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ENHANCING PERFORMANCE OF DISABILITY STUDENTS AND APPLICABILITY OF ASSISTIVE TECHNOLOGY IN NIGERIA PUBLIC SECONDARY SCHOOL

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ABSTRACT

This study examined how Assistive Technology (AT) could be used to enhance the performance of students with disability in Nigeria. Three research question guided the study. A descriptive survey research design was adopted. The population of the study comprised public secondary school teachers in Ijebu-Ode local Government area of Ogun East Senatorial District of Ogun State, Nigeria. The sample size of the study was ninety-three (93) teachers in Adeola Odutola College, Ijebu-Ode. Researcher self-developed questionnaire titled: Assistive Technology and Performance of Students with Disability (ATPSDQ) was used for data collection with reliability coefficient of 0.87. Descriptive statistics of mean, standard deviation and bar-chart were used for answering and presenting data on research questions 1 and 2. Research question 3 was analysed using inferential statistics of PPMC. The findings revealed that unavailability and inaccessibility of assistive technology, lack of assistive technology skills on the part of teachers, anxiety on the use of assistive technology by the special need students were among the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability. Assistive technology enhance independence learning for students, promotes social inclusion, allows disable students to be more engaged in learning, promotion of greater accessibility to academic materials, improves teacher-student communication flows, improves visual tracking among the students were among the benefits of using Assistive Technology in enhancing the performance of students with disability. There was relationship between Assistive Technology applicability and performance of students with disability in the order of ($r = .257$, $p < .05$). This implied that 25.7% increases in the performance of students with disability could be attributed towards the Assistive Technology applicability. Government at all levels, philanthropists, NGOs and other stakeholders in education should donate and provide funds for the acquisition of appropriate and adequate assistive technology devices for use by teachers in the classroom in order to enhance the academic performance of disable students.

Keywords: Assistive Technology, Performance, Disability Students, Public School.

Introduction

The supreme goal of secondary school education is to be consistently improve performance of students. Students performance in terms of their academic performance that might among the factors that propel their future sustainability. Performance of students relate to the extent of their success in academic activities both in test and general examination score. This has been found to be the benchmark school used for the promotion of students from one level to other. However, it has been found that the performance of students does not equal and many factors seems to have responsible for this; factors like the state of health, school environment, illness, among others (Aderibigbe, Ewa, James & Udoh, 2023).Vincent, Okeowo and Ariyo (2024) stated that students with any kind of illness of lopsided health issues might not be favourably to compete with peer in classroom during teacher instructional delivery. And most teachers have been found to always used same methodology for all students in his/her classroom while teaching is going. This circumstance surely might result to students' discrepancy in their academic performance, most especially those students with disability. That form part of the reasons stakeholders in education are clamoring for separate teaching methods for students with disability. Abdullahi and Imam (2024) proposed the used of assistive technology for teaching and learning students with disabilities to enhance and improve their academic performance.

Assistive technology allows students with disabilities to improve their access to courses and the quality of their professional knowledge (Obafemi & Ishola, 2023). Several useful technological devices are available to help teachers improve their students' useful abilities by increasing their participation in learning opportunities and engagement in activities. Computer powered directions include numerous code applications to help children improve their learning activities and reach their potential. These technologies vary from simple spell checks to more advanced speech recognition(systems, teaching and learning software). Among them, software such as voice recognition, word prediction, spell checking and scientific software have been found to be effective in meeting the requirements of children with specific learning disabilities (Obafemi & Ishola, 2023). When students with learning disabilities are unable to meet academic and behavioral goals in school, teachers should recognize the need to create usable technology tools and supports that can modify them to successfully complete assigned tasks (Vincent *et al.*, 2024).

