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INCLUSIVE-BASED EDUCATION FOR UNIVERSITY STUDENTS WHO ARE VISUALLY IMPAIRED IN GHANA

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ABSTRACT: *This research study involved twenty students who had visual impairments, their parents and instructors in a teachers' university in Ghana. It was inclusive-based and it examined the students' technology use for academic assignments, social engagement, and participation in activities of daily living. Analysis of the responses together with inputs from their parents and instructors revealed that these students spent considerable time engaged in many activities including but not limited to making friends, barriers to the inclusion practices in the university, opportunities to engage in work experiences, and family involvement towards preparation for independent living when compared to their sighted colleagues. The results indicated that the students had varied experiences, faced different barriers in making lasting friends, and different employment opportunities. It was concluded that when dealing with students with visual impairments, their differences be considered since no two learners with visual impairments are the same. Recommendations were proffered based on the findings and provision of support to improve the inclusion of the students.*

KEYWORDS: Inclusive Based Education, University Students, Visually Impaired, Ghana

INTRODUCTION

Studies involving young adults who have visual impairments have proved that while many of these individuals seemingly lead full lives, they may be at risk as far as technology for academic use, social engagement, and participation in activities of daily living are concerned (Rockson, Acheampong, & Teye, 2017; Kelly & Wolffe, 2012; Teye, 2014; Gold, Shaw, & Wolffe, 2010). According to the authors, the students with visual impairments in those research studies made good grades similar to their sighted peers but many of them spent considerable time engaged in passive activities, had few friends, few opportunities to engage in work experiences, and experienced lower family expectations for completing independent living tasks when compared to their sighted colleagues and siblings. However, with time the students' outcomes in the areas of social skills, activities of daily living (ADL), career skills, recreation and leisure skills, and academic skills showed slight improvement for students in colleges and universities perhaps as a result of the availability of specialized curricula for teaching these skills practically and theoretically (Teye, Awini, Avornyo, & Acheampong, 2019; McDonnall, 2011; Rockson, Acheampong, & Teye, 2017; Wolffe & Kelly, 2011).

In this study, the author presents the results of the inclusionary practices of visually impaired students in a teachers' university focusing on 20 students who were blind and used braille as their primary literacy medium. Five (5) instructors and five (5) parents were also involved in the study.

Research Questions

In order to adequately investigate how these students performed in important areas of their lives in the university, the researcher raised two research questions to guide the work:

1. Is there agreement among students with visual impairment, their parents and the instructors concerning how the students use technology for academic activities, social engagement and performance in activities of daily living? And, are there variations in responses by student gender?

2. What do the students, their parents, and the instructors consider as employment opportunities for the students after completing university? And, are there variations in responses by student gender?

METHODOLOGY

Instrumentation

The researcher designed a questionnaire to guide the work and these focused on the academic domain, use of assistive technology related to performance of activities of daily living; engagement in social and recreational activities; not excluding their demographic information. Parallel questionnaires were created for the parents and instructors. The three (3) sets of questionnaires were field tested, revised, and put in accessible formats for respondents (braille for the students and print for parents and instructors).

Procedure for data collection

After Institutional Review Board's approval, participants were recruited for the study. Initial contact with students, parents and instructors was made during the 2019 academic year during braille instruction lectures. The instructors were contacted personally and the parents by telephone.

After permissions were secured, students were contacted by the researcher for the parents' contact. The researcher determined if students wanted to complete the surveys directly in braille format or via reader support service at the Resource Centre for the Blind in the University of Education, Winneba. Eighty per cent of the participants completed the survey directly in braille format with no support from the researcher. During the initial personal contact, the students were asked to provide contact information for their parents. Only five students whose parents could read and write volunteered to participate in the study and a letter was sent to each parent and instructor via email inviting them to participate in the research along with a consent form to complete.

Students, parents and instructors were directed to complete and submit each questionnaire unless they indicated that they would prefer to complete their surveys via reader support. The investigator monitored questionnaire submissions and followed up with telephone reminders when the questionnaires were not completed in a timely manner. Each of the three respondents (student, parent, and instructor) who completed all of the questionnaire received a token of appreciation.

Data Analysis

Data from the questionnaires were analyzed using non-parametric descriptive statistics as well as by individual groups and triangulated to compare findings. The standard alpha level of *.05* (*α = .05*) was used to assess if there was a significant difference or not. The *Mann-Whitney U test* was used to compare differences between the two independent groups (female and male students) made up of two equal groups of students (ten per group). Differences among the three groups of respondents (students, parents and instructors) were further analyzed using the *Kruskal-Wallis test* for each of the research questions that yielded significant results. The results of the analyses follow.

