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ASSESSMENT OF STUDENTS' SKILLS IN PROTECTIVE AND SIGHTED GUIDE TECHNIQUES: EVIDENCE FROM SCHOOLS FOR THE BLIND IN GHANA

Irene Vanderpuye[1],
Isaac Attia[2],
Richard Amoako[3],
Douglas Fofie[4],
Daniel Asamoah[5i]
[1]Department of Education and Psychology,
University of Cape Coast,
Central Region, Ghana
[2]Department of Education,
Gambaga College of Education,
North East Region, Ghana
[3]Department of Education,
St. Louis College of Education,
Ashanti Region, Ghana
[4]Department of Education,
Akrokerri College of Education,
Ashanti Region, Ghana
[5]Department of Education and Psychology,
University of Cape Coast,
Central Region, Ghana

Abstract:
The purpose of this paper was to assess the effective usage of protective and sighted guide techniques as key orientation and mobility (O&M) skills in the two main schools for the blind (Akropong and Wa Schools for the Blind) in Ghana. We used the qualitative research design through the case study approach, where 25 students with visual impairment (15 for Akropong School for the Blind, and 10 for Wa School for the Blind) were selected through purposive sampling technique. Data was collected through a semi-structured interview guide. The data was manually analysed thematically. Our findings show that students of the Akropong and Wa Schools for the Blind did not use the protective and sighted guide techniques effectively. However, students at Akropong School for the Blind used the sighted guide technique slightly better than their counterparts at the Wa School for the Blind. We conclude that students in both schools are experiencing challenges with the use of the protective and sighted guide techniques,

[i] Correspondence: email daniel.asamoah1@stu.ucc.edu.gh

and this might have resulted in their ineffective use. We recommend that the Special Education Division of the Ghana Education Service though the Ministry of Education, and non-governmental organisations should provide adequate training in the use of protective and sighted guide techniques for students, so that they will acquire the necessary skills to effectively use the techniques in accessing their environments.

Keywords: orientation and mobility, sighted guide technique, protective technique, visual impairment, students

1. Introduction

Orientation and mobility (O&M) skills are core components in the education of persons with visual impairment. Students with visual impairment are required to develop appropriate O&M techniques for independent movement (Scott, 2015). Acquisition of O&M skills would equip students with visual impairment with the competencies to move safely and independently in their environment. Attia and Asamoah (2020) emphasised that the acquisition of such skills helps students with visual impairment to go into any condition freely as expected. Existing literature on persons with visual impairment revealed that "*mobility is an important part of everyday life and that, impairment of mobility greatly affects the quality of life*" (Lahav & Mioduser, 2002, p. 13). The inability to move about negatively affects one psychologically, socially, emotionally, economically, and physically. This stems from the fact that, restriction on one's ability in movement may negatively impact their development, understanding of concept formation, and quality of life considerably. It would also limit their exposure to the knowledge of the world around them. Skills acquired through O&M instruction would empower them to acquire a variety of real experiences, and enhance their understanding of the concepts which make them confident and develop personally. Besides, O&M positively contribute to the self-confidence of individuals who are visually impaired (Attia & Asamoah, 2020). The limitation imposed on an individual's ability to get about as a result of blindness has annihilated impact on his/her self-confidence and self-image. The vast majority of persons with visual impairment stays or are kept in their homes, live an isolated life, and accept visual impairment as destiny accomplice. These individuals need to rely on others, even when moving in a familiar environment. They have to depend on the convenience of others for their movement, daily activities, and participate in social activities. O&M training is, therefore, required for independent movement which would enable them to develop self-confidence, and empower them to carry out these activities at their own convenience and delight. This would encourage them to participate in community work, and to have the desire to compete and progress. Chen (2012) stated that, with adequate O&M skills, students who are visually impaired are able to perform many living skills independently, such as using the toilet, walking into classrooms alone, cooking and avoiding falling, which are crucial to their self-esteem. Gaining experience and knowledge, expanding their living space, adapting to new social situations, improving

relations with classmates, and receiving encouragement from teachers make life for students who are visually impaired far easier and more fulfilling. Students with visual impairment also develop the skill to properly walk with their guides. This makes the acquisition of O&M skills extremely necessary for effective movement of students with visual impairment.

