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ASSESSING TEACHERS AND STUDENTS PERCEPTION OF COMPUTER ADAPTIVE TESTING (CAT) IN EDUCATIONAL ASSESSMENT IN SENIOR SECONDARY SCHOOLS IN OWERRI, IMO STATE

Ezechukwu, Ifeoma R., Ordua, Victor N., Ojedapo, David O. & Otumegwu Tina U.

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Abstract

Despite many advantages of Computer Adaptive Testing (CAT) and its wide adoption some stakeholders particularly teachers and students are reluctant to transit from paper-based testing to computer-based testing. This study assessed teachers and students perception of Computer Adaptive Testing (CAT) in educational assessment in senior secondary schools in Owerri, Imo State. The study adopted non-experimental design. Population of the study comprised 830 SS3 students and 152 Teachers in senior secondary schools. Simple random sampling technique was used to select 120 SS3 students and 35 teachers from five schools. Four research questions and two hypotheses were developed for the study. Two research instruments titled "Teachers' Perception of Computer Adaptive Testing and its Challenges Questionnaire" (TPCATCQ) and "Students' Perception of Computer Adaptive Testing and its Challenges Questionnaire" (SPCATCQ) were developed and used for data collection. The instruments were face and content validated by two experts. Cronbach Alpha reliability coefficient was used to determine the instruments which yielded reliability coefficients of 0.82 and 0.86. Mean and standard deviation were used to answer the research questions while t-test was used to test the hypotheses. The results revealed among others that both teachers and students had positive perception towards Adoption of Computer Adaptive Testing (CAT) in educational assessment. The study concluded that Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools is indispensible. Based on these findings, it was recommended that State government should ensure that Computer Adaptive Testing (CAT) in educational assessment is encouraged by providing necessary infrastructures.

Keyword: Perception, Computer adaptive testing (CAT), Educational Assessment

Introduction

Education is a systematic process of instruction designed to transmit knowledge and cultivate skills, goes beyond mere information transfer. As Vin-Mbah (2012) suggests, it's about shaping individuals' behaviour for the betterment of society. This ongoing development equips them with relevant knowledge, abilities, and habits that empower them to meaningfully contribute. Teaching, on the other hand, is the guiding hand that helps individuals acquire or refine skills, attitudes, knowledge, and ideas. Vin-Mbah (2012) again emphasizes its all-encompassing role in human resource development, fostering individual and economic growth. Here, the teacher's mission is to spark these desirable changes in students' behaviour and tendencies. Ejimaji and Ojedapo (2017) delve deeper, defining teaching as a deliberate and ethical effort by experienced individuals to impart information, knowledge, and skills to those less experienced. Effective teaching hinges on the teacher's ability to successfully transfer this desired knowledge to students. This involves creating a safe space where students can question their existing realities and embrace new learning about the world. Broadly speaking, teaching is the facilitator, the process that paves the way for learning. Learning itself is the transformation of behaviour patterns – acquiring new ones, strengthening existing ones, or letting go of outdated ones – all through practice. As Benabdallah and Bourgault (2021) note, learning encompasses changes in behavior, attitude, knowledge, and skills. Selecting the

most suitable learning activities to achieve educational goals falls on the teacher's shoulders. But teaching goes beyond just meeting curriculum objectives; it fosters the development of values and guides students in their social interactions. Ultimately, the success of teaching is measured by the learning it ignites. A teaching process that doesn't result in learning is ultimately futile; without quality teaching, meaningful learning remains limited (Vin-Mbah, 2012).

Ensuring high-quality education requires constant monitoring of both teaching methods and student learning. One key way to achieve this is by evaluating student learning outcomes. Tests and other assessment tools are not just used to give grades; they play a crucial role in guiding, directing, and monitoring student progress throughout the learning process (Ejimaji & Ojedapo, 2017). This ongoing monitoring, which encompasses testing, measurement, assessment, and evaluation, helps educators ensure students achieve the intended course objectives. A test is set of questions, tasks or problems intended to measure an individual's knowledge, skill, aptitude, intelligence etc. According to Nwana (2008: 2), "testing refers to posing questions to pupils and students in an effort to determine whether or not they have good knowledge and understanding of what has been taught to them in the classroom". Testing is a systematic process where a set of questions, tasks, or problems are presented to individuals (testees) who respond either orally, in writing, or even through performance, all within a specific timeframe. This plays a vital role in education, with various formats like verbal tests (delivered orally with no written response required) and written tests (answered with pen or pencil on paper). As Ejimaji and Ojedapo (2017) note, a specific type of written test is the paper-pencil test (PPT), where written, printed, or drawn problems or questions are answered on paper.

