African Journal of
Education and Practice
(AJEP)

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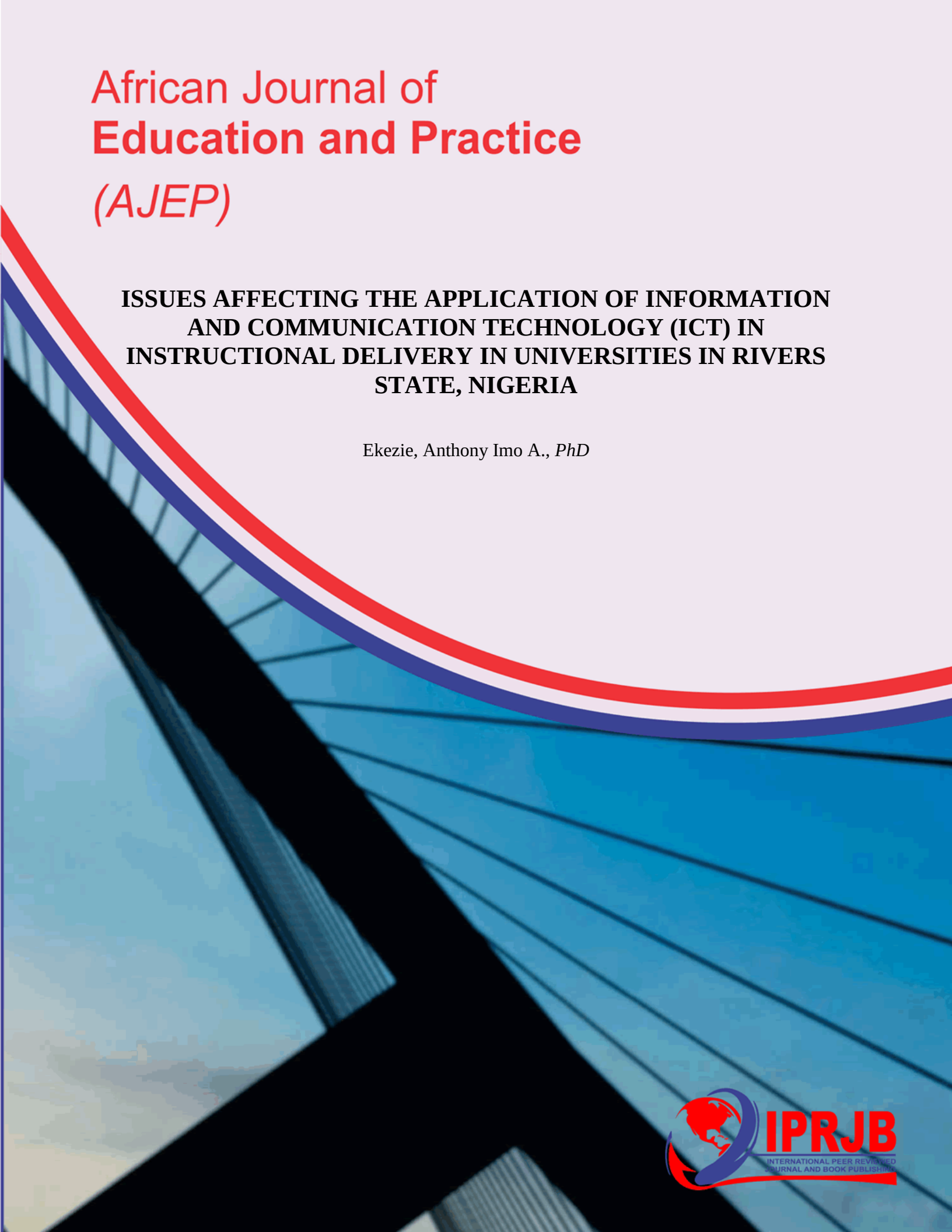

IPRJB
INTERNATIONAL PEER REVIEWED JOURNAL AND BOOK PUBLISHING

African Journal of Education and Practice
ISSN 2519-0296 (online)
Vol.7, Issue 1.No.1. pp 1 - 12, 2020

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www.iprjb.org

ISSUES AFFECTING THE APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN INSTRUCTIONAL DELIVERY IN UNIVERSITIES IN RIVERS STATE, NIGERIA

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Abstract

Purpose: The study was conducted to ascertain the issues affecting the application of information and communication technology (ICT) in instructional delivery in universities in Rivers State, Nigeria.

