

Computer-Assisted Instruction and Teachers' Attitudes towards Special Needs Education in Public Secondary Schools in Ezinihitte Mbaise Local Government Area of Imo State

Okolie Maryann Chioma

Department of Computer Science Education, Imo State University, Owerri.

Ibeabuchi, Glory Ifeyinwa

Uche Opara

Department of Special Needs Education

Alvan Ikoku Federal University of Education Owerri.

E-mail: ibeabuchiglory@yahoo.com, oparauche690@gmail.com

ABSTRACT

The study investigates computer-assisted instruction and teachers' attitudes toward special needs education in public secondary schools in Ezinihitte Mbaise Local Government Area of Imo State. The research design was a descriptive survey. The population comprised all the one thousand, two hundred and thirty-four (1,234) secondary school teachers in the eighteen (18) government-owned secondary schools in Ezinihitte Mbaise LGA of Imo State. Eighty (80) teachers were selected based on a simple random sampling technique. The Computer Attitude Scale (CAS) was the research instrument for data collection. The data were analyzed using mean and standard deviation. The results showed that teachers have a positive attitude. It is recommended, among others, that the school management should provide teachers with regular training and support to develop their computer skills and confidence in using CAI.

Keywords: *Teachers' attitude, computer-assisted instruction and special needs education*

INTRODUCTION

The effective use of technology in education has become a fundamental milestone to enhance the quality of teaching and learning processes, especially in Nigeria. The study's interest in the use of technology is Computer-Assisted Instruction (CAI). Computer-Assisted Instruction (CAI) refers to the use of computers to deliver, facilitate, and enhance educational instruction. It encompasses a range of instructional tools and programs, including tutorial software, drill-and-practice programs, simulations, educational games, interactive multimedia, as well as testing and assessment tools (Usman, 2020; Ghavifekr & Rosdy, 2015). CAI resources are computer-based tools for teaching, informing, communicating, and processing the needs of an institution.

Computer-Assisted Instruction involves computer hardware and software, the network, and other digital devices, such as video, audio, and camera, which convert information and resources (text, sound, motion, etc.) into digital form (Moursund & Bielefeldt, 2019).

The importance of CAI in empowering teachers and learners and enhancing teaching and learning has been highlighted in several studies. The potential of CAI to facilitate students' learning and improve teaching has been established by various researchers (Kazu & Yavulzalp, 2008; Kirschner & Woperies, 2003). Successful integration of CAT resources in the school system depends largely on the competence and right attitude of teachers towards the role of modern technologies in teaching and learning. Furthermore, CAI resources provide enormous tools to enhance teaching and learning. Many studies have highlighted the various ways that CAI resources support teaching and learning processes in a range of disciplinary fields, such as the construction of new opportunities for interaction between students and knowledge, accessing information, etc.

CAI can improve teaching and learning when used with the right resources, training, and support. CAI can meet the needs of individual students, promote equal opportunity, offer learning materials, and encourage interdependent learning (Teo, 2008). Teachers must be ready to provide technology-supported learning and need digital skills. Computer-assisted instruction is now common in education, providing interactive and engaging experiences. This creates the need to integrate information and communication technology (ICT) into daily classroom instruction for efficiency, quality, and cost-effectiveness (Skanz-Aberg et al., 2022).

Teachers must be prepared to provide technology-supported learning opportunities for their students and, therefore, need to have adequate skills and digital competence themselves. Computer-assisted instruction has become increasingly widespread in our education system, offering interactive and engaging learning experiences, creating a need to integrate information and communication technology (ICT) in regular classroom instruction, efficiency, quality, and cost-effectiveness (Skanz-Aberg et al., 2022). Shuler (2009) posits that CAI devices capitalize on the personalization capabilities of the devices to make learning more accessible. CAI devices have bridged learning in school, after-school, and home environments. Similarly, Shih & Mills (2007) and Pollara (2011) agree that the potential uses of CAI teaching and learning in the classroom can do more than foster communication and aid in the exchange of information. They identify several potential advantages of CAI.

1. CAI learning helps teachers improve their literacy and numeracy skills and recognize their existing abilities.
2. It helps teachers to increase their understanding of the material/curriculum content.