Assessment is the process of using the results from measurement to take decisions about the object of assessment. Ojerinde (2014) argues that assessment sits at the very center of education. It's more than just measurement; it provides the reasoning and justification behind evaluations (Anikweze, 2010). Because of this, assessment is woven into the fabric of teaching and learning, with the goal of directly impacting how students progress. If an assessment doesn't contribute to this process, then it might be unnecessary altogether. Educational assessment is an important aspect of school-based assessment strategy which encompasses the design, administration and scoring of measuring instruments. Educational assessments, while valuable, can have unintended consequences. Ejimaji and Ojedapo (2017) highlight that they can induce test anxiety, dampen motivation for deeper learning, and erode students' self-esteem and self-efficacy, particularly for those already struggling. This can be further amplified by a student's receptivity to the stimuli, which is influenced by their existing knowledge, beliefs, attitudes, and overall approach to learning.

Perception is the way individuals view things. Therefore teachers' perception of computer adaptive testing indicates the way they think about it or the impression they have of it. This means perception influences opinions, understanding, experience, judgment and their ways of responding to situations. Perception acts as a bridge between a teacher and their surroundings. It allows them to take in sensory information from the environment and use it to interact meaningfully. Özden et al. (2014) view perception as a kind of lens, shaping how individuals see the world around them. In their view, it's a way of understanding reality and experiences through the senses, enabling teachers to distinguish figures, forms, language, behavior, and actions within their classrooms.

The perception of the world is not a passive recording of sights, sounds, and smells. Instead, it's an active process where people interprets and organises those sensations to create a meaningful experience (Jimoh, Shittu, &Kawu, 2012). Changes in what people learn, how they learn, where they learn, occasioned by emergence of technology, led to changes in educational assessment processes. However, educational assessment method involving whole or part of Information Communication Technology (ICT) is on the increase. New assessment techniques use ICTs to provide students with different modality of instruments

and create room for individualized instructions. It helps students adjust to their attention span and provide valuable and immediate feedback for literacy enhancement (Oduntan, Ojuawo & Oduntan, 2015).

Most successful educational assessment rely on ICT to facilitate the process. According to Abubakar and Adebayo (2014), ICT helps teachers generate needed information (data) by using testing and non-testing techniques, then analyzing the data and finally making judgments and decisions. ICT also allows teachers to collect, record, organize and store students' responses. Analyzing data and reporting the results of the students are key components of assessment. Teachers can use ICT such as statistical software's to analyze data collected from students to work out their results. One of the assessment methods that involve ICT and which is the trust of this study is Computerised Adaptive Test (CAT).

Computerised Adaptive Testing (CAT) personalises the testing experience for each individual. Unlike traditional tests with a set sequence of questions, CAT uses an algorithm to adjust the difficulty of questions based on the test-taker's performance. This approach aims to achieve a more accurate assessment of a student's ability while streamlining the testing process.CAT relies on a pool of test items with varying difficulty levels. The test begins with a question of medium difficulty, and based on the student's answer (correct or incorrect), the computer selects the next question that best matches their estimated ability level. This back-and-forth continues until the CAT system reaches a statistically reliable estimate of the student's ability, or until a maximum test length is reached. Compared to traditional methods, CAT offers the advantage of shorter testing times while still providing a precise measurement of a student's knowledge. This efficiency and effectiveness make CAT a superior tool for assessing student ability.

Successful implementation of Computerized Adaptive Testing (CAT) hinges on both teachers and students possessing some level of computer literacy. This fluency allows them to effectively navigate the software, identify any issues, extract data, evaluate problems, and ultimately find solutions. Fortunately, computer literacy empowers individuals to tackle a wide range of tasks in various ways. For students taking a CAT, the dynamic nature of the test (questions adjust based on ability) can actually make self-regulation easier to maintain. Sirghea (2020) highlights that students who are adept at self-regulating their learning will thrive in computer-based learning environments (CBLE) like CAT, whereas those who struggle with self-regulation may find themselves at a disadvantage.

