PROFICIENCY OF ACADEMIC STAFF IN THE UTILIZATION OF DIGITAL TECHNOLOGIES FOR TEACHING AND RESEARCH DEVELOPMENT IN NIGERIAN UNIVERSITIES

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Abstract
The inability of many academic staff of the Nigerian universities in Anambra State to efficiently and effectively utilize most of the digital technologies in teaching and research development for attainment of educational goals and objectives, was the main essence for this study. The study however examined the proficiency of academic staff in utilization of digital technologies for teaching and research development in the Nigerian universities. Two research questions guided the study and two null hypotheses formulated for the study. The study employed the descriptive survey research design. Population of the study comprised 2,397 academic staff of two universities in Anambra State; that is, 1,867 and 530 academic staff from Nnamdi Azikiwe University (NAU) and Chukwuemeka Odumegwu Ojukwu University (COOU) respectively. Sample size of this study constituted a total of 479 academic staff selected at 20% using the stratified random sampling technique. A 24-item questionnaire titled: "Proficiency of Academic Staff in Utilization of Digital Technologies in Teaching and Research Development Questionnaire (PASUDTTRDQ)" was used for data collection. Validity of the questionnaire was determined by three experts. The coefficient value obtained for reliability is 0.86; while the hypotheses were tested using t-test statistics at an alpha level of 0.05 significance. The finding included among others that academic staff were not proficient in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State. As such no significant differences in their mean score ratings on the extent of academic staff proficiency in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State. The study recommended among others that the various governments (Federal & State) should support the university through adequate funding which will enhance sufficient provision of these digital technologies for improving academic staff proficiency in utilizing them for teaching and learning in the universities in Anambra State. Also, constant training and retraining programmes on the use of digital technologies in the universities should be sponsored by the university management, National Universities Commission (NUC) and other non-governmental organizations (NGOs) to improve academic staff proficiency in utilizing these digital technologies for teaching and learning in the universities in Anambra State.

Keywords: Proficiency, Academic, Staff, Utilization, Digital, Technologies, Teaching, Research, Development, Universities

Introduction

Education is an instrument for sustainable development in every society. It is the bedrock of any country's transformation and socio-economic development. Education provided through the Nigerian universities offers many life skills and training programmes for categories of professionals from various fields of studies to function in different works of life. According to the Federal Republic of Nigeria (FRN, 2013), the Nigerian universities are important citadel of higher institutions of learning popularly known for high level manpower training for national development. Therefore, all

universities whether public (Federal & State) or private must intensify and diversify their programmes for the development of high level of manpower within the context of the needs of the nation. The goals of the Nigerian universities apart from manpower training, however, are to; provide accessible and affordable quality learning opportunities in formal and informal education in response to the needs and interest of all Nigerians; provide high quality career counselling and lifelong learning programmes that prepares students with the knowledge and skills for self-reliance and the world of work; reduce skill shortages through production of skilled manpower relevant to the needs of the labour market; promote and encourage scholarship, entrepreneurship and community service; forge and cement national unity; and promote national and international understanding and interaction (Federal Republic of Nigeria, FRN, 2013, p.39).

The above goals will be pursued rigorously and realized by rendering efficient services through quality teaching and learning, research and development, provision of high standard facilities together with digital technologies or ICT resources, provision of a more practical based curriculum, constant staff training and development, maintenance of minimum standards in the universities, among others. This process will also require that academic staff of the Nigerian universities become more proficient in utilizing varieties of technological or digital resources. This equally entails that the activities of teaching and learning and research, which is the main focus of this study, should be adequately supported through academic staff utilization of digital technologies. Digital technologies are electronic tools, systems, devices and resources that generate, store or process data. It entails the use of a variety of devices that enable access to cyberspace, the use of digital audio/video and information communications technology (ICT). Any information used on a computer or disseminated on a computer is known as digital technology (IGI Global Partnership, 2020).

Digital technology can enhance the level of creativity and distribution of information. Some examples of digital technology are computer programs and software; web pages and websites, including social media; data and databases; digital audio such as mp3s; and books are examples of digital media (IGI Global Partnership, 2020).According to the Cambridge Assessment International Education (2015), digital technology in the classroom (DTC) can be taken to mean digital processing systems that encourage active learning, knowledge construction, inquiry, and exploration on the part of the learners, and which allow for remote communication as well as data sharing to take place between teachers and/or learners in different physical classroom locations. This is an expanded notion of technologies that recognizes their development from mere information delivery systems and also clarifies their role in classrooms in contrast to their wider use across schools and learning centres.

