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Lecturers' Utilization of Information and Communication Technology (ICT) In the Management of Academic Records and Research Supervision as a Predictor of Academic Programmes Effectiveness in the Post Covid-19 Era in Universities in Rivers State, Nigeria

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ABSTRACT

This study investigated lecturers' utilization of Information and Communication Technology (ICT) in the management of academic records and research supervision as a predictor of academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria. Two research questions were answered and two hypotheses were tested in the study. The design for the study was correlational. The population of this study consisted of 2590 lecturers in the 3 public universities (i.e. one federal and two state universities in Rivers State). The sample size for the study consisted of 373 academic staff of the three universities, representing 14% of the population. Purposive sampling technique was used in consonance with Taro Yamen's formula. Two instruments were respondent to in the study titled "Lecturers' Utilization of Information and Communication Technology (ICT) Scale (LUICTS) and the second instrument was Academic Programmes Effectiveness Scale (APES)" which were designed by the researcher. A reliability index of 0.89 and 0.831, were obtained using Cronbach Alpha statistical formula. The statistics used to answer research questions 1 and 2 was simple regression. Hypotheses 1 and 2 were tested using t-test associated regression analysis statistics. The study established among others that, The study found that, academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria is positively and lowly predicted by lecturers' utilization of digital technologies in the management of academic records and also positively and highly predicted by lecturers' utilization of digital technologies in the supervision of research works, It was recommended among others that, there is need for government and university management to continue to be actively involved in the provision of necessary facilities/infrastructures and invest in the training of teaching personnel to fully engage in the utilization of digital technologies for classroom instructional delivery.

Keywords: ICT, E-Learning Technologies, Student's Academic Activities, Academic Programmes Effectiveness, Classroom Instructional Delivery.

INTRODUCTION

The goal of university education in Nigeria is to create a vibrant manpower to administer the various sectors of her economy. University education is expected to contribute to national development by intensifying and diversifying its programmes for the development of manpower needs of the nation and making professional course contents to reflect our national regiments. These could be achieved through effective teaching, research and allied academic activities. For university lecturers to do their job efficiently and effectively, the use of information and communication technology (ICT) becomes important (Egielewa et al., 2021). Globally, the ICT world has initiated a transition of emphasis from analogous educational research based technological development to that of digital knowledge based technological development in education for the purpose of making education to meet national and global standard.

The experience of COVID-19 pandemic forces teaching and learning that usually takes place in classes to be switched online which has become a well-accepted strategy for higher education to face the rigid challenges COVID-19 pandemic reshaped in the system. On this note, lecturers can be effective and efficient to face digital education practice by acquiring appreciable level of ICT competence to professionally drive the goals of educational (Kai, 2021). Lecturers' utilization of digital technologies in the management of academic records has become pivotal in ensuring academic programme effectiveness in the post-COVID-19 era. Record management is the keeping, storing retrieved and use of all the information in the school. Summarily, digital management of academic records in the university have to do with the digital keeping, storing retrieved and use of all information that concerns academic purposes of the universities by the lecturers for the purpose of synergizing technological progress of academic programmes of universities (Bichsel, 2019).

Through ICT, lecturers would be able to manage academic and administrative records of their teaching activity in a more digitalized way to achieve technological educational pursuit (Cambridge & Cambridge, 2019). Lecturers' utilization of digital technologies in the management of academic records has become pivotal in ensuring academic programme effectiveness in the post-COVID-19 era, and effective management of such records cannot be achieved without sound knowledge of ICT by university lecturers (Bichsel, 2019; Mishra, 2019). Notably, Bichsel (2019) emphasized that, the information or data which are written manually or electronically are preserved in books, files, diskettes, flash drives and other electronic materials for various purposes and for the enhancement of quality educational practice. For lecturers to be able to handle this aspect credibly, they must be abreast with ICT and its basic applications in this regard.