The transition to Computerised Adaptive Testing (CAT) requires additional preparation for students, especially regarding strategies for navigating a new format. One key difference between CAT and traditional paper tests is the lack of flexibility. Paper tests allow students to see the entire test at once, mark-up questions, underline, and eliminate answer choices (Boevé et al., 2015). CAT, depending on the platform, might restrict these functionalities. This shift to digital testing also raises concerns about readability and student interaction with the material. Teachers worry that digital text might be harder to read, limiting a student's ability to process information and apply learning across different materials (Worrell et al., 2016). Additionally, highlighting and making notes, strategies commonly used on paper tests, might be limited in a digital format. To address these challenges, students should be exposed to practice CATs with various formats. This exposure allows them to develop strategies to overcome limitations. For instance, some CATs offer a "flagging" option, allowing students to revisit a question later. Familiarizing themselves with these test options beforehand can be very helpful.

Studies on the benefits of computer-based instruction (CBI) suggest educators and policymakers might be more receptive to CAT. Research like Grant et al. (2015) shows promise for using mobile devices in classrooms, and Flowers et al. (2011) found students generally prefer CBT to paper tests. Even students believe they perform better on CATs (Jamil et al., 2012). Teachers, however, have mixed feelings. While Jeong (2014) highlights advantages like accurate scoring and immediate feedback in computer-based tests, some teachers still prefer

paper-and-pencil tests (Jamil et al., 2012). Interestingly, teachers with stronger computer literacy tend to be more positive about these tests (Jamil et al., 2012). The biggest hurdle to implementing CAT seems to be access to technology. Studies by Oduntan, Ojuawo and Oduntan (2015) and Empirica (2016) point to lack of computers and appropriate materials as major barriers. Ekpenyong, Ogbeide and Robinson (2012) even identified a shortage of trained personnel to support the technology. Teacher characteristics like gender, age, and computer efficiency also play a role. Cavas et al. (2019) found teacher attitudes toward using technology varied with age and computer literacy, though not gender. Interestingly, science teachers specifically tend to have a more positive view of ICT (Özden et al., 2014). Student experience seems to be a key factor in online assessments. Özden et al. (2014) found that experience itself didn't necessarily impact student growth, suggesting proper introduction and practice with the format might be crucial.

In recent times, the application of computer is gaining acceptance in many fields of human endeavors such as engineering, banking, information technology, laboratory science and education. In the field of educational assessment, some stakeholders, mainly teachers and students, who are used to the traditional paper- based testing method are reluctant to change to computer based testing method called Computer Adaptive Testing (CAT). In spite of this opposition and owning to the many advantages of computer adaptive testing method, many education policy makers and administrators are pushing for the full implementation of computer adaptive testing. Consequently, within the education sector, there appears to be two groups with different perceptions of computer adaptive testing method. Despite the many advantages of Computer Adaptive Testing (CAT) and its wide adoption by many schools, some stakeholders particularly teachers and students are reluctant to transit from paper-based testing to computer-based testing. This study therefore focused on assessing the perception of teachers and students towards Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State.

Purpose of the study

The general purpose of the study was to assess teachers and students perception of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. Specifically, the study sought to ascertain the:

1. teachers' perception of CAT in educational assessment.
2. students' perception of CAT in educational assessment.
3. perceived challenges faced by teachers from adoption of CAT in educational assessment.
4. perceived challenges faced by students from adoption of CAT in educational assessment.

Research Questions

In the light of the above, this study seeks to answer the following research questions:

1. What are the teachers' perceptions of CAT in educational assessment?
2. What are the students' perceptions of CAT in educational assessment?
3. What are the perceived challenges faced by teachers from adoption of CAT in educational assessment?
4. What are the perceived challenges faced by students from adoption of CAT in educational assessment?

Hypotheses

The following null hypotheses was formulated and tested at 0.05 alpha level.

Ho1: There is no significant difference between teachers' gender and perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State.

Ho2: There is no significant difference between students' gender and perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State.