2. Problem Statement

Orientation and mobility training are an important pre-requisite for the integration of persons with visual impairment into the community. Ocloo (2011) for instance contends that O&M training helps in the socialisation process of the individual, as one is no longer restricted in the environment in terms of movement. Referring to the critical role of O&M skills, it appears that the effectiveness of the utilisation of such skills especially by students living with visual impairment in Ghana has not been fully explored. Arguably, studies in Ghana conducted on O&M techniques considered the use of the white cane which has been argued to be the most famous O&M technique used in Ghana, to the neglect of the protective and sighted guide techniques, despite concerns raised by other researchers about the difficulty persons with visual impairment encounter in using the techniques in Ghana. For example, Ocloo (2011) indicated that many individuals with visual impairment are being dragged along the streets with the wrong notion of using the sighted guide technique. Also, the studies conducted from the international perspective (Bischof, 2008; Chen, 2012; Cmar, 2014: Scott, 2015) which focused on O&M training largely considered the use of the white cane. Meanwhile, Garaj, Jirawimut, Ptasinski, Cecelja and Balachandran (2003) reported that, sighted guide for instance is arguably the most efficient method of aiding individuals with visual impairment in mobility. In Ghana, Attia and Asamoah (2020) using 12 participants who were students from the Akropong School for the Blind for their study, reported that, the students did not use the white cane effectively. This is because, they battled with the challenges of motor vehicular movement, and environmental unfriendliness. Other studies conducted in Ghana also considered the competencies and challenges of students with visual impairment in the use of the white cane, the support services, and adaptations for students with visual impairment (Adu, 2015; Owusu-Amoako, 2015). This presents a research niche in literature regarding the effectiveness of other O&M techniques such as the protective and sighted guide techniques that have not been fully explored in Ghana. By using students from the only two schools for the blind in Ghana, this paper takes a different view by investigating how effectively students of the Akropong and Wa Schools for the Blind use the protective and sighted guide techniques as part of their O&M training for access and control of their environments.

2.1 Objectives

1) To assess how effectively students with visual impairment use the protective technique in their basic schools.

2) To assess how effectively students with visual impairment use the sighted guide technique in the basic schools.

3. Literature Review

3.1 The Social Model of Disability

Scholars, including Oliver (1996), have said that disability is something imposed on individuals' impairment, by the way society unnecessarily isolate and exclude them from full participation in society. In the social model, disability is seen as a social problem rather than solely an individual one. Proponents of this theory argue that disability is a socially constructed form of exclusion in which society disables individuals with physical impairment through failure to make reasonable adjustments to their needs. According to the theory, people with impairment are disadvantaged or excluded from participation not as a result of the impairment, but because of a number of factors, including the nature of buildings, legislation, attitudes, language, and culture. In order to understand this, it is important to comprehend the distinction between impairment as a physical fact and the social construct. The theory argues that persons with disabilities are an outcast social group. The social model of disability further distinguishes between the impairment that people have and the oppression which they experience. Most importantly, it defines disability as the social oppression, not the form of impairment (Shakespeare & Watson, 2002).

Disability is viewed as negative interactions, a lot of which are created by the society. Therefore, the management of the issue requires social action, and it is the collective responsibility of the society to make the environmental modification necessary for full participation. This requires an attitudinal or ideological social change, which at the political level becomes a question of human rights (Vayrynen, 2008). While disability remains a social problem to be eradicated by societal change, barriers such as prejudices and stereotypes, inflexible organisational procedures and practices, in accessing information and inaccessibility to public places including transport, which have nothing to do with the individuals' disabilities, can be changed. These barriers are created by people, which mean that it is possible to remove them (Vayrynen, 2008). Based on this model, we argue that students with visual impairment in the schools for the blind in Ghana need effective training (such training in the use of protective, and sighted guided techniques) in order to attain equal access to the mainstream society. When such training programmes are provided and skills acquired, they can then boast of independent movement to ensure their academic progression.

3.2 Protective Technique: A Description

This technique helps an individual to use his or her arms, and in order to establish him or herself successfully in his or her environment without the use of mobility tool or a sighted guide. Effective protective technique enables the individual to avoid physical hazard. The technique requires individuals with visual impairment to use their hands

and arms as bumpers, thus reducing the likelihood of injury to the face and body in moving about in both indoor and outdoor environments. There are two skills called the upper hand and forearm, and lower hand and forearm protective technique. In this technique, the upper body protection technique involves positioning one arm horizontally across the body, with the arm held at shoulder height with the elbow bent at an angle of approximately 120 degrees. The palm of the hand faces outwards with the fingers cupped and slightly relaxed, providing protection from chest and head high obstacles, and is also used in conjunction with the white cane if a known overhanging obstacle is in the path of the traveller (Deverell, Taylor & Prentice, 2009). The lower body protection technique is where one arm is extended slightly forward and downward across the traveller's midline and held about 30 centimetres in front of the body, provides limited protection against hip high obstacles when the traveller is not using mobility aids. With both upper and lower body protection techniques, the arms must be far enough from the body to allow time to react if an obstacle is contacted (Deverell et al., 2009).

