

Discernment of special school students on the application of low-technological devices for learning

(scientific paper)

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Abstract: *One thing is for technologies to be introduced into the teaching and learning process to boost instructional delivery; another thing is for users to have good attitude towards the use of these technologies. This study therefore investigates the discernment of special school students on the application of low-technological devices for learning. This research thus hires the survey method and 150 special school secondary students were purposively sampled. The research instrument was validated by experts for both face and content validity. The findings established that students have good perception towards the utilization of low-technological devices for learning notwithstanding their gender and age. The study concluded that special students' discernment towards the adoption of low-technological devices influence their readiness to use those devices. It was, however, recommended that the development of basic skills in the design and production as well as utilization of assistive technology devices from readily available materials to reduce the cost incurred from importing them from other countries should be encouraged.*

Keywords: *special school students, application, gender, learning, low-technological devices, age, discernment*

1 Introduction

1.1 Background to the Study

Low-technology (LT), which is highly important for learning in special schools, overtime, cannot be overestimated in terms of its educational benefits for disabled learners as it has proven helpful in growing, sustaining or improving their functional capabilities. Today's innovations have the ability to change the lives of students with

disabilities significantly, allowing them to access the curriculum, engage alongside their peers in learning events, personalize their learning and reach their full potential.

Most students with disabilities can benefit from technology in the classroom because incorporating technology increases students' motivation to learn and personalizes lessons to a student's individual needs. Even the students with the most severe and profound disabilities can use low-technology to join a classroom of typical students, and their potential can be reached in ways we didn't have before (Kirk, Gallagher, Coleman, & Anastasiow, 2008).

Over the years, the availability, accessibility, and use of low-technologies in special schools have raised questions among researchers. The main reason for offering school-based low-technology is to allow students to achieve their educational goals. School administrators will look at the tasks that each student needs to achieve, the challenges that the students are facing, and the ways in which different devices may help the students better perform such tasks (Massachusetts Department of Elementary and Secondary Education, 2012). There is a need for professional development for teachers, parents, and students of how to best utilize low-technology for students. Research has shown that assistive technology can be imperative to students' achievement in tasks that would otherwise be inaccessible. However, many times assistive technology is not implemented correctly or is not used because of the lack of professional development or training for teachers, parents, and students.

Low achievement in special school could be attributed to various barriers facing the use of these low-technological devices. Bell (2012) states that these barriers were found to include lack of appropriate staff training and support, negative staff attitudes, inadequate assessment and planning processes, insufficient funding, difficulties procuring and managing equipment, and time constraints. However, these may result to low or non-availability, accessibility and utilization which can hinder the effectiveness of these devices.

Varieties of innovations are providing innovative options for differentiating instruction in today's learning environments, promoting the involvement of children with learning disabilities. With the several assistive devices available for teachers and parents to choose in the stores and on the internet, there is no simple rule in selecting the correct ones for children with learning disabilities. Even though, the availability of these tools poses problems for teachers and parents in the developing world like Nigeria, as the tools are scarce and not provided for in schools, and not available in most of the local shops and markets (Liman, Adebisi, Jerry & Adewale, 2015). However, the few stores and markets found in the cities and metropolis sell at high cost for parents and schools.

1.2 Statement of the Problem

Using technology can help students with disabilities to enhance and improve their independence in academic and employment tasks, their participation in classroom discussions, along with helping them to accomplish some difficult academic tasks (Alnahdi, 2014). Special education teachers, especially in middle and high school, should be exposed to technological tools that can help students to bypass their academic weaknesses (Mull & Sitlington 2013). Teachers will help students by training them to use low Assistive Technology that, in most cases, could make students live and behave more independently when they leave high school, which will increase their chances of maximizing their degree of achievement and independence, though it will still be behind their peers without disabilities (Blackorby & Wagner 2006).

1.3 Research Questions

The study provided answers to the following questions:

1. What is the perception of student on the utilization of low-technological devices?
2. What differences existed in the perception towards the utilization of low-technological devices among students based on gender?
3. What differences existed in the perception towards the utilization of low-technological devices among students based on age?

1.4 Research Hypotheses

H_{01} : There is no significant difference between the perception of males and female special student on available low-technological devices

2 Methodology

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 in order to elicit information from the sample of a population so as to draw references about the entire population.

Population comprised of all the inhabitants of a particular town, area or country. The populations for this study consisted of 150 students of the special need secondary students at Kwara State School for Special Needs, Apata Yakuba. Sample is a selected group which is a fair representation of the entire population of interest which will be adhered to. A sample of population comprises of a specific number in which the researcher is interested in 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.

Instrument is often called 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 “Perception on the utilization 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 comprised of structured questions which is in scale response mode on perception on the use of low-technological devices in special schools. The items will be based on the 4-points likert scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD).

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 the supervisor and four other lecturers 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 one hundred (100) respondents. On spot collection of the questionnaire was made to achieve 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 purpose of the research and nothing else.