Methodology: The study adopted descriptive survey design. The population of the study was 48 educational technology lecturers from three universities in Rivers State. No sampling was done because the population was small and of manageable size. Two research questions guided the study. The instrument used for data collection from respondents was a 20-item self-structured questionnaire designed by the researcher and titled "Information and Communication Technology Issues in Universities Questionnaire (ICTIUQ)". The ICTIUQ was constructed on a 5-point Likert scale. The reliability of the instrument was determined using Cronbach's Alpha Method which yielded a reliability coefficient of 0.83. Mean and standard deviation were descriptive statistical tools used to answer the research questions.

Results: The findings of the study revealed among others that poor supply of ICT infrastructure, inadequate trained ICT lecturers and poor funding are some of the critical issues affecting the use of ICT in instructional delivery in Universities in Rivers State.

Unique contribution to Theory, Policy and Practice: The study contributed to the theory of technology acceptance model. Hence, it was recommended among others that Government should engage more ICT- trained lecturers, provide more funds and supply more information and communication technology facilities in Universities in Rivers State, Nigeria to aid computer assisted instruction.

Keywords: *Information and communication technology, instructional methods, university students.*

1.0 INTRODUCTION

Everywhere around the world, universities are seen as citadels of excellence in teaching and learning, applied research, creativity and innovation, as well as veritable tools for advanced career development. According to Startup as cited in Adewale and Taiye (2018), a university can be defined as an institution, where people meet at specific times and in patterned ways, to engage in teaching, research and community service. Academic instructions are usually given by university lecturers and instructors to the students in a number of diverse teaching methods and instructional strategies considered to be appropriate to the given situation. These instructional methods are carefully selected by lecturers to suit the demands of the course contents as stipulated in the curriculum. Some of the teaching methods and strategies adopted for effective teaching and learning in universities include conventional teaching (lecture) method, team teaching, demonstration method, discussion method, brain-storming, problem-based learning, discovery, peer-tutoring, industrial visitation, project, computer assisted instruction (CAI) among others. Some of these teaching methods such as lecture, team teaching among others are referred to as teacher-centred methods while others such as collaborative learning, problem-based learning, demonstration method, industrial visitation among others are called student or learner-centred methods. The teacher-centred method as the name implies makes the teacher to appear as one having a monopoly of knowledge; the only one capable of passing knowledge and information to learners whose only duty is limited to information and knowledge reception.

In teacher-centred teaching and learning, students receive passive instructions from the teacher who now attracts all attention in the class. Student-centred methods on the other hand, are those active learning strategies aimed at involving the learners in the teaching-learning processes so as to enable them contribute meaningfully to their educational development by constructing their own learning. Student-oriented teaching approaches such as problem-based learning and computer assisted instruction require students to do research, combine theory and practice, find practical solutions over a defined problem, and use their knowledge and skills (Savery, 2006). Similarly, Barrows (2002) explains that student-centred instructional approach allows students to gain effective skills for problem-solving through different research and experiences in the education field and to accumulate knowledge through learning, team work, different subjects and disciplines. The need to select and adopt a suitable method of instruction in a given course or topic is aimed at ensuring effective teaching and learning. Using an appropriate teaching method for each topic in a course (subject) could enhance students' overall academic achievements in that course. By nature, some courses are theory-based suitable for lecture method and other teacher-centred teaching strategies while others are practically-inclined which requires adequate practice (i.e. hands-on) experience. One of such active instructional methods available in the field of education for the 21st century teaching and learning is information and communication technology (ICT) which is also known as computer assisted instruction in instructional delivery. ICT enhances students' academic excellence when rightly applied. The students' academic achievements in any educational setting can greatly improve should lecturers and instructors of educational technology departments in universities begin the crusade for effective application of computer assisted instruction at the tertiary level of education in Nigeria.

