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Acquirable of Low-Technological Devices for Learning in Special Schools

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ABSTRACT

All special students need to learn adequately so that their deviation from the norm will not demerit them from other students. Thus, there is a need for them to have enough learning tools which will help them achieve their academic goals. These technologies that aided the learning of special students are called low-technological devices. But when these technologies for special students are not sufficiently available, learning could be jeopardized. This study, therefore, investigates the available low-technological devices for learning in special secondary schools. This study employs the survey method and 150 secondary school students from special schools were purposively sampled. The findings established that revealed that Stylus, Picture symbols, Pocket dictionary/thesaurus, and Line guide are Highly available to the respondents but Wrist Rest, Signalling Device, Graph paper, and Adjustable Table and Hearing Aids are moderately available to the respondents accordingly. The study concluded that some recent and high technological devices are not adequately available. It was however recommended that Government should provide adequate funding to improve the availability and affordability of assistive technology for children with disabilities.

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1. INTRODUCTION

Education requires using knowledge to change a less educated person's behavior in that area of learning. Education is a lifelong learning process. It is recognized internationally as the center of individual and national growth and is therefore important for all-disabled or not. The education division concerned with disadvantaged or imitated learners is referred to as special education. Such limitations can range from visual, physical, mental, emotional, or hearing impairments or a combination of two or more of those impairments. Special education was described as "a personalized education program designed to meet the unique needs of individuals with special needs that cannot be met by the general education system".

Yusuf et al., (2012) further claimed that special education corresponds with the education of disabled people who may have physical and health deficiency, visual impairment, hearing impairment, mental retardation, emotionally disturbed, speech impairment, learning disabled or multiple impairments. The phrase 'education is an extraordinarily common and popular word that is spoken by many but understood by very few in its appropriate perspective. It proves to be as old as man himself, yet with time, it has undoubtedly undergone some changes in its importance and goals. Etymologically, the term education was derived from two Latin words 'Educare' meaning 'to raise' or 'to bring up' and 'Educere' meaning 'to move out' or 'to come out'.

Assistive Technology (AT) can be used as supportive technology for people with mobility impairments by using wheelchairs, transfer devices (patient lifts), walkers, etc.; visual impairments by using screen readers, braille and braille embossers, mobile video magnifiers, screen magnification applications, large and interactive keys, communication assistance, etc.; hearing loss by using hearing aids, listening devices, improved mobile equipment, augmentative and alternative communication, etc.; cognitive impairment by using memory aids, educational software, and so on.

The low-cost learning aids must be very simple and easy to handle, much money can be saved and some complexities of sophisticated appliances avoided. It helps to have more knowledge and understanding, It promotes pupils maximum participation in the learning process, It provides first-hand experience in a variety of ways, Develops scientific attitude in children, Cultivates research mindedness in children, Promotes interaction between teachers and students, Promotes interaction among students, Improvisation generally add interest and involvement in the lesson, Encourage co-operative attitude in children Develops self-confidence of pupils, Helps the students to make use of their leisure time. Examples of low-cost technological devices are: braille display, a button mouse, capacitive driver, audio transmitter, and so on.

Braille Display: A Braille Display, or a Refreshable Braille Device, is to be used by blind-deaf people, who are unable to read texts from, for example, a computer or hear it from a voice synthesizer. The apparatus is capable of capturing the text through special software and send it to the device to be read by the user. The software reads the text from the computer and transforms it into a bit stream, which is sent through the USB port. A microcontroller receives treats and sends the data to the Braille module to translate the text into a sequence of point characters. Once one line of the text is read, the user jumps to the next line and the device refreshes itself. Also, many other features were added to the product, such as a clock, a voice decoder, able to transform into Braille what is been said, an interface to the capacitive driver.

Button Mouse: People who have motion limitations are often unable to use common mouses, mainly due to their small size. Thus, special mouses are adapted to work through the

use of large buttons. As one can see, instead of moving the mouse itself, only buttons are pressed to displace the cursor on the screen.

Capacitive Driver: The capacitive driver, based on capacitance variation due to the touch (finger, hand, foot, etc.) is indicated for people who, for different reasons, present limited movements. The device can be connected to electrically conductive surfaces, such as fruits or any metallic object, and allows one to control others devices connected to the capacitive driver.

Audio Transmitter: The audio transmitter is a Bluetooth-based device to help students with Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD) in the classroom. The device uses a Bluetooth connection to send audio data from a server device (teacher's cell phone, for example) to the connected users (students' cell phones, for example). Since there is a signal treatment to eliminate external noise, only the teacher's voice is transmitted, thus reducing the negative effects of any possible environmental disturbance to the student with ADD or ADHD.

Also, several studies that investigated the availability of technologies devices for special education were conducted outside Nigeria; in fact, very few have examined the application of ICT for students with disabilities within the African context.

The use and effect of low technology in special school cannot be overemphasized, however, Use of Technology facilitates by teachers and students in special schools can expand the learning environment beyond the walls of the classroom and allow students with disabilities, just like other students, to access and make use of the devices which will therefore contribute positively to their academic performance. Low technology facilitates the students' ability to make personal connections with others and provides opportunities to focus on writing skills within a context that they value, without fear of being stigmatized. There are various studies on the use of low-technology in a special school.

Even though assistive technologies are very important in rehabilitating and assisting students with learning disabilities, these devices are not made available for the students. [Adebisi and Adewale \(2013\)](#) show that, because of the expensive nature of the assistive technologies for students with learning disabilities, the federal government and other governmental agencies have stopped the supply of basic equipment and technologies to special education centers. This makes most of the assistive technology devices and equipment for students with learning disabilities grossly inadequate in the schools ([Adebisi & Adewale, 2013](#)). Most of the existing pieces of equipment are outdated; the majority of these schools rely on philanthropists for the supply of basic materials.