Proper keeping of school records could enhance planning process, serve as historical record, provide knowledge on student's academic performance and facilitate schools' financial administration. The utilization such digital technologies in the management of academic records require lecturers to possess basic knowledge in learning management systems such as Canvas, Moodle, and Blackboard which have become ubiquitous in higher education. Lecturers use these platforms to upload course materials, track student progress, and securely manage academic records (Alqurashi, 2019). These systems facilitate accessibility, communication, and collaboration among students and instructors (Alqurashi, 2019). On this note, the study of Ochwo et al. (2018) found that the level of ICT adoption and digitalized students' records management in the universities was generally moderately high.

It was also found in the study of Oniovoghai, et al. (2023) that, financial records such as financial statements are always kept electronically, passwords are always set to protect school inventory records such as school equipment. More so, academic records are always entered in the computer and are kept in ICT storage devices such as; CDs, Flash disks, hard disks, manual records such as school admissions. In the work of Nwaomah (2015) it was revealed that ICT usage in the Nigerian university system insignificantly and negatively influenced the effectiveness of students' records management in the federal and state universities whereas; they positively and significantly influenced students' records management effectiveness in the private universities. Nevertheless, the findings of Kasozi (2012) indicated that ICT

does contribute towards the management of students records in the areas of registration of students, verification and ensuring the authenticity of students' records.

From the tail end of the findings, it was concluded that ICT has greatly contributed towards the management of students' academic records in Makerere University. Research supervision is a critical aspect of academic development, as it does not only foster the acquisition of research skills but also ensures the quality and integrity of research output in academic institutions. It involves regular meetings, feedback, and a mentoring relationship between the lecturer-supervisor and the student, fostering the student's growth as a researcher and scholar and advancing academic programme effectiveness. According to Shah (2017) research supervision by lecturers refers to the process of providing guidance, mentorship, and support to students, typically at the undergraduate, postgraduate, or doctoral levels, as they conduct research projects, theses, or dissertations.

Generally, research is an aspect of the academic programme which students in tertiary educational institutions are expected to undergo. It involves identification, investigation and suggestion of solutions to societal developmental problems. In the university, a maximum face-to-face interaction takes place between lecturers and student in the cause of their supervision and make use of print media, internet and Information and Communication Technology (ICT) facilities for teaching and learning process (Fasasi, et al., 2016). This mode of interaction makes electronic supervision of students' research studies imperative since they are e-learning students whose physical interaction with teachers and colleagues is very minimal.

The knowledge of e-supervision gives lecturers who are the supervisors accessibility, continuous and open support to their supervisees (students) which reduces stress. Albar (2012) states that e-supervision offers a way of overseeing the supervisee at geographically distant sites. Teachers need possess ability to provide students with task management tools to organize their work, exploit computer games for pedagogical purposes, create screen capture tutorials, being able to detect plagiarized works in students' assignments are part of the digital skills needed for utilizing mobile learning applications for effective lesson delivery.

The findings of Holmes et al. (2017) revealed that, interactive whiteboards (IWBs) and presentation tools have revolutionized traditional teaching methods. According to the study, tools like SMART Boards, Promethean Boards, and software such as Microsoft PowerPoint or Google Slides allow teachers to create dynamic and interactive presentations that helps in the attainment of quality research works. These tools facilitate multimedia integration, real-time collaboration, and can accommodate various learning preferences that are used to coordinate academic activities. In a post-COVID-19 era, video conferencing tools such as Zoom, Microsoft Teams, and Google Meet became integral to maintaining connectivity between teachers and students.

On this note, Hodges, et al. (2020) found that the development of appropriate tools supports teachers' synchronous communication, virtual classrooms, and collaborative activities, fostering engagement and interaction in both physical and virtual learning environments. The results of Osiesi, (2023) indicated that lecturers' perceptions towards the computer-mediated corrective feedback in students' research project supervision are positive, as they considered it flexible, speedy and economical. E-mail, WhatsApp and Zoom are the three themes that emerged as computer-mediated corrective feedback types that lecturers adopt while supervising students' research projects.