Methodology

The study adopted non-experimental survey research design. According to Ezechukwu, Ihiegbulem, Nwaji, Ejimaji, Ojedapo and Ukofia (2020), survey research is used to gather different types of information for the purpose of describing and interpreting on-going processes, belief and prevailing practices. The study was carried out in Owerri Education Zone II, Imo State in Nigeria. Owerri is the capital city of Imo State and Imo State is made up of twenty seven (27) Local Government Areas and six Education Zones - Owerri I, Owerri II, Orlu I, Orlu II, Okigwe I and OkigweII."Population of the study comprised 830 SS3 students and 152 Teachers Education Zone II, Owerri (Source: Zonal Secondary Education Management Board (ZSEMB) Owerri). 120 SS3 Students and 35 SS3 Teachers were sampled using simple random sampling technique while 5 Secondary Schools were selected through cluster random sampling.

Two research instruments titled "*T*eachers' Perception of Computer Adaptive Testing and its Challenges Questionnaire" (TPCATCQ) and "Students' Perception of Computer Adaptive Testing and its Challenges Questionnaire" (SPCATCQ) were developed and used for the study. TPCATCQ was made up of three sections. Section A deals with demography of the respondents, section B consisted of 6 items on teachers' perceptions of Computer Adaptive Testing (CAT) in educational assessment. Section C, comprised of 6 items on Perceived challenges faced by teachers from adopting Computer Adaptive Testing (CAT) in educational assessment. SPCATCQ was made up of two parts. Part one consisted of 6 items on students' perceptions of Computer Adaptive Testing (CAT) in educational assessment and part two consists of 6 items on Perceived challenges faced by students from adoption of Computer Adaptive Testing (CAT) in educational assessment. The instruments used a four-point likert-type of response scale ranging from Strongly Agree = 4, Agree= 3, Disagree= 2 to Strongly Disagree=1 to answer research questions for positive statements while the reverse was the case for negative statements. In taking decisions, a mean value of 2.50 - 4.00 was accepted and 2.49-0.49 was rejected. When an item was accepted or rejected, it implies that the respondents agreed or disagreed with the idea in the item as the true situation in respect of teachers and students perception of Computer Adaptive Testing (Cat) in educational assessment and vice versa.

To ensure the accuracy and reliability of the research instruments used to measure teacher and student perceptions of Computer Adaptive Testing (CAT), the researchers took several steps. First, two psychology experts from a nearby college validated the instruments for both content and face validity. Next, to assess the instruments' internal consistency, 20 copies of each instrument were administered to teachers and students from a secondary school in Rivers State. The data collected was then analyzed using Cronbach's Alpha, resulting in coefficients of 0.82 and 0.86, indicating good internal consistency. The researchers personally administered the instruments with the help of trained research assistants in each school, along with some teachers designated by the school authority. Respondents were assured of anonymity and confidentiality throughout the research process. Mean and standard deviation were used to provide answers for the research questions while t-test was used to test the hypotheses *at a significance level of 0.05*.

Results

Research Question One: What are the teachers' perceptions of CAT in educational assessment?

Table 1: "Teachers' mean responses on their perceptions of Computer Adaptive Testing (CAT) in educational assessment"

S/N	Item statement	Mean	SD	Decision
1.	"I feel my ability to use computer is high"	3.1	1.3	Agree
2.	"I think the use of computer is a very complex application among students."	3.2	1.6	Agree
3.	"I feel computer literacy of students in supporting their learning is adequate."	2.6	0.7	Agree
4.	"I feel students are capable of taking examinations using computer."	3.4	1.7	Agree
5.	"I think the use of CAT in assessment can offer a better testing experience for students than current paper and pencil testing."	2.5	0.6	Agree
6.	"I think students enjoy computer adaptive testing (CAT) examination."	3.7	1.9	Agree
	Sum of Cluster Mean	**18.5**		
	Mean of Items' Means	**3.1**		

The results on Table 1 showed teachers' perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. The result indicated that items 1, 2, 3, 4, 5 and 6 were rated as agreed based on the criterion mean of 2.50. This revealed that the mean score of items1, 2, 3, 4, 5 and 6 were greater than the criterion mean of 2.50. Also the standard deviations indicated that the scores in the distribution are close to each other and are spread out much from the mean. The Mean of Items' Means is 3.1, thus leading to the conclusion that teachers perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State *is favourable.*

Research Question Two: What are the students' perceptions of CAT in educational assessment?