For Salavati (2016), the concept digital technologies were used to refer to newer technologies used in the digitalization of the schools and into school teachers' everyday practices. The concept includes various information, communication and administration technologies and software, as well as to devices such as computers, laptops and tablets; either connected to the Internet or not, and to mobile phones equipped with Global Positioning System(GPS)sensors of different kinds, as well as whiteboards and projectors with or without interactivity. Well known examples include social media(like Prezi, Survey Monkey, YouTube, Twitter, Instagram, Facebook, Inspiration, Blogging,WhatsApp, etc), podcasts, the Internet, web browsers, email programs, and word processing programs ,digital stories, online/digital games and other online resources (TED-Ed, iTunesU, Skype, Moodle, Dropbox etc.), educational software packages (Inspiration, Adobe Illustrator etc.), multimedia (like the TV set, DVD player, digital projectors), desktop computers, mobile devices (like laptops, tablets, mobile phones), digital recording devices (cameras, voice recorders etc.), data logging equipment and associated probes, interactive whiteboards (Smart Boards), and Web 2.0 technologies just to mention but a few (Erdin, 2020; Ng, 2015; Teach with digital technologies, 2019). The Federal Republic of Nigeria (2013) also recognized the utilization of digital technologies in education by stressing in the National Policy on Education (NPE) that to realize the goals of education in Nigeria, teaching shall be practical, activity-based, experiential and Information Technology (IT) supported. In further recognition of the prominent role of information technology (IT) in advancing knowledge and skills necessary for effective functioning in a knowledge driven world, adequate infrastructure shall be provided for effective utilization of (IT) to enhance the delivery of education in

Nigeria. Therefore, efforts towards improvement of quality education at all levels will include providing educational support services through the provision of IT hardware and software laboratories, and IT facilities and infrastructure to support the educational system.

Digital technologies therefore, have greater advantage and benefits in teaching and learning including research. Areas of teaching and learning where digital technologies can be effectively utilized includes in supervising students' projects, presentation of lectures in the classroom, constructing, designing and recording students' continuous assessment and examinations, preparation of results, among others. Online learning opportunities and the use of open educational resources and other technologies can increase educational productivity by accelerating the rate of learning; reducing costs associated with instructional materials or program delivery; and better utilizing teacher time. Also, electronic grade books, digital portfolios, learning games, and real-time feedback on teacher and student performance, are a few ways that technology can be utilized to power learning. A number of video- and computer-based learning programs are now in use, with many different purposes in teaching. The Voyage of the Mimi, developed by Bank Street College, was one of the earliest attempts to use video and computer technology to introduce students to real-life problems. Also, the interactive videos and multimedia such as TV, radios and digital projector are used in teaching (National Academy of Sciences, 2020; US Department of Education, 2020).

In research work, Tsatsou (2014) observed that researchers appeared to have made use of online search engines, online databases, web archives and file-sharing systems for project framing and design purposes. Given that most research work has received external funding, most researchers had to go through online funding application systems such as Je-S using Microsoft tools like spreadsheets and Word. In terms of the communication, obvious tools like emails and Drop box are very helpful just to be able to share some of the documents with people during research. However, digital technologies like the computer through the Internet and websites and some software applications are being utilized in research today as search engines to source for data, record and collect data from the field and store data, likewise analyze data in research, among others. Most technologies like videos are useful to conduct interviews during research. In a couple of cases, researchers also used videos as a dissemination tool, thus employing less conventional means of technologically facilitated dissemination. For instance, the researchers in the education project at the University of Edinburgh converted video data to a format that could be embedded into visual or multi-media presentations while also uploading videos to YouTube. Additionally, in most cases, online repositories and file-sharing systems (e.g., Dropbox) appeared to be vital for the functional and effective collaboration of the project members (Tsatsou, 2014).

