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ICT Compliance for Sustainable Digital Administrative Functions in Public Universities In Rivers State

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Abstract

This research investigated the level of ICT compliance for more sustainable digital administrative functions within public universities in Rivers State. The study was descriptive in nature and consisted of three objectives and three research questions upon which the investigation was hinged. The population of the study comprised 8,632 staff (academic and non-academic) members in all three public universities in the State. The sampling techniques adopted were simple random and stratified sampling techniques and a sample size of 382 was arrived at using the Taro Yamane formula. The method for data collection involved a structured questionnaire tagged “ICT Compliance for Sustainable Digital Administrative Functions Questionnaire”. A total of 382 copies of the instrument were distributed, retrieved, and analyzed using the software Statistical Package for the Social Sciences (SPSS). Based on the results of the findings, it was discovered that the use of ICT facilities in public universities has become increasingly more common in Rivers State. The research also revealed that there are numerous types of ICT facilities being used as digital tools for more sustainable administrative functions of public universities in Rivers State. The results from the three hypotheses showed that there is no significant difference between the mean responses of academic and non-academic staff members. However, the research spotted some major challenges hindering the effective use of ICT facilities to improve digital administrative functions sustainably within these universities. Some of these difficulties include the following; poor electricity supply, bad telecommunication network, low internet penetration, and high cost of ICT materials among others. Consequently, recommendations proffered

were stable electricity supply, improved network delivery, increased internet access, and subsidized cost of ICT facilities for public universities in Rivers State among others.

Keywords: Information Communication Technology, Sustainability, Digital & Public University.

Introduction

Interestingly, virtually all activities in a university environment require the use of Information Communication Technology (ICT) facilities to function effectively. Information Communication Technology (ICT) has been defined differently by several scholars, it is regularly referred to as computer-based apparatuses used by private individuals, institutions, organizations, and public and private sectors to improve information and communication amongst different groups. There is no doubt that this definition goes beyond the use of computer hardware or software, it also involves the use of network services, servers, and electronic devices in different digital formats. Thus, ICT refers to all electronically powered amenities, tools, materials, or resources that are used to process, store, preserve, access, retrieve, transmit, and distribute information between different individuals or groups (Idowu & Esere, 2013).

Based on the above, it is apparent that ICTs are directly or indirectly used in almost all activities within the university environment. The utilization of ICT in universities is quite vast, it includes the use of the internet, satellite, cable data transmission, computers, projectors, television, multimedia systems, and telephone-assisted equipment used for information gathering and communication. The implication of this is that almost all activities require the use of ICTs either explicitly or inexplicitly. ICTs can thus be seen as the catalyst for growth, innovation, development, empowerment, and progress in the university educational administration (Ufuophu & Agobani, 2012).

Currently, ICTs are an important source of innovation, improvement, and enhancement to university administration. Compliance with ICT for sustainable digital administration by universities ensures that they are better able to manage staff and students' information/communication in a globalized and digital manner. ICTs also enhance staff and student administration activities in a way that advances task performance. Unfortunately, regardless of the benefits of ICTs in the university administrative process, numerous challenges confront the compliance of ICTs in Nigerian universities (Lopez, 2003).

The term compliance refers to the process of conforming to set rule, such as a specific policies, principles and norms governing an institution. Compliance traditionally practiced in every form of human endeavor governance, commerce, manufacturing, agriculture, and education among others. On the other hand, sustainability refers to the capacity to maintain or advance the availability of desirable conditions over the long term in every sector including the education sector. It is the means through which the basic needs of institutions and organizations can be met without compromise (Uzodinma, 2006).

