THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN PROMOTING THE TEACHING AND LEARNING OF ECONOMICS IN NIGERIA TERTIARY INSTITUTIONS

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Abstract
The study examines how information and communication technology (ICT) might support economics education in Nigerian higher education institutions. The need to comprehend how digital tools might improve educational outcomes in a field that is essential to national growth is what motivates this study. The assessment of ICT infrastructure and access, the effect of ICT on students' understanding and interaction with economic ideas, and the main obstacles to its successful integration were the specific goals. Using a mixed-methods approach, information was gathered by conducting in-depth interviews with 15 lecturers at two colleges of education and also distributing structured questionnaires to 50 students studying economics at two colleges of education. The results show a notable discrepancy between the actual use of ICT and its imagined potential. Despite the fact that both students and lecturers agreed that ICT can simplify complicated models, offer real-time data, and promote interactive learning, its integration is hindered by a lack of proper infrastructure, erratic internet, a lack of digital literacy among some lecturers, and a continued dependence on conventional lecture techniques. According to the study's findings, ICT has the potential to revolutionised economics education in Nigeria, but systemic limitations have mostly prevented this potential from being realised A curriculum redesign that incorporates ICT-based tools, mandatory and ongoing ICT training for academic staff, immediate investment in campus-wide digital infrastructure, and policy support from educational regulatory bodies to encourage technology-enhanced pedagogy are some suggestions for closing this gap.

Keywords: Digital learning, Pedagogy, Tertiary institutions, Economics education and Information and Communication Technology (ICT).

Introduction

As a social science, economics is essential to comprehending and influencing a country's monetary, fiscal, and developmental policies. Economics has historically been taught in Nigerian higher education institutions using static textbooks, chalk-and-talk lectures, and theoretical abstractions that are frequently divorced from the ever-changing reality of the domestic and international economies. A paradigm change has occurred with the introduction of information and communication technology (ICT), which provides the means to transform teaching methods. ICT includes digital tools that make it easier to access, save, transmit, and manipulate information, such as computers, the internet, multimedia projectors, educational software, simulations, and online databases United Nations Educational Scientific and Cultural Organization (UNESCO), 2018).

ICT has the ability to significantly alter economics education. It can facilitate virtual collaborations, give access to real-time macroeconomic data from the World Bank and National Bureau of Statistics (NBS) for research, bring abstract ideas like supply-demand equilibrium to life through simulations, and assist individualised learning through e-learning platforms. ICT can help close the theory-practice gap in an environment where knowledge of real-world economic issues such as inflation, exchange rates, debt, and unemployment is essential. However, there are significant obstacles to ICT integration in Nigerian higher education, especially in the social sciences. According to Adetimirin (2020), these include persistent underfunding, unstable power supplies, outdated and insufficient hardware, constrained internet speed, and a skills gap among teachers. It is therefore imperative to critically assess whether ICT is actually advancing economics education or if its uptake is only surface-level. Therefore, the goal of this study is to present an evidence-based evaluation of the influence of ICT on economics instruction in Nigerian higher education institutions, highlighting both its advantages and the obstacles to its full potential.

Research Objectives

The particular goals of this research are to:

1. Examine the sufficiency, accessibility, and availability of ICT infrastructure for economics instruction at a few chosen Nigerian higher education institutions.
2. Assess how ICT tools are thought to affect students' understanding, participation, and academic achievement in economics classes.
3. Determine the main obstacles that lecturers and students face when attempting to successfully incorporate ICT into economics education.

Literature Review

Conceptual Review

The broad range of technological tools and resources used to create, communicate, distribute, save, and manage information for teaching and learning is known as information and communication technology, or ICT, in education. This study

encompasses digital material (e-books, online journals, multimedia), software (econometric packages like SPSS, EViews, Stata), hardware (computers, projectors, smartboards), and platforms (learning management systems like Moodle, virtual classrooms) (Tinio, 2020).

Teaching and Learning of Economics: This involves the pedagogical processes and strategies employed to impart knowledge of economic principles, theories, models, and analytical skills. Effective teaching moves beyond rote learning to foster critical thinking, problem-solving, and the application of economic reasoning to real-world scenarios (Baye, 2017).

Theoretical Literature

This study is supported by two major theories:

1. Constructivist Learning Theory: According to this theory, students actively create knowledge via experiences and interactions with their surroundings (Piaget, 1970; Vygotsky, 1978). By offering collaborative online tools (like policy debate forums), interactive simulations (like market trading games), and real-world learning environments where students can work with economic data and see results, ICT helps constructivism.