3. It helps teachers to act as a good assessment tool for them to identify areas where they need assistance and support
4. CAI can be used to encourage both independent and collaborative teaching experiences.
5. CAI helps to remove some of the formality from the learning experience and engages reluctant teachers to express themselves and their ideas in a manner that is most comfortable to them.
6. CAI helps teachers to remain more focused for longer periods in class.
7. CAI helps to raise self-esteem/self-confidence.
8. Mobile learning helps to increase students' motivation.

Furthermore, the use of CAI in education could also lead to increased innovation and productivity because a digitally literate workforce is crucial for economic growth and development in today's technology-driven world. As an electronic and labour-saving device, a computer can store and retrieve information; it can also accept, process, and analyze data to generate information in a specified format for immediate or later use (Abdulsalam & Olokooba, 2021; Ema & Ajayi, 2004). Ekpo (2004) opined that teaching in the ICT age necessitates new roles as managers and leaders of instruction.

Computer-assisted instruction is an automated instructional method in which a computer is used to present learning materials to the learner through an interactive process under the guidance of a teacher. Through personalized learning experiences, CAI enables students to progress at their own pace, leading to better understanding and retention of information, and equips them with lifelong learning (Abdulsalam & Olokooba, 2021). The CAI is a digital learning approach that was developed at Stanford University in the late 1960s to promote classroom teaching and learning (Dap-og & Orongan, 2021). It has been argued that the effectiveness of students' computer-based learning is largely dependent on their teachers' attitudes and readiness to adopt technology (Teo, 2008).

Attitude has been defined as the sum of a person's feelings or disposition toward other people, objects, events, and situations (Khalid, 2013); it can be either a positive or negative influence on what people do and reveal who they are. Therefore, attitude is a determining factor of people's behaviour (Khline, 2001). An attitude is defined as a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events, or symbols (Hogg & Vaughan, 2005).

In the educational environment, teachers' or students' attitudes play a role in the achievement of objectives. The attitudes of teachers play a prominent role in educational and instructional choices, as such, are fundamental in examining the outcome of technological integration in the classroom (Becker, Ravitz, & Wong, 2019; Albion & Ertmer, 2020). Fishbein and Ajzen (1975) emphasize the learned nature of attitudes; an attitude is a learned predisposition to respond in a consistently favourable or

unfavourable manner to a given object. Eagly and Chaiken (1993) defined attitude as a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour. Marija and Palmira (2007) suggested five reasons for teachers to use CAI resources in education: namely, motivation, distinctive instructional abilities, higher productivity of teachers, essential skills for the information age, and support for new teaching techniques. To use CAI resources in the classroom effectively, teachers' attitude toward technology should be positive, and they should be trained in using modern technologies in the field of education.

Positive attitudes toward technology integration enhance learning; negative attitudes constrain it. This does not necessarily mean that only teachers with positive attitudes should be included in technology training activities. It means that negative attitudes among participants need to be valued and addressed, and that positive attitudes should be encouraged and developed. Teachers often recognize that their students need additional input and output activities to help them continue to improve their critical thinking skills (Albion & Ertmer, 2020). Guskey (1989) stated that as the teacher plays a key role in classroom change and teachers tend to accept only changes that they perceive as facilitating their work, exploring teachers' attitudes toward CAI integration is necessary. Woodrow (2020) observed that the infusion of computer technology into the school curriculum has the potential to change educational practices.

However, to successfully change traditional instructional practices, teachers must have positive attitudes toward the educational issues involved. If teachers are resistant to change, the proposed curricular and procedural changes will have a slim chance of success. This is true of any educational innovation, but it is particularly true of technology use in education because the change involves both the acquisition of new technology skills and pedagogies (Woodrow, 2017). Teachers' attitudes toward the pedagogical use of computers were measured by Allan and Will (2001). Teachers' attitudes are a major enabling/disabling factor in the adoption of technology (Bullock, 2004). Similarly, Kersaint, Horton, Stohl, and Garofalo (2003) found that teachers who have positive attitudes toward technology feel more comfortable using and incorporating it into their teaching. Woodrow (2017) asserted that any successful transformation in educational practice requires the development of a positive attitude toward the new technology. The development of teachers' positive attitudes toward ICT is a key factor not only for enhancing computer integration but also for avoiding teachers' resistance to computer use (Watson, 2018).