Statement of the Problem

Regardless of the beneficial role ICTs play in enhancing learning and administrative tasks in universities, there are some challenges confronting universities' compliance with the adoption of ICTs in their administrative processes. The inadequate compliance of ICT in universities in Nigeria appears to hinder their full adoption, especially in public universities. Some difficulties which serve as a blockade to the successful adoption of ICTs in Nigerian universities include: lack of access to the internet, lack of competent staff members, lack of effective training of staff on the usage of ICTs, lack of technical manpower, poor electricity supply, poor internet services and high-cost ICT facilities among others (Omosho, 2015). It is based on these problems that this study sort to investigate ICT compliance for sustainable digital administrative functions in Rivers State universities. The problem of this study therefore is; the extent to which public universities adopt ICT for sustainable administrative enhancement in Rivers State.

Purpose of the Study

The main aim of the study is to investigate ICT compliance for sustainable digital administrative functions in Rivers State universities.

Specifically, the objectives of the study are to:

- 1) Ascertain the extent to which public universities use ICTs in staff and student administration in Rivers State.
- 2) Pinpoint the types of ICTs facilities used in public universities for administrative functions in Rivers State.
- 3) Identify the challenges confronting the adoption of ICTs by public university administrators in Rivers State.

Research Questions

The following research questions guided the study:

- 1) What is the extent of ICT usage in public universities in Rivers State?
- 2) What are the types of ICTs used in public universities in Rivers State?
- 3) What are the challenges confronting public universities in the adoption of ICTs in Rivers State?

Hypotheses

The following hypotheses were tested at a 0.05 level of significance:

- 1) There is no significant difference between respondents on the extent of ICT usage in public universities in Rivers State.
- 2) There is no significant difference between respondents on the types of ICTs used in public universities in Rivers State.
- 3) There is no significant difference between respondents on the challenges confronting public universities in the adoption of ICTs in Rivers State.

Literature Review

ICT Facilities in University Administration

The level of ICT compliance in public university administration involves the process of using ICT facilities in managing staff and students' activities in terms of

admission, recruitment, employment, graduation, promotion, salary payment, fee payment, teaching, and learning among others. Student and staff administrations are critical duties/responsibilities of university administrators in every university system. University administrators can't engage in the administration of staff and students without the use of one or more types of ICTs. ICTs empower university administrators with the necessary tools, gadgets, and equipment for information gathering, information transmission, and communication on a day-to-day basis. ICTs in the university environment have allowed university administrators to become more efficient and effective in performing their job requirements daily (Nwankwo, 2013).

Types of Information Communication Technologies

There are various types of ICTs in the university administrative system, some of these include the following (Adeyemo, Kemiki, Unekwu, & Ayoola, 2015):

- 1) Telephones
- 2) Software Applications
- 3) Hardware Operating Systems

- 4) Smart Phones
- 5) Video Equipment
- 6) Multimedia Products (CDs, DVDs, Videotapes, Digital Recorders, and so on.
- 7) Internet World Wide Web (www).
- 8) Office Electrical Products (Photocopier, Calculators, Fax machines, Scanners).
- 9) Computers.
- 10) Social Media Platforms, Electronic Instructional Devices among others.

Contributions of ICTs to the Enhancement of University Administration

Currently, the magnitude of ICTs contribution to the growth of universities and university administration in Nigeria and indeed Rivers State can be seen in several areas, five of these areas include (Salam, 2003):

1) ICTs help in the conduct of a transparent and effective admission process into universities in the country: ICTs have ensured the adoption of Computer Based Test (CBT) in the process of admission into universities in Nigeria. This is evident both during the Unified Tertiary Matriculation Examinations (UTME) exercise taken by admission seekers and also during the Post UTME exercise which is conducted in various universities in the country. As a result of ICTs, the use of CBTs has ensured that the entire process is transparent, fair, efficient, and effective.

2) ICT tools have transformed the methods of salary and fee payment in universities: The adoption of ICT in the university payment system has ensured that the process of salary and fee payment is now automated and digitalized. This has resulted in online payment platforms for salaries and tuition fees and other related fees in the university system. Thereby making fee transaction processes more organized, systematic, thorough, and less time-consuming. It has also reduced the number of mistakes, fraud, and corruption that characterize the university administrators in the bursary department (Rajeer-Singh, 2008).

