



**USING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN
CONTENT DELIVERY OF EDUCATIONAL RESEARCH AND STATISTICS:
PERCEPTION OF UNIVERSITY ACADEMICS**

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Abstract

The present study examined the perception of academics in using Information and Communication Technology (ICT) in the content delivery of Educational Research and Statistics. Survey research design was adopted. Multistage sampling procedures were adopted to select 130 academics from 3 universities. Two research questions were stated to guide the study, and two hypotheses were formulated. Two instruments developed by the researchers were used to collect data for the study. Simple percentages were used to answer the research questions. Results revealed that a very high percentage of academics positively perceive using ICT in content delivery of educational research and statistics. From the results, it was recommended, among others, that ICT skill trainings, as well as adequate ICT facilities and electricity, should be made available and accessible to academics for better delivery of Education research and statistics by relevant stakeholders such as university academics. Based on the findings, it was concluded that most academics' positive perception of using ICT has revealed their readiness to embrace innovations in teaching educational research and statistics.

Keywords: Perception, University Academics, ICT, Content delivery, Educational Research and Statistics

Introduction

In the Nigerian University system, research methods and statistics are two essential courses required of undergraduate students to be offered and passed before graduation. In tertiary institutions, particularly universities across Nigeria, educational research and statistics are among the compulsory courses in the education faculties. Educational research and Statistics are two interesting educational courses that almost every student in the faculty of education (irrespective of your area of specialisation) is expected to pass before one can graduate from the university with either a B.Ed or B.Sc (Ed) or B.A(Ed). These researchers are graduates of diverse educational courses from different universities around Nigeria.

In the researchers' opinion, research methods and educational statistics can be seen as dependable and helpful information that is gathered and organised, and data is interpreted using a scientific approach to make educational decisions. Research methods and educational Statistics are compulsory courses for all the students in the faculties of education in tertiary institutions in Nigeria (Nwogwugwu & Ovat, 2021). These compulsory courses aim to educate people who will produce and utilize research findings. Many researchers have defined research methods and statistics in education differently (Asim, Idaka & Eni, 2017;

Nwogwugwu & Onyendi, 2016). According to Asim et al. (2017), educational research is a field of inquiry that advances knowledge of education and learning processes.

For Nwogwugwu, et al (2016), educational research implies the following; an empirical investigation into educational problem, a scientific approach to solving educational problem, knowledge inquiry in education, an organised process of solving educational problem, an inquiry into the unknown in education, a process of creating new idea or knowledge in education, a logical system of investigating problems in education, an attempt to provide total or partial solution to a problem in education. It was concluded that the end point of educational research is new fact, idea, knowledge or generally the truth and outcome solution to a problem. According to Idaka (2017), statistics as a branch of knowledge is a scientific process of collecting, organizing, summarizing, analysing and interpreting numerical data to make deductions and draw conclusions.

Information and Communication Technology (ICT) refers to the broadest sense of any activity of processing, manipulating, managing, and transferring of information of quantitative and qualitative data (Joshua, Nwogwugwu & Ikiroma, 2015). ICT is part of the society in which we now live. One can attest that most academics still employ traditional lecturing methods in teaching their students. In this 21st century, with a technologically advanced society, one would expect academics to incorporate innovative methods in the content delivery of research methods and statistics. If graduates in education are to be adequately prepared to be successful in carrying out research and solving problems in the dynamic and competitive world of today, then ICT must become an integral part of educational research and statistics. These researchers believe that Research methods and Statistics are made compulsory in tertiary institutions to educate young minds and produce graduates who will be versatile in utilizing research findings.