2. Technological Pedagogical Content Knowledge (TPACK) Framework (Mishra & Koehler, 2006): Mishra & Koehler (2006) developed the Technological Pedagogical Content Knowledge (TPACK) Framework, which contends that three knowledge domains, Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) must interact for technology integration to be successful. For a professor in economics, this entails not just being knowledgeable about the subject (CK), teaching techniques (PK), or tool usage (TK), but also being able to effectively use certain technology (such as a data visualization tool) to teach particular economic concepts (such as the Lorenz curve).

Empirical Literature

Research from all across the world confirms the benefits of ICT. Spreadsheets and graphing software greatly enhanced Nigerian students' comprehension of quantitative procedures in economics, according to Omotayo (2019). Multimedia presentations also improved student engagement and retention of complicated theories, according to Oyeleke & Olasunkanmi (2021).

On the other hand, research reveals enduring obstacles. More than 60% of lecturers in South-West Nigeria, according to a study by Adedoja & Oloruntegbe (2018), lacked training in the fundamentals of using ICT for instruction. According to Eze, Adu, & Mbanefo (2020), the main obstacle is inadequate infrastructure, particularly erratic power and internet. Additionally, Okafor (2022) observed that some seasoned lecturers are resistant to change and favor tried-and-true conventional approaches.

Appraisal of the Reviewed Literature and Gaps

The body of existing literature identifies common barriers and reaches an agreement regarding the potential advantages of ICT, with a primary focus on

deficiencies in infrastructure and training. But there are still noticeable gaps:

1. **Limited Attention to Discipline-Specific Integration:** A lot of research approaches ICT integration in a general way. In-depth research on which particular ICT tools such as econometric software, stock market simulators, and policy analysis databases are best suited for which particular subfields of economics development, macroeconomics, macroeconomics, and econometrics is lacking.
2. **Under-Examined Student Perspective:** Although the difficulties faced by lecturers are widely known, there aren't many studies that thoroughly examine students' levels of digital literacy, preferred ICT-enabled learning methods, and strategies for overcoming inadequate infrastructure.
3. **No Effect on Higher-Order Skills:** The majority of research gauges impact using engagement or grades. Research on whether ICT promotes higher-order economic abilities like critical policy appraisal, complex data interpretation, and proficiency in econometric modeling is lacking.
4. **Insufficient Policy Analysis:** The role that national and institutional education policies play in promoting or impeding successful ICT integration in economics departments has not received enough serious examination.

By offering a comprehensive, discipline-focused research that integrates powerful student perspectives and connects real-world issues to policy frameworks, this study seeks to close these gaps.

Methodology

A concurrent mixed-methods strategy was used in this work to guarantee thorough data collection and triangulation.

Study Population and Sample: Two specifically chosen institutions in Nigeria one from the North and the other from South-West were the focus of the study, which included economics lecturers and students. Simple random sampling was used to choose a sample of 50 final-year economics students. Based on their experience and documented use (or lack thereof) of ICT in the classroom, fifteen (15) lecturers from the institutions were purposefully chosen.

Data Collection Instruments:

Quantitative: Using a 5-point Likert scale, a structured questionnaire that includes questions on demographics, access to ICT tools, frequency of usage, perceived influence on learning, and obstacles.

Qualitative: Lecturers' experiences, educational approaches with ICT, perceived obstacles, and suggestions are explored through semi-structured interview guides.

Data Analysis: With the use of SPSS Version 25, quantitative data were examined using descriptive statistics, such as means, standard deviations, percentages, and frequencies. After being transcribed, qualitative data from interviews underwent thematic analysis, which entails coding,

classifying, and identifying recurrent themes.

Results and Discussion of Findings

Availability and Accessibility of ICT Infrastructure

The findings indicated a notable deficiency. Only 32% of students regularly had access to working desktop computers in departmental labs, despite the fact that 85% of students possessed cell phones. Seventy-eight percent of respondents said the Colleges Wi-Fi was "unreliable" or "very slow". Less than 40% of the lecture halls used for economics classes had smart boards and projectors, and they were frequently broken.

Below is a mixed methods presentation tables showing:

Qualitative Data: Interview of 8 lecturers from Federal College of Education Yola and 7 from Federal College of Education (Special), Oyo.