RESULTS

Demographic Information

Twenty students with visual impairments and five parents and five instructors (forming a total of 30 respondents) participated in the study. Students ranged in age from 19 - 31 years, at different levels in the University of Education, Winneba. All of the students were educated using the inclusive education curriculum. The student participants were drawn from levels 100 through 300. None of them was selected from level 400 which is the final year of the four-year bachelor's degree programme. This selection criterion was to allow the final year students enough time to prepare for their final examinations and project work. All the student participants had moderate to severe visual impairments. Seventy percent of the students were functionally blind. Fifty percent or half of the students were females and half males. The students were selected from all the geographic areas of the country. Participants enjoyed the interaction with other students with vision impairment, which facilitated easy interactions and provided common ground when discussing things. Participants mentioned their interactions with a sense of relief, stating that those they interacted with understood their plight. Participants interacted with all manner of people in the university community and some of these visually impaired students opted to stay in private hostels located outside the university even though it is a university-wide policy to house all students with special needs in university hostels as a means of providing reasonable accommodation for them. Table 1 provides detailed information about the students.

Table 1: Demographic Characteristics of Students

	Number	Percentage
Gender		
Male	10	50%
Female	10	50%
Total	20	100%
Level (Year)		
100	7	35%
200	6	30%
300	7	35%
Total	20	100%

Braille media use		
Students who read braille	20	100%
Visual status		
Blind	14	70%
Some useable vision	6	30%
Total	20	100%
Onset of Visual Impairment		
Congenital	16	80%
Adventitious	4	20%
Type of Community		
Town	6	30%
Village (small town)	9	45%
Rural	5	25%
Total	20	100%

RESULTS OF RESEARCH QUESTION ONE

Technology Use

Agreement among students, instructors and parents. There were statistically significant differences with the students' degree of technology use (that is, use of internet and email for school-related activities) when the responses of students, parents, and instructors were compared on this item. Participants also commonly found using assistive technology difficult, especially with accessibility because of incompatibility of systems. Online learning environments were also problematic and almost non-existent. However, there were significant differences when considering the gender of the students.

Agreement between female and male students. The researcher investigated which gender group can be considered as having reported more use of internet and email for school related activities. In this case, the male group had significantly more reports of internet and email use for school-related activities than the female group.

Descriptive Results. Students, parents and instructors agreed that some students were comfortable or very comfortable with assistive technology use (80-90%). Approximately half of the students were considered comfortable with mainstream technology; however, almost a half was not comfortable. Internet and email use were significantly different between the male and the female groups. The former group used both internet and email more than the latter. Students' and instructors' responses were similar. Not many students used the internet for completing school-related activities; and email to a slightly lesser extent. Details are contained in Table 2 that follows.

Table 2: **Responses to Technology Items**

Technology Items	Respondents					
	Students		Instructors		Parents	
	%	n	%	n	%	n
Student Uses Internet for School Tasks						
Yes	40	8	40	2	20	1
No	60	12	60	3	80	4
Total respondents	100	20	100	5	100	5
Student Uses E-mail for School Tasks						
Yes	30	6	0	0	20	1
No	70	14	100	5	80	4
Total respondents	100	20	100	5	100	5
Student's Comfort Level with Assistive Technology						
Not comfortable	50	10	40	2	40	2
Comfortable	25	5	40	2	40	2
Very comfortable	25	5	20	1	20	1
Total respondents	100	20	100	5	100	5
Student's Comfort Level with Mainstream Technology						
Not comfortable	25	5	40	2	40	2
Comfortable	50	10	40	2	40	2
Very comfortable	25	5	20	1	20	1
Total respondents	100	20	100	5	100	5

Social Engagement

Agreement among students, parents, and their instructors. The visually impaired respondents almost universally felt that they got along well with other students the same gender and that they were liked by other students. There were no statistically significant differences in the measures of social engagement across groups of any kind. For example, there were no statistically significant differences among groups in terms of the number of close friends the students had acquired. Friendship patterns were investigated in terms of overall friends, sighted friends, friends who are visually impaired, and best friends without finding any statistically significant differences among any of the groups.

Descriptive Results. Although there were no statistically significant results regarding social engagement, there were interesting descriptive results and in Table 3 details about these results have been provided. For instance, all of the students felt that others wanted to befriend them, while 85% of instructors and 70% of parents confirmed it. According to all respondents, the majority of these students had friends, both sighted and visually impaired. However nearly 80% of students and parents felt that visually impaired students had best friends, yet only 50% of the instructors thought so. Likewise, students (95%) and parents (100%) felt the students' friends understood visual impairment but only 75% of the instructors agreed. Students (75%) and instructors (74%) felt that the students' visual impairments did not inhibit their activities; however, some respondents were unresponsive to this item.

Some of the students had dated and only a few indicated that they had no boy/girlfriend. Most of the students (85%), parents (100%), and instructors (75%) indicated that they spent their time with colleagues during social gatherings. Fifty percent of students indicated that they spent time with friends and 50% said they spent time alone and these percentages reflected the instructors' and parents' responses.