1.1 The Problem of the Study

Today the world is regarded by digital experts as a global village based on the numerous innovations and inventions in information and communication technology which links all parts of the world together as a web. ICT finds applications in many sectors such as banking, oil and gas, education, manufacturing, agriculture, mining, transportation among others. However, irrespective of the values added to the quality of life by recent discoveries in digital technology, many educational systems of third world countries of which Nigeria is one are yet to fully embrace the vision of realizing a technology-driven economy through quality education and research using ICT (Kaku, 2005). Kaku stated further that poor search skills and access points in Nigerian schools are some of the factors inhibiting the use of internet by teachers and students in Nigerian institutions of learning. Similarly, in the words of Essien, Ajake and Ojini (2010), ICT in education has the potential and capacity to enhancing the quality of teaching and learning and research in educational institutions. Furthermore, Yusuf *et. al* (2013) posit that although ICT comes with tremendous benefits, the educational sector in Nigeria records minimal impact of ICT utilization and application. This major setback has affected the nation's educational institutions adversely in the sense that many young graduates aspiring to gain employment in good industries cannot do so due to their inability to have basic computer knowledge through education. Lack of computer skills is a major issue adversely affecting many graduates leading to their unemployment in Rivers State, Nigeria. Yusuf *et. al* (2013) stated that ICT as a central force in economic and social advancements tends to develop the technical skills of students to access good employment opportunities if properly utilized. Although several studies have been conducted previously by researchers on the issue of poor usage of ICT in teaching and learning in secondary schools in Nigeria, none of the studies addressed the problems of using ICT in instructional delivery specifically in universities in Rivers State, Nigeria. Thus, this development informed the researcher's quest to carry out this study targeted at the factors affecting the application of ICT in universities in Rivers State, Nigeria.

1.2 Purpose of the Study

The main purpose of the study was to ascertain the issues affecting the application of information and communication technology in instructional delivery in universities in Rivers State, Nigeria. Specifically, the study sought to:

1. Determine the issues affecting ICT usage for instructional delivery in universities in Rivers State, Nigeria.
2. Determine possible remedies to poor usage of ICT in instructional delivery in universities in Rivers State, Nigeria.

1.3 Research Questions

The following three research questions were posed by the researcher to guide the study:

1. What are the issues affecting ICT usage for instructional delivery in universities in Rivers State, Nigeria?
2. What are the possible remedies to poor usage of ICT in instructional delivery in universities in Rivers State, Nigeria?

2.0 LITERATURE/THEORETICAL FRAMEWORK

2.1 Conceptual Framework of the Study

2.1.1 Definitions of Information and Communication Technology (ICT)

Information and communication technology is described by Salau and Sanigbe (2008) as that involving technologies capable of facilitating communication, processing and transfer of information through electronic means. Similarly, Gomes in Aguba (2013) defines information and communication technology as a tool for the post-industrial age which serves as the foundation of knowledge economy owing to its ability to facilitate the transfer and acquisition of knowledge that serves as a formidable force of globalization. Furthermore, Kokt and Koelane (2013) and Adebayo (2013) in their separate studies describe information and communication technologies (ICTs) as the technology that supports activities involving the creation, storage, manipulation, communication of information using microelectronic and telecommunications tools such as laptops, computers, computer networks, internet, digital printers and mobile technology that are used by the administrator to record, store, process, retrieve and transmit information. ICT as an innovation in technology education enhances scope of education by facilitating mobile learning and inclusive education.

2.1.2 Importance of Information and Communication Technology in Education

In today's world of technology, virtually everything is gradually becoming information technology (IT)-driven including education. Information Technology (IT) has the capacity to promote and encourage educational information from a very teacher directed enterprise to one which supports more student-centred instructional models. According to Jonassen and Reeves (1996), students who use ICTs for learning purpose are usually very active in the process of learning. ICT equipment, gadgets and tools must first be available in schools before they can be used for applied teaching and learning. Thus, technology had and will continue to yield positive influence on students' learning. Shavinina (2001) maintained that ICT developed human mental resources, which makes people to both successfully apply the existing knowledge appropriately to develop new knowledge. ICT plays a very special role in enhancing learning within the classroom and beyond. Information and communication technology is an intervention strategy that came at the right time (Yusuf, Afolabi & Loto, 2013). Information and communication technology (ICT) according to Aguba (2013) constitutes the basis for meaningful educational development of any modern society and as a result Nigeria has no option but to integrate it into its educational system for improved efficiency and effectiveness. Thierer (2000) states that the roles of ICT in education is rapidly becoming one of the most vital and extensively discussed issues in modern educational systems around the world. Similarly, Aguba (2006) states that ICT application in education is directly linked with educational innovations. The use of ICT in scholarly research and communication cannot be over-emphasized as Yusuf and Onasanya (2004) posit that ICT creates avenues for intensive communication among schools' stakeholders including parents, teachers, students and the schools' management through e-mail, mailing list, chat rooms, social media among others. ICT provides easy access to useful information that are capable of increasing students' academic productivity. Furthermore, Yusuf *et. al.,* (2013) posit that ICT has immensely contributed to the quality and quantity of teaching, learning and research in educational institutions across the globe. ICT has positive impact on student's academic

achievements. ICT potentials for the education sector are numerous. Honey and Mandinach as cited in Yusuf (2005) outlined three major aims of information and communication technology in education to include serving as an effective tool for addressing common issues in teaching and learning; a change agent capable of altering the content, methods and overall quality and quantity of teaching and learning, and acting as a crucial force in global economic effectiveness.