Table 2: Students' mean responses on their perceptions of Computer Adaptive Testing (CAT) in educational assessment

S/N	Item statement	Mean	SD	Decision
1.	"I use computer adaptive tests confidently."	3.3	0.7	Agree
2.	"I believe I cannot use computer adaptive test confidently."	3.0	1.1	Agree
3.	"I believe computer adaptive tests are acceptable by all students."	3.2	0.7	Agree
4.	"I can take a test using a computer with confidence."	3.3	0.7	Agree
5.	"I like to take a test that gives immediate result."	2.1	1.1	Disagree
6.	"Taking an examination using a computer can be very interesting."	2.0	0.7	Disagree
	Sum of Cluster Mean	**16.9**		
	Mean of Items' Means	**2.8**		

Table 2 above shows the students' perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. This study revealed that items1-4 recorded mean scores above the criterion mean of 2.50 and were seen as agreed and items 5-6 recorded mean scores below the criterion mean of 2.50 and were seen as disagreed. The Mean of Items' Means is 2.8, leading to the conclusion that students' perceptions of Computer Adaptive Testing (CAT) in educational assessment *is favourable.*

Research Question Three: What are the perceived challenges faced by teachers in the adoption of Computer Adaptive Testing (CAT) in educational assessment?

Table 3: Perceived challenges faced by teachers in the adoption of Computer Adaptive Testing (CAT) in educational assessment.

S/N	Item Statement	Mean	SD	Decision
1.	"Internet services are installed and are available."	3.16	.48	Agree
2.	"Electrical power for educational support in the school is not reliable."	3.26	.56	Agree
3.	"Lack of reliable educational support software has contributed to slow rate of ICT adoption."	3.21	.48	Agree
4.	"Poor state of ICT interconnectivity affects its adoption."	3.13	.49	Agree
5.	"Internet access has contributed to slow rate of ICT adoption."	3.25	.53	Agree
6.	"Absence of appropriate electronic educational contents has contributed to slow rate of ICT in the school."	3.21	.51	Agree
	Sum of Cluster Mean	**19.22**		
	Mean of Items' Means	**3.2**		

The results on Table 3 showed perceived challenges faced by teachers in the adoption of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. The result indicated that all the items were above the cut-off point of 2.5 and the Mean of Items' Means was 3.2.This indicated that there is overwhelming agreement on perceived challenges faced by teachers in their adoption of Computer Adaptive Testing (Cat) in educational assessment.

Research Question **Four**: "What are the perceived challenges faced by students in the adoption of Computer Adaptive Testing (CAT) in educational assessment?

Table 4: Perceived challenges faced by students in the adoption of Computer Adaptive Testing (CAT) in educational assessment

S/N	Item Statement	Mean	SD	Decision
1.	"Readability of the digital text is a concern for students' ability to generalize across instructional materials."	3.23	.49	Agree
2.	"Students have less opportunity to interact with the text, including highlighting and annotating."	3.20	.51	Agree
3.	"Testing format may not allow students have the entire test in their hands throughout the test duration."	3.16	.45	Agree
4.	"Internet services are not available."	3.35	.54	Agree
5.	"Students cannot mark -up the questions, underline, or eliminate choices during CAT examination."	3.40	.53	Agree
6.	"Secondary schools do not have enough computers and technicians."	3.31	.49	Agree
	Sum of Cluster Mean	**19.65**		
	Mean of Items' Means	**3.3**		

Table 4 above revealed perceived challenges faced by students in the adoption of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. The result indicated that all the items were above the cut-off point of 2.5.The Mean of Items' Means was 3.3, leading to an overwhelming agreement on the perceived challenges faced by students from adoption of Computer Adaptive Testing (CAT) in educational assessment.

Hypotheses

Ho1. There is no significant difference between the male and female teachers and perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State.

Table 5: t-test of Significant Difference between Teachers' Gender and Perceptions of Computer Adaptive Testing (CAT)

Composition	N	Mean	SD	Df	t-cal	t_{crit}	Decision
Male	15	2.5	1.30				
				33	2.04	1.96	Reject
Female	20	3.1	0.83				

$P < 0.05$

Table 5 presents the significant difference between the mean ratings of the male and female teachers' perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. Using 33 as the degree of freedom, as indicated in the table, the t-calculated value of 2.04 is greater than the t-tabulated value of 1.96. This led to the decision of rejecting the null hypothesis that, there is no significant difference between the male and female teachers' perceptions of Computer Adaptive Testing (CAT) in educational assessment is rejected as t-crit or Significance Level of 1.96 is less than $t-_{tab}$ of 2.04 at chosen alpha of 0.05.