In the same vein, Son and Huh (2019) also found that Learning Management Systems (LMS) with integrated data analytics, such as Blackboard Analytics and Moodle Learning Analytics which provide valuable insights into student performance and engagement are appropriate tools teachers employ to enhance instructional delivery in the digital era. The work of Japheth et al. (2023) revealed that universities used various supervision strategies including online research supervision, corroborative supervision, coordination, workshops to carry out supervision for the effectiveness of academic programme

Statement of the Problem

It is quite appalling to state that despite the high level of globalization and a continued rise in the level of ICT around the world, there has not been an increased and accelerated usage of ICT amongst many lecturers in public universities in Nigeria and Rivers State inclusive, after the Covid-19 pandemic. It was discovered in some research experiences that lecturer's ICT competence in Nigeria is below expectation and access to ICT resources like the internet and computer is mostly limited in campuses of various higher institutions. This further explains the fact that availability of ICT facilities is limited within the universities, which makes the usage of the limited ones being put into question.

Some universities still lack adequate practical ICT skills to utilize ICT in teaching and learning, managing records, conducting research and carrying out students' assessment respectively. Consequently, there seem to be a shortfall in lecturers' knowledge on the use of many ICT gadgets in public universities in Rivers State considering their level of commitment to digital application on this note. It seems the facilities that are provided for this purpose are either underutilized, over-utilized or are not even utilized by lecturers to fully engage in remote learning because there are poor Internet services, data and networks challenges, lack of electricity supply to power their gargets, financial issues, cost of data, lack of digital facilities, government lack of concern to help in training teachers on the use of ICT and so on. It is based on these prevailing circumstances that a need for a study to investigate lecturers' utilization of ICT for enhancing academic programmes in a post Covid-19 era in Rivers State.

Purpose of the Study

The study investigated lecturers' utilization of Information and Communication Technology (ICT) in the management of academic records and research supervision as a predictor of academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria. Specific objectives are as follows:

1. Ascertain the extent to which lecturers' utilization of digital technologies in the management of academic records predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.
2. Examine the extent to which lecturers' utilization of digital technologies in the supervision of research works predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

Research Questions

1. To what extent do lecturers' utilization of digital technologies in the management of academic records predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria?
2. To what extent do lecturers' utilization of digital technologies in the supervision of research works predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria?

Hypotheses

1. There is no significant relationship between lecturers' utilization of digital technologies in the management of academic records and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.
2. There is no significant relationship between lecturers' utilization of digital technologies in the supervision of research works and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

METHODOLOGY

The design for the study was correlational. The population of this study consisted of 3 public universities (i.e. one federal and two state universities in Rivers State which are University of Port Harcourt (UPH) comprising 12 faculties with 1472 lecturers, Rivers State University (RSU) comprising 7 faculties with 674 lecturers and Ignatius Ajuru University of Education comprising 7 faculties with 444 lecturers respectively. The total numbers of respondents were 2590 academic staff from the 3 public universities

under study. The sample size for the study consisted of 373 academic staff of the three universities in Rivers State, representing 14% of the population. The researcher employed a purposive sampling technique for the study. A purposive sampling is known as judgmental, selective or subjective sampling. It is a non-probability sample that is selected based on characteristics of a population and objective of the study. It was done in consonance with Taro Yamen’s formula. That is, 13.3% of 2590 academic staff is equivalent to 345 academic staff as calculated with this formula. However, by applying an attrition rate of 8%, which is meant to account for questionnaire that might be filled wrongly or missing during retrieval. The overall sample of the study became 373 respondents from the total population of 2590 lecturers which is 14% of the population. This is in conformity with Nwana (1982) stipulation that about 5 to 10 percent sample is a good representative if the population is in few thousands. But when the population of respondents is few a higher percentage could be used.