3) ICTs have revolutionized the process of registration in universities: The entire process of registration of both staff and students in the university system is now automated and computerized as a result of the adoption of ICT processes in the university education system. This has resulted in staff and students carrying out their registrations online with minimal physical contact with university administrators. The implication of this is that the entire registration process is faster, more efficient, and effective hassle-free.

4) ICTs have transformed the methods of communication in universities: The process through which information is disseminated to/between staff and students with the aid ICTs has completely changed. This is because ICTs have guaranteed communications are now frequently done through phone calls, emails, WhatsApp, Zoom, Skype, text messaging, social media, television, and audio devices among others. These platforms have promoted the speed at which information is transmitted and greatly reduced time wastage.

5) ICTs have developed the method of information storage and retrieval within the university administration system: This implies that the method of information storage and retrieval has been enhanced through the adoption and use of ICTs in universities in the country.

These are some of the uses of ICTs in institutions such as public universities.

Challenges to ICT Compliance in Universities

According to Bingimlas (2009) are several challenges confronting ICT compliance in universities, some of these challenges include:

1) Lack of Electricity:

The absence of a steady electricity supply in the country is a major challenge hindering the adoption of ICT in most universities in Nigeria. The reason is that most ICT facilities require the use of electricity to function and operate. As a result, the absence of electricity prevents universities from acquiring these ICT facilities for usage in their respective institutions.

2) Poor Network:

The state of network provision in Nigeria is quite low and some ICT facilities require the use of a good, steady network supply to function optimally. Unfortunately, since network provision in the country is not very impressive, university administrators are reluctant to purchase ICT facilities that require the network to function.

3) Insufficient Funding:

Public universities in Nigeria are underfunded by the government, and the lack of sufficient funds makes it impossible for the university to have enough funds to purchase ICT facilities that will enhance their administrative functions and operations effectively. Thus, insufficient funding is a major challenge confronting ICT compliance in public universities.

4) Poor Maintenance

There is a poor maintenance culture across the public sector in Nigeria. Most publicly owned institutions and organizations are dilapidated and eroding, this is a result of the poor maintenance culture. Most public universities fail to periodically maintain and

service their ICT facilities, as a result, the facilities become damaged, rusty, and derelict making them unusable. This is a major challenge confronting ICT compliance in public universities.

5) Lack of Experienced Staff:

The administrative use of ICTs for enhancement of administration in public universities requires the use of experienced staff members who are skilled and knowledgeable in the use, maintenance, and functions of ICTs within their domain. Unfortunately, most universities do not have staff members (academic and non-academic) who are experienced in the operations of their ICT facilities, resulting in the misuse or lack of use of these ICT facilities in public institutions.

6) No Training/Retraining of staff:

There is also a need for constant training and retraining of staff members on the use and maintenance of ICT facilities in public universities. Nevertheless, this process of training and retraining staff members is nonexistent in most public institutions because the government pays little or no attention to the training and retraining of staff members.

7) Low Internet Penetration:

The level of internet penetration in most developing countries such as Nigeria is very low. The implication of this is that there is little or no internet access in some public universities for the optimal functioning of ICT facilities. Thus, the level of ICT compliance in these public universities becomes very low since the necessary internet required for their operation is not available.

8) High Cost of ICTs:

Some ICT facilities are very expensive to purchase, operate and maintain. This high cost of ICT has become a deterrent to public universities which have very limited budgets and funds allocated for the provision of ICTs. This high cost of ICTs acts reduces the level of ICT compliance in public universities and educational institutions as a whole.

9) Staff Perception of ICTs:

The general staff perception of ICT adoption in most public universities in Nigeria is very low, this is because most staff members can already function without the use of ICTs. As such they are reluctant to accept the importance of ICTs as contributors to administrative enhancement and efficiency.

10) Poor Availability of ICT devices;

In developing countries such as Nigeria, the availability of modern and up-to-date ICT devices is usually very low. Most public universities are surrounded by old outdated ICT facilities as tools they must work with administratively. The unavailable nature of these ICT facilities significantly reduces the level of ICT compliance in public universities. These are some of the challenges confronting the adoption of ICTs in public universities and educational institutions in Nigeria.

