

INCLUSIVE EDUCATION AND THE USAGE OF ASSISTIVE TECHNOLOGY IN PUBLIC SECONDARY SCHOOL

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ABSTRACT

This study examined assistive technology as predictors towards achievement of inclusive education in secondary school in Ijebu-Ode Local Government Area of Ogun State. Two research questions and one hypothesis guided the study. A correlation research design was adopted. The sample size of the study was 105 teachers in Adeola Odutola College, Ijebu-Ode. Researcher self-developed questionnaire titled: Inclusive Education and Assistive Technology Questionnaire (IEATQ) was used for data collection with 96.2% as reliability coefficient. Descriptive statistics of mean, standard deviation and pie-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 of the study revealed that wrong perception on the use of assistive technology, infrastructural issues, teachers' incompetence in ICT usage, teachers' low awareness were among the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school. Remove barrier to education, promotes equality of education and instruction to the students, leverage equal access to instruction delivery opportunities were among the role of assistive technology in achieving inclusive education in secondary school. There was relationship between the explanatory variable and the dependent variable in the order of ($r = 0.620$, $P < .05$). About 62% increases in inclusive education could be attributed towards adoption of assistive technology. The study concluded that there is no doubt that inclusive education is impossible without the employment and utilization of assistive technology. Government and NGO should collaborate to equip secondary school with Assistive technology software.

Keywords: Inclusive Education, Usage, Assistive Technology, Public Secondary School.

Introduction

Nowadays, African countries have begun to look for antidotes for achieving and sustaining inclusive education for its citizens nonmatter their color, circumstances, ethnic, and languages. Inclusive education means equal education treatment for the categories of students, so that no children will be left out in terms of human capital development. Inclusive education is the most effective way to give all children a fair chance to go to school, learn and develop the skills they need to thrive. Inclusive systems of education value the unique contributions students of all backgrounds bring to the classroom and allow diverse groups to

grow side by side, to the benefit of all. Inclusive education is the most effective way to give all children a fair chance to go to school, learn and develop the skills they need to thrive.

Inclusive education entails when all children, irrespective of their diversities, abilities, disabilities or any challenges they may have, are placed in the same general education classroom to learn together with their peers (Ukala&Adieme, 2024). These authors emphasized that inclusion is aimed at ensuring that all learners have access to quality education that meets their basic learning needs in a manner that there is no discrimination or exclusion within or outside the school system. Ajuwon (2019) defined inclusive education as a process of enhancing the capacity of the education system to reach out to diverse learners. Hence, the diverse learners have the right to be taught in the same classroom in a mainstream school; instead of excluding some to learn in a special school except in severe cases. Shyman (2020) also defined inclusive education in the perspective of social justice by asserting that all individuals, regardless of exceptionality, are entitled to the opportunity to be included in regular classroom environments.

UNICEF (2022) reiterated that there are an estimated 240 million children with disabilities worldwide. Like all children, children with disabilities have ambitions and dreams for their futures. Like all children, they need quality education to develop their skills and realize their full potential. Yet, children with disabilities are often overlooked in policymaking, limiting their access to education and their ability to participate in social, economic and political life. Worldwide, these children are among the most likely to be out of school. They face persistent barriers to education stemming from discrimination, stigma and the routine failure of decision makers to incorporate disability in school services. According to UNICEF (2022), the attainment of inclusive education may need introduction of modern teaching and learning technology in the classroom most especially for students with kinds of disabilities. Modern teaching technique such as assistive technology. Assistive technologies are innovative technologies that modify or adapt the classroom for special learning needs. Students with hearing impairment require assistive technology to participate in and benefit from educational programmes. A range of technology solutions is available to support the students with disability. Assistive technology are basic tools in the provision of quality education for students with disability to fit into the contemporary society and achieve inclusive education (Aderibigbe, Ewa, James & Udoh, 2023).

Assistive technology (AT) devices are said to be any item, piece of equipment or product system, whether acquired commercially at the shelf, modified and or customized that is used to increase, maintain and improve the functional capabilities of the individuals with kinds of disability in order to bring out the best in them. Simply put AT could also be said to be devices which aid in teaching and facilitating understanding in the students with disability together with colleagues who does not possessed any disable features for the attainment of inclusive education (Aderibigbe& James, 2017).