There is a positive relationship between computer technology training and teachers' attitudes (Becker et al., 2019; Gobbo & Girardi, 2001). Training can significantly impact how a teacher adapts technology tools in the classroom. In an examination of teaching styles and technology integration in Nigeria, results appeared to indicate that both personal theories of teaching and the level of competence with

technology play a major role in how teachers implement technology and in their perception of their own and their students' motivation (Gobbo & Girardi, 2001). Teachers must be allowed to become acquainted with newly introduced technologies.

Computer experience has been the most commonly cited variable correlated to positive attitudes (Woodrow, 2017). For example, Woodrow (2017) reported correlations between computer experience and attitudes toward technology. It has been suggested that attitudes towards computers affect teachers' use of computers in the classroom and the likelihood of benefiting from training. Positive attitudes often encourage less technologically capable teachers to learn the skills necessary for the implementation of technology-based activities in the classroom.

The success of any initiatives to integrate CAI in classroom life depends strongly upon the support and attitudes of the teachers (Teo, 2008). Teachers' attitudes affect the use of technology in instruction; they guide the decisions teachers make and the actions they take in the classroom. The results of those studies support the evidence that teachers' beliefs influence how they organize their classrooms, interact with students, and act in the classroom (Teo, 2008).

Statement of Problem

Although teachers have concerns, anxieties, and fears about computer technology and its effectiveness in classroom teaching, their attitudes and interest are high. Most teachers are positive about the effectiveness of computer-assisted instruction (CAI) and its integration into classroom teaching. To them, computers can serve as instructional tools to enhance and motivate students in their learning. Some other teachers are uncertain about whether computer technology works as the public has assumed it does. They are reluctant to use it before its effectiveness is demonstrated. The problem is that even those teachers who have positive attitudes toward computer technology do not necessarily utilise computers available in their instruction, let alone those who know nothing about whether computer technology works as the general public expects. Therefore, it is of significance to investigate what teachers think about CAI, what factors influence their attitudes toward computer technology, and, most of all, why they haven't used computers regularly in their teaching and how to direct their attitudes in a positive direction to help them overcome their anxieties about CAI and achieve the fullest potential of technology and show its effectiveness in education.

Purpose of the Study

The main purpose of the study was to investigate teachers' attitudes towards computer-assisted instruction. Specifically, the study seeks;

- i. To find out teachers' attitudes towards the use of computer-assisted instruction (CAI) as a pedagogical tool in teaching.

- ii. To find out the extent teachers use computer-assisted instruction (CAI) as a pedagogical tool in teaching?
- iii. To find out the factors affecting teachers' attitudes towards the use of computer-assisted instruction (CAI) as a pedagogical tool in teaching.

Research Questions

The study was guided by the following research Questions;

1. What are the teachers' attitudes towards the use of computer-assisted instruction (CAI) as a pedagogical tool in teaching?
2. To what extent teachers use computer-assisted instruction (CAI) as a pedagogical tool in teaching?
3. What are the factors affecting teachers' attitude towards use of computer-assisted instruction (CAI) as a pedagogical tool in teaching?

METHOD

The research design used for the study is a descriptive survey. It is a scientific method that requires discovering and describing the behaviour of a subject without influencing it in any way. The study is carried out in Government Secondary Schools in Ezinihitte Mbaise Local Government Area, Imo State, Nigeria. The population comprises all eighteen (18) Public Secondary Schools in Ezinihitte Mbaise Local Government of Imo State, with a total of one thousand, two hundred and thirty-four (1,234) teachers as obtained from the Secondary Education Management Board (SEMB), Owerri. The sample is made up of two hundred and eighty (280) teachers sampled from nine (9) Secondary Schools out of the eighteen (18) Secondary Schools. A simple random sampling technique was used in selecting the schools and teachers. The instrument for data collection was a structured questionnaire, titled: Computer Attitude Scale (CAS). The instrument contains two sections, A and B. Section A seeks information on Teachers' demographic characteristics, such as name, gender, class level and section B has three (3) sub-sections that asked questions on the variables of the study consists of 27 items on a four-point scale with options ranging from Strongly Agree (4 points), Agree (3 points), Disagree (2 points) and Strongly Disagree (1 points). The face and content validity of the questionnaire was determined by two experts from Measurement and Evaluation and one expert from the Computer Education Departments of Alvan Ikoku Federal University of Education, Owerri. They were asked to make corrections on grammar and ensure each of the items is specific. Their advice was sorted in terms of scope of coverage, content validity, and clarity of expression in the instrument. They made certain observations, and their corrections were used to review the CAS. The reliability of the test was determined using test re-test method, in which 30 teachers outside the study population were first administered, and after two weeks, the same instrument was repeated. The data generated were subjected to Pearson Product-Moment Correlation (PPMC). A reliability index of 0.70 was realized, showing a high reliability. The data collected were analyzed using the mean and standard deviation.