The data collected was coded and subjected to proper statistical analysis of which frequency count and percentage was used to analyze the demographic data of the respondents and the research questions. T-test was used to test the research hypotheses one while ANCOVA was used to test hypotheses two at 0.05 significance level.

3 Results and Findings

3.1 Demographic Information

Table 1: Respondents data based on their gender

Gender	Frequency	Percent	Cumulative Percent
Male	86	57.3	57.4
Female	64	42.7	100.0
Total	150	100.0	

Table 1 shows that male and female respondents formed the study of the total sampled respondents with 86 (57.3%) are male while 64 (42.7%) females formed different percentage of the total sampled respondents respectively. This is also shown graphically in Figure 1.

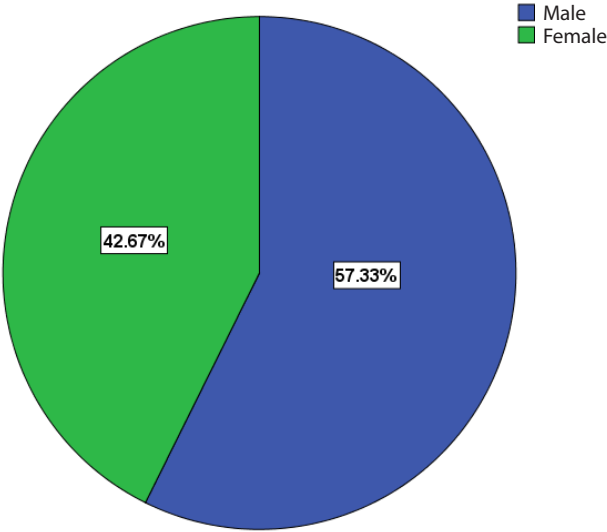


Figure 1: Graphical Illustration of Respondents' Gender

Table 2: Respondents data based on their age

Age	Frequency	Percent	Cumulative Percent
10–15 Years Old	67	44.7	44.7
15–20 Years Old	70	46.6	91.3
20 Years Old and Above	13	8.7	100.0
Total	150	100.0	

The respondents' age was shown in Table 2. It indicated that 67 (44.7%) of the respondents were within the age range of 10 to 15 years old, 70 (46.6%) of the respondents were within the age range of 15 to 20 years old and the rest 13 (8.7%) of the respondents were within the age range of 20 years old and above 20 years old.

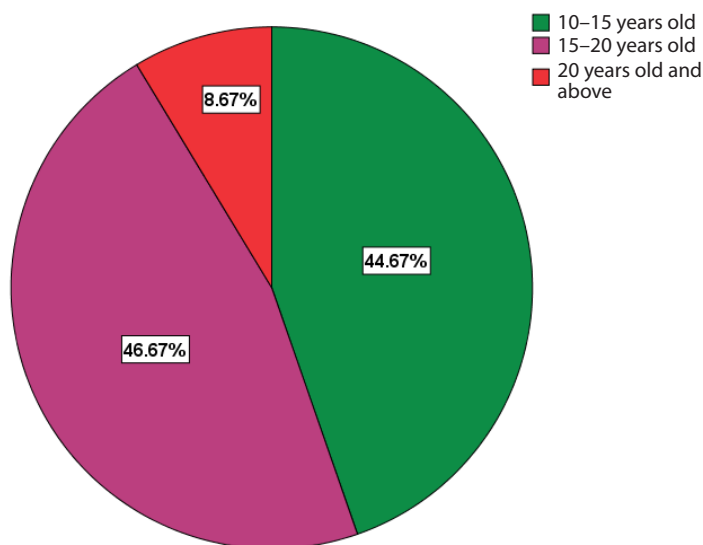


Figure 2: Graphical Illustration of Respondents' Age

The pie chart in figure 2 indicated that majority of the respondents are within 10 to 15 years of age. Others are as shown in Figure 2.

3.2 Research Question One

What is the perception of student on the utilization of low-technological devices?

In response to this research question two, mean and standard deviation was employed to direct the perception of student on the utilization of low-technological devices. The result is shown in Table 3.

Table 3: Perception on the utilization of low-tech devices for learning

S/N	Items on Perception	$\bar{X}$	SD
1	Low-tech has helped to develop my reading competence.	3.23	1.050
2	Low-tech has helped me to develop my writing skill.	2.87	.960
3	I cope easily with the challenges posed by the use of these low-technologies.	2.73	1.028
4	Low-tech has improved my academic performance.	2.71	1.132
5	Lack of confidence affected me in the use of low-tech devices for learning.	2.85	1.091
6	Low-tech devices make teaching and learning easier.	2.70	1.040
7	I relate better with my teachers in the classroom when they use low-tech devices to teach.	2.71	1.067
8	My school encourages the use of these low-tech devices by both student and teacher.	2.66	1.122
	Perception on the utilization of low-tech devices for learning	2.81	

The perception of students on the utilization of low-technological devices was also examined and reported in Table 3. It displayed that majority of the students agreed that low-tech has helped to develop their reading competence and it has helped them to develop their writing skill with mean scores of 3.23 and 2.87 respectively. Also, respondents submitted that they cope easily with the challenges posed by the use of these low-technologies with a mean score of 2.73. In addition, majority of the respondents perceived that low-technological devices improved their academic performance with a mean score of 2.71 and a mean score of 2.85 established that the lack of confidence affected the respondents in the use of low-technological devices for learning.