Assistive technology devices are classified into low and high tech. low tech assistive technology devices are simple tools that make life's daily activities easier (Raskind, 2018). These devices are non-electronic and relatively inexpensive. They may be as simple as pencil grips to help students with disability with motor problem. High technology assistive technology devices on the other hand are generally electronic devices which are usually tied

to power supply. Some examples of high tech AT devices for students with disability in the inclusive classroom include; hearing aids, computers, talking clocks alerting devices (Beard, Carpenter & Johnson, 2019). Robitalle (2019) observed that Assistive Technology (AT) devices are so important to learners with disability because these devices can help improve the physical and mental functioning and also the capacity of the individuals with hearing impairment to learn.

One tool that is essential and inevitable for the promotion of inclusive education is the effective management of assistive technologies in educating the needs of students. The provision of assistive technology is to improve or facilitate access to effective management of educational functionality and capability of children with special educational needs. Generally, assisted technology is seen as devices that either increase access to education or increase competence in carrying out educational tasks. Assisted technology is of different categories packaged in different forms like visual aids and devices, audio systems, communication devices, software, control devices/accessories, laptops and computers. Assisted technology determines whether inclusive education is a reality or a myth (Ikwuka, Igbokwe, Adigwe&Onimisi, 2023).

Statement of the Problem

The achievement of inclusive education has been a source of worry to the stakeholders in education and many agitations have been raised on the mode to ensure all students in a single classroom received same quality of teaching during instruction delivery by the teachers. Despite the laudable objectives of inclusive education, the aim and objective of this system of education yet to be achieved in Nigeria public secondary school. Researchers opinions revealed that teachers in public secondary school today mostly adopted lecture method in teaching which cannot promote inclusive education, because the method do not equally carry every student in classroom along especially, those with kinds of disability might find it difficult to cope in such situation. This study examined assistive technology as predictors towards achievement of inclusive education in secondary school in Ijebu-Ode Local Government Area of Ogun State.

Objectives of the Study

The main objective of the study was to examined assistive technology as predictors towards achievement of inclusive education in secondary school in Ijebu-Ode Local Government Area of Ogun State. Specifically, the study sought to:

1. identify the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode Local Government Area;
2. find out the role of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area;
3. ascertain the relationship between explanatory variable (assistive technology) and dependent variable (inclusive education) in secondary school in Ijebu-Ode Local Government Area.

Research Questions

The following research questions guided the study:

1. What are the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode Local Government Area?

2. What are the roles of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area?

Hypothesis

The following null hypothesis guided this study:

H₀: There is no significant relationship between explanatory variable (assistive technology) and dependent variable (inclusive education) in secondary school in Ijebu-Ode Local Government Area.

Methodology

A correlation research design was adopted in this study. 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 105 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: Inclusive Education and Assistive Technology Questionnaire (IEATQ) was used for data collection. The questionnaire (IEATQ) was divided 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 adoption of assistive technology in achieving inclusive education and the role of assistive technology in achieving inclusive education in secondary school.

The IEATQ 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 20 teachers in Ijebu-North East local government, Nigeria and this was done twice. The data collected were subjected to Pearson Product Moment Correlation (PPMC) and it yielded 0.92 as reliability coefficient of the study questionnaire IEATQ. 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 three trained research assistants distributed a total of 105 copies of the questionnaires to the respondents and only 101 copies were retrieved. Retrieval rate was 96.2% and used for analyzed. Descriptive statistics of mean, standard deviation and pie-chart were used for answering and presenting data on research questions 1 and 2. Research question 3 was analysed using inferential statistics of PPMC. Any mean score of 2.5 and above was regarded as agreed while any one below 2.5 regarded as disagreed. For PPMC analysis, when p_{value} is less than significance level ($p < .05$), the null hypotheses was rejected, otherwise, accepted.

Results

Research Question 1: What are the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode Local Government Area?

