


Information and communications technology (ICT) and academic excellence at the Federal University Wukari, Taraba State

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Abstract: There is a global realization of the importance of technology in driving modernization, change, and development. The adoption of technology, particularly information communication telecommunication (ICT) has permeated almost every sphere of modern society, including the educational sector. While some universities in Nigeria have made inroads in the deployment and adoption of ICT for teaching and learning, others are lagging. However, efforts at the deployment and adoption of ICT and digitizing its operations in teaching and learning seem to be at an appreciable level at the Federal University Wukari, Taraba State. Hence, this study assesses the impact of ICT on achieving academic excellence at the Federal University, Wukari, Taraba State. Specifically, the study examines the appreciation of the use of technology by both staff and students, its availability and impact on qualitative teaching and learning and the academic performance of students in the university. The study used both qualitative and quantitative data collected from the institution. The quantitative data were presented and analyzed in tables, frequency counts and percentages. The Chi-Square (X²) was adopted to statistically test the postulated hypotheses. The quantitative data were explained in the content. The study revealed that the adoption of ICT in the process of teaching and learning has enhanced academic excellence at Federal University Wukari. The paper recommends amongst others that the school should partner with ICT companies to provide ICT facilities like Computers, and projectors among others, to the staff and students at a subsidized rate. The cost should be infused into the tuition fees of the students and deducted from the salaries of the staff on an installment basis. Also, the required facilities, especially, power, that will enhance the use of these ICT in the University should be provided by the university management.

Keywords: Academic excellence, Education, ICT, Technology, Students' performance

1. Introduction

Humans' insatiable nature and longing for new ways to better their living conditions and the environment around them have necessitated the emergence of technology which has been deployed in every field of human endeavor such as agriculture, commerce, education, environment, health, security, transportation, and others. The word, technology generally connotes the creation of a technique or instrument aimed at improving the living standard of a people. For example, cars were designed to ease transportation, and telephones to aid and foster communication among people around the world, among others. The technology could be new or improved upon. For example, new models of already invented equipment, and many more, Computers (from analogue to digital to hybrid Computers), locomotive trains to subway electric trains among others are improved upon through technology.

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The adoption of Information and Communications Technology (ICT) came about due to the shift from the traditional mode of dissemination of information and communication (i.e. verbal and print media) to contemporary electronic media. ICT embraces the adoption of equipment and programmes that will enhance the assessment, retrieval, conversion, storage, organization, manipulation, and presentation of data and information (Gay & Blads, 2005). The concept of ICT is interchangeably used with that of information technology (IT). Both implied the adoption of electronic media as a mode of gathering and decimating information. Ideas are conceived in the form of information and are transferred via communication channels to produce the desired objectives or results (NCET, 1995; Ekinghwo, 1998; Adekomi, 1999). The adoption of ICT is crucial to achieving the overall multidimensional development objectives of any nation, including Nigeria. Functional education, especially at the university level, requires the adoption of ICT.

Education is the bedrock of any nation because it produces men and women who proffer solutions to economic, socio-cultural, and political problems of the society. It, therefore, follows that for such people to be effective and efficient, technology must be given top priority. Developed nations of the world like the United States of America, Britain among others tend to improve their educational sector by bringing them up to date with modern ways and practices in training their students which in turn leads to better graduates as well as economic, social and political development of their nations (Olabara, 2022). The major activities in the educational sector can be greatly enhanced through the use of technology. At the tertiary level, especially at the university, the major functions of teaching, learning, and research have witnessed a progressive turnaround due to the adoption of ICT (Asaju & Ogar, 2022). Electronic learning (E-learning) is the adoption of the Internet used for student registration, assessment for processing results, and others. has greatly enhanced academic excellence in the educational sector, especially, in tertiary institutions (Asaju & Ogar, 2022; Adedeji, 2010).

To enhance the adoption of ICT for teaching and learning, a separate department was created in the Federal Ministry of Education in Nigeria in 2007. The department was given the responsibility to collaborate with other similar agencies of government and the private sector to ensure and enhance the various ICT-driven efforts of the federal government in the various educational institutions in Nigeria (Osakwe, 2012) (Not in reference, Do th needful). However, the efforts seem not to have achieved their desired objectives. Ajegbelen (2016) (Not in reference, Do th needful) asserts that, despite efforts to enhance the adoption of ICT in tertiary institutions in Nigeria, only a few public tertiary institutions in the country have met the ICT needs of their staff and students due to some inherent institutional challenges. Unlike some of the public universities in the country that are lagging in the adoption of ICT, the case is different in private universities like Covenant University (CU), Afe Babalola University, American University of Nigeria (AAUN) and others, which are better off and could boast of 24-hours internet connectivity on their campuses (Ajegbelen, 2016).