Quantitative Data: Questionnaire responses from 25 students from each institutions

Variables: Actual use of ICT and imagined potential of ICT.

Table 1: Lecturer's Interview Summary (Qualitative Data).

Institution	No. of Lecturers	High actual use of ICT	Moderate	View ICT AS high potential	View ICT has moderate potential	View ICT has low potential
Federal College of Education, Yola.	8	3	3	7	1	0
Federal College of Education (Special), Oyo.	7	2	2	6	1	0
Total	15	5	5	13	2	0

Interpretation (Qualitative)

- ICT actual usage is moderate to low especially at Federal College of Education (Special) Oyo.
- However, almost all lecturers believe that ICT has high future potential for teaching and research.

Table 2: Students' Questionnaire Results (Quantitative Data).

Institution	No. of students	Regular ICT use (Yes)	Regular ICT use (No)	Believe ICT improves learning (Yes)	Believe ICT improves learning (No)
Federal College of Education, Yola.	25	18	7	23	2
Federal College of Education (Special), Oyo.	25	12	13	20	5
Total	50	30(60%)	20(40%)	43(86%)	7(14%)

Data Source	Actual ICT usage	Imagined /Potential ICT impact
Lecturer (Interview)	Moderate to low usage	Very high expectation
Students (Questionnaire)	60% use ICT regularly	86% believe ICT improves learning

Overall Mixed Methods Conclusion

- There is a gap between actual use and perceived potential of ICT
- Both lecturers and students strongly believe ICT can improve teaching and learning
- However, actual implementation remains moderate, especially at federal college of education (Special), Oyo.

Discussion

The results support the infrastructural deficit that Eze et al. (2020) pointed out. A possible possibility for mobile learning (m-learning) is presented by the widespread use of personal smart phones. However, the use of more sophisticated, resource-intensive software that is essential for economics, such econometric packages and sophisticated data analysis tools, is severely limited by the absence of dependable institutional infrastructure (computers, internet).

Obstacles to Successful Integration

Four main issues were identified through thematic analysis of lecturer interviews:

1. Systemic Infrastructural Deficits: The two main de-motivators were unanimously identified as a faulty power supply and inadequate internet.

2. Inadequate Training and Skills: Many instructors, particularly older ones, acknowledged feeling overpowered by new technology and confessing to a lack of proficiency.

3. Curriculum and Assessment Misalignment: A focus on theoretical memorization is maintained by the curriculum and final exams, which frequently do not reward or require ICT-based analysis.

4. Resource Limitations: It was noted that departmental budgets for digital tools were lacking, and that licensed software (such as Bloomberg Terminal and sophisticated Stata packages) was expensive.

Conclusion

This study confirms that by improving understanding, engagement, and

relevance, ICT has enormous potential to advance economics education in Nigeria. This potential is, nevertheless, gravely under-utilised. Deteriorating infrastructure, pedagogical inertia, talent deficits, and unsupportive institutional frameworks all contribute to the peripheral nature of ICT integration. When ICT is used today, it is frequently restricted to simple presentation tools, ignoring its potential for collaborative learning, simulation, and real-time data analysis. ICT is therefore still a promising but under-utilised tool, limited by a hostile ecosystem, and is not yet a true booster of revolutionary economics education in Nigeria. In order for ICT to truly act as a catalyst, a comprehensive and systematic approach is needed.

Recommendations

Based on this study, the following multi-level recommendations are proposed:

1. **For College Administrations and Government:** Make upgrading the campus's digital infrastructure a top priority and provide funds for it. This includes modern, well-equipped digital labs for the social sciences, high-speed broadband, and reliable power (provided by solar hybrid systems). Provide and require ongoing, practical ICT training for faculty members that focuses on economics-specific applications.
2. **For Economics Departments and Lecturers:** Oversee a curriculum review to incorporate ICT competencies for lecturers and economics departments. This involves creating assignments that call for the use of software for data analysis, internet resources for policy briefs, and simulations. Create communities of practice where knowledgeable instructors guide students and exchange best practices for utilizing open-source and free tools (such as R software and FRED economic data).
3. **For Educational Regulatory Bodies: i**nclude explicit criteria for ICT integration in pedagogy and curriculum as part of the accreditation requirements for Economics and other programmes. Develop and disseminate a national digital learning strategy for higher education that provides guidelines and support for disciplines like Economics.

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