The upper body protective technique is designed to provide defence at the head and face level, thus providing a buffer for the upper body from contact with potential hazards, such as cabinets, sharp wall corners and low tree branches. As described by Cade (2012), either arm is extended in front of the face or upper chest area. The elbow is bent and the palm is facing away from the face. The arm should be extended approximately six to twelve inches away from the face. The lower hand and forearm protective technique is to detect things waist down. This technique is also helpful in protecting the lower body, especially the abdomen and groin, when travelling short distances. The arm is extended diagonally across one's midline. The palm should face towards the body and be approximately six to twelve inches away from the individual. The traveller can use this technique to detect chairs, tables, desks, and beds, amongst others. The techniques can be used individually or together. Protective technique can be used while moving through open spaces, trailing, using a sighted guide, or using a cane (Cade, 2012). It is important to note that this technique will only partially protect the individual's waist level and provide information about approaching drop-offs, such as steps, stairs, and ramps. For maximum protection, a combination of upper and lower body protective techniques and/or a white cane, or sighted guide is recommendable (Cade, 2012).

According to Cade (2012), a final skill as part of the protective technique is trailing. Trailing can be utilised while strolling along a wall, fence, building line, or any straight pathway. The objective of trailing is to keep a straight line of travel and help discover objects along the pathway. When trailing, one's arm is extended along the wall, approximately one foot, in front of them. The fingertips should be curled to protect one from door jams and other hazards along the way. One should then slide their arm along the wall. Once more, this technique can be used alone or in conjunction with the white cane or other protective skills. When persons with blindness move around some of the time, they need guidance to make sure they are safe and reach the place where they want to go. While the key objective of O&M training is attaining independence in movement,

the help of another person is essential under certain circumstances. A person with visual impairment may require assistance of a sighted guide while crossing a busy road, moving in an unfamiliar environment or moving into a crowded place.

3.3 Sighted Guide Technique: A Description

The technique of human guide, which is commonly referred as a sighted guide, is a mobility system that allows an individual with visual impairment to participate actively in travel through different environments using the assistance of another individual, who typically has the use of vision (Hill & Ponder, as cited in Scott, 2015). The technique requires the individual with visual impairment to hold the arm of another person who then leads them through the environment; methods exist for traversing narrow spaces, negotiating stairs, reversing direction, negotiating closed doorways, and seating (Hill & Ponder, as cited in Scott, 2015). There are different ways in this technique. The premise of the sighted guide technique is that the individual holds the guide's arm slightly above the elbow and allows the guide to walk a step ahead. This allows the person to feel and follow the guide's direction. To begin sighted guide, the guider who has sight should touch the arm of the person who is visually impaired being guided with the elbow. He or she can then take the arm above the elbow. Guiding signals are helpful when a change in direction is needed, for example, a brief pause at the edge of a curb. Verbal clues can also be helpful (Cade, 2012).

Specific skills are taught to be applied when the blind and the guide are travelling through various situations, including negotiating narrow doorways, ascending and descending stairs and negotiating doors, and locating a seat. Additionally, unique techniques are taught to the O&M student for accepting and refusing assistance from others; using sighted guide while holding the long cane; using sighted guide within various settings such as, restaurant, classrooms, and crowded areas among others; and self-advocacy skills, such as training others to provide sighted guide (Bischof, 2008). Wilkinson (2017) provides a detailed procedure of the sighted guide technique in the following situations. When approaching a narrow area or doorway, the guide will move his/her forearm and hand to rest against the lower portion of their back, with the palm facing outward. The person being guided should slide his/her hand down to the guide's wrist and move directly behind the guide, at arm's length. When approaching curbs, stairs and doorways the guide should approach them squarely, never at an angle. At doorways, the guide should tell the person being guided which way the door opens so the person being guided can hold the door as they both pass through. The guide should let the person know when they are approaching the stairs. At the stairs, the guide should inform the person they are guiding whether the stairs go up or down and how many steps they are. The guide should position the person, so their free hand is closest to the rail. The guide should pause at the first step and at each landing (Wilkinson, 2017). When approaching a seat, the guide should tell the person they are guiding that they are in front of or beside the seat. The guide will then place the guided person's arm on the chair back or chair arm and allow the guided person to follow the guide's arm down to the seat. The

guide does not need to help the person they are guiding to sit down, unless the person being guided is frail or unsteady (Wilkinson, 2017).