From the foregoing explanations, the utilization of digital technologies is beginning to make significant impact in educational system. Ng (2015) remarked that the integrating digital technologies into educational environments, not only has effect of technology use on learning but brought changes in education; the impact and benefits of digital technologies on educational practice cannot be overemphasized. As mentioned further by Ng (2015), digital technologies support learning through increasing learners' motivation, developing their minds, providing real-life-like experiences, creating a space where learners put what they learn into practice, promoting communication and collaboration, enabling research, maintaining learning in out-of-school contexts, promoting individual learning by increasing self-management. The inclusion of digital technologies in teaching may encourage the transition from a teacher-centered to an active student-centered learning environment (McDonald & Hannafin, 2003).

Classes with online learning, whether completely online or blended, on average produce stronger learning outcomes than learning face-to-face alone. Although these technologies have been installed or placed in the classroom for a long time now, there are still yet no clarity on how academic staff are proficient in order to make use of them in teaching/learning and research in the universities when opportunities are created for academic staff to utilize many of these digital technologies in the university especially in the areas of teaching and research, this will promote students' learning and lead to accomplishment of educational goals.Given the importance of the digital technologies for

promoting students' learning at the universities, academic staff proficiency in utilization of these digital technologies becomes paramount and vital for academic staff development creativity and innovation in the aspects of teaching and learning including research development. Therefore, academic staff proficiency in utilization of digital technologies refers to their competency, awareness, knowledge and ability to efficiently and effectively use and apply the technological resources to achieve educational objectives. Through the proficiency in utilization of digital technologies, academic staff in the universities, especially those in Anambra State, are in a better position to render quality services needed to help all students in the university to set ambitious goals and to achieve these goals.This situation which is also common in the universities in Anambra State has motivated the researchers to conduct this investigation in order to assess the proficiency of academic staff in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State.

Statement of the Problem

Digital technologies play important role in teaching and learning, including research development in the Nigerian universities. They are powerful electronic devices which improve teaching efficiency, research development and students' classroom engagement in the educational process. Academic staff digital technological literacy has been viewed as a prerequisite for teaching and research development in the Nigerian universities. Rather observations showcase that in the Nigerian universities including those in Anambra State, utilization of digital technologies among academic staff in the teaching and learning situations coupled with research development is still very minimal, and then, worrisome for most stake holders in the Nigerian universities. This informed the researchers' decision to investigate if this prevailing situation could be attributed to academic staff proficiency in utilization of digital technologies. The need therefore to examine the proficiency of academic staff in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State has become the problem of this study.

Purpose of the Study

The purpose of the study was to assess the proficiency of academic staff in the utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State. Specifically, the study aimed at ascertaining the extent of:

1. Academic staff proficiency in the utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State.
2. Academic staff proficiency in the utilization of digital technologies for research development in the Nigerian universities in Anambra State.

Research Questions

The following four research questions guided the study:

1. What is the level of academic staff proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State?
2. What is the level of academic staff proficiency in utilization of digital technologies for research development in the Nigerian universities in Anambra State?

Hypotheses

The following null hypotheses were formulated and tested at an alpha level of 0.05 significance:

1. There is no significant difference in the mean score ratings of academic staff of NAU and COOU on the level of academic staff proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State.
2. There is no significant difference in the mean score ratings of academic staff of NAU and COOU on the level of academic staff proficiency in utilization of digital technologies for research development in the Nigerian universities in Anambra State.

Methods

This study employed the descriptive survey research design. Population of the study comprised 2,397

academic staff from one of the Federal and State universities in Anambra State, Nigeria. This were 1,867 academic staff from Nnamdi Azikiwe University (NAU) and 530 academic staff from Chukwuemeka Odumegwu Ojukwu University (COOU). All the 2,397 academic staff of these two universities constituted the population of the study. Sample size of this study constituted a total of 479 academic staff (that is: 373 academic staff of NAU & 106 academic staff of COOU) selected using the stratified random sampling technique. The sample was drawn at 20% of the Federal and State university academic staff respectively. A 24-item questionnaire titled: "Proficiency of Academic Staff in Utilization of Digital Technologies in Teaching and Research Development Questionnaire (PASUDTTRDQ)" personally developed by the researchers was used for data collection. Construction of the questionnaire was done in line with the purpose of the study and research questions. The questionnaire was arranged in four clusters and was equally structured on a 4-point response items rated as follows: Very Proficient (VP), Proficient (P), Less Proficient (LE) and Not Proficient (NP) in order to answer the research questions.