2.2 Theoretical Framework of the Study

Technology Acceptance Model (TAM) was the theory upon which this study was anchored. TAM is one of the most popular theories widely used to explain Information System usage. Technology Acceptance Model which was developed by Davis (1989) is one of the most popular research models to predict the use and acceptance of information systems and technology by individual users. TAM has been widely studied and verified by different studies that examine the individual technology acceptance behavior in different information systems constructs. Furthermore, several studies have been conducted which led to the changes in the originally proposed model. The perceived usefulness factor and perceived ease of use factors are major factors in computer use behaviors that are based on Technology acceptance model. TAM has been widely used to scrutinize individual technology acceptance behavior in various types of information systems. Thus, this study which was conducted on the issues affecting the application of information and communication technology in instructional delivery in universities in Rivers State, Nigeria was anchored on the technology acceptance model owing to its usefulness and relevance in information and communication usage in diverse fields and disciplines of which education is one.

2.3 Review of Related Empirical Studies

Information and communication technology is one of the tools that can be used to achieve giant strides in the Nigerian educational system if properly harnessed. Babangida (2017) opines that despite the huge benefits of ICT in teaching, learning and research, the use of computers in Nigerian tertiary institutions was found to be less than five percent which implies that Nigeria is yet to fully become computer-compliant educationally. In a related study, Adewale and Taiye (2018) report that the place of Information and Communication Technologies in enhancing university administration cannot be over-stressed noting that without it, proper management of human and material resources in universities will be very laborious for administrators. In the same vein, Maki (2008) argues that the use of information and communication technologies is key to effective and purposeful university administration. Despite the enormous resources allocated to university education over the years, many institutions and universities in Nigeria are still unable to maximally utilize ICTs in realizing their teaching, learning and research mandates (Kupoluyi, 2015; Jagboro, 2003). Information and communication technology unites people with timely information and communication dissemination in organizations for productive work and development. (Akpan, Obong & Alozie, 2016). ICTs help in providing a good communication system in the university system by providing timely information to all concerned (Magni, 2009) such that the integration of ICTs into general administration has brought about increased efficiency and optimal resource usage (Hasan et al, 2007). Oliver (2000) stated that ICTs are dominating so much of contemporary life and work so much so that its impact on the contents of education curricular are monumental. In another study by Yusuf (2005), it was submitted that ICT has impacted on the quality and quantity of teaching, learning, and research in traditional

and distance tertiary education institutions across the globe. Thus, information and communication technology has numerous potentials in which if properly tapped by the educational system in Nigerian especially at the tertiary education level, it will yield tremendous benefits with noticeable complementary positive changes in the quality of education in the country. The poor application of ICT in instructional delivery in universities in Rivers State may be caused by many factors which limits its usage. Ibe (2011) reports that ICT facilities like desktop computers, laptop computers, scanners, printers, projectors, flash drives, diskettes, television sets, slides among others are indispensable for effective ICT teaching and learning in schools.

Furthermore, Ocho in Aguba (2013) stressed the need for Government to engage quality teachers who are well-trained in educational technology principles and applications as no nation can rise and develop beyond the quality of its teachers. Thus, shortage of ICT professional trainers, inadequate supply of electronic communication tools and gadgets, epileptic power supply, inadequate materials and modern textbooks on ICT are some of the challenges of ICT application in Nigerian educational system (Yusuf, Afolabi & Loto, 2013). Similarly, Aguba (2013) states that most teachers and students in secondary schools are yet to understand the intricacies associated with the working of the computers as well as information technological tools. In his view, Okeke (2004) posits that ICT education cannot be feasible unless skilled teachers in ICT are engaged, motivated and re-trained to teach students accordingly. This development leads to the production of several graduates who are not computer literate even in this modern world of technology in which the wind of technological innovations is blowing virtually across all sectors of which education sis not an exception. Yusuf *et.al*. (2013) reports that there is need for improvement of teaching and learning activities in Nigerian tertiary institutions via information and communication technology application in education. Hence, the issue of poor application of ICT in instructional delivery in universities in Rivers State informed the researcher's desire to conduct this study to see how the issue can be resolved.