The instrument for data collection were two. The first instrument was Lecturers’ Utilization of Information and Communication Technology (ICT) Scale (LUICTS) and the second instrument was Academic Programmes Effectiveness Scale (APES) designed by the researcher in the modified 4-point Likert scale of (Very High Extent (VHE)= 4 points; High Extent (HE) = 3 points; Low Extent (LE) = 2 points; and Very Low Extent (VLE) = 1 point). The instrument has two sections, A and B. Section A sought for demographic information of the respondents while section B sought information on elements of lecturers’ utilization of Information and Communication Technology (ICT) as a predictor of academic programmes effectiveness in the post Covid-19 Era in universities in Rivers State, Nigeria.

Cronbach Alpha was used to ascertain the reliability coefficients of the instruments. The Cronbach Alpha reliability was suitable because, it was used to determine the internal consistency of the instruments with a sample of 30 lecturers who were not be represented in the sample but were counted as members of the population. In the reliability result, management of academic records, .916 and supervision of research works had .893, while and academic programmes effectiveness had .872 respectively. Cronbach's Alpha on average indicated a reliability index of .887 which implies that the items were reliable. The 373 copies of the questionnaire were administered to the respondents by the researcher and five (5) research assistants who were briefed on what to do. The respondents were given at least 2 days to respond to the questionnaire after which the instruments only 366 copies of the questionnaire were be retrieved by the researcher for data analysis.

Data gathered from this exercise were collated and statistically analyzed. The statistics that was used to answer research questions 1-5 was simple regression and research question 6 will be tested using multiple regression. The null hypotheses for hypotheses 1-5 was tested using t-test associated regression analysis statistics, while hypothesis 6 was tested using one way analysis of variance (ANNOVA) at 0.05 alpha level of significance.

RESULTS AND DISCUSSION

Research Question One: To what extent do lecturers’ utilization of digital technologies in the management of academic records predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria?

Table 1: Simple Regression Analysis on the extent lecturers’ utilization of digital technologies in the management of academic records predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.616 ^a	.380	.378	2.82268	.380	223.049	1	364	.000

Table 1 demonstrated that the regression coefficient R was calculated to be 0.616 while the regression squared value was computed to be 0.380. This shows that academic programmes effectiveness in the post

Covid-19 era in universities in Rivers State, Nigeria is positively and lowly predicted by lecturers' utilization of digital technologies in the management of academic records. Judging by the coefficient of determination, it shows that 38% change in academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria can be predicted by lecturers' utilization of digital technologies in the management of academic records, while 62% was accounted by other variables not considered in this study.

Research Question Two: *To what extent do lecturers' utilization of digital technologies in the supervision of research works predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria?*

Table 2: Simple Regression Analysis on the extent lecturers' utilization of digital technologies in the supervision of research works predicts academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.781 ^a	.609	.608	2.24095	.609	567.396	1	364	.000

Table 2 demonstrated that the regression coefficient R was calculated to be 0.781 while the regression squared value was computed to be 0.609. This shows that academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria is positively and highly predicted by lecturers' utilization of digital technologies in the supervision of research works. Judging by the coefficient of determination, it shows that 60.9% change in academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria can be predicted by lecturers' utilization of digital technologies in the supervision of research works, while 39.1% was accounted by other variables not considered in this study.

Test of Hypotheses

H₀₁: There is no significant relationship between lecturers' utilization of digital technologies in the management of academic records and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

Table 3: t-test associated with simple Regression on the relationship between lecturers' utilization of digital technologies in the management of academic records and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.467	.568		13.136	.000
	Supervision	.541	.036	.616	14.935	.000

Table 3 revealed that lecturers' utilization of digital technologies in the management of academic records is related with academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria by 0.616. The t-test value 14.935 associated with linear regression was statistically significant at 0.000 when subjected to 0.05 alpha level of significance. By implication, the null hypothesis was rejected. Therefore, there is a significant relationship between lecturers' utilization of digital technologies in the management of academic records and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

H₀₂: There is no significant relationship between lecturers' utilization of digital technologies in the supervision of research works and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

Table 4: t-test associated with simple Regression on the relationship between lecturers’ utilization of digital technologies in the supervision of research works and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.672	.476		9.811	.000
	Management	.736	.031	.781	23.820	.000

Table 4 revealed that lecturers’ utilization of digital technologies in the supervision of research works is related with academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria by 0.781. The t-test value 23.820 associated with linear regression was statistically significant at 0.000 when subjected to 0.05 alpha level of significance. By implication, the null hypothesis was rejected. Therefore, there is a significant relationship between lecturers’ utilization of digital technologies in the supervision of research works and academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria.