Validity of the questionnaire was determined by three experts from the Department of Educational Management and Policy, and Department of Educational Foundations, Nnamdi Azikiwe University, Awka, Anambra State. Reliability of the research instrument was established through a pilot-test carried out among 25 academic staff from two of the Universities in Enugu State. The scores obtained from the academic staff were computed using Cronbach Alpha statistics which gave an internal consistency reliability value of 0.82 and 0.89 for each of the two clusters. Method of data collection was on a personal, direct and hand delivery process with the help of five research assistants. All the 479 copies of the questionnaire distributed to the academic staff of the two universities were all recovered and retrieved at a 100% rate of return. Data collated were analyzed using mean scores and standard deviation to answer the research questions; while the hypotheses were tested using t-test statistics at an alpha level of 0.05 significance. The decision rule for interpreting the scores on each statement on the questionnaire representing the research questions was based on the mean scale, rated at 2.50. Only mean scores of the respondents' statements which rated 2.50 and above were regarded as an indication of Proficient (P), and therefore, accepted. While mean scores of the respondents' statements which rated below 2.50 was regarded as an indication of Not Proficient (NP), and therefore, not accepted. The decision rule taken on the formulated null hypotheses is that whenever the t-critical table value of 1.960 is less than t-calculated value at 0.05 alpha level, then the null hypothesis – H_0 was rejected, thus, and alternative hypotheses - H_a was accepted. But if the reverse or opposite is the case, then the null hypothesis – H_0 was not rejected, and thus, – H_0 was retained.

Results

Research Question 1: What is the level of academic staff proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State?

Table 1: Mean Scores and SD of Academic Staff on the level of their Proficiency in Utilization of Digital Technologies for Teaching and Learning in the Nigerian Universities in Anambra State
N = 479 (373 academic staff of NAU & 106 academic staff of COOU)

S/N	Please show your agreement concerning how proficient you are in utilizing the under listed digital technologies in teaching and learning in the university. Proficiency in utilizing:	NAU ACADEMIC STAFF			COOU ACADEMIC STAFF		
		X	SD	Decision	X	SD	Decision
1.	Internet to source information to support lessons in the classroom	2.27	1.04	**Not Proficient**	1.97	1.01	**Not Proficient**
2.	WhatsApp to create discussion groups for teaching	1.57	0.81	**Not Proficient**	1.96	0.91	**Not Proficient**
3.	Web Browsers to surf important information for teaching	1.85	0.94	**Not Proficient**	2.24	0.89	**Not Proficient**
4.	Multimedia digital technologies such as TV, radio, DVD players and movies to support teaching	2.85	0.99	**Proficient**	3.29	0.82	**Proficient**
5.	Emails for sharing important documents or lecture motes after teaching	2.99	0.85	**Proficient**	3.20	0.79	**Proficient**
6.	Word processing programs such as PowerPoint, Excel or spreadsheets, Microsoft word for presentation of lessons	1.89	0.87	**Not Proficient**	1.91	1.00	**Not Proficient**
7.	Online digital games to support teaching	2.20	0.97	**Not Proficient**	1.80	0.94	**Not Proficient**

8.	Digital projectors to support presentations in teaching	2.03	1.04	**Not Proficient**	2.16	1.09	**Not Proficient**
9.	Interactive whiteboards (Smart boards) to display important fact during teaching	2.06	1.01	**Not Proficient**	2.26	0.95	**Not Proficient**
10.	Educational software packages (Inspiration, Adobe Illustrator etc.) to support teaching	2.17	0.98	**Not Proficient**	2.31	1.14	**Not Proficient**
11.	Mobile hardware digital devices such as the computers, laptops and tablets to display lessons in the classroom	2.04	1.02	**Not Proficient**	2.25	0.92	**Not Proficient**
12.	Digital hardware recording devices like the cameras to record events in order to support teaching	2.16	1.04	**Not Proficient**	2.25	1.04	**Not Proficient**
13.	Google classroom to create course groups for teaching delivery	2.08	0.97	**Not Proficient**	2.37	1.04	**Not Proficient**
	Overall Mean Score and SD =	**2.17**	**1.03**	**Not Proficient**	**2.31**	**1.06**	**Not Proficient**