Emphasising the importance of using ICT in content delivery, Arikpo and Odinko (2016) stated that ICT allows teachers to transform their research practices. Moreover, there will be improved educational content with more effective teaching and learning of research methods. This implies that ICT could improve the teaching-learning of educational research and statistics. Moreover, through the provision of more interactive educational materials, learners' motivation is enhanced, and this facilitates the easy acquisition of basic skills. The United Nations Economic Commission for Africa (UNECA) as cited in Towolawi (2014) stated that, ICT covers internet, server provision, telecommunication equipment and services, information technology equipment and services, media and broadcasting, library and documentation centers, commercial information provider, network-based information services and other related communication activities. ICT has been reported to play a major role in education in this 21st century. (Obiri-Yeboah, Kwarteng & Kyere-Djan, 2013). Again, Adeschinwa and Aremu (2010) opined that ICT, as a revolution of learning, has transformed available technologies, the means and method of studying, the modalities of school operations, and how we think about what education could and should be.

Furthermore, Yusuf, Afolabi & Loto (2013), stated that ICT can be embedded into content delivery of research method and statistics in education by using the following: interactive whiteboards, video project units, prepared spreadsheets, to capture and model data, CD-ROMs, presentation with video, telephones, and carefully selected resources from the internet, etcetera. Also, ICT can enhance effective education of the academics and students. Therefore, the academics and students of education should be encouraged to utilize ICT, especially in the teaching-learning process, as it promises immense potential to education. ICT may also enhance education students' method of acquisition of information and knowledge dissemination. Today, educational institutions are serving a more ethnically and culturally diverse student body due to the enhancement of technology.

The significance of ICT in content delivery of educational research and statistics is too numerous to mention. Learning educational research statistics through ICT is of benefit because of the time interval between lesson delivery and the time learners assimilate the lesson. With the innovation of technology today, online course materials can be accessed at any time. Also, teleconferencing technologies, which enable instructions to be received at the same time by multiple, geographically dispersed learners, are achievable through ICT.

Secondly, lecturers and students will not depend entirely on textbooks and other materials in physically built libraries without enough materials for research methods and statistics in education. For students and schools in developing countries like Nigeria, a wealth of learning materials from the Internet and the World Wide Web can be accessed by many students from anywhere and at any time of the day. Suppose our students, who are being trained to be researchers, are adequately prepared to be successful in today's dynamic and highly competitive world. In that case, ICT must become integral to research methods and statistics in education (Nwogwugwu et al., 2016).

Furthermore, the infusion of technology redefined work skills and society's expectations of what it means to be a graduate, which will help students better understand the world and enhance their learning and work. Academics will benefit immensely from using ICT in the content delivery of educational research statistics by easily distributing instructional resources amongst themselves while carrying out their academic duties.

In spite of the lofty potentials for ICT, some pitfalls could hinder academics from using ICT in teaching educational research and Statistics. According to British Educational Communications and Technology Agency (BECTA, 2004), such hindrances include: levels of confidence in using technology, accessibility to ICT, inadequate training resulting in low level of ICT usage by academics, time needed to prepare for lessons and also to become better acquainted with hardwares and softwares, resistance to change by the teachers and schools, and students/teachers who do not realize the potential advantages inherent in the use of ICT. Similarly, many problems hinder the application of ICT in content delivery in our Nigerian universities. The academics lacks the adequate facilities and financial capacity required to acquire these facilities (Effiom, Ovat, Nwogwugwu & Umo, 2022) In the opinion of Akinagbe (2014), some universities do not have ICT centres at all; others have non-functional ICT centres, while some have functional ones that lack the required manpower". They further noted that, despite the coming of the internet and other technologies, many university academics still lack the required ICT literacy skills necessary for using the abundance of information available to them.

In Nigeria, the tertiary educational system requires innovative, creative, and seasoned academics with the correct approach to their jobs (Nwagba, 2003). These academics must clearly perceive their professional roles and capabilities, especially as new conditions and challenges continue to emerge in the dynamic world. Although the academics in Nigerian universities consider themselves quite knowledgeable and confident in their areas of specialty, with regards to expectations and challenges of ICT (Effiom, et al., 2022), there seem to be a gnawing gap between their current method of lecture delivery and what they need to know, such as using ICT in content delivery of educational research and statistics in our universities. Therefore, this study sought to investigate university academics' perception of using ICT in content delivery of educational research and statistics. It also investigated if there is any gender difference in the perception of academics of using ICT in content delivery of research methods and educational statistics. To guide the study, the following research questions and hypotheses were formulated:

1. What is the perception of academics in using ICT in content delivery of educational research in Nigerian universities?