Methodology

This study adopted a descriptive survey research design to describe an existing phenomenon as it relates to ICT compliance for sustainable digital administrative functions in Rivers State universities. The population of the study is three (3) public universities in Rivers State (University of Port Harcourt, Rivers State University, and Ignatius Ajuru University of Education) and 8,632 staff members in these public universities in Rivers State. Stratified sampling techniques were used to separate the

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academic and non-academic staff of these universities in Rivers State. Taro Yamane formula was used to determine the sample size of 382 respondents which consisted of 104 academic and 278 non-academic staff. A self-structured questionnaire titled: "ICT Compliance for Enhancement of Administrative Functions in Rivers Universities Questionnaire" was used to collect data from the respondents.

The instrument was divided into two (2) sections, section A and B. Section A covered the profile information of the respondents while Section B had 30 items. A four (4) point-modified Likert rating scale was adopted in responses on sections B - H. The responses were weighted thus; Not at all – 1; Low Extent – 2; Moderate Extent – 3; High Extent – 4. Any mean calculated for an item on each of these variables that fell below the value of 2.50 showed a negative response or Low Extent, while any that fell above 2.5 indicated a positive response or High Extent. The hypotheses were tested using z-test statistics at a 0.05 level of significance.

Results and Findings of the Study

Research Question 1:

What is the extent of ICT usage in public universities in Rivers State?

Table 1: Summary of mean and standard deviation on the extent public universities use ICT in Rivers State.

S / N	Items	Academic Staff (n = 104)			Non-Academic Staff (n = 278)		
		Mean \bar{x}_1	SD ₁	Remark	Mean \bar{x}_2	SD ₁	Remark
1	ICTs are used for students' admission.	4.89	0.02	High Extent	4.43	0.92	High Extent
2	ICTs are used for staff recruitment.	4.75	0.90	High Extent	4.67	0.02	High Extent
3	ICTs are used for student registration.	4.45	0.81	High Extent	4.62	0.01	High Extent
4	ICTs are used for staff registration.	4.64	0.03	High Extent	4.73	0.03	High Extent
5	ICTs are used for fee payments.	4.42	0.25	High Extent	4.50	0.15	High Extent
6	ICTs are used for staff payroll preparation.	4.25	0.08	High Extent	4.33	0.16	High Extent
7	ICTs are used for record keeping.	3.78	0.05	High Extent	3.60	0.53	High Extent
8	ICTs are used for communication.	4.12	0.13	High Extent	4.07	0.12	High Extent
9	ICTs are used together information.	3.71	0.11	High Extent	3.65	0.53	High Extent

10	ICTs are used for teaching and learning	2.75	0.12	High Extent	2.74	0.01	High Extent
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Source: Field Survey (2023)

Table 1 shows that items 1 to 10 all have mean responses above the criterion mean of 2.50, therefore were rated high extent. The highest mean of which is item two (2) “ICTs are used for students’ admission” with 4.89 from academic staff respondents, while the lowest mean is 2.74 “ICTs are used for teaching and learning”. This is an indication that ICTs are considerably used to a high extent in public universities in Rivers State.

Research Question 2:

What are the various types of ICTs used in public universities in Rivers State?

Table 2: Summary of mean and standard deviation on the types of ICTs used in public universities in Rivers State.