Analysis of data from table 1 of the academic staff responses from NAU and COOU shows that only items 4 and 5 were rated above 2.50 by academic staff of the two universities in Anambra State. Thus, indicating their agreement with the statements. All the other items of 1 to 3 and 6 to 13 were rated below 2.50 by the academic staff from NAU and COOU, showing their disagreement with the statements. The overall mean scores of 2.17with standard deviation of 1.03; and 2.31 with SD of 1.06 of the academic staff from NAUand COOU respectively indicated that the mean scores of the respondents were at close variance. The result however indicates that theacademic staff were not proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State. The level of their proficiency towards utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State were minimal.

Research Question 2: What is the level of academic staff proficiency in utilization of digital technologies for research development in the Nigerian universities in Anambra State?

Table 2: Mean Scores and SD of Academic Staff on the level of their Proficiency in Utilization of Digital Technologies for Research Development in the Nigerian Universities in Anambra State

N = 479(373 academic staff of NAU & 106 academic staff of COOU)

S/N	Please show your agreement concerning how proficient you are in utilizing the under listed digital technologies for your research development in the university. Proficiency in utilizing:	NAU ACADEMIC STAFF X	SD	Decision	COOU ACADEMIC STAFF X	SD	Decision
14.	Internet to surf/source information during research	1.94	0.83	**Not Proficient**	2.09	0.96	**Not Proficient**
15.	Software applications such as Web Browsers as search engines during research	1.93	0.95	**Not Proficient**	1.97	1.01	**Not Proficient**
16.	Emails to read, correct and supervise students' research work or project	1.99	0.94	**Not Proficient**	2.28	1.02	**Not Proficient**
17.	Word processing programs such as Excel or spreadsheets to collate, calculate and analyze data during research	2.08	1.00	**Not Proficient**	1.96	0.99	**Not Proficient**
18.	Word processing programs such as PowerPoint for presentation of research work	1.90	0.95	**Not Proficient**	2.40	1.15	**Not Proficient**
19.	Word processing programs such as Microsoft word for reporting research work	2.68	1.06	**Proficient**	2.89	0.84	**Proficient**
20.	Mobile digital devices such as the mobile phone, computers, laptops and tablets to support research work	1.95	0.94	**Not Proficient**	2.28	1.05	**Not Proficient**
21.	Digital recording device like cameras, video players during research	1.91	0.92	**Not Proficient**	2.22	0.96	**Not Proficient**
22.	Digital tape recorder to record information from interviews during research	2.77	0.99	**Proficient**	3.02	1.01	**Proficient**
23.	Digital videos using YouTube to disseminate research tools	2.11	0.96	**Not Proficient**	2.05	1.07	**Not Proficient**
24.	Online repositories like Dropbox to strengthen collaboration of project teams during research	1.84	0.88	**Not Proficient**	1.90	1.01	**Not Proficient**
	Overall Mean Score and SD =	**2.10**	**1.00**	**Not Proficient**	**2.28**	**1.07**	**Not Proficient**

Analysis of data from table 2 of the academic staff responses from NAU and COOU shows that only item19 and 22 was rated above 2.50 by academic staff of the two universities in Anambra State. Thus, indicating their agreement with the statement. All the other items of 14 to 18, 20 to 21, 23 and 24 were rated below 2.50 by the academic staff from NAU and COOU, showing their disagreement with the statements. The overall mean scores of 2.10with standard deviation of 1.00; and 2.28 with SD of 1.07 of the academic staff from NAU and COOU respectively indicated that the mean scores of the respondents were at close variance. The result however indicates that the academic staff were not proficiency in utilization of digital technologies for research development in the Nigerian universities in Anambra State. The level of their proficiency towards the utilization of digital technologies for research development in the Nigerian universities in Anambra State were minimal.

Test of Hypotheses

$H0_1$. There is no significant difference in the mean score ratings of academic staff of NAU and COOU on the level of academic staff proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State.