Assistive Technologies (AT) plays vital roles in augmenting the various grabs that existed in the various disabling conditions that students with disabilities find themselves in. These Technologies enhances their efficiency, interest and output in the classroom, home and the general inclusive environment (Amwe&Dommak, 2021). Assistive Technology (AT) is one of such devices that had been of high premium in the area of Science and Technology in the 21st Century. Assistive technology is a term that describes any products whose primary purpose is to maintain or improve an individual's functioning, independence and promote their well-being. Assistive Technologies are software or hardware tools which help people with disabilities when they use technology (Muller,2010). More so according to Kazaure (2019), assistive technology includes a variety of devices or tools that enable individual with disabilities to be more independent, self-confident, productive, and better integrated into the mainstream. Assistive technology implies appropriate technology which today is referred to

as totally the way of life evolved by people in an attempt to meet the challenges of living in their environments.

In other words, assistive technology is a generic term that includes assistive, adaptive and rehabilitative devices for people with disabilities and includes the process used in selecting, locating, and using them (Mark, 2022). As outlined by Areej (2020) these devices are categorized as follows: high technology and low technology devices. The high-tech devices are more complicate, cost more and also the user requires training or guidance in order to use effectively. Such devices include voice recognition software, or word prediction software (Johnston & Watson, 2017). In contrast, personally, low-tech is low-priced equipment, as it costs less than high-tech, it is simply designed, and requires limited or not raining. Examples of low-tech devices include but are not limited to talking watches, pencil grips, highlighting marker tape, eyeglasses, and ear plugs to reduce.

However, Amwe and Dommak (2021) said that providing educational services to students with special needs is bedeviled with several challenges. Among these challenges is the poor academic achievement of students with special needs in inclusive settings. This consistent poor performance is largely due to the inadequate instructional materials utilized by teachers in teaching pupils with special needs. Therefore, training for inclusion will alert teachers to better understand the goals, objectives and implementation strategies for various support services available for student with special needs (Nugaret, Scruggs & Mastropieri, 2015). Among these forms of training is the effective use of assistive technology devices in teaching and learning for students with special needs. In other words, to meet the educational demands of these students, support service providers will likely rely on assistive technology for teaching and learning processes.

Statement of the Problem

The performance of students with disability have been source of concerns to the stakeholders in education as most of their academic performance fell below their colleagues with stable health in the classroom. However, many reasons have been adjudged to this ugly scenario that today teachers used same methodology in teaching stable and disability students in classroom. Although, this might help stable students to grow their academic activities and performance while acting as discouragement to disable students which might also lead to drop out of school for them. This study was an attempt to examine how assistive technology could be used to enhance the performance of students with disability in Nigeria.

Objectives of the Study

The main objective of the study was to examine how Assistive Technology (AT) could be used to enhance the performance of students with disability in Nigeria. Specifically, the study sought to:

1. identify the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability;
2. examine benefits of using Assistive Technology in enhancing the performance of students with disability;

3. find out the relationship between Assistive Technology applicability and performance of students with disability.

Research Questions

The following research questions were answered in this study:

1. What are the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability?
2. What are the benefits of using Assistive Technology in enhancing the performance of students with disability?
3. Is there any relationship between Assistive Technology applicability and performance of students with disability?

Methodology

A descriptive survey research design was adopted in this study. The justification for its usage was that the design helped the researchers to solicit required data and information from the respondents towards answering the research questions. The population of the study comprised public secondary school teachers in Ijebu-Ode local Government area of Ogun East Senatorial District of Ogun State, Nigeria. This local government has a total of twelve public secondary schools. The sample size of the study was ninety-three (93) teachers in Adeola Odutola College, Ijebu-Ode. The reason for selecting this school was that is the only school in the local government that admitted disability students without any form of institutional policy factors that might discriminate against them. However, purposive and stratified sampling techniques were used for the selection of school and teachers respectively. The reason for using stratified sampling technique was to ensure gender-sensitivity, that is, both male and female teachers were included in the sample size. Researcher self-developed questionnaire titled: Assistive Technology and Performance of Students with Disability (ATPSDQ) was used for data collection. The questionnaire (ATPSDQ) was apportioned into two categories namely sections A and B. Section A embraced demographic characteristics of the respondents while section B detailed on items relating to the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability and benefits of using Assistive Technology in enhancing the performance of students with disability. The questionnaire was based on modified Likert scale with four responses. The validation of the questionnaire was done by three experts from Departments of Educational Technology and Educational Management from Tai Solarin University of Education, Ijagun, Ogun State. However, the reliability was conducted among fifteen teachers in Abusi-Odumare secondary school in Ijebu-North local government area of Ogun State, Nigeria and this was done twice. The data collected were subjected to Pearson Product Moment Correlation (PPMC) and it yielded 0.87 as reliability coefficient of the study questionnaire. The implications of this was that the study questionnaire was reliable in eliciting required data needed for the study towards goal achievement. The researchers with two trained research assistants distributed a total of 93 copies of the questionnaires to the respondents and only 91 copies were retrieved. Retrieval rate was 97.8% and used for analyzed. Descriptive statistics of mean, standard deviation and bar-chart were used for answering and presenting data on research questions 1 and 2. Research question 3 was analysed using inferential statistics of PPMC. Decisions were made at .05 level of significance.