S / N	Items	Academic Staff (n = 104)			Non-Academic Staff (n = 278)		
		Mean \bar{x}_1	SD ₁	Remark	Mean \bar{x}_2	SD ₁	Remark
11.	Telephones	3.69	0.02	High Extent	4.53	0.32	High Extent
12.	Software Applications	2.55	0.20	High Extent	2.77	0.02	High Extent
13.	Tablets	2.55	0.87	High Extent	2.51	0.22	High Extent
14.	Video Equipment	2.62	0.23	High Extent	2.53	0.11	High Extent
15.	Multimedia Products	2.51	0.22	High Extent	2.50	0.45	High Extent
16.	Internet.	2.85	0.18	High Extent	2.63	0.61	High Extent
17.	Office Electrical Devices	4.02	0.85	High Extent	4.12	0.93	High Extent
18.	Computers	4.11	0.11	High Extent	4.24	0.13	High Extent
19.	Social Media Platforms	3.61	0.71	High Extent	3.98	0.92	High Extent
20.	Electronic Communication Devices	3.25	0.12	High Extent	3.43	0.07	High Extent

Source: Field Survey (2023)

Table 2 shows that items 11 to 20 all have mean responses above the criterion mean of 2.50, therefore were rated high extent. The highest mean of which is item one (2) “Telephones” with a 4.53 mean, while the lowest mean is 2.50 “Multimedia Products”.

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This is an indication that various types of ICTs facilities are available in public universities in Rivers State.

Research Question 3:

What are the challenges confronting public universities in the adoption of ICTs in Rivers?

Table 3: Summary of mean and standard deviation on the challenges confronting public universities in the adoption of ICTs in Rivers

S / N	Items	Academic Staff (n = 104)			Non-Academic Staff (n = 278)		
		Mean \bar{x}_1	SD ₁	Remark	Mean \bar{x}_2	SD ₁	Remark
1	Poor Electricity Supply	4.73	0.12	High Extent	4.83	0.16	High Extent
2	Poor Network	4.59	0.21	High Extent	3.38	0.30	High Extent
3	Insufficient Funding	3.73	0.07	High Extent	3.33	0.30	High Extent
4	Poor Maintenance	3.62	0.24	High Extent	3.53	0.11	High Extent
5	Lack of Experienced Staff	2.01	0.29	Low Extent	2.47	0.04	Low Extent
6	No Training/Retraining of staff	3.03	0.10	High Extent	3.62	0.61	High Extent
7	Low Internet Penetration	2.51	0.42	High Extent	2.56	0.13	High Extent
8	High Cost of ICTs	2.78	0.11	High Extent	2.73	0.02	High Extent
9	Staff Perception of ICTs	2.59	0.71	High Extent	2.62	0.23	High Extent
10	Poor Availability of ICT devices.	2.65	0.10	High Extent	2.53	0.21	High Extent

Source: Field Survey (2023)

Table 3 shows that all items except item twenty-five (25) have mean responses above the criterion mean of 2.50, therefore were rated high extent. The highest mean of which is item twenty-one (21) “Poor Electricity Supply” with a 4.83 mean from nonacademic staff, while the lowest mean is 2.01 for item twenty-five (5) “Lack of Experienced Staff” as responded to by academic staff. This is an indication that the variable challenges confronting universities in the adoption of ICTs in Rivers were generally agreed upon by respondents.

Hypothesis 1:

There is no significant difference between respondents on the extent of ICT usage in public universities in Rivers State.

Table 4: t-test Result of the Difference in Mean Rating between Respondents on the Extent of ICT Usage in Public Universities in Rivers State.

Respondents	N	Mean	SD	Df	L. Sig.	t-cal	t-tab	Remark
Academic	104	3.71	0.25	430	0.05	0.033	1.44	
Nonacademic	278	4.13	0.25					

Table 4 shows that at a 0.05 level of significance with a 430 degree of freedom, the calculated t value of 0.33, which is less than the table value of 1.44. Thus, the researcher fails to reject the null hypothesis, this implies that there is no significant difference in the mean ratings of respondents on the extent of ICT usage in public universities in Rivers State.

Hypothesis 2:

There is no significant difference between respondents on the types of ICTs used in public universities in Rivers State

Table 5: t-test Result of the Difference in Mean Rating between Respondents on the Types of ICTs Used in Public Universities in Rivers State

Respondents	N	Mean	SD	Df	L. Sig.	t-cal	t-tab	Remark
Academic	104	3.18	0.45	430	0.05	0.024	1.44	
Nonacademic	278	3.32	0.58					

Table 5 data shows that at a 0.05 level of significance with a 430 degree of freedom, the calculated t value of 0.24, which is less than the table value of 1.44. Thus, the researcher fails to reject the null hypothesis, this implies that there is no significant difference in the mean ratings of the respondent on the types of ICTs used in public universities in Rivers State.