Table 1: Mean and standard deviation responses on the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode local government area

Items	Mean	SD	Remarks
Wrong perception on the use of assistive technology.	3.01	.697	Agreed
Infrastructural issues	2.73	.802	Agreed
Teachers in competencies in ICT usage	2.69	.888	Agreed
Teachers low awareness	2.87	.909	Agreed
Limited physical access	2.89	.873	Agreed
Inadequate product range	2.68	.849	Agreed
Procurement issues	3.19	.703	Agreed
Workplace capacity gaps	2.99	.894	Agreed
Inadequate policy	2.59	.903	Agreed
Resources insufficient	3.15	.779	Agreed
Cluster Mean	2.90		Agreed

Source: Field Survey, 2024

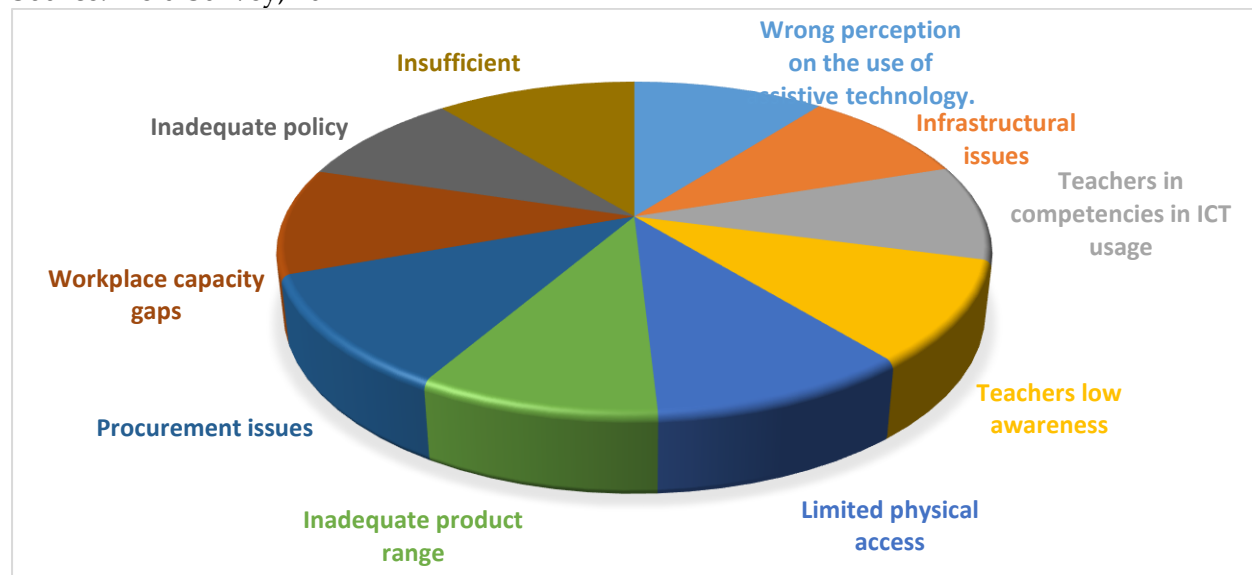


Figure 1: Pie-chart showing the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode Local Government Area

Table 1 revealed that cluster mean was 2.90 which was found to be greater than the benchmark mean value of 2.50 ($2.90 > 2.50$). The implications of this result were that wrong perception on the use of assistive technology, infrastructural issues, teachers' incompetence in ICT usage, teachers' low awareness, limited physical access, inadequate product range, procurement issues, workplace capacity gaps, inadequate policy and resources insufficient were among the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode local government area.

Research Question 2: What are the roles of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area?

Table 2: Descriptive statistics on the role of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area

Items	Mean	SD	Remarks
Remove barrier to education	2.87	.793	Agreed
Promotes equality of education and instruction to the students.	2.95	.931	Agreed
Leverage equal access to instruction delivery opportunities	2.64	.900	Agreed
Addresses cognitive lopsided opportunities for students.	2.68	.876	Agreed
Serving as a bridge to help students with diverse need navigate and interact with the digital world more easily.	3.01	.639	
Providing solutions that enhance usability and accessibility.	3.28	.702	
Cluster Mean	2.91		Agreed