Results and Discussion

Research Question 1: What are the challenges facing applicability of AssistiveTechnology in enhancing the performance of students with disability?

Table 1: Descriptive statistics on the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability

Items	Mean	SD	Remarks
Unavailability and inaccessibility of assistive technology.	2.59	.983	Agreed
Lack of assistive technology skills on the part of teachers.	2.83	.741	Agreed
Anxiety on the use of assistive technology by the special need students	2.99	.643	Agreed
Reluctance to training in the use of assistive technology	2.72	.802	Agreed
Government and school authorities lack of interest in providing assistive technology to school	2.82	.770	Agreed
High cost of assistive technology	2.90	.678	Agreed
Cluster Mean	2.81		Agreed

Source: Field Survey, 2024

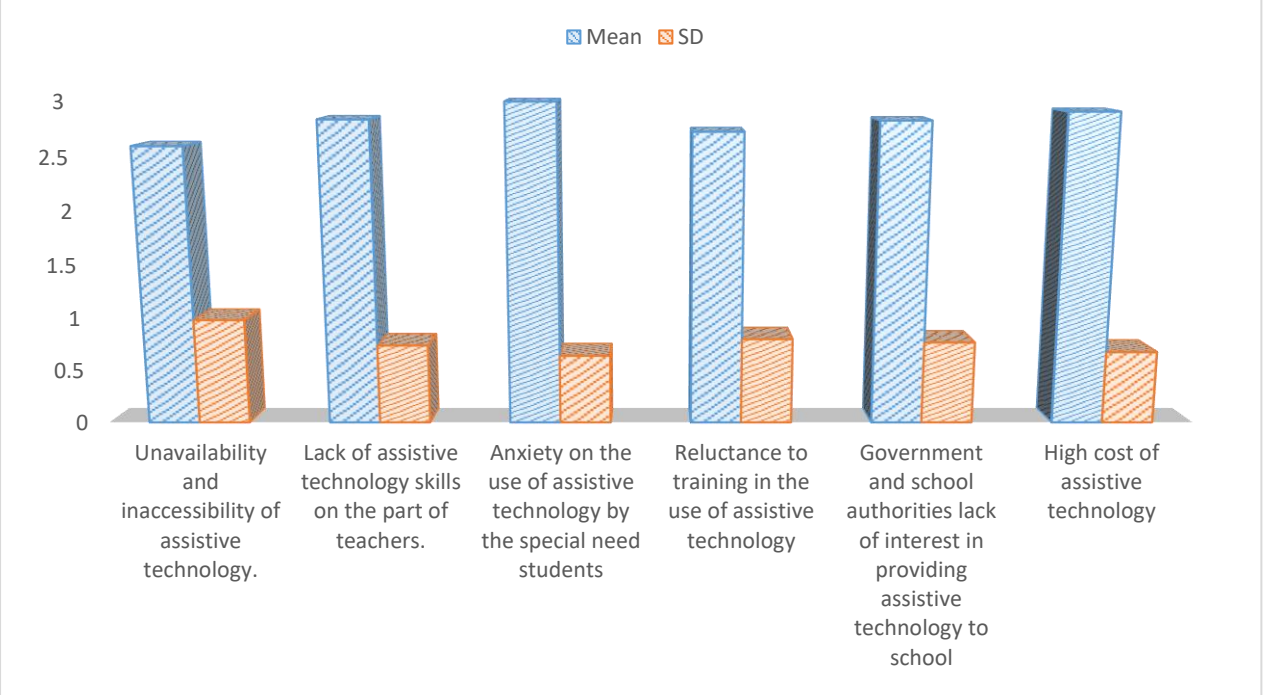

Figure 1: Bar-chart showing challenges facing applicability of AssistiveTechnology in enhancing the performance of students with disability

Table 1 revealed that cluster mean was 2.81 which was found to greater than the bench mark mean value of 2.50 (2.81 > 2.50). The implications of this result were that unavailability and inaccessibility of assistive technology, lack of assistive technology skills on the part of teachers, anxiety on the use of