2. What is the perception of academics in using ICT in content delivery of educational statistics in Nigerian universities?

Method

The study adopted a survey research design. The population consisted of all the academics in Nigerian universities in the South-South Region of Nigeria. The sample size for the study was 130 academics from 3 universities, and they were selected using a multistage sample approach consisting of simple random sampling, purposive and accidental sampling techniques. A simple random sampling technique was used to draw the study's three Universities (University of Uyo, University of Calabar and University of Port Harcourt). A purposive sampling technique was then used to draw the faculties and departments (mainly in the faculties of education) that offer educational research and Statistics. The purposive sampling technique was also used in the different departments to draw the academics in these speciality areas. Then, an accidental sampling procedure was used to select 130 academics from the drawn departments of the universities under study.

Data for this study were collected using two instruments: (i). Perception of Academics in Using ICT in Content Delivery of Educational Research (PAUCDER) and (ii). Perception of Academics in Using ICT in Content Delivery of Educational Statistics (PAUCDES). Factor loading was used to select 10 items out of 18 initially generated in each of the two instruments. High factor loading items, 0.05 to 0.816, were only selected. The two instruments consisted of two sections each, section A is for personal data while B contains 10 items placed beside two scales of Agreed (A) and Disagreed (D), in which the respondents were requested to indicate their level of agreement or disagreement.

The two instruments were validated by experts from the University of Calabar's research, measurement, and evaluation units. Cronbach's Alpha statistic established reliability Coefficients of 0.72 (PAUCDER) and 0.68 (PAUCDES). The research questions were answered using simple percentages, while the hypotheses were tested using contingency chi-square at the .05 level of significance.

Results

Research question I: What is academics' perception of using ICT in the content delivery of educational research in Nigerian universities?

Table 1: Perception of academics in using ICT in content delivery of educational research

ITEMS		
It will be better if ICT facilities are recommended for teaching-learning of educational research		

	Using ICT during teaching-learning of educational research will be interactive		
	ICT facilities can only be used in teaching some concepts in educational research.		
	Using ICT to teach educational research will be challenging		
	Using ICT will enhance the content mastery of educational research by the students		
	Providing opportunities to work with ICT in lecture-rooms will make learning of educational research more interesting		
	Lack of access to basic instructional technology facilities by Nigerian universities will make integration of ICT in the content delivery of educational research difficult		

	The fluctuation in the supply of electricity in Nigerian universities will be a hindrance to the application of ICT in the content delivery of educational research		
	Not being ICT compliant by all the academics will affect using ICT in the content delivery of educational research in Nigerian universities		
	Inability of the students to provide their own ICT facilities needed for the application of ICT will be an obstacle		

Table 1 shows the perception of academics regarding using ICT in the content delivery of educational research. From the result, majority of the academics that participated in the study agreed that it will be better if ICT facilities are made available for the teaching and learning of research methods (73.8% item 1), for it to be more interactive (75.4% item 2) and that, this will improve the content mastery of the course (65.4%, item 5); thereby making it to be an interesting course (70%, item 6). On the other hand, lack of access to basic instructional technology facilities (72.3%, item 7), fluctuation in the supply of electricity in their institutions (69.2%, item 8), not being ICT complaint by the academics (61.5%, item 9) and inability of the students to provide their own ICT facilities (74.6%, item 10) will affect the actualization of this.

Research question 2: What is the perception of academics in using ICT in content delivery of educational statistics in Nigerian universities?