Table 3: t-test Analysis of Academic Staff of NAU and COOU Responses on the level of their Proficiency in Utilization of Digital Technologies for Teaching and Learning in the Nigerian Universities in Anambra State

Academic Staff	N0.	X	SD	df	t-Cal	t-Crit	Decision
NAU	373	2.17	1.03				Not Significant
				477	-1.23	1.960	
COOU	106	2.31	1.06				

In table 3 the t-calculated is -1.23while the t-critical is 1.960 at 477 degree of freedom with 0.05 level of significance. The t-calculated is less than that t-critical indicating that the t-test is not significant (that is: no significant difference). Thus, the null hypothesis is not rejected but retained. Therefore, the H_0 which stated that there no significant difference in the mean score ratings of academic staff of NAU and COOU on the level of academic staff proficiency in the utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State, is retained.

$H0_2$. There is no significant difference in the mean score ratings of academic staff of NAU and COOU on the level of academic staff proficiency in utilization of digital technologies for research development in the Nigerian universities in Anambra State.

Table 4: t-test Analysis of Academic Staff of NAU and COOU Responses on the level of their Proficiency in Utilization of Digital Technologies for Research Development in the Nigerian Universities in Anambra State

Academic Staff	N0.	X	SD	df	t-Cal	t-Crit	Decision
NAU	373	2.10	1.00				Not Significant
				477	-1.61	1.960	
COOU	106	2.28	1.07				

In table 4 the t-calculated is -1.61while the t-critical is 1.960 at 477 degree of freedom with 0.05 level of significance. The t-calculated is less than that t-critical indicating that the t-test is not significant (that is: no significant difference). Thus, the null hypothesis is not rejected but retained. Therefore, the H_0 which stated that there no significant difference in the mean score ratings of academic staff of NAU and COOU on the level of academic staff proficiency in utilization of digital technologies for research development in the Nigerian universities in Anambra State, is retained.

Discussions

Findings of the study generally revealed that academic staff were not proficient in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State. As such no significant differences in their mean score ratings on the level of academic staff proficiency in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State. The level of their proficiency were limited to few areas of teaching-learning and

research development. No wonder the use of digital technologies has not been fully incorporated into teaching and learning likewise research development in the Nigerian universities in Anambra State. It was found out in the study that the academic staff were not proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State. The level of their proficiency towards utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State were minimal. There was however no significant difference in the mean score ratings of academic staff of NAU and COOU on the extent of academic staff proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State. This finding further indicated that the academic staff were not proficient in utilization of such digital technologies as: the Internet, WhatsApp application, Web browser, Word processing programs such as PowerPoint, Excel or spreadsheet, Microsoft word, online digital games, digital projectors, interactive whiteboards (Smart board), educational software packages (Inspiration, Adobe Illustrator etc.), mobile hardware digital devices such as the computers, laptops and tablets, digital hardware recording devices like the cameras, and the Google classroom; for teaching and learning in the Nigerian universities in Anambra State .Only the use of Multimedia digital technologies such as TV, radio, DVD players, and emails were the only areas indicating academic staff proficiency in the utilization of these digital technologies for teaching and learning in the Nigerian universities. Academic staff of the two universities showcased that they were not proficient in the utilization of a whole lot of the other digital technologies. This finding agrees and corroborates with the finding of Tella (2011) study which revealed low level of usage of ICT gadgets and non-availability of some ICT equipment for teaching and learning for the College of Education staff.The finding is also in consonance with the finding of Danner and Pessu (2013) study which reported that ICT usage in teaching and learning was low, particularly the use of internet and email. The respondents perceived themselves to be good in word processing and file navigation, moderate in Internet browsing and emailing. Only two percent (2%) of the respondents perceived themselves to be competent in PowerPoint with about seventy percent (70%) having no capability at all. There was no significant difference in the perceived competency among students according to gender and academic year/level. The findings of Archibong, Ogbiji and Anijaobi-Idem (2010) and Ekpohand Etor(2012) confirmed that majority of the academic staff rated their ICT competence as low and the level of academic staff utilization of ICT in knowledge creation activities was significantly low .The study of Ntui and Inyang (2015) which found out that staff usage of internet, use of e-mail, use of PowerPoint and use of computer significantly related with library staff job effectiveness also deviates from the finding of the present study. Based on all this discussions, teaching and learning therefore, can be effectively disseminated only when academic staff are very effective and highly proficient in utilizing digital technologies to conduct researches in the universities in Anambra State.

