IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) ON RESEARCH PUBLICATION AND DISSEMINATION OF INFORMATION IN UNIVERSITIES IN BENUE STATE

Isaac Tyoakura Ahon
Department of Educational Foundations
Benue State University, Makurdi

Yikarebogha Esther
Assembly of God's Church
Church Road Akenfa 2, Yenagoa, Bayelsa State

Tersoo Joseph Loko
Department of Art and Social Science Education
Benue State University, Makurdi

Abstract

The study investigated impact of Information and Communication Technology (ICT) on research publication and dissemination of information in Universities in Benue State. Two research questions guided the study and two hypotheses were formulated and tested at 0.05 level of significance. The population of the study was 3,422 made up of all the academic and non academic staff from three universities in the Benue State, Nigeria. The sample size of the study was 347 using Glenn (2012) sample determination formula. Multi-stage sampling procedure was employed for the study. The instruments used for data collection were questionnaire titled: "Impact of ICT on Research Publication and Dissemination of Information in Universities in Benue State (IICTRPDIQ)" with reliability coefficient of 0.70 which was estimated using of Cronbach alpha. Data collected were analyzed using mean and standard deviations to answer the research questions. Chi-square was used to test the null hypotheses at 0.05 level of significance. The findings of the study revealed ICT has significant impact on research public and dissemination of information in public universities in Benue State, Nigeria. Based on the findings of the study, it was recommended Staff in the university should acquire skills and awareness in the use of electronic support systems in order to enhance their research and publication. Universities in Benue State should ensure that each and every staff has a functional mail that will enable them to getting information from the university management.

Keywords: ICT, Research Publication and dissemination of Information

Introduction

Information and Communication Technology (ICT) is a network which offers a steadily expanding range of new services that may have major economic consequences for the standardisation of information in federal and state universities. It is a computer-based tool used by organisation's personnel in the processing of their information and

communication needs. It encompasses the computer hardware and software, the network and several other devices like audio, video, photography and camera that convert information into common digital form. There are three categories of Information and Communication Technology. These are processed information (computer systems), disseminating information (telecommunication systems) and represented information (multi-media system). Information technologies available for university administration are listed to include: e-mail, internet, teleconference, facsimile (fax), minicomputer, and base computer (Nwafor, 2005).

Information and Communication Technology (ICT) according to Akpan (2008) involves the process of creating, processing, storage, retrieval and dissemination of information and data using computers and other communications gadgets. In education, ICT involves the application of digital equipment to all aspects of teaching and learning. Thus, ICT encompasses a combination of technologies for the collecting of information related to the teaching and learning process. The prevalence and rapid development of Information Communication Technologies (ICTs) have transformed human society from the information technology age to the knowledge age (Johnson, 2007).

In the past few years of the existence of higher education in Nigeria, the experience of staff in using Information and Communication Technology (ICT) as part of their everyday practice in the performance of their job has gradually been made easy. Consequently, staff use of ICT facilities has repositioned technology driven services to a central role as an educational tool. Practically, ICT has impacted on staff in our institutions of learning to streamline operations, monitor performance and improve staff skills in the use of physical resources and other ICT accessories such as computers, mobile phones, fax, internet, connectivity, software, hardware video and projectors (Haded & Jurich, 2005). In addition, evidence from the study of Lucy (2010) revealed that (ICT), since its inception in education industry, has provided valuable support in personnel human resources management, students and online administration, finances, assets and maintenance, documentation, effective communication and office automation thereby increasing staff performance efficiency and productivity.

University education in Nigeria is aimed at producing high level manpower to cater for the various sectors of the country's economy. It is expected to contribute to national development by intensifying and diversifying its programmes for the development of high manpower needs of the nation and making professional course contents to reflect our national regiments (Federal Republic Nigeria, 2013). These objectives could be achieved through effective teaching, research and other allied academic activities.

For university staff to carry out their job efficiently and effectively, especially in a knowledge-based era driven by technology and globalisation, the use of Information and Communication Technology (ICT) becomes imperative. Interestingly, universities all over the world are rapidly incorporating Information and Communication Technology (ICT) into all facets of teaching, research and management (Akpan, 2014). University that succeed in making use of Information and Communication Technology (ICT) in their work process do not only contribute to improved learning outcomes in their students, but also benefit personally from enhanced work productivity (Carlson & Gadio, 2002). Administration of university is the extent to which the university system has been able to operate within the confines of their statutes in order to carry out their primary assignment of teaching and research (Ibiam, 2014). University management involves planning, organizing, directing,

controlling, coordinating and evaluating activities aimed at achieving the goals of the university. Management is an effective organization and actualization of human and material resources in a particular system for the achievement of identified objectives. The goal of university education is pursued through its main functions and activities of teaching, research, dissemination of existing and new information, services to the community, and being a store house of knowledge (Peter, 2016). It also involves all the activities carried out by the university to achieve the desired outcome on teaching and learning.