4. Methods

4.1 Research Design

For the purpose of the paper, we used the qualitative design through the case study approach. This design relies on rich and dense information concerning specific cases (Collier & Elamn, 2008), and allows for a more comprehensive examination of a phenomenon through the use of particular type of evidence (Gerring, 2017). The design is suitable because the problem investigated demanded information in the form of description. Since case studies can be descriptive (Thomas, 2011), and ensure that criteria are established, and cases fitting the criteria are included as they become available, we used the multiple but simple case study since in-depth analysis of how students with visual impairment use the sighted guide and protective techniques in two schools (Akropong and Wa Schools for the Blind) were studied. Specifically, simple case study design gives illustrative description on how students with visual impairment effectively use the sighted guided and protective techniques. Although case study contains biases toward verification, that is., a tendency to confirm the researchers' preconceived notions; it provides close attention to the interpretive nature of inquiry, coupled with its ability to gather data in its natural setting (Creswell, 2009).

4.2 Population and Sample

The population comprised 72 final year students who had varying degrees of impairment in the Akropong and Wa Schools for the Blind. Of the 72 students, 48 were from the Akropong School for the Blind and 26 from Wa School for the Blind. The reason for selecting these schools was because, they were the two main schools specially designed to train and educate students who are visually impaired in Ghana. Through the purposive sampling procedure, 25 students (15 for Akropong School for the Blind, and 10 for Wa School for the Blind) were interviewed. The sample was arrived at bearing in mind the occurrence of saturation point in the responses of the interviewers (Bryman, 2012), as well as the caution given by Creswell (2009) that selecting a large sample for qualitative studies can result to superficial information. The inclusion criteria were students who did not use the white cane in accessing their environment, while the exclusion criteria comprised students who relied only on the use of the white cane.

4.3 Instrumentation

A semi- structured interview guide was developed and used for the data collection. The instrument was designed based on the specific objectives, and consisted of six questions. The designed instrument was subjected to experts' judgement where experts in instrument development in special education assessed the items on the instrument in the context of generality and clarity. Also, credibility, dependability, confirmability and

transferability as important validation elements in qualitative research as emphasised by Lincoln and Guba (1985) were ensured.

4.4 Ethical Considerations

Informed consent of the participants was elicited prior to the start of the study. They were also assured that they could withdraw from the study at any time. Due to the nature of the data that was collected, participants were assured of other ethical issues such as confidentiality of information. In pursuant to this, they were told that information they provided would not be given to the public without their consent. They were also prevented from indicating their names in any part of the data collected. The participants were also assured that the pictures taken of them that were to be used for the study would be presented such that their anonymity would be guaranteed. The audio recordings were also played back to the participants to make corrections or insert omissions. This was done to ensure that the recordings were true reflections of what they said.

4.5 Data Analysis

The data gathered was analysed thematically after it was transcribed. The thematic analysis involved pointing out the main themes (where the theme were predefined by the objectives of the study), which was done in line with Braun and Clarke's (2006) six phases of thematic analysis; familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. In the analysis, key responses of the participants were also quoted verbatim to provide more details, and clarity of findings.

5. Findings and Discussion

We reported and discussed the findings based on the specific objectives of the paper.

5.1 Research Objective One

The first objective sought to assess how effectively students with visual impairment use the protective technique in their basic schools. The research question that was set for this objective was:

- How effectively do students with visual impairment use the protective technique?

In order to answer this research question, participants were asked some question that related to how they use the protective technique. The main theme for this question was "effective use of the protective technique". The students were required to describe how they use the protective technique in their schools. They were expected to describe how they use the technique in line with what is described and recommended in literature as the "standard" curriculum for O&M training by Deverell et al. (2009).

In assessing how students effectively move about independently, they were asked to describe the upper body and lower body protective skills. We found that many rightly walked, turning their palm away from their face, but extended their arms close to their

head, and could not tell the angle of the elbow. Counting steps and stretching arms forward were the most significant skills mentioned by all participants from both schools when describing the protective technique.