Finding of the study also indicated that the academic staff were not proficiency in the utilization of digital technologies for research development in the Nigerian universities in Anambra State. The level of their proficiency towards utilization of the digital technologies for research development in the Nigerian universities in Anambra State were minimal. There was equally no significant difference in the mean score ratings of academic staff of NAU and COOU on the extent of academic staff proficiency in utilization of digital technologies for teaching and learning in the Nigerian universities in Anambra State. This could have been the reason why digital technologies were not fully incorporated in the system for research development in the Nigerian universities in Anambra State. It was further discovered through this finding that the academic staff of the two universities were not proficient in utilizing such digital technologies as the internet, software applications such as the web browsers, email system, word processing programs such as excel or spreadsheets and PowerPoint, mobile digital devices such as the mobile phone, computers, laptops and tablets, digital recording device like cameras and video players, digital videos using YouTube, and online repositories like Dropbox; for research development in the Nigerian universities in Anambra State. The academic staff were only proficient in the use of Word processing programs such as Microsoft word for reporting research work, and in the use of digital tape recorder to record information from interviews during research. They were found to lack proficiency in the use of all other digital technologies in research development in the universities. This finding agrees and corroborates with one of the findings of Alarape, Kawonise and Odeniyi (2017) study which indicated that low level of ICT usage among the

respondents from the Polytechnics in research. The finding of Odigwe and Owan (2020) study is equally in line and concurs with the finding of the present study. The finding of Odigwe and Owan confirmed that the level of lecturers' utilization of ICT for teaching, research, and records management is significantly low. The finding of Ango (2019) study deviates from the present study finding by confirming that the level of use of open access journals by academic staff was fairly high (weighted mean score = 2.84); the extent of the effect of Internet services by academic staffis fairly adequate. And significant relationship was established between academic staff use of open access journals and each of the following level of staff competence ($r= .75$; $df= 329$; $p<0.05$) and Internet services ($r= .99$; $df= 329$; $p<0.05$) which also deviates from the hypothetical test of the present study. Therefore, research development can be strengthened and highly sustained only when academic staff are very effective and highly proficient in utilizing digital technologies to conduct researches in the universities in Anambra State. The findings of this study therefore, draws priority concern towards the need for promoting academic staff proficiency in the utilization of digital technologies for improvement of teaching and research development for successful achievement educational goals and objectives in the universities.

Conclusion

Academic staff proficiency in utilization of digital technologies especially in the areas of teaching and research development in the Nigerian universities including those in Anambra State is very crucial and equally has many advantages and benefits that leads to the sustainability of university education and the achievement of educational goals and objectives. But the finding of the study indicated that academic staff were not proficient in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State. As such no significant differences was found in their mean score ratings. Given this findings, the study submits that academic staff proficiency in utilization of digital technologies for teaching and research development in the Nigerian universities in Anambra State were very minimal and this situation needs absolute redress. Failure to improve and encourage academic staff proficiency in the utilization of digital technologies will have negative consequences on providing quality education in teaching and research development in the universities, especially, at this 21st century technological age. Now is the right time for all education stakeholders in the universities to encourage utilization of digital technologies for academic staff proficiency in utilizing them for quality teaching and research development. Upon this premise, recommendations have been proffered.

Recommendations

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

1. The various governments (Federal & State) should support the university through adequate funding which will enhance sufficient provision of these digital technologies for improving academic staff proficiency in utilizing them for teaching and learning in the universities in Anambra State. Also, constant training and retraining programmes on the use of digital technologies in the universities should be sponsored by the university management, National Universities Commission (NUC) and other non-governmental organizations (NGOs) to improve academic staff proficiency in utilizing these digital technologies for teaching and learning in the universities in Anambra State.
2. The university management should support academic staff with most of the digital technologies in order to improve their proficiency in utilizing them for research development in the universities in Anambra State. In addition, the financial institutions, NGOs including other private individuals and sector should be encouraged to support academic staff with most of these digital technologies for their proficiency in utilizing them for research development in the universities in Anambra State. Through constant training and retraining in the use of digital technologies in research, academic staff proficiency in utilizing these digital technologies for research development in the universities in Anambra State can be boosted and improved.

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