

# Problems of Utilization of Information and Communication Technology Devices for Education of Students with Visual Impairment in University of Calabar Cross River State

Nanjwan, J. D  
James, Daniel Daniel & Udoh, Michael Ben  
Department of Special Education  
Faculty of Education  
University of Calabar  
Calabar-Nigeria

**Abstract:-** The paper discussed problems of utilization of information and communication technology devices for the education of persons with visual impairment. Two research questions were posed to guide the study. Literatures were reviewed in the study. Survey design was adopted for the study. A census of the respondents was used in the study since the population of the study was not large. The sample for the study were eight (8) subjects. Questionnaire was used for data collection. The data collected were analysed using simple percentages to answer the research questions formulated to guide the study. The findings of the study revealed that the devices are very few in number and the available ones are outdated. The result further revealed that the available ICT devices are very few and also fragile which makes the devices to be very costly. also fragile which makes the devices to be very costly. It is therefore concluded that there are identifiable challenges of utilizing ICT Devices for the education of students with visual impairments in University of Calabar which include insufficient of ICT devices, and poor utilization of the Devices. Based on the findings, it was recommended among others that adequate devices should be made available for students with visual impairment and trained instructors should be made available to equip students with the needed skills in ICT.

## I. INTRODUCTION

Bowser and Reed (2001) students with visual impairments require ICT devices because many of them experience number of barriers to learning and participation in various activities in higher institutions in Nigeria. Many of them rely more on eye services of those who are around them. Visual impairment is a condition of a person with vision loss. It significant limitation of visual capability that cannot be fixed through conventional means, such as glasses or medication. Persons' with visual impairment like the sighted has equal right to education to contribute their quota to national and personal development. There are three

types of visual impairment according to American foundation of the blind, (2000) persons with visual impairment includes the blind, low vision and partial sighted. In view of the above mentioned fact, blind are those with total loss of sight, low vision are those with residual sight comparatively better than the blind while the partial sighted are those that have mild loss of sight that is better than the low vision.

Thurlow (2006), pointed out that visual impairment is loss or damage in organs of the eye. The damage causes problems of not carrying out activities that requires the use of eye. They can be educated with the use of assistive technological gadgets. Nanjwan and Enya, (2013) stated that the use of computer has signified a shift of focus from Computer Technology (CT) to the capacity to store and retrieve information through reading and writing. This was followed by the introduction of the term Information and Communication Technology (ICT). Cox (2006) the development of ICT has created an avenue for students with visual impairment to be educated with less difficulties. Information and communication technology (ICT) is often used as an extended synonym for information technology (IT) which emphasis is on unified communications for effective learning.

Harry, (2005) stated that "the role of ICT in education is to empower the technology into present educational activities which in turn will enhance the academic performances of students with visual impairment. Hence encouraging them to learn new ideas and better their educational opportunities. Students who have visual impairments are entitled to the independence and efficiency afforded by technology, including information communication and technology to help support and improve their learning abilities (Banky 2010). Appropriate ICT enables students with visual impairment to access information and to complete tasks efficiently, thereby enabling them to achieve the highest level of independence. The use of ICT promotes acquisition of literacy, provides more equal access to information required for employment,

and for access to general information, and facilitates social and community network (Kelly and Smith, 2011).

There is need for special educators to work in synergy with other professionals in all fields for proper analysis to determine the specific needs of learners with visual impairments. They must ensure that their needs must be met by continuous monitoring and appropriate technology, with maximum training and retraining in the use of specific technology.

Nanjwan Egaga and Ikwen, (2015) admitted that ICT teachers can effectively communicate with the students with visual impairments on how to use the devices effectively to enhance their learning in general education. Olukotun (2003) posited that teaching equipment are audio-visual aids used in the classroom by the teachers as well as the learners to enhance teaching and learning on facilities on information technology (IT) effectively. He opined the use of such teaching facilities and equipment makes teaching and learning interesting and less burdensome.

Cox (2006), In all discovered that 15 out of the 17 states using video magnifiers as a means of testing and teaching students with visual impairments has their students coming out in higher grades than all the states that did not utilize video magnifiers. The researcher therefore concluded that there is a significant relationship between video magnifiers and the academic performance of students with visual impairment who have residual vision to equal opportune-ity or reading prints like their sighted peers.

Jude (-2005). Gwan (2004) admitted that many people feared visual impairment -because its effects is both educational and other wise. Sighted students can easily learn through observation but Students with visual impairment need special teaching method, facilities and personnel to enable the-m understand and learn effectively. Many students with visual impairments are prone to different challenges associated with poor utilization of ICT Devices, this situation might place negative learning performance among students with visual impairment. The increase and the demand of services required by students with visual impairment needed an effective utilization of information and communication technology devices at the department of Early Childhood and special education, University of Calabar. Cross river state.