One basic truth is that information and communication technology (ICT) has enhanced the management of universities in the area of teaching and learning. It has contributed in improvising and making learning more practical to students in the classroom. Many learning activities and content are made available for students through the use of ICT facilities such as projectors, computers, television, radio and mobile phones. More studies have supported the claim that technology has great potential to provide new kinds of instructional opportunities and to enhance the knowledge and learning experiences of both the teachers and students (Opira, 2010). Today, innovations in classroom instruction are springing up across the universities and this has continued to play down the democratizing imperatives of "giving voice" to the students, asserting a singular top-down authority in the classroom. This is attributed to the information and communication technology, which continues to shape curriculum to reflect the realities of the 21st century.

Jibrin (2019) found that information and communication technology (ICT) impact research publication and dissemination of information in public universities. This result also supports the findings of Nwafor, Nwafor, Azeke, Okoro and Patta (2013) who reported that academic staff in the three universities agreed that internationalization of higher education promoted collaboration among academic staff (mobility), exposed academic staff to participate in outreach programmes, and improved curricular, quality of facilities and the substance of teaching, learning and research in the universities. Similarly, Toyo (2017) also reported that ICT enhances effective teaching, learning, research and administrative activities to ensure that higher educational processes are optimized.

This found that The Internet is used for communicating examination results to students. Computer packages are used for quick release of results of evaluation of instructional outcome for supervision. e-mails facilitate quality feedback and transmission of actions. Communication within and outside the school is conveniently done at reduced cost with internet. Online communication enables students to have access to it faster. Internet facilities help lecturers to interact and exchange opinions with students through emails. This study supports the findings of Kaino, Mtewa and Kasanda (2014) who reported that ICT facilities are used for dissemination and utilization of research outputs, ICT facilities are also used for research agenda and for treatment and designing of information. Oluyemisi and Iaeng (2015) also found that ICT tools are use in solving the problem of poor communication in schools and achieving effective planning. Nguyo, Kimwele and Guyo (2015) who found that ICT tools such as collaborative workspaces, online discussion forums, social communities, corporate emails, web meetings and portals increase the quantity and quality of knowledge shared. The study also reported that ICT networks available are inevitable precondition for effective knowledge sharing and virtual workspaces are convenient ways of remotely sharing knowledge.

If one examines the use of ICT in the Nigerian universities, it seems that staff and administrators do not make effective use of the technology. It is in the light of the above scenario that Sanusi (2008) remarks that there is still a long way to go before universities in

developing countries like Nigeria will be able to take advantage of the opportunity provided by the 2020 technology. It is against this background that this study seeks to investigate impact of Information and Communication Technology (ICT) on research publication and dissemination of information in universities in Benue State, Nigeria.

Statement of the Problem

Despite all efforts of the federal and state governments towards enhancing learning and academic excellence in the universities in Benue State, there seem to be some challenges in the sector, specifically in the area of information and communication technology. Although universities in Benue State are striving so hard to play a leadership role in Nigeria, particularly in this period of pragmatic and competitive science and technology, the seemingly inadequate application of ICT in its university education appears to be hampering its chances of achieving this goal. It seems that not much attention is given to the improvement of research publications and dissemination of information via the use of information and communication technology.

In the present era of globalisation, staff of universities in the zone cannot be divorced from the level of Information and Communication Technology (ICT) proficiency which is necessary for quality academic output. In this regard, universities staff in Benue State of Nigeria seem not to recognise the opportunities that ICT presents for improving the research and publications and dissemination of information. Some of them are perceived to lack adequate knowledge that would aid the application of ICT skills in instructional delivery, research and publication and dissemination of information.

Although several attempts have been made by some universities in the provision of ICT facilities, encouraging staff to acquire knowledge of ICT and its management, yet staff output in various areas such as research and publications and dissemination of information are perceived to be negligible. It is worrisome to observe that many university staff in Nigerian universities in Benue State appear not to be computer literate. It is also seems that many staff in the universities probably do not emphasize ICT compliance of its workforce.

It could be that in the face of these problems, not much progress has been made in the use of ICT and its impact on staff could be largely unachievable. It is based on these worrisome scenarios that this study investigated the Information and Communication Technology (ICT) as a correlate of management of universities. The problem of this study therefore is: what is the correlation between ICT and management of universities in Benue State?