Source: Field Survey, 2024

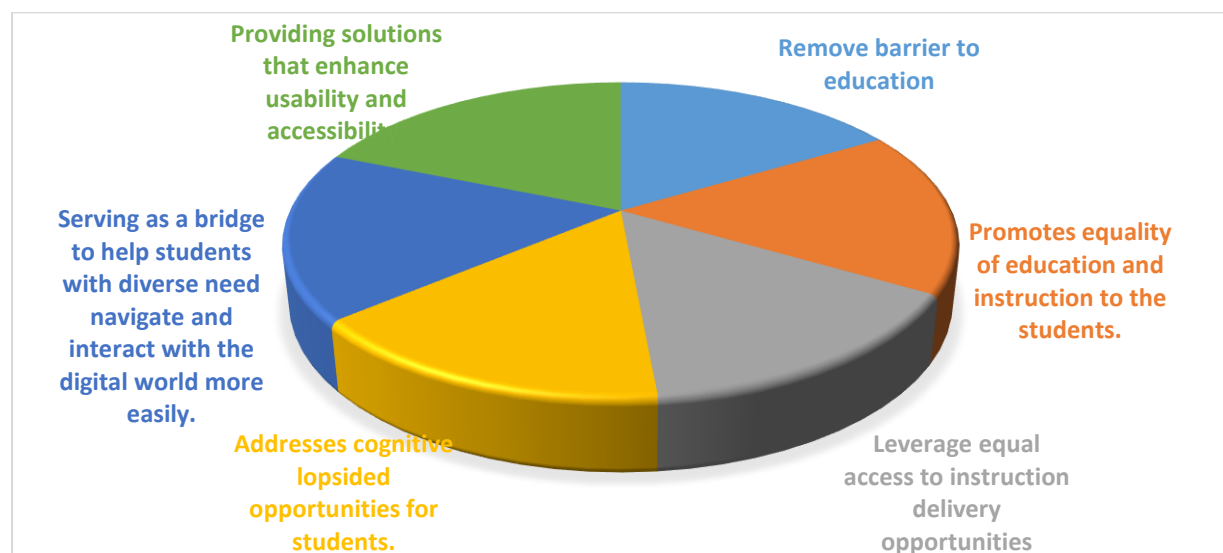


Figure 2: Pie-chart showing role of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area

Table 2 indicated that cluster mean was 2.91 which greater than the bench mark of 2.50. This further implied that remove barrier to education, promotes equality of education and instruction to the students, leverage equal access to instruction delivery opportunities, addresses cognitive lopsided opportunities for students, serving as a bridge to help students with diverse need navigate and interact with the digital world more easily as well as providing solutions that enhance usability and accessibility were among the role of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area.

H₀: There is no significant relationship between explanatory variable (assistive technology) and dependent variable (inclusive education) in secondary school in Ijebu-Ode Local Government Area.

Table 3: Relationship between explanatory variable (assistive technology) and dependent variable (inclusive education) in secondary school in Ijebu-Ode Local Government Area

Variables	Mean	SD	r-value	df	p-value	Remark
Inclusive education	25.3133	2.77778	.620	99	.0000	Significant
Assistive technology	19.7425	2.64620				

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 the explanatory variable and the dependent variable in the order of ($r = 0.620$, $P < .05$). About 62% increases in inclusive education could be attributed towards adoption of assistive technology.

Discussion of Findings

The findings of the study revealed that wrong perception on the use of assistive technology, infrastructural issues, teachers in competencies in ICT usage, teachers' low awareness, limited physical access, inadequate product range, procurement issues, workplace capacity gaps, inadequate policy and resources insufficient were among the challenges facing adoption of assistive technology in achieving inclusive classroom in secondary school in Ijebu-Ode local government area. It was also indicated that remove barrier to education, promotes equality of education and instruction to the students, leverage equal access to instruction delivery opportunities, addresses cognitive lopsided opportunities for students, serving as a bridge to help students with diverse need navigate and interact with the digital world more easily as well as providing solutions that enhance usability and accessibility were among the role of assistive technology in achieving inclusive education in secondary school in Ijebu-Ode Local Government Area. About 62% increases in inclusive education could be attributed towards adoption of assistive technology. These findings corroborate with Ukala and Adieme (2024) as well as Shyman (2020) who found that assistive technology enhance inclusive education while Raskind (2018) stated lack of skills on the part of teachers among the challenges facing assistive technology usage in secondary school.

Conclusion

Having examined assistive technology as predictors towards achievement of inclusive education in secondary school in Ijebu-Ode local government area of Ogun State, the study concluded that there is no doubt that inclusive education is impossible without the employment and utilization of assistive technology.

Recommendations

The following recommendations are provided from this study:

1. Government and NGO should collaborate to equip secondary school with Assistive technology software.
2. Stakeholders in education should help secondary school to sponsor training programme for teachers on the needed competencies for effective usage of assistive technology for instruction delivery.
3. Government should double efforts in ensuring that true inclusion is practiced in the secondary education system by ensuring that there are adequate human, material and

financial resources that will enable the principals to effectively implement inclusive education.

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