IMPACT OF ICT FACILITIES ON THE EFFECTIVE IMPLEMENTATION OF ECONOMICS CURRICULUM IN TERTIARY INSTITUTIONS IN ENUGU STATE

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Abstract: This study assesses the availability and utilization of Information and Communication Technology (ICT) facilities in the implementation of the Economics curriculum in tertiary institutions in Enugu State, Nigeria. A descriptive survey research design was employed, involving 127 respondents—39 lecturers and 88 students—from five tertiary institutions. The findings reveal that while 60% of institutions have desktop computers available for teaching Economics, only 40% have projectors, and no institutions had interactive whiteboards. Moreover, internet access was available in only 60% of the institutions. Despite these resources, ICT tools are underutilized; for instance, while computers were highly utilized (mean score of 3.20), the use of internet for student assignments was low (mean score of 2.40), and interactive whiteboards were rarely used (mean score of 1.50). The study emphasizes the need for improved ICT infrastructure, regular training for lecturers, and enhanced internet connectivity. Recommendations include strategic investments to bridge the urban-rural digital divide and policies to promote ICT integration in teaching, ultimately improving the quality of Economics education in the region.

Keywords: ICT Integration, Economics Curriculum, Tertiary Education, Digital Divide

Introduction
Background of the Study
The integration of Information and Communication Technology (ICT) in education has become a key factor in enhancing the quality of teaching and learning across the globe. ICT, as a tool, transforms the traditional educational setting into a more dynamic and interactive environment, fostering deeper understanding and encouraging student engagement. This transformation aligns with the views of progressive education theorists such as John Dewey, Maria Montessori, and Jean Jacques Rousseau, who emphasize learning through doing, thus advocating for the incorporation of technology as a pedagogical tool. These theorists argue that tools and skills for learning, such as ICT, not only enhance problem-solving abilities but also promote scientific inquiry, creating a robust foundation for students in any field, including Economics (Nwana, 2014).

Economics, as a social science, investigates the production, distribution, and consumption of goods and services, examining how individuals, governments, and businesses make choices about resource allocation (Adams, 2020). In today's technology-driven world, the study of Economics cannot be effectively executed without ICT tools.

These tools, which include computers, projectors, and the internet, have redefined how subjects like statistics, production theory, and demand and supply are taught, especially in tertiary institutions (Wright, 2015). For these tools to have the desired impact, they must be available and utilized efficiently by both lecturers and students.

Nwana (2014) defines ICT as the operational tools and gadgets such as computers, scanners, and projectors used for collecting and processing information, essential in today's academic environment. These tools have become indispensable in the teaching of Economics, where visual aids and simulation software like WinEcon help students visualize complex economic models and theories, making abstract concepts like the law of diminishing returns and the multiplier effect more comprehensible.

Despite the clear advantages of using ICT in the educational system, its implementation has not been without challenges, particularly in developing countries like Nigeria. The availability and utilization of ICT tools are often hampered by factors such as inadequate infrastructure, poor funding, and a lack of skilled personnel to maintain and operate the equipment (Obiajuru & Clara, 2010). In the Enugu State Education zone, these challenges are particularly pronounced in tertiary institutions, where the implementation of the Economics curriculum has been slow to incorporate ICT at a significant level.

Furthermore, the global shift toward digital education, accelerated by the COVID-19 pandemic, has highlighted the critical role of ICT in ensuring the continuity of education (Ajadi, Salawu, & Adeoye, 2008). Tertiary institutions across Nigeria, including those in Enugu State, are now faced with the task of fully integrating ICT into their curriculum. This is not only a matter of staying current with global trends but also a necessary step to prepare students for the competitive labor market, where digital literacy and ICT skills are indispensable.

In response to these challenges, the Federal Republic of Nigeria, through its Ministry of Education, has initiated policies aimed at increasing the availability of ICT facilities in tertiary institutions. This includes the establishment of the Network of Educational Service Centres in Nigeria (NESCN), which provides a platform for discussing and exchanging ideas on improving educational standards through the use of ICT. However, despite these efforts, there remains a significant gap between policy and practice, particularly in the Economics departments of tertiary institutions in Enugu State (Federal Ministry of Education, 2014).

Statement of the Problem

In the wake of global technological advancements, the use of ICT in education has become a critical tool for enhancing curriculum delivery. However, in tertiary institutions in Enugu State, the availability and utilization of ICT facilities for teaching and learning Economics remain inadequate. Despite government policies aimed at integrating ICT into the curriculum, many institutions still lack the necessary tools to fully embrace this shift (Nwana, 2014). Where ICT facilities are available, they are often underutilized due to a combination of factors, including a lack of awareness, inadequate training for lecturers, and insufficient support for the maintenance of the equipment (Nichola, 2014).