A male participant described the technique in the following words:

"How I do it is that I raise my most active hand, which is the right hand, I raise it to forehead level and make sure the palm is not facing me and at an angle of about 90^0 In that order and with the lower body protection too, the hand is placed in a diagonal direction, but this time around my palm is directly opposite to my body and in some distance away from my body" (Participant B, see Figure 1).

Figure 1: Demonstration of the protective technique (Participants B and C)

It was confirmed by another participant that:

"For the upper body protection technique, I use the right when I raise the right hand to angle of 90^0" (Participants C, see Figure 1).

Another participant had this to say:

"*I use my left hand with my palm facing me, and use it to protect myself against pillars" (Participant* E)

The upper body protection technique involves positioning one arm horizontally across the body, with the arm held at shoulder height with the elbow bent at an angle of approximately 120 degrees. The palm of the hand faces outwards with the fingers cupped and slightly relaxed, providing protection from chest and head high obstacles, and is also used in conjunction with the white cane if a known overhanging obstacle is in the path of travel (Deverell et al., 2009).

It was observed that many of the participants were able to describe the lower body protection very well, but had difficulty with the upper hand protection skills. It was revealed that the majority of them were able to position the palm appropriately, but seem to have difficulty in raising the arm appropriately. The implication of this finding is that students in both schools were not able to use the protective technique effectively. This is evident when they only mentioned rightly the direction of the palm. However, they stated wrongly the angle of the elbow bend, which is supposed to be an angle of about 120°, instead of 90°, and arm should be raised to shoulder level instead of the forehead level (Deverell et al, 2009). When they were instructed to walk, many walked moving their arms close to the head.

Summary of other responses has been presented in the words of a female participant

> *"When I am walking alone, I place my hands by my side and count my footsteps. I take note of the number of footsteps required to reach every place that I go"* (Participant I. See Figure 2).

Figure 2: Demonstration of the protective technique (Participant I)

Figure 3: Demonstration of the protective technique (Participant G)

A male participant also confirmed that;

> *"When I am not walking alone, like my sister rightly said, I do count my footsteps"* (Participant G. See Figure 3)

In Figure 2 and 3, the participants were found to be walking freely like sighted students without using any of the lower and upper body protection techniques. It seemed that the participants probably were not using the technique in the way they were expected to use it. The demonstrations and descriptions given by the students on the protective technique were found to be inconsistent with the standard description given

by Deverell et al., (2009). From the social model of disability, and in line with this finding, we posit that students with impairment are disadvantaged regarding their effective movement in their schools which indicates a possible negative signal towards their academic performance. Due to their general ineffectiveness in the use of the protective technique, their movement might have been restricted.

5.2 Research Objective Two

The second objective was to assess how effectively the students use the sighted guide technique in the schools. The research question that was set for this objective was:

- How effectively do students with visual impairment use the sighted guide technique?

For this question, participants were asked to describe how they employed the sighted guide technique. The main theme for this question was "effective use of the sighted guide technique". We expected that students would give their description based on Cade's (2012) description of using the sighted guide technique. We found that the most common issue mentioned by all the participants was the fact that they allowed the sighted person to lead the way. Most participants also rightly mentioned holding the elbow and the need for communication (verbal and touch) between the blind and the sighted. However, majority of them could not tell the distance between the sighted guided and the blind, and how the fingers are positioned. A good number of the participants also mentioned that they walked with the guide side by side holding hands.

A participant had this to say:

> *"The sighted guide should always be in front of you and then you will hold his or her elbow, you use your left hand to hold his right elbow and then he moves before you go so when the sighted guide move the right leg you have to move the left and when he moves left you move right and there should be communication between the two of you and when you are moving to a narrow place the sighted moves his hand to the back for you to know that you are getting to a place like that."*

Figure 4: Demonstration of the sighted guide technique (Participant L)

The premise of the sighted guide technique is that the individual with visual impairment holds the guide's arm slightly above the elbow and allows the guide to walk a step ahead (Cade, 2012). From Figure 4, the student who is blind (behind), is able to appropriately hold the sighted (in front), however the distance between them is closed contrary to what is recommended by Cade (2012).

Descriptions of the sighted guide technique as given by other participants are:

"The sighted guide moving in the narrow way has to tell you so that you hold him well in order not to fall off" (Participant B).

"You have to be at the back of the guide in a narrow way so that you will not get yourself hurt or wounded. Communication is very vital" (Participant C. See Figure 5).