Ho2. There is no significant difference between the male and female students and perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State.

Table 5: t-test of Significant Difference between Students' Gender and Perceptions of Computer Adaptive Testing (CAT)

Composition	N	Mean	SD	Df	t-cal	t_{crit}	Decision
Male	38	2.8	1.30				
				118	1.98	1.96	Reject
Female	82	3.9	0.83				

$P < 0.05$

Table 6 shows the t-test significant difference between the mean ratings of male and female students' perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State. Using 118 as the degree of freedom, as indicated in the table, the t-calculated value of 1.98 is greater than the t-critical value of 1.96.This led to the decision of rejecting the null hypothesis that, there is no significant difference between male and female students' perceptions of Computer Adaptive Testing (CAT) in educational assessment and accepting that, there is a significant difference between the male and female students' perceptions of Computer Adaptive Testing (CAT) in educational assessment at chosen alpha of 0.05.

Discussion of findings

The research indicates that teachers in Senior Secondary Schools in Owerri, Imo State view Computer Adaptive Testing (CAT) in educational assessment favorably. This means that they generally have positive attitudes toward CAT. This aligns with previous studies, such as Jamil et al. (2012), which found that teachers generally had positive views toward computer-based tests, although in some cases they preferred traditional paper-pencil tests. Additionally, teachers who are more computer literate and experienced tend to have more positive attitudes toward computer-based tests. Ekpenyong, Ogbeide & Robinson (2012) also found that while teachers' attitudes toward the use of ICT are not significantly different based on gender, they do vary based on their level of computer literacy.

The study also revealed students' perceptions of Computer Adaptive Testing (CAT) in educational assessment in Senior Secondary Schools in Owerri, Imo State *is favourable. This showed positive* students′ perceptions of Computer Adaptive Testing (CAT) in educational assessment. This finding is in consonant with Flowers, et al., (2011) which reported that students prefer CBT to PPT, and that students believed they performed better using the computer.

The study highlighted the challenges that teachers encounter when adopting Computer Adaptive Testing (CAT) for educational assessment in Senior Secondary Schools in Owerri, Imo State. There was a consensus among participants regarding these challenges. This aligns with Empirica's (2016) findings, which identified the lack of access to new technologies as the primary barrier. Additionally, teachers reported various challenges in using ICT for teaching, such as a shortage of computers and insufficient materials. Jeong's (2014) research also emphasized the importance of adopting Computer Adaptive Testing (CAT) for educational assessment in secondary schools.

The study identified challenges that students encounter when adopting Computer Adaptive Testing (CAT) for educational assessment in Senior Secondary Schools in Owerri, Imo State. There was a strong consensus among participants regarding these challenges. This aligns with Ekpenyong, Ogbeide & Robinson's (2012) findings, which highlighted shortages in trained personnel for software application, systems operation, administration, technicians for servicing and repairing computer facilities, and network availability.

Conclusions

The research indicated that teachers view Computer Adaptive Testing (CAT) in educational assessment favourably, meaning that teachers generally have positive attitudes toward CAT. The research also *showed that* students′ perceptions of Computer Adaptive Testing (CAT) in educational assessment are *positive*. Additionally, the perceived challenges faced by teachers and students in the adaptation of Computer Adaptive Testing (Cat) in educational assessment are numerous. The study concluded that CAT is essential in educational assessment for Senior Secondary Schools in Owerri, Imo State.

Recommendations

In view of the findings of this study, the following were recommended:

1. State government should ensure that Computer Adaptive Testing (CAT) in educational assessment is encouraged *by providing more computers and technicians to operate ICT facilities.*
2. Ministry of Education should ensure that *both teachers' and students' positive attitudes towards the use of* Computer Adaptive Testing (CAT) are sustained by removing all their perceived fears and challenges from the adoption of Computer Adaptive Testing (CAT).
3. Schools and teachers should engage in teaching students computer-literacy skills in their early primary levels, so that they can use the computer functions efficiently to identify problems, extract data, evaluate and solve problems.

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