Research Questions

The following research questions guided the study:
1. What is the impact of Information and Communication Technology (ICT) on research publication in universities in Benue State?
2. What is the impact of Information and communication technology (ICT) on dissemination of information in universities in Benue State?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:
1. There is no significant impact of Information and Communication Technology (ICT) on research publication in universities in Benue State.

2.   There is no significant impact of Information and communication technology (ICT) on dissemination of information in universities in Benue State.

Research Methods

This study adopted cross sectional research design. It is a type of research design in which data are collected from many different individuals at a single point in time. In cross-sectional research, the researcher observes variables without influencing them. According to UK Essays (2018), a cross-sectional design entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables which are then examined to detect patterns of association.

The population of this study comprised 3,422 made up of all the academic and non academic staff from three universities in Benue State, Nigeria. The sample size of the study was 347 using Glen (2012) sample size determination formula. Multi-stage sampling procedure was employed for the study. The instrument used for data collection was a structured questionnaires titled: ''Impact of ICT on Research Publication and Dissemination of Information in Universities in Benue State (IICTRPDIQ)'' with reliability index of 0.70. The questionnaire was structured on mode of Strongly Agree (SA) =4, Agree (A) =3 Disagree (D) =2 and Strongly Disagree (SD) =1 respectively. The decision rule was based on 4+3+2+1=10/4=2.50. This indicates if calculated mean is 2.50 above the item or cluster mean was agreed, however, the item and cluster mean is less than 2.50 the item was disagreed. Chi-square was used to test the null hypotheses at 0.05 level of significance. The decision rule was that if the calculated probability value is greater than the set alpha level of 0.05, the null hypotheses was not rejected. On the other hand, if the calculated probability value is less than set alpha 0.05 level of significance the null hypotheses were rejected.

Face and content validation of instrument were done by three experts in the Department of Educational Foundations, Benue State University, Makurdi with reliability of coefficient of 0.70 which was estimated using Cronbach Alpha. The questionnaires were administered on the respondents from the three universities using three research assistants who were chosen from two public universities namely Joseph Sarwuan Tarka University, Makurdi and Benue State University, Makurdi. The data generated were analyzed using mean and standard deviations to answer the research questions, while Chi-square was used to test the hypothesis at 0.05 level of significance.

Results

Research Question 1: What is the impact of Information and Communication Technology (ICT) on research publications in universities in Benue State?

Table 1:
Mean Scores and Standard Deviation of Respondents on Impact of ICT on Research Publications in Universities in Benue State

S/N	Item Description	N	X	Std	Decision
1	Printer enables lecturers to produce handouts for students to read as learning materials.	299	2.92	0.92	Agree
2	Internet helps staff to their articles for publication in international journals.	299	2.02	0.70	Disagree

3	Zoom enables staff to participate actively in global research networks.	299	2.79	0.88	Agree
4	Printer facilities increase the productivity of lecturers in publishing their articles.	299	2.70	1.12	Agree
5	Complex statistical calculations which are important in research can be solved speedily with aid of mathematics software.	299	2.76	1.08	Agree
	Cluster Mean/Std		**2.64**	**0.94**	**Agree**

Table 1 indicates the mean scores of item 1-5 as 2.92, 2.02, 2.79, 2.70 and 2.76 with corresponding standard deviations 0.92, 0.70, 0.88, 1.12 and 1.08. All items were rated above the criterion mean of 2.50 except item 2. The cluster mean of 2.62 with corresponding standard deviation of 0.94 is above 2.50. This means that ICT has impact on   research publications in universities in Benue State.

Research Question 2: What is the impact of Information and Communication Technology (ICT) on dissemination of information in public universities in Benue State?

Table 2:
Mean Scores and Standard Deviation of Respondents on Impact of ICT on Dissemination of Information in Universities in Benue State

S/N	Item Description	N	X	Std	Decision
6	The Internet is used for communicating examination results to students.	299	3.02	0.95	Agree
7	Computer packages are used for quick release of results of evaluation of instructional outcome for supervision.	299	2.78	1.03	Agree
8	e-mails facilitate quality feedback and transmission of actions.	299	2.03	0.82	Agree
9	Communication within and outside the school is conveniently done at reduced cost with internet.	299	2.57	1.15	Agree
10	Online communication enables students to have access to it faster.	299	2.76	1.06	Agree
	Cluster Mean/StD		**2.63**	**1.00**	**Agree**

Table 2 indicates the mean scores of 6-10 as 3.02, 2.78, 2.03, 2.57 and 2.76 with corresponding standard deviations of 0.95, 1.03, 0.82, 1.15 and 1.06. All the items were rated above 2.50 except item 8. The table also indicates cluster of 2.63 with corresponding standard deviation of 1.00. This means Information and Communication Technology (ICT) has impact on Information and Communication Technology (ICT) on dissemination of information in public universities in Benue State.