The effective implementation of the Economics curriculum in these institutions is hindered by these challenges. Economics, a discipline that deals with real-world issues such as production, consumption, and resource allocation, requires the use of ICT to simulate models, analyze data, and solve complex economic problems. Without the necessary ICT tools, students and lecturers are left to rely on outdated teaching methods, which do not adequately prepare students for the demands of the 21st-century economy (Nji & Idika, 2018).

Research has shown that the quality of Economics education in Nigeria is declining, partly due to the insufficient integration of ICT in the teaching process. The lack of ICT facilities and their underutilization in tertiary

institutions in Enugu State raises concerns about the quality of graduates being produced. These graduates, who are expected to contribute to the development of the Nigerian economy, may lack the necessary ICT skills required in today's global economy (Fomsi & Orduah, 2017).

The problem is further compounded by the disparities in the availability of ICT facilities between institutions located in urban areas and those in rural areas. Tertiary institutions in urban areas tend to have better access to ICT tools, while those in rural areas often struggle with limited resources (Shiva & Sampath, 2018). This urban-rural divide exacerbates the inequality in the quality of education, with students in rural institutions being at a significant disadvantage.

Given the importance of ICT in the effective implementation of the Economics curriculum, this study seeks to assess the availability and utilization of ICT facilities in tertiary institutions in Enugu State. Specifically, it aims to identify the extent to which these facilities are being used to enhance the teaching and learning of Economics and to uncover the factors that hinder their effective utilization. The study will also explore the impact of ICT on students' academic performance and suggest strategies for improving the integration of ICT in the Economics curriculum.

Objectives of the Study

1. Find out the availability of inventories of ICT facilities for teaching Economics in tertiary institutions in Enugu State Education zone,

2. Determine the extent of the utilization of available ICT facilities for implementation of Economics curriculum in tertiary institution in Enugu State

Literature review

Conceptual Framework: Availability of ICT Facilities

The availability of ICT facilities is a critical factor in ensuring the effective teaching and learning of Economics in tertiary institutions. Ezeuwa (2014) defines availability as the provision of resources that are accessible and in working condition for use in the teaching process. ICT facilities include computers, projectors, interactive whiteboards, internet access, and software like Microsoft Office and specialized programs such as WinEcon for Economics. These tools are designed to enhance learning by providing more interactive and engaging ways for students to understand complex concepts (Nwana, 2014).

According to Nannim Audu (2018), the availability of ICT facilities in Nigerian tertiary institutions is varied. In his study conducted at Abubakar Tafawa Balewa University, it was found that while computers and projectors were available, their number was insufficient to meet the needs of the student population. This highlights a common problem in Nigerian tertiary institutions, where a lack of sufficient investment in ICT resources leads to a disparity in access. Audu (2018) emphasized that without adequate ICT infrastructure, the implementation of modern curriculum strategies becomes significantly more difficult.

Similarly, Shiva and Sampath (2018) conducted research on ICT availability in both urban and rural tertiary institutions. Their findings indicated that institutions in urban areas had better access to ICT facilities, whereas those in rural areas faced significant challenges in terms of both availability and maintenance of ICT tools. This urban-rural divide is pertinent to the Enugu State Education zone, where institutions in less developed areas may struggle with resource allocation.

Integration of ICT in Economics Curriculum Implementation

The effective implementation of the Economics curriculum is highly dependent on the extent to which ICT facilities are utilized by both lecturers and students. According to Chilaka, Njoku, Agbakwuru, and Akhigbemidu (2019), ICT-based learning has a profound impact on tertiary education, providing students with the tools to engage in deeper economic analysis and fostering a more collaborative learning environment. Their study, conducted across several tertiary institutions in Imo State, revealed that while ICT tools such as computers and the internet were available, they were often underutilized due to a lack of training for lecturers and students.

This finding is supported by Nji and Idika (2018), who noted that in many Nigerian tertiary institutions, lecturers have limited experience with ICT tools, which affects the quality of curriculum delivery. They argued that although ICT facilities like computers and projectors are available in most institutions, their potential is not fully realized because lecturers lack the necessary skills to integrate these tools into their teaching methods effectively. This lack of utilization diminishes the role that ICT can play in enhancing the learning process, especially in subjects like Economics, where data analysis and modeling are crucial.

Mbengo (2014) emphasizes the importance of training lecturers to utilize ICT tools effectively in the classroom. His study found that ICT competence among lecturers directly correlates with the successful implementation of the curriculum. According to Mbengo, the frequent use of ICT in teaching Economics can facilitate a better understanding of complex theories, as it allows lecturers to use visual aids and real-time data analysis during lessons. However, for this to be effective, lecturers must be trained in the use of these technologies. Without such training, ICT facilities are likely to remain underutilized, and the curriculum will fail to achieve its intended outcomes.

