEW had 49 students, the highest among the three; because of the variety of support services provided (e.g., SL interpretation, notes-taking), programmes and the fact that it is an old University known for special education e.g., the training of special education teachers (Oppong & Fobi, 2019). Among the eight (8) Technical universities, it is only three of them – Cape Coast (2 students), Korforidua (7students) and Takoradi Technical University that admit deaf students (54 students). Thus, among both the traditional and technical universities in Ghana, TTU currently has the highest number of Deaf students. Perhaps, TTU has more students because of its efforts specifically, geared towards recruiting Deaf students (through university outreach programmes and that of DSSU). Another possibility is the many opportunities for the Deaf to get hands-on training in TVET provided by the university. As argued by Amoako (2019), opportunities to learn trade skills and vocational training is preferred by most Deaf students because of its hands-on nature. The Education for All (EFA) movement led by UNESCO (2014) and other international organizations therefore, call for skills training for the Deaf.

The low numbers of institutions admitting deaf students was however, expected. In fact, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2009) had earlier reported that PWDs have specified discrimination and barriers to full engagement in skills training and employment programmes. In fact, although most institutions are required to adjust (physical infrastructure particularly, buildings and learning tools and machines) to the needs of PWD trainees, the reverse is what usually happens because very few institutions are willing to adjust their infrastructure to meet the special needs of PWDs (Mosalagae & Bekker, 2021); Tripney *et al.*, 2013).

### 133 *Providing quality education for all*

Academically, the Deaf did not get as much in the classroom as their hearing counterparts. One reason for this was interpreter tiredness due to the continuous use of the hands, face and other body parts in communicating with the students depending on the duration of the lecture. Changing interpreters every two hours or doing team signing has been suggested as one of the ways to address this challenge (Siple, 1993). Nonetheless, Cavender, Bigham & Ladner (2009), argue that managing interpreting styles, interpreter's familiarity with course content and many visual sources of information can be a challenge for most Deaf students. Hence, it is recommended that interpreters should appropriately notify students of such changes, so that students can employ more beneficial observing strategies. Other support services that could help Deaf students in HE includes manual/electronic note-taking (Real time captioning), one-on-one tuition support, and spoken speech among others. These may not only help the students improve the clarification of their lecture notes, study skills, understanding of lectures, reading/writing skills but also, their course grades (Amoako, 2019; Kuyini & Desai, 2008).

As illustrated by this study, and other previous studies (Lang, 2002; Cawthon, 2001), University teachers are often not aware of the presence of Deaf students in their classrooms, not to talk of engaging them in classroom discussions. Foster *et al.* (1999: 225), for example, reported that college and University faculty 'generally made few if any modifications, for Deaf students. They rather saw the provision of support service as responsible for the success or failure of these students.' Whether this is the result of attitude, a lack of training, or inadequate guidelines/resources; it is difficult to tell until further research clarifies it. This notwithstanding, some departments within the context of the present study (e.g., the Fashion department) tried to support the students during both theoretical and practical sessions. One interpreter explained that the lecturers often came to him during practical work to ask how the students were getting along and whether they had any questions before continuing with the lectures. Simply put, they made sure that the students understood whatever was taught.

Another key finding of the study was that almost all the students were pursuing programmes involving hands on training. This finding agrees with the earlier findings of Malle *et al.* (2015) who asserted that only certain types of programmes particularly, those requiring 'hard skills' such as automotive, manufacturing, construction, and electricity are suitable for the Deaf. It was therefore not surprising that most of the

students pursued hands-on programmes such as Graphic design, Fashion design, Interior design, Construction, Welding and Fabrication, Mechanical Engineering, Electrical Engineering, Tourism, Statistics, Information Communication and Technology (ICT) and Hospitality management. Only one student offered Accounting which to an extent, was also practical oriented. Previous studies have suggested similar practical programmes including Catering, Hairdressing, Masonry, Block-making, Metal-work, Dressmaking, and Carpentry (Amoako, 2019; Kuyini & Desai, 2008).