Hypothesis 3:

There is no significant difference between respondents on the challenges confronting public universities in the adoption of ICTs in Rivers State.

Table 6: t-test Result of the Difference in Mean Rating between Respondents on the challenges confronting public universities in the adoption of ICTs in Rivers State.

Respondents	N	Mean	SD	Df	L. Sig.	t-cal	t-tab	Remark
Academic	104	3.22	0.24	430	0.05	0.012	1.44	Not Sig
Nonacademic	278	3.16	0.08					

The data in Table 6 reveals that at a 0.05 level of significance with a 430 degree of freedom, the calculated t-value of 0.12 is less than the table value of 1.44. Hence, the researcher fails to reject the null hypothesis, meaning that there is no significant difference in the mean ratings of the respondent on the challenges confronting public universities in the adoption of ICTs in Rivers State.

Discussion of Findings

Based on the responses as it relates to research question one (1) on the extent of ICT usage in universities in Rivers State, academic and non-academic staff members indicated the high extent to which ICTs are used in public universities in Rivers State. These findings support the view held by scholars that ICTs are used for numerous purposes to enhance the overall efficiency and effectiveness of the university administration in Rivers State. As such universities in Rivers State have a high ICT compliance in terms of its usage for the enhancement of universities (Anyanwa&Ossai-Onah, 2013).

Research question two (2) findings indicate that academic and non-academic staff to a high extent affirmed the types of ICTs used by public university administrators in Rivers State to enhance their administrative competence. The findings exposed that the various types of ICT facilities such as telephones, tablets, internet, multimedia systems, video equipment, and social media platforms are all key contributors to the enrichment and growth of public university administration in Rivers State. These findings are supported by Uzodinma (2006), who affirmed that several types of ICT facilities are used for public university administration in Nigeria.

The findings from research question three(3), show that respondents (academic and nonacademic staff) acknowledged to a high extent the challenges confronting ICT compliance in public universities in Rivers State. Nevertheless, the findings disagreed to a low extent that the lack of experienced staff is a change confronting ICT compliance in public universities in Rivers State. The challenges to ICT compliance in public universities such as poor electricity supply, poor network, insufficient funding, low staff training/retraining, and low internet penetration among others are preventing the compliance of ICTs in public universities in Rivers State. This finding supports to view

of Bingimlas (2009) who pointed out a similar list of barriers to the successful integration of ICTs in teaching and learning environments.

Additionally, the findings from the hypotheses also reveal that there is no significant difference between academic staff and nonacademic staff in their responses concerning the usage of ICTs in public universities, types of ICTs used in public universities, and the challenges hindering ICT compliance in public universities.

Conclusion

Conclusively, the study has shown that ICT compliance in public universities for the enhancement of university administration in Rivers State is indeed very high. Thus, the list of ten (10) items which ICTs are used for in public universities in Rivers State were all accepted by academic and nonacademic staff members and contributed to sustaining digital administrative progress. Similarly, the outlined types of ICTs used in public universities in Rivers State were also supported by respondents are critical tools used for sustainable digital administrative progress in these institutions. The study has also revealed the major challenges confronting ICT compliance for the enhancement of public university administration in Rivers State.

Recommendations

Given the findings of the study the following recommendations have been proffered;

- 1) Public universities in Rivers State should integrate the usage of ICTs more robustly into the administrative process to effectively enhance university administration.
- 2) There is a need for stakeholders in the university education sector to broaden the types of ICTs complied with in public university administration in such a way that they are more adaptive and contribute to the enhancement of university administration.
- 3) The government should ensure that the problems associated with poor power supply should be addressed speedily to promote the frequent use of ICT facilities in public universities for the enhancement of their administrative processes.

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