The study provided answers to the following questions:

1. what are the available low-technological devices for learning in special secondary schools Ilorin metropolis?
2. what differences existed in the availability of low-technological devices among students based on gender?.

2. METHODS

A descriptive survey research design was used for this study. Descriptive research is aimed at casting light on current issues or problems through a process of data collection that enables them to describe the situation more completely than was possible without employing this method. A survey was done by a researcher to elicit information from the sample of a population to draw references about the entire population.

The population is comprised of all the inhabitants of a particular town, area, or country. The population for this study consisted of 150 students of the special need secondary

students at Kwara State School for Special Needs, Apata Yakuba. The sample is a selected group which is a fair representation of the entire population of interest that will be adhered to. A sample of the population comprises a specific number in which the researcher is interested among the entire population. Sampling is the process of selecting a number of individuals for a study in such a way that each individual represents the population from which they will be selected. From the target population, one hundred students were sampled. These are people truly capable of providing all the responses required to be able to prove or disprove my hypotheses

The instrument is often called an assessment or evaluation instrument in research. The instrument that will be used in collecting data for this research is a questionnaire. A questionnaire allows the researcher to collect required information quickly and accurately from a large number of people at the same time. The questionnaire titled "Availability of low Technological devices for Special needs secondary schools in Ilorin metropolis" consists of two (2) sections.

Section A contains demographic information of the respondents while Section B will use a checklist to determine the availability and utilization of assistive technologies for special education in the Ilorin metropolis in which respondents will use Highly Available (HA), Moderately Available (MA), Not Available (NA), Frequently Used (FU), Rarely Used (RU), Not Use (NU) as response mode.

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform. The questionnaire was validated by four experts in the Department of Educational Technology, University of Ilorin. They were required to perform corrections on the content of the instrument. Their comments and suggestions were used to improve the contents of the questionnaire.

The letter of attestation was collected from the Department of Educational technology and the researcher administered the questionnaire to the one hundred (100) respondents. On-spot collection of the questionnaire was made to achieve a high retrieval rate. Ethical issues were considered as the respondents were not forced to participate in the study. All their data were only used for the research and nothing else.

The Data collected was coded and subjected to proper statistical analysis of which frequency count and the percentage was used to analyze the demographic data of the respondents and the research questions.

3. RESULTS AND DISCUSSION

Research Question One:

What are the available low-technological devices for learning in special secondary schools Ilorin metropolis?

In response to this research question one, frequency count and the percentage were employed to govern the status of low-technological devices for learning. The result is shown in **Table 1**.

Table 1. Available low-technological devices for learning.

S/NO	Low Tech Devices	HA	MA	NA
1	Stylus	97 (64.7%)	45 (30.0%)	8 (5.3%)
2	Wrist Rest	56 (37.3%)	65 (43.3%)	29 (19.3%)
3	Writing Frame	47 (31.3%)	55 (36.7%)	48 (32.0%)
4	Signalling Device	53 (35.3%)	62 (41.4%)	35 (23.3%)
5	Graph paper	60 (40.0%)	64 (42.7%)	26 (17.3%)
6	Adjustable Table	51 (34.0%)	61 (40.7%)	38 (25.3%)
7	Picture symbols	64 (42.7%)	52 (34.6%)	34 (22.7%)
8	Pocket dictionary/thesaurus	71 (47.3%)	46 (30.7%)	33 (22.0%)
9	Hearing Aids	54 (36.0%)	59 (39.3%)	37 (24.7%)
10	Line guide	53 (34.3%)	51 (34.0%)	46 (30.7%)

The kind of low-technological devices which are available for learning was investigated. It revealed that Stylus, Picture symbols, Pocket dictionary/thesaurus, and Line guide are Highly available to the respondents but Wrist Rest, Signalling Device, Graph paper, and Adjustable Table and Hearing Aids are moderately available to the respondents accordingly.

Base on the findings of this study, even though there are challenges at every stage of implementation, but the overall response got from a questionnaire administered to the respondents to ascertain the availability of Low-technological devices for learning in special schools in Ilorin Metropolis was received with the more positive result than negative after the results were analyzed. The result indicated that Stylus, Picture symbols, Pocket dictionary/thesaurus, and Line guide are Highly available to the respondents but Wrist Rest, Signaling Device, Graph paper, and Adjustable Table and Hearing Aids are moderately available to the respondents accordingly. This supports the study of [Adebisi and Adewale \(2013\)](#) who established that most of the assistive technology devices and equipment for students with learning disabilities are grossly inadequate in the schools. However, [Ahon et al., \(2014\)](#) deduced that the expensive nature of some technological devices also causes their scarcity in educational institutions.

The findings of this study have a great effect on implications on the Availability of Low-Technological devices for Learning in Special Schools in Ilorin metropolis, Kwara state. The study also has the potential of increasing the level of pedagogical content on students and also the level of availability to familiarize themselves with Low-technological devices for Learning. The inference and the implication of this study cannot be over-emphasized for any reason, as such, it is imperative to make correspondent to the recommendation made by these findings.

4. CONCLUSION

This study concluded that some recent and high technological devices are not adequately available. While some of these devices are made available by the students through their parents or guardians, others are made available by the schools, government, and philanthropists. From literature review and findings from this study, it is recommended that:

1. The government at all levels and Curriculum planners should involve special education teachers and students with disabilities and their families in related assistive technology activities, including the development of policies, the design, and evaluation of services and products;
2. Government should provide adequate funding to improve the availability and affordability of assistive technology for children with disabilities; and

3. Curriculum developers should enable students with disabilities access to all conventional policies, systems, and services (for example, health facilities, schools, transportation, and playgrounds) through assistive technology and accessibility measures as required.

5. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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