Hypothesis 1: There is no significant impact of Information and Communication Technology (ICT) on research and publications in universities in Benue State.

Table 3:
Chi-square test on Impact of Information and Communication Technology (ICT) on Research and Publications in Universities in Benue State

	Value	Alpha Value	Df	P-Value	Decision
Chi-square	123.83[a]	0.05	12	0.03	Ho Rejected

Chi-square, α = 123.83[a], Df= 12, p=0.05. P<0.03, R=rejected

　　　Table 3 shows chi-square= 123.83[a], P<0.05, with this indicates that the null hypothesis which states that there is no significant impact of Information and Communication Technology (ICT) on research publication in universities in Benue State is therefore rejected. This result shows that there is significant impact of Information and Communication Technology (ICT) on research publications in universities in Benue State.

Hypothesis 2: There is no significant relationship between Information and Communication Technology (ICT) and record keeping in universities.

Table 4:
Pearson Chi-square on Relationship between Information and Communication Technology (ICT) and Record Keeping in Universities

Table 3:
Chi-square test on impact of Information and Communication Technology (ICT) on Research and Publications in Universities in Benue State

	Value	Alpha Value	Df	P-Value	Decision
Chi-square	147.91[a]	0.05	12	0.03	Ho Rejected

Chi-square, α = 147.91[a] , Df= 12, p=0.05. P<0.03, R=rejected

　　　Table 4 shows chi-square= 147.91[a], P<0.05, this indicates that the null hypothesis which states that there is no significant impact of Information and Communication Technology (ICT) on research publication in universities in Benue State is therefore rejected. This result shows that there is significant impact of Information and Communication Technology (ICT) on dissemination information in universities in Benue State.

Discussion of Findings
　　　The first finding showed that there is significant impact of Information and Communication (ICT) on research publications in universities in Benue State Nigeria. This study discovered that Printer enables lecturers to produce handouts for students to read as learning materials. Internet helps staff to their articles for publication in international

journals. Zoom enables staff to participate actively in global research networks. Printer facilities increase the productivity of lecturers in publishing articles. Complex statistical calculations which are important in research can be solved speedily with aid of mathematics software. Publishing researches is faster when electronic means such as CD-ROMS are used. This finding confirms earlier finding by Jibrin (2019) found that information and communication technology (ICT) impact on classroom instruction, research and publication, communication, records keeping and decision making in public universities. The study also found that there was significant difference in the (ICT) utilization on staff performance between federal and state universities. This result also supports the findings of Nwafor, Nwafor, Azeke, Okoro and Patta (2013) who reported that academic staff in the three universities agreed that internationalization of higher education promoted collaboration among academic staff (mobility), exposed academic staff to participate in outreach programmes, and improved curricular, quality of facilities and the substance of teaching, learning and research in the universities. Similarly, Toyo (2017) also reported that ICT enhances effective teaching, learning, research and administrative activities to ensure that higher educational processes are optimized.

The second finding indicated that there is significant impact of Information and Communication (ICT) on dissemination information in universities in Benue State Nigeria. This found that The Internet is used for communicating examination results to students. Computer packages are used for quick release of results of evaluation of instructional outcome for supervision. e-mails facilitate quality feedback and transmission of actions. Communication within and outside the school is conveniently done at reduced cost with internet. Online communication enables students to have access to it faster. Internet facilities help lecturers to interact and exchange opinions with students through emails. This study supports the findings of Kaino, L., Mtewa, & Kasanda, (2014). who reported that ICT facilities are used for dissemination and utilization of research outputs, ICT facilities are also used for research agenda and for treatment and designing of information. Oluyemisi and Iaeng (2015) also found that ICT tools are use in solving the problem of poor communication in schools and achieving effective planning. Nguyo, Kimwele and Guyo (2015) who found that ICT tools such as collaborative workspaces, online discussion forums, social communities, corporate emails, web meetings and portals increase the quantity and quality of knowledge shared. The study also reported that ICT networks available are inevitable precondition for effective knowledge sharing and virtual workspaces are convenient ways of remotely sharing knowledge.

Conclusion

The prevalence and rapid development of Information Communication Technologies (ICTs) have transformed human society include university education from the information technology age to the knowledge age. The application of Information and Communication Technology (ICT) has contributed in enhancing research publications and dissemination of information in the universities. Based on the findings of the study, it has been concluded that there is significant impact of Information and Communication Technology (ICT) on research publications and information dissemination in the universities in Benue State, Nigeria.