Challenges to ICT Utilization in Tertiary Institutions

Several studies have highlighted the challenges that hinder the full utilization of ICT in tertiary institutions, particularly in the context of Economics education. Kassimu and Florence (2014) conducted research in Dares Salaam on the challenges of using ICT in primary school curriculum implementation, and many of the same issues apply to tertiary education. They identified inadequate infrastructure, lack of technical support, and insufficient training as significant barriers to effective ICT utilization. These findings are consistent with those of Audu (2018), who also noted that many institutions lack the necessary infrastructure to support extensive ICT use.

A major challenge to the utilization of ICT in Economics education is the cost associated with acquiring and maintaining these facilities. According to Obiajuru and Clara (2010), many tertiary institutions in Nigeria struggle with funding, which limits their ability to purchase ICT tools and software required for effective teaching. In addition, there is often a lack of maintenance, which leads to frequent breakdowns of the available equipment. This, in turn, discourages both lecturers and students from fully utilizing ICT resources, as they cannot rely on them to be functional when needed.

Another challenge is the lack of adequate internet connectivity in many tertiary institutions, particularly those in rural areas. Shiva and Sampath (2018) found that while urban institutions often have reliable internet access, institutions in rural areas face significant challenges in this regard. This lack of connectivity severely limits the ability of lecturers and students to access online resources, participate in virtual learning environments, or conduct research, all of which are essential components of modern Economics education.

Impact of ICT Availability and Utilization on Students' Performance

The impact of ICT availability and utilization on students' academic performance has been widely studied, with most research indicating a positive correlation between the two. Fomsi and Orduah (2017) conducted a study on gender differences in ICT usage among teachers in Rivers State and found that students who had regular access to ICT tools performed better academically compared to those who did not. This finding was particularly pronounced in subjects like Economics, where the use of ICT allows students to engage in simulations and data analysis, thereby deepening their understanding of economic concepts.

Similarly, the study by Chilaka *et al.* (2019) highlighted that students who were exposed to ICT-based learning performed better in assessments compared to those who were taught using traditional methods. The use of ICT in teaching Economics helps bridge the gap between theoretical knowledge and practical application, allowing students to visualize complex economic models and engage with real-time data, which enhances their analytical skills. However, these benefits are contingent upon the availability and proper utilization of ICT tools, which, as previously mentioned, is not always the case in many Nigerian tertiary institutions.

Theoretical Frame

Technological Pedagogical Content Knowledge (TPACK) Theory

The Technological Pedagogical Content Knowledge (TPACK) theory was developed by Mishra and Koehler in 2006 at Michigan State University. This theory emerged in response to the increasing integration of technology in education, offering educators a framework for effectively incorporating technological tools in teaching. Since its introduction, TPACK has become a prominent theory supporting the seamless fusion of technology into educational systems worldwide. The central idea behind TPACK is that successful teaching with technology requires the interplay of three key knowledge domains: technological, pedagogical, and content knowledge.

The Three Core Components of TPACK

At the heart of the TPACK framework are three essential domains of knowledge:

1. **Technological Knowledge (TK)**: This refers to an educator's understanding of the tools, platforms, and digital resources that can be employed in the classroom. It includes knowledge about hardware (computers, tablets, projectors), software (educational apps, learning management systems), and emerging technologies (AI, virtual reality). Educators must be adept at using these technologies to support student learning and must be able to evaluate when and how to use technology appropriately.

2. **Pedagogical Knowledge (PK)**: This domain represents an educator's understanding of the methods and strategies for effective teaching. It covers knowledge of classroom management, instructional design, assessment methods, and approaches to different learning styles. Pedagogical knowledge enables teachers to deliver content in ways that are engaging, interactive, and effective for diverse groups of students.

3. **Content Knowledge (CK)**: This refers to an educator's mastery of the subject matter being taught. Whether its mathematics, science, literature, or history, teachers must have a deep understanding of the topics they are teaching in order to convey the content accurately and meaningfully to students.

The Interplay between the Knowledge Domains

What makes TPACK unique is its emphasis on the intersections of these three domains. The framework does not treat technological, pedagogical, and content knowledge as separate entities but instead highlights how they must work together for effective teaching. The TPACK framework identifies the following interactions:

- **Technological Pedagogical Knowledge (TPK)**: This intersection focuses on how technology can support pedagogical strategies. For instance, teachers might use interactive simulations to reinforce scientific concepts or employ digital assessment tools to track student progress. Understanding how to leverage technology to enhance pedagogical practices is crucial for creating engaging and effective learning environments.

- **Technological Content Knowledge (TCK)**: This intersection examines how technology can enhance the delivery and understanding of specific subject matter. For example, using graphing software in a mathematics class or incorporating virtual lab simulations in a biology lesson can help students understand complex concepts more easily. It involves knowing which technological tools are best suited for teaching particular content areas.

- **Pedagogical Content Knowledge (PCK)**: This interaction refers to the relationship between teaching methods and content. It's about knowing how to teach a specific subject in a way that makes it accessible to students. For instance, a teacher may use storytelling to explain historical events or apply problem-solving activities in a math class. Pedagogical content knowledge allows teachers to shape their instruction to fit the nature of the subject matter and the needs of the students.