RESULTS

Table 1: Mean and Standard Deviation on teachers' attitudes towards the use of computer-assisted instruction (CAI) as a pedagogical tool in teaching

S/N	Items	Mean	SD	Remarks
1	I am encouraged to make use of CAI in my teaching.	2.6	1.2	Accepted
2	I am encouraged to use e-mails in the creation of more information between my students and I.	2.2	0.9	Accepted
3	I enjoy using CAI in teaching	3.1	1.0	Accepted
4	I know that CAI can help me to learn many to new things.	3.1	0.9	Accepted
5	I believe that CAI makes the subject more interesting and more systematic.	2.9	1.0	Accepted
6	I believe that CAI can really improve my teaching practice.	3.3	0.8	Accepted
7	I feel very confident when it comes to working with technology in the class.	2.3	0.9	Accepted
8	The use of ICT in teaching requires high administrative support and time.	3.1	1.2	Accepted
9	The use of ICT in teaching leads to greater student involvement in the teaching and learning process.	2.7	1.1	Accepted
10	I feel confident in working with my students in the digital environment.	3.4	0.8	Accepted

Table 1 indicates that teachers have positive attitudes towards the use of CAI as a pedagogical tool since most respondents felt confident in working with students in the digital environment and believed that ICT can improve their teaching practice at the mean of 3.35 and 3.28 respectively. None of the item was confirmed as rejected. This confirms that teachers were ready to use CAI as a pedagogical tool in teaching.

Table 2: Mean and Standard teachers use computer-assisted instruction (CAI) as a pedagogical tool in teaching

S/N	Items	Mean	SD	Remarks
11	I can create visual presentation, graphics, charts, drawings and type assignments for students by using CAI.	1.7	0.7	Rejected
12	I can download teaching materials regarding my subject.	3.2	0.8	Rejected
13	I can use computer-based programs in developing the scheme of work and lesson plan.	1.7	0.6	Rejected
14	I use email to ask and send assignments to my students if possible	1.5	0.7	Rejected
15	I am able to search for files on computer system and organize them into folders.	3.3	0.6	Accepted
16	I am able to use a learning management system (example, WebCT) to support teaching.	1.7	0.7	Rejected
17	I can connect the computer to its peripherals.	2.9	0.9	Accepted

18	I can access and share information on CD/DVD/flash disc.	3.2	0.7	Accepted
19	I can create a basic presentation package and print to various networked printers.	3.1	0.8	Accepted
20	I can set up and use Liquid Crystal Display (LCD) or Multimedia Projector for classroom delivery.	2.0	0.5	Rejected

Table 2 indicates that few teachers use CAI as a pedagogical tool since most of the items were confirmed as strongly disagree at the mean of 1.73, 1.72 and 1.57. The most disagreed item was the use of email to ask and share assignments with students. This confirms that teachers do not use digital learning tasks to facilitate their teaching and improve their pedagogy.