3.0 MATERIALS AND METHOD

The study adopted descriptive survey design. This design was considered suitable for the study because questionnaire was used to collect data from educational technology lecturers from the three universities in Rivers State in which educational technology is offered as a course in the faculty of education and the analysis of data collected produced results at the end of the study. The universities used for the study were Rivers State University, Port Harcourt, Ignatius Ajuru University of Education, Port Harcourt and the University of Port Harcourt, Port Harcourt, Rivers State, Nigeria. The population of the study was 48 educational technology lecturers from three universities in Rivers State. No sampling was done because the population was small and of manageable size. Two research questions guided the study. The instrument used for data collection from respondents was a 20-item self-structured questionnaire titled "Information and Communication Technology Issues in Universities Questionnaire (ICTIUQ)". The ICTIUQ was designed on a 5-point Likert scale of Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD) having numerical equivalence of 5, 4, 3, 2 and 1 respectively. The instrument was face and content-validated by two experts in educational technology and one expert in measurement and evaluation from Niger Delta University, Wilberforce Island,

Amassoma, Bayelsa State, Nigeria. The corrections and suggestions made by the validators were incorporated into the final stage of the instrument's development. The reliability of the instrument was determined using Cronbach's Alpha Method which confirmed the internal consistency of the instrument after being used to carry out pilot testing on 14 educational technology lecturers from the University of Uyo, Uyo, Akwa-Ibom State, Nigeria and the results yielded a reliability coefficient of 0.83. Mean and standard deviation were statistical tools used to answer the research questions. The decision to either accept or reject an item in the questionnaire was made based on the criterion mean of 3.00. Thus, every item whose mean value falls below the 3.00 cut-off will be rejected while any item having a mean equal to or above the criterion mean of 3.00 will be accepted. Again, any item with a standard deviation of 1.96 or below revealed that the respondents were close to the mean and not too far from one another in their responses.

4.0 RESULTS AND DISCUSSION OF FINDINGS

The findings of the study were presented in accordance with the research questions:

4.1 Response Rate

The research instrument was administered to the respondents by the researcher and two other research assistants who also help to retrieve it from the respondents after it has been properly filled. Out of the 48 questionnaires distributed to the respondents, only 42 representing 87.5 percent of the total questionnaire distributed, were successfully retrieved and used for data analysis.

Research Question 1: What are the issues affecting ICT usage for instructional delivery in universities in Rivers State, Nigeria?

Table 1: **Issues Affecting ICT Usage for Instructional Delivery in Universities in Rivers State.**

S/N	Items	$\overline{X}_1$	SD	Decision
1.	Inadequate engagement of ICT-compliant lecturers.	3.98	0.76	Agree
2.	Poor electricity supply.	4.22	0.89	Agree
3.	High cost of ICT equipment and gadgets.	3.26	1.03	Agree
4.	Poor internet connectivity.	3.72	1.12	Agree
5.	Poor supply of ICT facilities.	4.04	0.87	Agree
6.	Menace of brain drain.	3.42	0.73	Agree
7.	Poor utilization of ICT training software.	4.08	0.88	Agree
8.	Poor application of power points in project and seminar presentations.	3.46	0.72	Agree
9.	Poor organization of conferences and workshops for ICT training.	3.28	0.91	Agree
10.	Poor funding of educational programmes.	3.06	0.98	Agree
	Grand Mean and SD	**3.65**	**0.89**	

Source: *Field Survey, 2020*

Table 1 revealed that all the items represent issues affecting the use of information and communication technology in instructional delivery in universities in Rivers State as all the items have Mean values above the criterion Mean of 3.00. Standard deviation values ranging from 0.72 to 1.12 show homogeneity in the responses of respondents. The finding in Table 1 revealed ICT application in schools is hindered by several challenges such as poor electricity supply, poor internet connectivity, poor engagement of quality ICT lecturers among others, constitute issues affecting the use of ICT in instructional delivery in universities in Rivers State. This finding agrees with Jagboro (2003) who submitted that low level of connectivity, high cost of cyber café facilities, lack of substantial online learning resources, absence of faculty compensation for teaching online and inadequate funding are some of the issues adversely affecting the use of ICT in universities. Similarly, this finding corroborates Kupoluyi (2015) who reports that poor awareness of ICT, poor management commitment for the progress of ICT application and implementation in universities, high cost of bandwidth and lack of technical support, insufficient knowledge, gender, age of teacher, lack of motivation, lack of technical skills, inadequate provision of computer hardware/software are some of the issues affecting ICT usage in universities in Rivers State. In the same vein, the study agrees with Yusuf, Afolabi and Loto (2013) reports that shortage of ICT professional trainers, inadequate supply of electronic communication tools and gadgets, epileptic power supply, inadequate materials and modern textbooks on ICT are impediments to quality ICT application in Nigerian educational system.