Figure 5: Demonstration of the sighted guide technique (Participant C)

From Figure 5, the student who is blind is able to demonstrate the correct distance between him and the guide, but appears not to have a proper grip of the sighted elbow. A female participant had this to say:

"If the person is a female, I use my hand to cross her wrist and the person too will use her hand to cross my wrist, we cross each other as if we are matching. If she says this is a door we are entering, I use my hand to measure to know whether I am supposed to bend or equal or just move freely" (Participant M, See Figure 6).

Figure 6: Demonstrating the sighted guide technique (Participant M)

Clearly, the position of the guide is inappropriate; the grip should not be on the hand but slightly above the elbow. The student who is blind (left) is supposed to be one step behind the guide, but in this case, both of them walk side by side.
Another participant also said:

> *"Mostly, I always want the sighted person to hold my shoulder, if the person is standing in front of me, I will hold the person so that we will all be walking on the same level. When you are walking and they are pulling you, you are like a goat. I just want us to be walking at the same level and pace (Participant* F).

Comparing the descriptions given by the participants to the recommended description from Cade (2012), shortcomings were noticed. Few were able to give a fair description of the technique. Few students from the Akropong School for the Blind were able to give a fair description of how they use the sighted guide technique. Generally, it was revealed that descriptions given on the sighted guide technique were inconsistent with the descriptions given by Cade (2012). By implication, it appears that students of Wa School for the Blind had not received any formal training on how to use the sighted

guide technique for moving about in their environment. Generally, from the statements above, it is evident that the majority of the students seemed not to be using the sighted guide technique effectively. This finding does not also give a good signal for students' social adjustment and movement in their immediate social environment (that is., the school) as the social model of disability emphasises (Shakespeare & Watson, 2002).

6. Conclusions and Recommendations

We found that students of the Akropong and Wa Schools for the Blind did not use both the protective and sighted guide techniques effectively. However, our findings show that students at Akropong School for the Blind used the sighted guide technique slightly better than their counterparts at the Wa School for the Blind. We conclude from the findings that students with visual impairment in both schools are faced with challenges with the use of the techniques, and that might have resulted in the ineffective use of the techniques. Although students with visual impairment from both schools might be effective in other O&M techniques, we imply from the findings that they will experience O&M difficulties in their school environment, which would have cumulative consequences on their daily lives in and out of school. Based on the findings, we recommend that, the Special Education Division of Ghana Education Service, and non-government bodies like the Ghana Blind Union and Sight Savers should provide adequate training in the use of protective and sighted guide techniques to students so that they will acquire the necessary skills to use the techniques effectively. This would ensure better O&M of students in and out of school. Besides, we recommend that future research works consider an evaluation of the competency levels of O&M instructors in schools and rehabilitation centres in Ghana, as well as factors that improve sighted guide skills.

About the Authors

Irene Vanderpuye is a special educationist and a Senior Lecturer at the University of Cape Coast. Her research interests include parental involvement in inclusive education, social attitudes towards inclusive education and educational intervention for children with special educational needs. She has been a Ph.D. holder from the University of Leeds, United Kingdom, since December 2013.

Isaac Attia is a special educationist and a Tutor at the Department of Education, Gambaga College of Education in the North-East Region of Ghana. He is also a Part-time Lecturer at the College of Distance Education, University of Cape Coast, and the Education Extension Unit, University for Development Studies, Ghana. His research interests include expanded core curriculum, inclusion of students with visual diversities, early intervention, and educational assessment. He holds an M.Phil. in Special Education from the University of Cape Coast, Ghana.

Richard Amoako is a special educationist and a Tutor at St. Louis College of Education, Kumasi, Ghana. He holds an M.Phil. in Special Education, and he is currently a Ph.D.

Candidate in Special Education from the University of Cape Coast, Ghana. His research interests include teacher preparation, societal perceptions and attitudes towards persons with disabilities, inclusive education, adaptations and modifications for special needs' children in inclusive classrooms.

Douglas Fofie is a special educationist and a Tutor at the Department of Education, Akrokerri College of Education, Akrokerri, Ashanti Region, Ghana. He holds an M.Ed. in Special Education from the University of Education, Winneba, Ghana. His research interest is in educating children with visual impairment.

Daniel Asamoah is a young researcher and a Teaching Associate at the Institute of Education and the College of Distance Education, University of Cape Coast, Ghana. His key research interests include educational statistics, educational assessment, students' academic performance, teachers' assessment practices, authentic assessment and testing, educational measurement, instrument development and validation, psychometrics, and mixed methods research in education. He holds an M.Phil. in Educational Measurement and Evaluation from the University of Cape Coast, Ghana.

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