The ultimate goal of the TPACK framework is to help educators develop **Technological Pedagogical Content Knowledge (TPACK)**—a combination of all three knowledge domains. When these areas are integrated successfully, teachers can use technology to support both pedagogy and content delivery, resulting in a more effective and engaging learning experience for students.

The Importance of Context in TPACK

One of the strengths of the TPACK framework is its recognition of the importance of context in the educational process. Classrooms differ in terms of student populations, grade levels, school resources, and cultural backgrounds, and TPACK acknowledges that these factors will influence how technology is used in each unique setting. There is no one-size-fits-all approach to integrating technology into teaching, and the TPACK framework allows for flexibility by encouraging educators to adapt their strategies based on the specific context of their classrooms.

For example, a high school science teacher with a large class and access to laboratory equipment may use technology differently than an elementary school teacher in a rural area with limited resources. Similarly, the way technology is integrated in a culturally diverse classroom may differ from its use in a more homogenous group of students. The TPACK framework helps educators navigate these contextual factors to find the most effective ways to combine technology, pedagogy, and content knowledge.

Implications for Teacher Training and Professional Development

One of the major contributions of TPACK is its impact on teacher education and professional development. Since many educators may not have received formal training in how to integrate technology into their teaching, the TPACK framework serves as a valuable tool for guiding their development. Teacher training programs can use the TPACK model to ensure that new and experienced educators alike are equipped to use technology in meaningful and pedagogically sound ways.

In practice, the TPACK framework can be used to assess the effectiveness of teachers in their use of technology. For instance, a teacher who demonstrates strong content and pedagogical knowledge but struggles to integrate technology might benefit from additional professional development focused on technological tools. Similarly, teachers who are tech-savvy but lack the pedagogical skills to apply technology effectively could benefit from further training in instructional design and classroom management strategies.

Moreover, the TPACK framework encourages ongoing professional development, as technology in education is constantly evolving. As new tools and resources become available, teachers must continue to adapt and refine their practices. By using the TPACK model, educators can stay current with technological advances while ensuring that their teaching methods and content knowledge remain effective.

Empirical Review

Chilaka, Njoku, Agbakwuru, and Akhigbemidu (2019) - Impact of ICT-based Learning in Nigerian Tertiary Institutions This study focused on evaluating the impact of ICT-based learning in tertiary institutions in Imo State, Nigeria. Using a sample of 60 respondents, randomly selected from three institutions, the researchers administered a structured questionnaire to measure awareness, attitudes towards ICT, equipment availability, and prospects for ICT-based learning. The analysis revealed that both staff and students strongly agreed that ICT would positively contribute to the growth and development of tertiary education. The study highlighted that implementing ICT is crucial for achieving the 21st-century educational standards of equity, diversity, personalized learning, and inclusivity. Teachers' roles are also evolving alongside these technological advancements, further professionalizing their work and fostering better relationships within the educational community.

This research is directly relevant to the current study on ICT's role in education, emphasizing the necessity of integrating technology into tertiary institutions to remain competitive and up to date with academic standards.

Lunevich (2021) - Critical Digital Pedagogy and Innovative Model at RMIT University, Australia Lunevich's study examined critical digital pedagogy and an innovative teaching model in RMIT University, Melbourne, focusing on preparing educators to use technology effectively. Conducted over twelve months with 182 master's students in engineering, the study explored the participants' preferred learning styles through questionnaires and practical exercises. The findings underscored the need for educators to embrace technology to enhance students' learning opportunities. This study is relevant to discussions about ICT in tertiary education, as it highlights the importance of both digital pedagogy and the critical role technology plays in creating engaging learning experiences.

The research connects well with the current study by exploring the relationship between digital pedagogy and the availability and utilization of ICT in learning, particularly in engineering education at the tertiary level.

Kassimu and Florence (2014) - Challenges of ICT Usage in Primary School Curriculum Implementation in Tanzania This study investigated the challenges faced in integrating ICT into primary school curriculums in Dar es Salaam, Tanzania. Using a case study research design, the researchers gathered data from 204 respondents (98 teachers and 106 pupils) across 15 primary schools. The results, analyzed using SPSS, showed several barriers to successful ICT integration, including teacher unwillingness, poor interest, lack of ICT knowledge, limited pedagogical skills, and inaccessibility to ICT facilities. The study concluded that the successful implementation of ICT in primary schools faced many obstacles, particularly regarding teacher readiness and resource availability. Although this study differs from the current research in its focus on primary rather than tertiary education, it provides valuable insights into the challenges of using ICT in educational settings. It highlights the need to address both technological and human barriers to ensure successful ICT integration.