The purpose of the study to investigate the problems of utilization of information and communication technology devices for education of students with visual impairment in university of Calabar. Specifically the study sought to investigate challenges arising from availability and utilization of ICT gadgets for assisting the learning outcome of students' with visual impairments

## II. RESEARCH QUESTIONS

The following research questions were formulated in line with identified challenges to guide the study

- To what extent are assistive technology devices availability for the students' with visual impairments in the department?
- What is the extent to which assistive technology devices are maintained by teachers and students with visual impairments?

## III. RESEARCH METHODOLOGY

The research design adopted for the study was survey design. Survey research design involves the collection of data to accurately and objectively describe the existing condition or phenomena.

According to Adeosun and Dada (2012), the survey research gather data systematically at a particular point in time with intention of describing the nature of its existing conditions or identifying standards against existing condition can be compared or determine the relationship that exist between two specific events. This research design was chosen because it can be used to study large and small population can be selected and study samples chosen from the population to discover the relative incidence, distribution, and interrelations of sociological and psychological variables. Hence survey research is used for this study.

The research area is University of Calabar, in Cross River state.

The population of this study comprised of all students with visual impairment in university of Calabar, Cross River State. The students with visual impairment are eight (8) in number, one (1) in the department of guidance and counselling, faculty of education, two (2) in faculty of law, and five (5) in department of special education, faculty of education, making a total of eight (8)

- *All of the Eight (8) Students with Visual Impairments were used for the Study.*

The instrument used for data collection was questionnaire. The questionnaire was made up of two sections, section A and B. Section A consisted of personal data of the respondents such as age, sex and level while section B consist of the items on information based on the variables of the study which include availability of information and communication technology devices, utilization of information and communication technology devices. The questionnaire was a 4 point Likert style scale which include:

Strongly Agreed (SA) Agreed (A) Disagreed (D) Strongly Disagreed (SD)

➤ *There are two Version of the Instrument the Braille and the Printed Version.*

The questionnaire was validated and administered by the researchers to the respondents in their school. Each respondent was given Braille copy while the researchers used the printed copy. The items were read by the students along with the response options which the researcher having the print ticked accordingly this was done to them one after the other by the researcher. There was 100% return rate.

The data collected were analysed using frequency simple percentage so as to answer the research questions formulated to guide the study.

**IV. RESULTS AND DISCUSSION**

The results of the general descriptive data analyses of the variables are presented in the Table

SN	Variables	Mean	SD
1.	Availability of information communication technology devices	12.50	3.81
2.	Utilization of information and communication technology devices	11.13	3.98

Table 1:- Descriptive statistics of the research variables (N = 8)

The result in Table 1 revealed that the mean score obtained as regards availability of ICT devices was 12.50 with a standard deviation of 3.81. The result revealed that the mean score obtained as regards utilization of information and communication technology was 11.13 with a standard deviation of 3.98

To what extent are assistive technology devices availability for the students’ with visual impairments in the department?

Presentation of results each of the research questions of the study was answered using descriptive statistics and the result is presented in tables.

Research question one was answered using frequency and percentages. To carry out the analysis, responses were grouped into four (Strongly Agreed, Agreed, Disagreed and Strongly Agreed) based on their responses to the items in the instrument. The results are presented in Table 2.

Statement	SD	D	A	SA	Mean
The devices are few in number	-	2 (25.0%)	3 (37.5%)	3 (37.5%)	3.13
The available ones are outdated	1 (12.5%)	2 (25.0%)	2 (25.0%)	3 (37.5%)	2.88
The available devices are fragile	1 (12.5%)	1 (12.5%)	3 (37.5%)	3 (37.5%)	3.00
High cost of the devices	-	2 (25.0%)	2 (25.0%)	4 (50.0%)	3.25

Table 2:- Availability of Information Communication Technology Devices

The results as presented in Table 2 showed that two respondents representing 25.0 per cent disagreed that the devices are few in number while three respondents representing 37.5 per cent agreed and three respondents representing 37.5 per cent strongly agreed and this produced a mean score of 3.13. The result also showed that one respondent representing 12.5 per cent strongly disagreed that the available ones are outdated while two respondents representing 25.0 per cent disagreed and two respondents representing 25.0 per cent agreed while three respondents representing 37.5 per cent strongly agreed and this produced a mean score of 2.88.

representing 37.5 per cent strongly agreed and this produced a mean score of 3.00. The result finally showed that two respondents representing 25.0 per cent disagreed on the issue of high cost of the devices while two respondents representing 25.0 per cent agreed and four respondents representing 50.0 per cent strongly agreed and this produced a mean score of 3.25.

➤ *Research Question Two*

What is the extent to which assistive technology devices are maintained by teachers and students with visual impairments?

The result further showed that one respondent representing 12.5 per cent strongly disagreed that the available devices are fragile while one respondent representing 12.5 per cent disagreed and three respondents representing 37.5 per cent agreed while three respondents

Research question two was answered using frequency and percentages. To carry out the analysis, responses were grouped into four (Strongly Agreed, Agreed, Disagreed and Strongly Agreed) based on their responses to the items in the instrument. The results are presented in Table 3.