Summary of Findings

1. 38% change in academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria can be predicted by lecturers’ utilization of digital technologies in the management of academic records, while 62% was accounted by other variables not considered in this study.
2. 60.9% change in academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria can be predicted by lecturers’ utilization of digital technologies in the supervision of research works, while 39.1% was accounted by other variables not considered in this study.

DISCUSSION OF FINDINGS

Lecturers’ utilization of digital technologies in the management of academic records predicts academic programmes effectiveness

The study found that, academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria is positively and lowly predicted by lecturers’ utilization of digital technologies in the management of academic records. The study of Ochwo et al. (2018) found in line with this study that the level of ICT adoption and digitalized students’ records management in the universities was generally moderately high. It was further revealed that an increase in the level of ICT adoption was associated with higher effectiveness of digitalized students’ records management and vice versa. It was also found in the study of Oniovoghai, et al. (2023) that, financial records such as financial statements are always kept electronically, passwords are always set to protect school inventory records.

In contrary, the results of Nwaomah (2015) revealed that information and communication technology (ICT) usage in the Nigerian university system insignificantly and negatively influenced the effectiveness of students’ records management in the federal and state universities whereas; they positively and significantly influenced students’ records management effectiveness in the private universities. Also, the study reveals that all the universities (federal, state and private) operate both manual and electronic methods of students’ records management.

Lecturers’ utilization of digital technologies in the supervision of research works predicts academic programmes effectiveness

The study found that academic programmes effectiveness in the post Covid-19 era in universities in Rivers State, Nigeria is positively and highly predicted by lecturers’ utilization of digital technologies in the supervision of research works. This study is in consonance with the study of Son and Huh (2017) whose results found that Learning Management Systems (LMS) with integrated data analytics, such as Blackboard Analytics and Moodle Learning Analytics which provide valuable insights into student

performance and engagement are appropriate tools teachers employ to enhance instructional delivery in the digital era. Teachers can use these tools to make data-informed decisions, identify at-risk students, and tailor interventions accordingly. In the wake of increased digital interactions, tools like Kaspersky for Education and iKeepSafe have become essential to ensure cybersecurity and protect student privacy.

In line with this present study, Smith (2017) found that, interactive whiteboards (IWBs) and presentation tools have revolutionized traditional teaching methods in which tools like SMART Boards, Promethean Boards, and software such as Microsoft PowerPoint or Google Slides allow teachers to create dynamic and interactive presentations that helps in the attainment of quality research works. These tools facilitate multimedia integration, real-time collaboration, and can accommodate various learning preferences that are used to coordinate academic activities.

CONCLUSION

Based on the findings of the study, it is concluded that the effectiveness of academic programmes in higher education in this technological and innovative educational pursuit is solely dependent on the extent of lecturer's utilization of digital technologies for management of academic records and supervision of research works. However, if lecturers are not trained or developed to fully adopt the usage of relevant technologies in teaching and learning, it would drastically affect the progress of digital teaching and learning.

RECOMMENDATIONS

Based on the findings of the study, the researchers recommended that:

1. Lecturers should courageously improve their digital skills to be able to utilize digital tools such as Microsoft Excel, Google Sheets, or specialized academic management software to maintain and update academic records securely and efficiently and even secure cloud storage solutions to store academic records, ensuring they are accessible from anywhere and protected from data loss or breaches.
2. There is need for government and university management to continue to be actively involved in the provision of necessary facilities/infrastructures and invest in the training of teaching personnel to fully engage in the utilization of digital technologies for classroom instructional delivery

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