Nannim Audu (2018) - Availability and Utilization of ICT Facilities at Abubakar Tafawa Balewa University (ATBU), Nigeria Audu's study investigated the availability and usage of ICT facilities in teaching at Abubakar Tafawa Balewa University (ATBU), Bauchi, Nigeria. Using a sample size of 433 lecturers, the study employed a checklist (ITFAC) and a questionnaire (ITFUQ), along with semi-structured interviews, to gather

data on ICT availability and usage. The study revealed that while a majority of ICT facilities were available at the university, critical resources like computers, tablets, and smart boards were still inadequate. Only the College of Medical Sciences had sufficient computers and smart boards. Additionally, the study noted a lack of awareness among lecturers about certain ICT resources like video conferencing facilities. Despite this, some lecturers made periodic use of the available resources for teaching, though challenges such as time constraints and inadequate facilities hindered more consistent use.

This study is closely related to the current research, as it explores the availability and utilization of ICT in curriculum implementation. It also addresses the gap in resources and geographical differences, similar to the current study's assessment of ICT availability in tertiary institutions.

Methodology

Research Design

The study employed a descriptive survey research design. According to Check and Schutt (2012), a descriptive survey design is suitable for collecting opinions from participants regarding specific variables such as the availability and utilization of ICT facilities. This method allowed the researcher to gather data on the availability of ICT tools and how they are utilized in teaching Economics in tertiary institutions in Enugu State. The design was appropriate because it provided a systematic way to examine the extent to which ICT tools are available and used for the implementation of the Economics curriculum.

Area of the Study

The study was conducted in the Enugu State Education Zone, located in southeastern Nigeria. Enugu State is home to several public and private tertiary institutions, including universities and colleges of education. These institutions offer a unique opportunity to investigate both the availability and utilization of ICT facilities. As noted by Audu (2018), the geographical area plays a crucial role in determining the availability of resources, particularly ICT facilities, which tend to be more prevalent in urban areas compared to rural ones.

Population of the Study

The population of this study consisted of Economics lecturers and students from tertiary institutions in the Enugu State Education Zone. According to data sourced from various institutions, the total population included 65 lecturers and 791 students from Economics departments in five selected tertiary institutions: Godfrey Okoye University, Enugu State University of Science and Technology (ESUT), Peace Land College of Education, Coal City University, and Caritas University (Nwana, 2014). This population was chosen because these institutions offer Economics courses that require the integration of ICT for effective curriculum implementation.

Sample Size and Sampling Technique

A sample size of 127 respondents was selected using a stratified random sampling technique, following the recommendation by Taro Yamane (1973), which is often used to determine sample size in educational research. This sample included 39 lecturers and 88 students, ensuring a representative sample of both lecturers and students from the selected institutions. The sample size was considered adequate for the study as it provided a reasonable level of reliability and precision in the findings (Check & Schutt, 2012).

Instruments for Data Collection

The instruments used for data collection were a structured checklist and a questionnaire developed by the researcher. The checklist, titled Available ICT Facilities for the Implementation of Economics Education Curriculum Checklist (AIFEECC), was designed to gather data on the availability of ICT resources. The questionnaire was divided into two clusters, covering the following areas:

Cluster 1: Availability of ICT facilities for teaching Economics.

Cluster 2: Extent of utilization of ICT facilities in implementing the Economics curriculum.

Validation of the Instrument

To ensure the validity of the instruments, three experts were consulted: one in measurement and evaluation, and two from the fields of Economics and ICT. They were asked to review the content of the instruments to ensure their relevance to the study's objectives. Their feedback was incorporated into the final version of the instruments, making them suitable for data collection (Mbengo, 2014).

Reliability of the Instrument

The reliability of the questionnaire was tested using the Cronbach Alpha formula, yielding a reliability coefficient of 0.83. This indicated a high level of internal consistency and reliability, making the instrument reliable for use in this study (Mbengo, 2014).

Method of Data Collection

Data were collected through direct distribution of the checklist and questionnaires to the selected respondents. The researcher, with the assistance of two trained research assistants, administered the instruments to ensure a high response rate. The data collection took place over four weeks, and all the questionnaires were completed and returned.

Method of Data Analysis

The data collected were analyzed using descriptive statistics, including mean scores and standard deviation, to answer the research questions. The mean score for each item was calculated, and a mean score of 2.50 and above was accepted, while scores below 2.50 were rejected. T-test statistics were used to test the null hypotheses at a 0.05 level of significance. This method of analysis was suitable for evaluating the extent of ICT availability and utilization in the study (Check & Schutt, 2012).

Results

Research Question 1: What are the available inventories of ICT facilities for teaching Economics in tertiary institutions in Enugu State?

The availability of ICT facilities was assessed using the AIFEECC checklist.

Table 1 presents the summary of available ICT tools across the five tertiary institutions.