Statement	SD	D	A	SA	Mean
Skills of usage is not easy for visually impaired students	1 (12.5%)	2 (25.0%)	2 (25.0%)	3 (37.5%)	2.88
There are no trained instructors to equip students with the needed skills	-	3 (37.5%)	4 (50.0%)	1 (12.5%)	2.25
There is no training class on how to use each of the devices	1 (12.5%)	2 (25.0%)	2 (25.0%)	3 (37.5%)	2.88
Some students with Visual Impairment do not have interest in making use of the devices	1 (12.5%)	1 (12.5%)	2 (25.0%)	4 (50.0%)	3.13

Table 3:- Utilization of Information and Communication Technology

The results as presented in Table 3 showed that one respondent representing 12.5 per cent strongly disagreed that skills of usage is not easy for visually impaired students while two respondents representing 25.0 per cent agreed and two respondents representing 25.0 per cent agreed and three respondents representing 37.5 per cent strongly agreed and this produced a mean score of 2.88. The result also showed that three respondents representing 37.5 per cent disagreed that there are no trained instructors to equip students with the needed skills while four respondents representing 50.0 per cent agreed and one respondent representing 12.5 per cent strongly agreed and this produced a mean score of 2.25.

The result further showed that one respondent representing 12.5 per cent strongly disagreed that there is no training class on how to use each of the devices while two respondents representing 25.0 per cent disagreed and two respondents representing 25.0 per cent agreed while three respondents representing 37.5 per cent strongly agreed and this produced a mean score of 2.88. The result finally showed that one respondent representing 12.5 per cent strongly disagreed that some students with Visual Impairment do not have interest in making use of the devices while one respondent representing 12.5 per cent disagreed and two respondents representing 25.0 per cent agreed and four respondents representing 50.0 per cent strongly agreed and this produced a mean score of 3.13.

## V. DISCUSSION OF FINDINGS

Based on the analyses. The discussion is presented according to the research questions.

To what extent are assistive technology devices availability for the students' with visual impairments in the department?

The result of the analysis revealed that the devices are very few in number and the available ones are outdated. The result further revealed that the available devices are also fragile which makes the devices to be very costly.

The finding is in line with the study by Jude (2005) who carried out a study on the impact of technological innovation on the academic performance of visually impaired persons in Maryland and he found that 90% of the research population was using notetakers as a means of gathering information during lectures and this accounted for 70% of their academic success as they were able to have

access to visually all the information that sighted students have via this means of technological innovation.

The finding is also in agreement with that of the study by Banky, (2010) which posited that students without vision loss can take advantage of various types of personal data assistant (PDA) devices. Most are blind or visually impaired. However an electronic notetaker which may have a Braille or a QWERTY types keyboard which is basically an adapted PDA devices for visually impaired students. Visually impaired users can do the same type of tasks that a typical PDA system allows.

The finding is also in accordance with that of the study by Thurlow (2006) which investigated the impact of assistive technology on the academic performance of visually impaired students in Las Vegas using 500 visually impaired students found out that Braille translation software contributes 40% of the academic success of visually impaired students in the study and therefore concludes that Braille translation software significantly affects the academic performance of visually impaired students. Braille translation software work with Braille embossers to print Braille output from a computer by punching dots onto paper.

What is the extent to which assistive technology devices are maintained by teachers and students with visual impairments?

The result of the analysis revealed that skills of usage are not easy for visually impaired students and there are no trained instructors to equip students with the needed skills. The result also showed that there is no training class on how to use each of the devices and some students with Visual Impairment do not have interest in making use of the devices.

Harry (2005) stated that "the role of ICT in education is to empower the technology into present educational activities which in turn will enhance the academic performances of students with visually impairment. He further explained the need of ICT which allows open source learning rather than manual source, hence encouraging students with visually impairment to learn new ideas and thereby better their educational opportunities and improve their learning ability.

The finding is in agreement with Gwan (2004) that determination of functions must be guided by skilled

specialists of ICT in the education of students with visual impairments who have comprehensive expertise in blindness and low vision.

The finding also concur with Nanjwan, Egaga and Eke (2015) instruction in the use of appropriate ICT devices speech, large print, and/or Braille must take place concurrently with instruction in keyboarding, word processing, and in use of the internet.

## VI. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study investigated the challenges of utilization of Information and Communication Technology ICT

The findings of the study revealed that the devices are very few in number and the available ones are outdated. The result further revealed that the available devices are also fragile which makes the devices to be very costly and it is not easy to afford buying them.

### ➤ Conclusion

It was concluded that the problems attributable to utilization and availability of information and communication technology devices in the department are pronounce and the problems are attributable to the need to expose students with visual impairment to information and communication technology devices.

It was concluded that the role of ICT can help in reducing the challenges faced by teachers and students with visual impairment in skills acquisition of Information and Communication Technology devices.

### ➤ Recommendations

Based on the findings, it was recommended that:

- Adequate devices should be made available for students with visual impairment.
- The students with visual impairment should be encouraged to make adequate use of the devices and adequate time should be allocated to them.

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