Table 3: Mean and Standard Deviation on factors affecting teachers' attitude towards use of computer-assisted instruction (CAI) as a pedagogical tool in teaching

S/N	Items	Mean	SD	Remarks
21	Lack of constant power supply	3.0	1.1	Accepted
22	Lack of computer knowledge by teachers	3.1	1.2	Accepted
23	Lack of relevant software	3.2	1.4	Accepted
24	Poor Maintenance Culture	3.2	1.4	Accepted
25	Inadequate funding of the education sector	3.0	1.1	Accepted
26	Policy inconsistencies	3.1	1.2	Accepted
27	Teachers' attitudes	3.1	1.2	Accepted
28	Anxiety	3.3	1.5	Accepted

Table 3 indicated that all the items scored above 2.50. This implies that Lack of constant power supply, Lack of computer knowledge by teachers, Lack of relevant software Poor Maintenance Culture, Inadequate funding of the education sector, Policy inconsistencies, Teachers' attitudes and Anxiety are the factors affecting teachers' attitude towards use of computer-assisted instruction (CAI) as a pedagogical tool in teaching.

Teachers' attitudes towards the use of computer-assisted instruction (CAI) as a pedagogical tool in teaching

Results indicated that teachers have positive attitudes towards the use of CAI as a pedagogical tool since most respondents felt confident in working with students in the digital environment and believed that ICT can improve their teaching practice at the mean of 3.35 and 3.28 respectively. None of the item was confirmed as rejected. This confirms that teachers were ready to use CAI as a pedagogical tool in teaching. This result is in line with the findings of Simonson (2008) revealed that, teacher's skills and attitude were related to their use of computers in teaching and learning. The more skilled teachers were

in computer use the more likely they were to use it in teaching and learning in the classroom. Drent & Meelissen (2008) revealed that positive attitude, personal entrepreneurship and computer experience had a direct positive influence on adoption and use of ICT by teachers. Huang & Liaw (2008) showed that teacher's skills and attitudes influenced their acceptance of the usefulness of ICT and its implementations in schools.

Teachers' use of computer-assisted instruction (CAI) as a pedagogical tool in teaching

Results indicated that teachers do not use digital learning tasks to facilitate their teaching and improve their pedagogy. This result is line with the findings of Doering, Hughes and Huffman (2003), who analyzed teachers' perspectives regarding ICT in their future classrooms before and after participation in a teacher preparation program. Prior to taking the preparation courses, teachers were doubtful about the utility of CAI in the classroom, implying that they would closely examine and consider technology integration, rather than blindly incorporate it into their teaching practices. Results indicated no use of technology tools in education

Factors affecting teachers' attitude towards use of computer-assisted instruction (CAI) as a pedagogical tool in teaching

Results indicated that Lack of constant power supply, Lack of computer knowledge by teachers, Lack of relevant software Poor Maintenance Culture, Inadequate funding of the education sector, Policy inconsistencies, Teachers' attitudes and Anxiety are the factors affecting teachers' attitude towards use of computer-assisted instruction (CAI) as a pedagogical tool in teaching. The finding is in line with Kathryn MacCallum, Lynn Jeffrey, & Kinshuk (2014): Teachers' skills to use and integrate digital technology into their teaching digital literacy. Okoro (2018) reported that lack of in-service training and insufficient technological infrastructures were the factors that have a significant influence on the effective use of technology by instructors.

CONCLUSION

The study concludes that teachers have positive attitude but do not use digital learning tasks to facilitate their teaching and improve their pedagogy due to some factors.

Recommendations

1. Provide teachers with regular training and support to develop their computer skills and confidence in using CAI.

2. Encourage teachers to develop a positive attitude towards computers and CAI, as this is a strong predictor of their willingness to use CAI in the classroom.
3. Ensure that schools have the necessary infrastructure, including computers, internet connectivity, and software, to support the effective use of CAI.
4. Integrate CAI into the curriculum to ensure that it is used in a way that supports student learning outcomes.
5. Regularly monitor and evaluate the effectiveness of CAI in the classroom to identify areas for improvement.
6. Address teachers' anxiety and resistance to using CAI by providing them with opportunities to practice and become comfortable with the technology.
7. Encourage teachers to collaborate with each other to share best practices and ideas for using CAI in the classroom.
8. Provide teachers with incentives, such as recognition or rewards, for effectively using CAI in the classroom

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International Journal of Natural and Practical Sciences

Volume 7, Number 2, August 2025

ISSN(p): 2350-2150 ISSN(e): 2795-3076

Published By

International Centre for Integrated Development Research, Nigeria

In collaboration with

Copperstone University, Luanshya, Zambia

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