In addition, students perceived that the low-technological devices make teaching and learning easier and the school encourages the use of these low-tech devices by both student and teacher with mean scores of 2.70 and 2.66 accordingly. Others followed suit as shown in Table 4. The grand mean score of 2.81 established that students have good perception towards the utilization of low-technological devices.

3.3 Hypothesis One

There is no significant difference between the perception of males and female special student on available low-technological devices.

Independent samples t-test was conducted to determine if there is any significant difference between the perception of male and female special students on available low-technological devices. The result is shown in Table 4.

Table 4: *t-test on significant difference between perception of male and female*

Gender	N	Mean	Std. Deviation	df	T	Sig. (2-tailed)
Male	86	2.829	.479			
				148	.533	.595
Female	64	2.786	.494			
Total	150					

Results in Table 4 show that the calculated t-value was 0.53 with significant value of 0.60 was not significant at 0.05 alpha levels because p-value was greater than 0.05. This implies that the null hypothesis one was not rejected: hence, there was no significant difference between the perception of male and female special students on available low-technological devices.

3.4 Hypothesis Two

There is no significant difference between the perception of special students on the use of low-technological devices based on age.

In response to this, an analysis of covariance was conducted to determine if there is any significant difference between the perception of special student on the use of low-technological devices based on age. The result is shown in Table 5.

Table 5: ANCOVA on significant difference between perception based on age

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.005 ^a	1	.005	.022	.882
Intercept	153.415	1	153.415	649.978	.000
Age	.005	1	.005	.022	.882
Error	34.225	145	.236		
Total	1195.266	147			
Corrected Total	34.230	146			

a: R Squared = .000 (Adjusted R Squared = -.007)

The result in Table 5 shows the significant difference in the interest mean scores on the perception of special students on the use of low-technological devices based on age. It indicates that $F(1, 146) = 0.022$, $P > 0.05$, which means that there is no significant difference in the interest mean scores of special students on their perception towards the use of low-technological devices based on age. Hence, the null hypothesis is hereby retained. Thus, there is no significant difference in the significant difference in the mean scores of perceptions of special students on the use of low-technological devices based on age.

4 Discussions

The findings established that students have good perception towards the utilization of low-technological devices. Adegunju, Onivehu, Odetunde & Oyeniran, (2017) concluded that the success of the integration of assistive technology in any educational system is hinged on the quality and quantity of teachers as the prime implementers of the curriculum. It is important to choose an appropriate and efficient device or tool, which does not necessarily have to be an expensive device designed just for educational purposes or for students with disabilities (Alnahdi, 2014).

In addition, there was no significant difference between the perception of male and female special students on available low-technological devices. Soetan, Onojah, Alaka and Aderogba (2020) stated that there was no significant difference between

male and female hearing impaired students' attitude towards the utilization of hearing assistive technology for learning.

Majority of the students adopt the low-technological devices to improve learning. This implies that the adoption of the technological devices is influenced by the availability which in turn could arouse students' readiness to use it. Students have good perception towards the utilization of low-technological devices. Their perception could influence students' motivation to use these low-technological devices by special students. There was no significant difference between the perception and utilization of male and female special students on available low-technological devices. The implication of this is that the low-technological devices have impact on the academic performance of both male and female special students.

No noteworthy statistical difference existed between the perception of special students on the use of low-technological devices based on age. There was no significant difference in the utilization of low-technological devices for learning based on age. Students have good perception towards the utilization of low-technological devices. Their perception could influence students' motivation to use these low-technological devices by special students. There was no significant difference between the perception of male and female special students on available low-technological devices. The implication of this is that the low-technological devices have impact on the academic performance of both male and female special students.

5 Conclusion

This study concluded that students have good perception towards the utilization of low-technological devices for learning notwithstanding their gender and age.

6 Recommendations

From literature review and findings from this study, it is recommended that:

1. The government should develop a multi-sectoral taskforce across Ministries of education, health and social welfare (or similar ministries) to ensure that children with disabilities have access to appropriate assistive technology; and
2. The Ministry of Education should put in place seminars, workshops, conferences and trainings for special education teachers and experts in the field of assistive technology and educational technology to ensure collaboration among several special schools and the development of basic skills in the design and production as well as utilization of assistive technology devices from readily available materials to reduce the cost incurred from importing them from other countries.

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