Regarding financial challenges, a key finding was that both male and female students struggled with the payment of their fees. For instance, although none of the male students was an orphan, some students had to pay their own fees. The story of the females was not too different as they also had to seek the support of relatives, guardians, spouses in paying their fees. One possible explanation to this is that many Ghanaian ethnic groups abhor Deafness and believe it is a waste of money and resources to provide formal education for them. Other cultural prejudices such as the Deaf cannot learn or socialize, Deafness is a contagious disease, stigmatization and labelling from family members and their communities in general, are contributing factors. These factors cause many parents to be unwilling to educate their children (Oppong & Fobi, 2019). Another perspective is that people mostly attribute disabilities to spirituality or other superstitious beliefs. Hence, society doubts their capacities and have low expectation from them. These deep-seated stereotypes accounts for the lack of support for PWDs. Thus, they are often not given the necessary opportunity and support to access life necessities such as education (Kassah *et al.*, 2014; Baffoe, 2013).

Socially, the students had very few friends. The main barrier once again, was their inability to engage in effective communication with people in the hearing majority. This finding however, affirms the findings of Kersting (1997) who reported feelings of isolation, loneliness and resentment, most intense during orientation and the first year of education when interviewing Deaf students with little or no previous University cultural experience. Their alienation was from both Deaf and hearing peers. Murray, Klinger & McKinnon (2007) in another study testify that many Deaf people find themselves living and functioning in an environment where they are marginalized. The consequence has been decreased participation in socialization, learning,

### 135 *Providing quality education for all*

and productive works. Nevertheless, many scientific papers have suggested that participation in sports, recreation and other extracurricular activities are beneficial in this respect (Nemček, 2016; Bendíková, 2014; Kersting, 1997).

### **Conclusion**

This study has pointed to the fact that most Deaf students prefer TVET programmes because of its practical nature. Also, Deaf students in Universities may have academic, financial and socio-cultural challenges. Socio-culturally, the Deaf students have very few friends largely due to communication challenges. The value of supporting them in these respect therefore, can be priceless.

### **Recommendation**

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

Policy wise, the government may in the future set up a special University for PDWs including the Deaf to ensure that their special needs are particularly, cared for.

Possibly, SL should be promoted within the University community especially, among those who daily come into contact with the Deaf in universities (e.g., faculty and administrative staff) so that at least, they can to an extent, communicate with them. Lecturers in particular, should try to identify Deaf students in their classrooms and try to meet their needs while teaching, particularly, during practical sessions.

The University should employ more SLI according to the needs of the students so that efficiency and effectiveness can be achieved in their effort to help the students. Perhaps, some consideration could be highlighted to appropriate faculties so, they can assist them in the acquiring technical knowledge. Also, inter-departmental discussions on best practices should not focus exclusively on only faculty staff but also hearing students.

Financially, the University should join hands with relevant bodies to sponsor these socially marginalized people. Socio-cultural activities that bring the students into contact with hearing students should be organized regularly. These may include sports, recreation and religious activities.

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137 *Providing quality education for all*

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139 *Providing quality education for all*

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## Appendix

**Table 1: How the students got into the university**

Myself	Friend	Parent	Outreach	Church	Others/%
14.8	29.6	22.2	22.2	3.7	7.4

**Table 2: Who pays your fees?**

<b>Payer</b>	<b>Me</b>	<b>Scholarship</b>	<b>Spouse</b>	<b>Father</b>	<b>Mother</b>	<b>Step Mother</b>	<b>Guardian</b>	<b>Brother/ Sister</b>	<b>Others%</b>
Percentage	14.8	3.7	7.4	33.3	14.8	3.7	7.4	7.4	7.4

**Table 3: The employment status of parents**

<b>Professional</b>	<b>Wage Employee</b>	<b>Self- Employed</b>	<b>Employer</b>	<b>Artisan</b>	<b>Domestic Employee</b>	<b>Casual</b>	<b>Unemployed/ %</b>
18.5	11.1	37	3.7	3.7	7.4	7.4	11.1