Socially, only a few participants experienced isolation, and majority had developed some friendships. Instructors did not ensure that strategies were put in place to overcome this isolation except through group assignments. Most students in this study lamented how some sighted persons did not want to have anything to do with them. Several participants claimed that they had no friends on campus and explained that their friends had invariably been made in the early primary and secondary school years. A few participants mentioned friendships with sighted peers originating from their university education. Respondents were able to choose more than one response to this item concerning how students spent their time out of school.

Table 3: Responses to Social Engagement Items

	Students		Instructors		Parents	
Social Engagement items	%	n	%	n	%	n
Number of close friends of students						
No close friends	10	2	20	1	20	1
One close friend	10	2	20	1	20	1
Few close friends	40	8	20	1	20	1
Many close friends	40	8	40	2	40	2
Respondents (Total)	100	20	100	5	100	5
Visually impaired student gets along with others						
Yes	95	19	100	5	100	5
No	5	1	0	0	0	0
Total	100	20	100	5	100	5
Others like visually impaired student						
Yes	95	19	100	5	100	5
No	5	1	0	0	0	0
Total	100	20	100	5	100	5
Others want to befriend						
Yes	100	20	80	4	80	4
No	0	0	20	1	20	1
Total	100	20	100	5	100	5
Visually impaired student has a best friend						
Yes	80	16	60	3	80	4
No	20	4	40	2	20	1
Total	100	20	100	5	100	5
Visually impaired student has dated						
Yes	5	1	20	1	60	3
No	95	19	80	4	40	2
Total	100	20	100	5	100	5

Student feels visual impairment inhibits activities						
Yes	25	5	60	3	80	4
No	75	15	40	2	20	1
Total	100	20	100	5	100	5

Activities of Daily Living (ADL)

Agreement between students and their instructors on ADL. Across the wide range of activities of daily living measured by the instrument (e.g., shopping, using the stove or gas cooker, washing of clothes, taking care of personal hygiene, sweeping, washing of plates, taking out the trash, gardening, etc.), there were no statistically significant differences in the responses of students, parents, and instructors.

Agreement between female and male students with visual impairment. Both male and female students with visual impairment appeared to be confident when performing ADL skills and projected a slightly lower degree of confidence about independent living; yet, only two items (choosing clothes and using the stove or gas cooker) were statistically different between the female and male groups. It must be noted that in Ghana, some activities of daily living are gender-based. However, in both groups, students in the male group reported a significantly higher degree of independence than the female group. Meanwhile, the female group reported significantly more confidence choosing their own clothes and using the stove or gas cooker than the male group.

Descriptive Results. According to students with visual impairment and their parents, students' best skills were in the areas of personal hygiene, use of stove or gas cooker, choosing their own clothes, helping with shopping and buying of prepared foods. Students' moderate skills included sweeping of rooms, washing of plates and clothes, preparing meals, using stove or gas cooker, and taking out the trash. Their weakest skills were in bank transactions (such as depositing and cash withdrawals), and gardening. When asked about their contributions at home, most students (80%) responded in the affirmative as did 79% of their instructors and 85% of parents. When student respondents were asked about independent living, most students (78%) and 63% of instructors agreed positively. Asked if they would need help to live independently, 40% of students said yes and 40% of instructors agreed as did 45% of parents.

RESULTS OF RESEARCH QUESTION TWO

After School Engagement and Employment

To report on the second research question, I first looked for statistically significant differences in the perceptions of the respondents concerning whether students after completing university would be gainfully employed? I also investigated whether there were statistically significant differences in the responses for female versus male students for the same question.

Significant differences in agreement between students and their instructors concerning employment. The only statistically significant difference found in the analysis of the second research question was among the students, their parents, and the instructors in terms of whether

or not they felt the visually impaired person would get employment after completing university. There was a significant difference between the groups described as follows.

Students vs. instructors: The results of these analyses revealed a significant difference between the students' and teachers' perception of the students getting employment after university completion. From this data, it can be concluded that the instructors were significantly more likely to report that they thought the students would get a job after completing their programme than the students.

Parents vs. instructors: The results of these analyses revealed a statistically significant difference between the parents' and instructors' perceptions of these students getting work after university. From this data, it can be concluded that the parents were significantly more likely to report the students would get work after school than the instructors.

There was no statistically significant difference between the following groups: students vs. parents. The results of these analyses revealed no statistically significant difference between the students' and parents' perception of students getting employment after university education. From the data, it can be concluded that the students were not significantly more likely to report that students would get employment after university than the parents.

Male visually impaired students vs. female visually impaired students. The results of these analyses revealed no statistically significant difference between both groups' perceptions of the students getting employment after school completion. From this data, it can be concluded that both some male and female students with visual impairment (46%) were not significantly more likely to report getting employment after school completion.