assistive technology by the special need students, reluctance to training in the use of assistive technology, government and school authorities lack of interest in providing assistive technology to school and high cost of assistive technology were among

the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability.

Research Question 2: What are the benefits of using Assistive Technology in enhancing the performance of students with disability?

Table 2: Descriptive statistics on the benefits of using Assistive Technology in enhancing the performance of students with disability

Items	Mean	SD	Remarks
Assistive technology enhance independence learning for students	3.09	.549	Agreed
It promotes social inclusion.	3.21	.609	Agreed
It allows disable students to be more engaged in learning.	3.10	.591	Agreed
Promotion of greater accessibility to academic materials.	2.88	.899	Agreed
Improves teacher-student communication flows	2.54	.911	Agreed
Improves visual tracking among the students	2.55	.897	Agreed
Helps teach costs and effect relationship between the teacher and students.	2.91	.582	Agreed
Cluster Mean	2.90		Agreed

Source: Field Survey, 2024

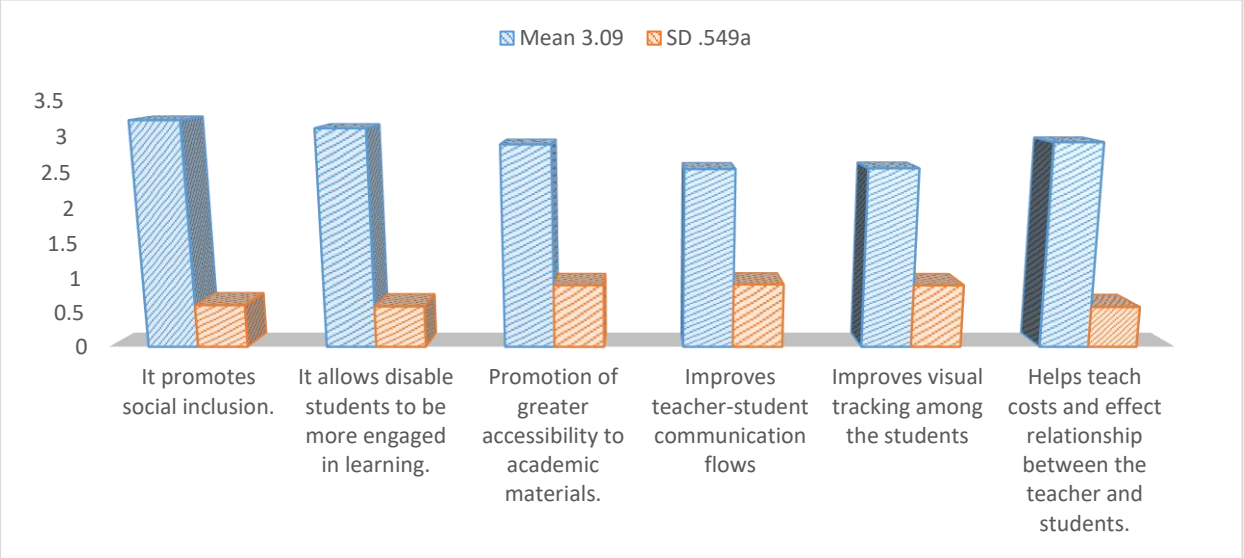

Figure 2: Bar-chart showing benefits of using Assistive Technology in enhancing the performance of students with disability