Recommendations

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

1. Staff in the university should acquire skills and awareness in the use of electronic support systems in order to enhance their research and publication. This could be done through provision of ICT facilities such as internet, computer, printers and photocopies machines.

2. Universities in Benue State should ensure that each and every staff have a functional mail that will enable them to getting information from the university management. University management should ensure that staff in the universities acquire ICT skills that will enable them accessing mails from their ICT facilities such as mobile phones, computers, palm top.

References

Akpan, C. P. (2008). Lecturers' perception of the role of ICT in the management of university education for sustainable development in Nigeria. *Nigerian Journal of Educational Administration and Planning,* 8(1), 133 – 127.

Akpan, C. (2014). Lecturers' Job Effectiveness and ICT knowledge in universities in Cross River State. *Humanities and Social Science International Journal, 4*(10), 34-47.

Carlson, S., & Gaido, C.T. (2012). Teacher Professional Development in the Use of Technology Retrieved 24th June, 2020 from http://www.ictinedtoolkit.org/usere/library/tech_for_ed_chapters/08.pdf

Federal Ministry of Education (FME, 2013). National Policy on Educational by Federal Government of Nigeria, Abuja.

Glenn, D. I. (2012). Determining sample size. Retrieved November 19, 2012 from http:// edis.ifas.ufl.edu/pd006Goddard and Heron 2010).

Haded, W. D., & Jurich, S. (2005). ICT for education: Prerequisites and constraints. In W. D. Haddad and A. Draxler (Eds.), Technologies for Education: Potential, Parameters and Prospects. For UNESCO by Knowledge Enterprise.

Ibiam, N. (2014). Quality Management of University Education in Nigeria: An appraisal African research review. *An International Multidisciplinary Journal, Ethiopia,* 8 (3), 334-339.

Jubril, S.A. (2019). Impact of Information and Communication Technology (ICT) on staff performance in public universities in North Central Nigeria. A thesis submitted to the Postgraduate School, Benue State University, Makurdi.

Johnson, S. O. (2007). Enhancing quality in higher education through information and communication technology in Nigeria. In J. B. Babalola, G.O. Akpa; A O. Ayeni & S. O. Adedeji (Eds.), *Access, equity and quality in higher education*. Ibadan: NAEAP Publication.

Kaino, L., Mtewa, D.K.J., & Kasanda, C. (2014). Experiences in the dissemination and utilisation of Information and Communication Technology (ICT) research findings from three southern African Universities. Africa Education Review, 11(2):103-118

Lucy, T. (2010). *Management information system*. London: DP Publication Limited.

Nguyo, P.N., Kimwele, M.W., & Guyo, W. (2015). Influence of ICT on knowledge sharing in state corporations in Kenya: A case of the Kenya National Library Service. *International Academic Journal of Information Systems and Technology,* 1(4), 1-21.

Nwafor, S. O. (2005). Information technology: A modern tool for the administration of universities in River State. *Journal of Educational Administration and Planning,* 5 (2), 184-186.

Nwafor, S.O., Nwafor, A.U., Azeke, S.O., Okoro, C.U., & Patta, E. (2013). Academic staff perceptions on the benefits of internationalization of higher education in the universities in Rivers State. *African Journal of Higher Education Studies and Development: ICT in and Internationalization of Higher Education,* 1, 236 – 242.

Oluyemisi A. O., & Iaeng, M. (2015). ICT and effective school management: administrators' perspective. Proceedings of the World Congress on Engineering, 1(1-3), 23-32.

Opira, G. (2010). Effects of information and communication technology on students' learning: A case of Gulu University. A dissertation to information and communication technology of Makerere University.

Peter, I.M. (2016). Union-unions conflict resolution strategies and administration of universities in Benue State. Unpublished dissertation submitted to Postgraduate School, Benue State University, Makurdi

Sanusi, M. (2008). The impact of information system on the administration of tertiary institutions in Kaduna State. Unpublished M.Ed Thesis.

Toyo, O.G. (2017). Information and Communication Technology (ICT) Adoption and the Educational Growth of Colleges of Education in Agbor and Warri, Delta State, Nigeria. *International Journal of Education and Evaluation*, 3(7), 19-32.

UKEssays. (November 2018). Research methodology: Cross sectional research design. Retrieved 1st June, 2021 from https://www.ukessays.com/essays/business/research-methodology-and-cross-sectional-research-design.php?vref=1