Descriptive Results. According to all of the respondents, these students have been attending university. However, only a little over half of the students (64%) consistently identified job outcomes in their futures. These students who were sure of getting work after school completion were those who had already had initial teacher training and were teaching before enrolling in university but only 71% of teachers were positive about employment opportunities for the students. A different pattern was evident concerning whether the respondents foresaw marriage in the students' futures: 53% of students thought they would marry in future but only 42% of parents and 36% of teachers agreed. All of these details concerning university completion outcomes are reported in the Table 4 that follows. It is important to note that the respondents could choose more than one outcome in response to this item.

Table 4: Responses to After School Engagement Items

After Higher Education Outcomes	*Respondents					
	Students		Instructors		Parents	
	%	n	%	n	%	n
Three-year diploma	16	8	11	3	13	4
Four-year university education	24	12	22	6	32	9
Employment	30	15	26	7	40	11
Marriage	24	12	19	5	26	8
Undecided	6	3	22	6	32	9

**Note.* The number and percentage of respondents varies within these results as a result of this survey item not having mutually exclusive response options (i.e., respondents could select more than one response option).

DISCUSSION

This research allowed for the examination of the inclusive education practices of students with visual impairment who were academically capable students as evidenced by their participation as continuing students at the University of Education, Winneba. While previous studies on students' experiences focused on adolescent population of students who were blind and low vision with varied academic and social abilities, this study provided the researcher with the opportunity to examine a more mature group of students who were excellent braille users and academically successful in university. Using three sets of questionnaires which focused on demographics, academic, independent living, and social skills, and triangulating the data from students, parents, and instructors of students with visual impairments, interesting findings were yielded in all aspects of the investigation.

The data confirmed that these students were somewhat proficient with assistive technology, and expected to get employment after their university education as is the desire of every parent. In addition to the students being proficient braille communicators, their demographic characteristics showed that they were involved in daily living activities at home which may be a contributing factor to the students' academic success.

There was a statistically significant difference in the respondents' perceptions regarding employment opportunities after school. Many students thought the non-trained teachers in this study would find it quite difficult to move into work than did their instructors. The descriptive statistics clarify that the majority of students and parents strongly believed the students would be employed especially as prospective teachers after completing university. All respondents agreed that the students' university education would guarantee successful employment outcomes. Instructors in particular may want to spend more time to discuss the future employment opportunities with the students.

Although there were not many appreciable differences between the male and female students, the male students appeared to be more confident than female students when performing ADL skills and projected a slightly higher degree of confidence in independent living skills – these differences were statistically significant only in that the female students reported more confidence choosing their own clothes and using the stove and gas cooker than the male group. These gender-related differences were also outward as the male students had significantly more reports of internet and email use for school related activities than the female group. Finally, there was consensus between the respondents that these students were less confident in the use of mainstream technology than they were with assistive technology and that is a finding that could impact the students' ability to move successfully into adult life.

Study Limitations

The study involved a convenient sample of students at the University of Education, Winneba. Despite attempts by the researcher to collect data in a systematic and structured manner, participants' responses were by self-reports and based on their perceived views. The use of the

questionnaire allowed for questions to be similar across all groups, but an individual's knowledge or firsthand view of a student's skill level was based on perception rather than fact.

Another limitation is that while the data were triangulated across more or less three groups, the sample size was relatively small hence the application of the non-parametric tools of *Kruskal -Wallis* and the *Mann Whitney U* tests. With only thirty respondents responding to questions concerning twenty students with visual impairment, generalization of findings is limited. It will be important to repeat this study with additional groups of students to compare and contrast outcomes. However, it is important to note that despite the limitations addressed in this study, previous research studies have yielded a number of similar outcomes.

Implications for Practice

Although there are limitations with this current study, its findings provide some food for thought for practitioners concerning students with visual impairments who are academically successful yet may require additional support. While students were introduced to an array of assistive technology devices, they also needed to familiarize with mainstream technology that would allow them greater access to academic and work-related activities. Instructors may want to spend more time discussing student expectations for life beyond university with individual students: what jobs they would want to pursue, how their higher education goals would further their career aspirations, and whether they possess the needed marketable professional and soft skills required for the 21st century job-market?

Implications for Further Research

The findings presented in this study constitute good ground for further research. This study examined the inclusionary practices in the University of Education, Winneba concerning the involvement of academically successful students who were visually impaired. However, more in-depth analysis is needed to clearly understand the findings from the three sets of questionnaires relating to academic, activities of daily living, social, and employment opportunities; and to determine whether the results reflect successful engagement across the domains and variables investigated. It will also be prudent to expand the participant pool and replicate this study with additional students, instructors and more parents. In subsequent studies, it might be interesting to compare and contrast outcomes across different groups of students with visual impairments.

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