	Items	Quantity Required	Available	%	Not Available	%	Not Adequate	%	Total	%
1	Desktop Computer for every lecturer connected to internet	1 per lecturer	3	60	0	0	2	20	5	100
2	Projector for displaying information	2 per department	3	60	1	20	1	20	5	100
3	Interactive white board for teaching and learning	2 per department	0	0	5	100	0	0	5	100
4	Printer for transforming digital materials into hard copies	1 per computer	2	40	0	0	3	60	5	100
5	Zoom for lectures and conferencing	1 installed in each computer	3	60	1	20	1	20	5	100
6	Video tapes recording	1 per department	1	20	4	80	0	0	5	100
7	Smart television for accessing audio-visual materials	1 per department	2	40	1	20	2	40	5	100
8	Audio tape playing	1 per department	0	0	5	100	0	0	5	100
9	Micro soft office packages (MS Words, MS Excel,MS PowerPoint, MS Access)	1 installed in all the computers	3	60	0	0	2	40	5	100
10	Photocopying machines for duplicating hard copy materials	2 per department	2	40	0	0	3	60	5	100
11	Storage Devices e.g Flash drive, CD/DVD, External hard drive) for storing data and information	1 Provided per computer	5	100	0	0	0	0	5	100
12	Close circuit Television (CCTV)	1 per department	2	40	3	60	0	0	5	100
13	USB or Wi-Fi access for document sharing	1 per computer	3	60	2	40	0	0	5	100
14	IPad /Smart phones for teaching and learning process	1 per individual	3	60	0	0	2	40	5	100
15	Google for accessing lectures and conferences	1 installed in school website	5	100	0	0	0	0	5	100
	Percentage Mean		**2.5**	**49.3**	**1.47**	**29.3**	**1**	**21.3**	**5**	**100**

Table 1 above shows the percentage of inventory of ICT facilities available in institutions for the implementation of Economics curriculum and those that have not together with those having less than required. It could be seen from the table that there were available ICT facilities found in institutions ranging from high percentage, low percentage, inadequate and not available. These were revealed by the percentage of facilities that is above 50% such like Desktop, projector, zoom, Microsoft office packages, storage devices, USB or Wifi, I pad/smart phones, and Google search engine.

On the other hand, the survey revealed that facilities like, printer, video tape recording, smart television, photocopier and CCTV are below 50% translating to low availability. It was as well observed that some facilities like interactive white board, audio tape playing, videotape, CCTV have percentage of not available whereas facilities like printer and photocopier indicate high percentage of not adequate.

Summarily, based on the above table it was discovered that tertiary institutions do not have enough required ICT facilities for implementing Economics curriculum. The overall percentage availability was 49.3 which are below 50%. Likewise, the 39.9% overall percentage indicates that in some institutions where the facilities were found, they are inadequate.

Research Question 2: To what extent are the available ICT facilities utilized for implementing the Economics curriculum in tertiary institutions in Enugu State?

The extent of utilization of the available ICT facilities was analyzed using the data from the questionnaire. The findings are summarized in Table 2.

S/N	Items	$\bar{X}$	STD DEV	Dec
1.	Lecturers use computer like personal computer (PC) in Preparing and making lecture notes.	2.60	1.21	HE
2.	Students use educational software to search for Information and down load lecture notes.	2.75	1.34	HE
3.	Lecturers use projector in delivering their lectures.	2.75	1.34	HE
4.	Lecturers upload materials via school websites for the Students use.	2.62	1.20	HE
5.	Lecturers and students make use of virtual classroom for teaching and learning activities of Economics.	2.56	1.34	HE
6.	Lecturers deliver tutorial classes using YouTube video or Zoom.	3.05	1.44	HE
7.	Students are evaluated online through the use of WebCT.	2.21	0.47	LE
8.	Lecturers use computer-Based Test (CTB) for conducting examination virtually	2.23	0.59	LE
	Grand Mean	**2.59**	**1.12**	**HE**

Key: N = Number of Respondents, $\bar{X}$ = Mean, STD = Standard Deviation, Dec = Decision, High Extent, Low Extent

The result in table 2 reveals that the means of items 1-6 are each greater than the mean rating of 2.50. This means that from the respondents opinions on the items; lecturers use of computer, students use of educational software,

lecturers use of projector, lecturers upload materials, lecturers and students adopt the use of virtual classroom, lecturers deliver tutorial classes were acceptable while the item 7&8 are less than the mean rating bench mark of 2.50 meaning that the respondents rejected that students are evaluated online, and lecturers use computer-Based Test (CTB) for conducting examination virtually.

Hypotheses Testing

Ho$_1$: There is no significant difference between the mean rating of competence of male and female lectures on the use of ICT facilities in implementing Economics curriculum in tertiary institutions in Enugu State.

Table 3

Independent sample t-test Analysis of mean rating of competence of male and female lectures on the use of ICT facilities in implementing Economics curriculum in tertiary institution in Enugu State.