Table 2: Perception of academics in using ICT in content delivery of educational statistics

	ITEMS		
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	It will be better if ICT facilities are recommended for teaching-learning of educational statistics		
	Using ICT during teaching-learning of educational statistics will be interactive		
	ICT facilities can only be used in teaching some concepts in educational statistics		
	Using ICT to teach educational statistics will be challenging		
	Using ICT will enhance the content mastery of educational statistics by the students		

	Providing opportunities to work with ICT in lecture rooms will make learning of educational statistics more interesting		
	Lack of access to basic instructional technology facilities by Nigerian universities will make the integration of ICT in the content delivery of educational statistics difficult		
	The fluctuations in the supply of electricity in Nigerian universities will be a hindrance to the application of ICT in the content delivery of educational statistics.		
	Not being ICT compliant by all the academics will affect the use of ICT in content delivery of educational statistics in Nigerian universities		
	Inability of the students to provide their own ICT facilities needed for the application of ICT will be an obstacle		

In Table 2, 86.1% of academics agree that it will be better if ICT facilities are recommended for teaching-learning of educational statistics. They also agreed that the integration of ICT in content delivery of educational statistics will make the course interactive (76.9%, item 2), interesting (76.9%, item 6), and improve the content mastery (97%, item 5). On the other hand, lack of technology facilities by tertiary institutions (70.8%, item 7) and students (87%, item 10), fluctuations in the supply of electricity (88.5%, item 8) and not being ICT compliant by all the academics (87.0, item 10) in this area of specialty, will affect the implementation of the use of ICT in content delivery of educational statistics.

Discussion

As revealed in this study, the academics' perception of using ICT in content delivery of educational research and statistics appears to be positive. The reason is that the majority of these academics indicated that it would be better to recommend using ICT facilities in teaching and learning educational research and educational statistics. They agreed that using ICT will help make the teaching and learning of these courses interactive and interesting, thereby improving the content mastery required. This result agrees with that of Arikpo and Odinko (2016), who revealed that academics' perceptions of ICT resource use are positive as they were at home with the use of ICT facilities in teaching. Also, the finding is in collaboration with the International Institute for Communication and Development (IICD, 2007), which stated that positive affection by using ICT resources could be attributed to how the teachers perceive it.

Interestingly, the results again revealed the academics' positive perception regarding some factors that could affect the use of ICT in content delivery of educational research and statistics. This study corroborates the findings of Arikpo and Odinko (2016) who found out that, non-exposure of academics who will be ready to use ICT resources and ensure its full operation in the school system, lack of relevant software for teaching and learning, and inadequacy of computer facilities in the schools could act as constraints to effective implementation of ICT resources in schools. Also, in agreement with this finding are those of Yusuf, Afolabi and Loto (2013); Starr (2001); and Effiom, Ovat, Nwogwgu, and Umo (2022). Their studies revealed some of the factors affecting the utilisation of ICT resources in education across Nigeria, including inadequate funding to support the purchase of the ICT facilities, lack of training in the use of ICT facilities, teaching personnel's lack of motivation and the need among academics to adopt ICT as teaching tools.

Conclusion and Recommendations

The majority of university academics' positive perception of using ICT in the content delivery of educational research and statistics has revealed their readiness to embrace new innovations in the teaching-learning of these courses if the identified challenges are addressed by the appropriate authorities in Nigerian universities. The following recommendations were made based on the findings;

- ❖ Using ICT in content delivery of educational research and educational statistics should be encouraged by all the stakeholders in education.
- ❖ Awareness must be created amongst academics and students to highlight the potential advantages of using technology in teaching and learning.
- ❖ Adequate ICT facilities should be made available and accessible by the government and management of Nigerian universities.
- ❖ The government and Nigerian universities should provide adequate electricity needed for ICT use in the content delivery of these courses.
- ❖ To develop new crops of ICT and the technologically skilled workforce needed to actualise ICT use in content delivery of education research and statistics. The government should organise ICT skills training for all Nigerian universities.

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