Research Question 2: What are the possible remedies to poor usage of ICT for instructional delivery in universities in Rivers State, Nigeria?

Table 2: Possible Remedies to Poor Usage of ICT for Instructional Delivery in Universities in Rivers State, Nigeria.

S/N	Items	$\overline{X}_1$	SD	Decision
1.	Recruitment and engagement of more ICT-compliant lecturers.	3.82	0.89	Agree
2.	Improved electricity supply.	4.04	0.87	Agree
3.	Provision of ICT equipment and gadgets by oil/gas industries and other NGOs.	3.64	0.92	Agree
4.	Improved internet connectivity.	3.98	0.76	Agree
5.	Adequate supply of ICT facilities by Government.	4.22	0.62	Agree
6.	Improved condition of service for academic staff to discourage brain drain.	3.76	1.04	Agree
7.	Improved utilization of ICT training software.	3.24	1.11	Agree
8.	Adequate application of power points and other ICT packages in project/seminar presentations.	3.58	0.88	Agree
9.	Proper organization of conferences and workshops for ICT training.	3.88	0.96	Agree
10.	Adequate funding of educational programmes.	4.26	0.77	Agree
	Grand Mean and SD	**3.84**	**0.88**	

Source: *Field Survey, 2020*

Table 2 indicated that all the items constitute remedies to the issue of poor ICT usage in instructional delivery in universities in Rivers State as indicated by the Mean values of all the items which were all above the cut-off Mean of 3.00. Standard deviation values ranging from 0.62 to 1.11 show closeness in the responses of respondents. This finding revealed that improved staff welfare, adequate supply of electronic and other ICT equipment and gadgets, improved power supply, adequate programme funding among other points are possible remedies to the problems of poor ICT usage in universities in Nigeria. This finding agrees with Ojedokun and Owolabi (2003) who submit that in overcoming the menace of poor ICT usage in schools, lecturers and teachers in the developing world would have to change their teaching styles and acquire relevant skills and technologies to transform the various classrooms. Similarly, the finding was supported by Nwokedi (2007) who posits that there is need for instructors to learn new skills to teach students how to search for and use information to access to current research findings and gain global knowledge. Again, this finding corroborates Sipila (2010) and Ifinedo (2007) who in their separate studies report that by providing proper technical infrastructural equipment and support as well as human resources development, the use of ICT in institutions will receive an improvement. Therefore, all the issues affecting adequate use of ICT in universities in Rivers State would be eliminated if Government provides quality human and infrastructural resources in information and communication technology in universities in Rivers State, Nigeria.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

Information and communication technology owing to its relevance to the educational sector of the economy of Nigeria cannot be treated lightly. Hence, factors inhibiting its effective usage in teaching-learning and research in universities in Nigeria must be carefully studied to proffer possible solutions that could lead to effective ICT usage in the educational system of Nigeria. That is all what this present study was all about.

5.2 Conclusion

Information and communication technology is one area that has wide applications and coverage in education, security, science, research and development, institutional management, industrial production among others. Everything around the world is directed towards ICT application. Therefore, it becomes imperative for tertiary educational institutions which are citadels of excellence in teaching, learning and research as well as community development services to adopt pragmatic approach to proffering solutions to the numerous challenges of ICT usage in universities in Rivers State, Nigeria.

5.3 Recommendations

Based on the findings of the study, the following recommendations were suggested:

Government should engage more ICT trained lecturers in universities in Rivers State, Nigeria to help in the effective training of students. Government should supply adequate ICT facilities in

universities to enhance its usage in instructional delivery. Government should adequately fund educational programmes of universities in Rivers State, Nigeria. University lecturers in Rivers State should encourage the use of ICT among students by giving assignments that would warrant them to carry out quality online research using computer and other information and communication technology gadgets.

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