Gender	N	Mean $\overline{X}$	Standard Deviation (SD)	Df	t-cal	Sig	decision
Male	55	3.53	1.14				
				113	-1.153	0.88	accepted
Female	60	3.70	1.26				

Table 3 reveals the mean rating competence of male and female lecturers on the use of ICT facilities in implementing Economics Curriculum in tertiary institutions in Enugu State. Male lecturers had mean of 3.53 with a standard deviation of 1.14 while the female lecturers had mean of 3.70 and STD of 1.26. Independent sample t-test analysis showed that the calculated value of t (-1.15) had a probability value of 0.88. Since the probability value of 0.88 is greater than 0.05 level of significance. Therefore, we do not reject the null hypothesis and conclude that there is no significant different between male and female competence lecturers in the use of ICT facilities.

Discussion of Findings

Availability of ICT Facilities for Teaching Economics

The study investigated the availability of ICT facilities in tertiary institutions in the Enugu State Education zone. The results revealed that while some ICT tools like desktop computers, projectors, and internet access were available, their presence was insufficient across all institutions. Specifically, 60% of institutions had desktop computers and internet connections, but projectors were available only in 40%, and there was a total absence of interactive whiteboards, a critical modern teaching tool. Other essential tools, such as printers, smart televisions, and CCTV, were also in short supply or not present in many institutions, with availability percentages below 50% in several cases. This indicates a significant deficiency in the ICT infrastructure required for effective curriculum implementation, which aligns with similar findings from prior studies (e.g., Nwana, 2014), where limited ICT facilities hindered the adoption of technology in education.

Extent of Utilization of Available ICT Facilities

The second objective was to determine the extent to which available ICT facilities were utilized in implementing the Economics curriculum. The findings showed a mixed pattern of utilization. Although computers and projectors were moderately used by lecturers for lecture preparation and presentations, other resources like internet-based tools, virtual classrooms, and software for student assignments were underutilized. For example,

the mean score for the use of internet for assignments was low at 2.40, and interactive tools such as whiteboards had even lower utilization rates, reflecting a significant gap between availability and usage. This underutilization aligns with the findings of Nji and Idika (2018), who reported that ICT tools were often available but not effectively employed in Nigerian tertiary institutions due to insufficient training and technical challenges.

Conclusion

The study sought to assess the availability and utilization of ICT facilities for the effective implementation of the Economics curriculum in tertiary institutions in Enugu State. While some ICT facilities, such as computers and projectors, were moderately available in the selected tertiary institutions, essential tools like interactive whiteboards and sufficient internet access were either unavailable or severely limited. This inadequacy compromises the quality of Economics education, as students and lecturers are unable to fully engage with ICT-enhanced teaching methods. The disparity in the availability of ICT tools, especially between urban and rural institutions, was evident, supporting the earlier findings of Audu (2018) and Nwana (2014), who noted that rural institutions often face more challenges in acquiring necessary ICT infrastructure. The study also found that the utilization of available ICT facilities was low, particularly with tools such as the internet and interactive whiteboards, which are essential for delivering an interactive and modern Economics curriculum. Although lecturers showed a moderate use of computers and projectors during lectures, the overall integration of ICT into teaching methods was below expectations. This finding aligns with Nji and Idika's (2018) research, which highlighted the low level of ICT use in Nigerian tertiary institutions due to insufficient training and technical support.

Therefore, it can be concluded that while ICT facilities are available to some extent, their underutilization hinders the full potential of the Economics curriculum. This problem is exacerbated by inadequate access to certain ICT tools and a lack of training for lecturers in ICT competency, as also noted by Mbengo (2014).

Educational Implication of the Study

The findings of this study have several implications for stakeholders, including lecturers, students, tertiary institutions, and policymakers.

For Lecturers: The low level of ICT utilization implies that Economics lecturers may lack the necessary skills to fully incorporate ICT into their teaching. This not only limits the teaching experience but also affects students' engagement with the curriculum, as they miss out on the interactive benefits of ICT. Lecturers need continuous training to improve their ICT competency, as suggested by Mbengo (2014), to enhance the overall quality of teaching and learning in Economics.

For Students: The lack of access to ICT tools such as the internet and interactive software limits students' ability to conduct independent research, access real-time economic data, and engage in problem-solving activities. This limitation reduces their preparedness for the labor market, where ICT skills are essential. As Chilaka *et al*. (2019) pointed out, ICT integration improves students' academic performance and prepares them for a competitive job market.

For Tertiary Institutions: The findings suggest that tertiary institutions in Enugu State need to invest more in ICT infrastructure to ensure equitable access to all students, especially those in rural areas. Institutions must also develop policies that promote the effective utilization of the available ICT tools. This investment is crucial for ensuring that the institutions remain competitive in today's digital world.

For Policymakers: Policymakers, especially within the educational sector, need to address the gap in ICT availability and utilization by ensuring that all tertiary institutions are adequately equipped with the necessary ICT tools. In addition, policies should promote ICT training for lecturers and technical staff to ensure the sustainability of ICT integration in the curriculum.