Table 2 indicated that cluster mean was 2.90 which was found to be greater than the bench mark mean value of 2.50. Since, 2.90 > 2.50, the implication of these results was that assistive technology enhance independence learning for students, promotes social inclusion, allows disable students to be more engaged in learning, promotion of greater accessibility to academic materials, improves teacher-student communication flows, improves visual tracking among the students and it helps teach costs and effect relationship between the

teacher and students were among the benefits of using Assistive Technology in enhancing the performance of students with disability.

Research Question 3: Is there any relationship between Assistive Technology applicability and performance of students with disability?

Table 3: Relationship between Assistive Technology applicability and performance of students with disability

Variables	Mean	SD	r-value	df	p-value	Remark
Disability students' performance	19.0086	1.90732				
AssistiveTechnology	19.7425	2.64620	.257	89	.0000	Significant

Source: Field Survey, 2024

Table 3 showed Mean, Standard Deviation and zero order correlation between the variables. It was observed that there was relationship between Assistive Technology applicability and performance of students with disability in the order of ($r = .257$, $p < .05$). This implied that 25.7% increases in the performance of students with disability could be attributed towards the Assistive Technology applicability.

Discussion of Findings

The findings of the study based on research question 1 revealed that unavailability and inaccessibility of assistive technology, lack of assistive technology skills on the part of teachers, anxiety on the use of assistive technology by the special need students, reluctance to training in the use of assistive technology, government and school authorities lack of interest in providing assistive technology to school and high cost of assistive technology were among the challenges facing applicability of Assistive Technology in enhancing the performance of students with disability. These findings were in consonant with Vincent (2024) who found that of the major obstacles facing effective utilization of assistive technology was unavailability and lack of government support in providing assistive technology to school for the teaching of disable students.

Based on research question 2, the findings of the study showed that assistive technology enhance independence learning for students, promotes social inclusion, allows disable students to be more engaged in learning, promotion of greater accessibility to academic materials, improves teacher-student communication flows, improves visual tracking among the students and it helps teach costs and effect relationship between the teacher and students were among the benefits of using Assistive Technology in enhancing the performance of students with disability. These findings correlate with Amwe and Dommak, 2021) who revealed that assistive technology drove the academic engagement and performance of disable students while Nugaret *et al.*, (2015) concluded that the invention of assistive technology specifically helped disable children in their academic learning for performance.

Based on research question 3, the findings indicated that there was relationship between Assistive Technology applicability and performance of students with disability in the order of ($r = .257$, $p < .05$). This implied that 25.7% increases in the performance of students with

disability could be attributed towards the Assistive Technology applicability. These findings were in tandem with Obafemi and Ishola (2023) that assistive technology enhancing and promoting performance of disable students and that it also showed direct association in reading along the teachers in classroom.

Conclusion

The educational success and performance of disable students must be taken serious for their future sustainability, although many have raised brown eye on the learning conditions of students with disability in public school, this study found that government and other stakeholders in education should endeavor to used assistive technology in instruction delivery when teaching disable students to increase their performance and compete vividly with counterpart who have stable health. As its clearly showed in this study, the following conclusions were made that assistive technology enhance independence learning for students, promotes social inclusion, allows disable students to be more engaged in learning, promotion of greater accessibility to academic materials, improves teacher-student communication flows, improves visual tracking among the students and it helps teach costs and effect relationship between the teacher and students were among the benefits of using Assistive Technology in enhancing the performance of students with disability.

Recommendations

1. Teachers should make use of assistive technology in lessons delivery for disable students.
2. Government at all levels, philanthropists, NGOs and other stakeholders in education should donate and provide funds for the acquisition of appropriate and adequate assistive technology devices for use by teachers in the classroom in order to enhance the academic performance of disable students.

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