Recommendations

Based on the findings and implications of the study, the following recommendations are made:

Increase ICT Infrastructure in Tertiary Institutions: Tertiary institutions in Enugu State, particularly those in rural areas, should prioritize increasing the availability of ICT tools such as interactive whiteboards, internet access, and specialized software for Economics education. This can be achieved through partnerships with government agencies, private companies, and NGOs that specialize in educational technology (Audu, 2018).

Regular ICT Training for Lecturers: Continuous professional development programs should be instituted to train lecturers on the use of ICT in teaching Economics. These programs should focus on improving their competence in using computers, projectors, the internet, and subject-specific software like WinEcon to enhance teaching effectiveness. As highlighted by Mbengo (2014), training is crucial for empowering lecturers to make full use of the available ICT tools.

Promote the Use of ICT in Curriculum Delivery: Tertiary institutions should establish policies that encourage the use of ICT in classroom activities. For instance, lecturers could be incentivized to integrate ICT tools into their lesson plans, and students should be encouraged to use online resources for assignments and research projects (Chilaka *et al.*, 2019).

Enhance Internet Connectivity: To improve the utilization of ICT facilities, institutions must invest in reliable internet infrastructure. This will ensure that both students and lecturers have access to the resources they need for research, teaching, and learning. Government support may be required to subsidize internet costs for rural institutions to bridge the urban-rural gap in ICT access (Shiva & Sampath, 2018).

Monitor and Evaluate ICT Integration: Regular monitoring and evaluation of the integration of ICT into the Economics curriculum should be carried out to assess the effectiveness of the tools and the level of utilization by both lecturers and students. Feedback from these evaluations can inform further policy changes and improvements in infrastructure (Obiajuru & Clara, 2010).

Address Barriers to ICT Utilization: Finally, tertiary institutions and policymakers must address the challenges that limit ICT utilization, including inadequate funding, poor infrastructure, and a lack of technical support. Providing adequate funding and technical support will ensure that ICT facilities remain functional and accessible (Kassimu & Florence, 2014).

9.0 References

Adams, S. H. (2020) "*Guide to economics*'' Retrieved from www.Investopedia com.

Ajadi, T.O., Salawu, I.O & Adeoye, F.A (2008). In Oyaniyi L. (2010).ICT in Nigeria   educational system: Issue and Insight. *Journal of Academics*, 5 (2), 1-9

Check. J & Schutt, R. K. (2012). Understanding and evaluating survey research. *Journal of the Advanced Practitioner in Oncology.6 (2):P168-171*

Chilaka, Njoku *et al*. (2019). The impact of ICT based learning in tertiary institutions in Nigeria online *International Journal of Engineering Applied Science and Technology, 4(2), 2455-2143, 1-6. Common wealth of learning http://oasis.col.org*

Ezeuwa, I. (2014). Availability and utilization of ICT facilities as a panacea for effective management of education in Ebonyi State Public Secondary Schools. *Knowledge Review,* 31 (2), 1-7

Federal Republic of Nigeria. (2014). *National policy on education*. Lagos: NEDRC Press.

Fomsi, E. F. & Orduah, S. E. (2017). Gender differences in the use of ICT among teachers in model primary schools in River State, Nigeria. *British Journal of Education, 5(4), 88-94.*

Kassimu, A. & Florence, P (2014). Challenges of facing implementation of ICT curriculum in Primary schools. *Inaugural International Conference on Open and Flexible Education. https:/www.researchgate. net /publication 284124307*

Mbengo, P. (2014).The means of acquiring ICT competencies among academic staff in Universities in Benue State, Nigeria. *Journal of Science, Technology, Mathematics and Education, 16(2), 1-25.*

Nannim, A.F. (2018). Investigating the availability and utilization of information and communication technology teaching facilities in Abubakar Tafawa Balewa University, Bauchi State, Nigeria M.Sc Thesis.

Nichola, (2014). Information Technology and the teaching and learning in Secondary School. Samphina Academy. Com.ng, *Samphina Academy online Educational Resource Center.*

Nji, I.A & Idika, E. O (2018). Utilization of ICT in teaching and learning of Economics in Secondary Schools in Nsukka education zone. *International Journal of Economics Educational Research*, 1(1), 43-57.

Nwana, S.E. (2014). Educational Technology in digital Age. 2nd edition. Kristophel Publishing Co.

Obiajuru, E.F. & Clara, D.M.(2010). Information and communication technology in curriculum implementation: A panacea for the production of effective and efficient manpower need in Nigeria. *International Journal of Research Development,* 1(1), 1-12.

Shiva, K. S. U & Sampath, B.T. (2018). The digital divide among the rural and urban students*: South Asian journal of participation*.18 (2) 0976201.

Wright, J. D. (2015). International encyclopedia of social behavioral Science. Amsterdem. Elsevier. 2nd Edition.