As one of the fifth-generation Universities in Nigeria, it is expected that its operations, especially in the process of teaching and learning and other accompanied activities are technology-driven. But, the question is whether that is the situation in the university. Can it be said that FUW has come to terms with adopting modern technology in both teaching and learning activities? The answers to these questions informed the basis of this study. The adoption of technology, especially in the process of teaching and learning is crucial to achieve desired academic excellence in the university (Asaju & Ogar, 2022). This is because over the years it has been proven that information and communications Technology (ICT) has been effective in improving teaching, learning, and research, especially tertiary educational level (Agalo, 2021; Okiki, 2021; Ben Youseef, Dahmani & Ragni, 2022). Fabunmi (2012) believes that in the present information age, the adoption of ICT in various academic activities is of crucial importance to train and graduate well-skilled and professional manpower who will use their experiences to tackle or proffer lasting solutions to societal problems. This study is predicated on this premise.

2. Research questions

- i. What is the extent of the adoption of ICT facilities in the process of teaching and learning at Federal University Wukari?
- ii. What are the impacts of the adoption of ICT on academic excellence in the university?
- iii. What are the challenges hindering the impact of the adoption of ICT in achieving academic excellence at Federal University Wukari?

3. Objectives of the study

The main objective of this study is to assess the impact of the adoption of ICT on academic excellence at the Federal University of Wukari. The specific objectives include to:

- i. Examine the extent of ICT adoption or compliance in the process of teaching and learning at Federal University Wukari.
- ii. Examine the impacts of the adoption of ICT on academic excellence in the university.
- iii. Examine the challenges hindering the impact of the adoption of ICT in achieving academic excellence at Federal University Wukari.

4. Hypothesis

H1. The adoption of ICT in the process of teaching and learning has significantly improved academic excellence at Federal University Wukari.

H0. The adoption of ICT in the process of teaching and learning has not significantly improved academic excellence at Federal University Wukari.

5. Literature review

6. ICT and academic excellence

Many scholars (Asaju & Ogar, 2022; Agalo, 2021; Olebara, 2022) have tried to establish the relationship between information and communication technology (ICT) and academic excellence, especially for teaching and learning. This is because ICT enhances efficiency and effectiveness in the accomplishment of tasks (Asaju & Ogar, 2022). The educational sector has imbibed the use of ICT in virtually every task it performs; ranging from result computation, e-examination, e-learning, teaching and other educational-related functions (Asaju & Ogar, 2022; Agalo, 2021; Olebara, 2022). The adoption of ICT in education helps to enhance service delivery in the sector (Linways, 2017). This implies that students who are exposed to the use of ICT are likely to be highly skilled and will eventually demonstrate global economy competence. This is because knowledge or the digital-based economy is the hub of national development.

Stressing the relationship between ICT and academic excellence, Goodwin (2012) averred that digitally literate teachers are likely to develop high skills and intellect that will help them to train students to develop their creativity and better prepare them to deal with ongoing technological change in the various sectors of the economy. In this sense, ICT was used within the purview of this paper to mean the application of technological facilities in learning, research and rendering community services by staff and students in the university that will have a great impact on society at large.

Olaniyi (2006) posits that ICT as a technological tool can be transferred and cross-fertilized in real time. However, the challenge is how educational institutions, especially universities, can avail themselves of this opportunity to enable them to compete favourably in the global market. Therefore, the place of ICT in the university is crucial and could determine the marketability of the products of the institutions.

The above statement was empirically stressed by various scholars who have undertaken studies on the relationship between ICT and academic excellence. A study carried out by Ratheeswari (2018) revealed that ICT improves teaching and learning and it creates an environment conducive to teaching and learning. The study also recommends that the intended and unintended results of using ICT for teachers' professional development need to be explored. A related study undertaken by Okiki (2011) also reveals that ICT connects the process of teaching and learning to the intended users through e-learning. This, however, depends on the availability of the necessary infrastructure and strong internet connectivity.

Another study carried out by Ben Youseef, Dahmani and Ragni (2022) revealed that due to inadequate commitment to investment in ICT initially witnessed in the university under study negatively affects the student's academic performance in the institution. The study further revealed that the investment in ICT by the university led to improvement in the acquisition of digital skills and improvement in students' academic performance. Olaore (2014) examines both the positive and negative impacts of ICT on education in Nigeria. The work found that ICT has become a veritable tool for educational progress and further stressed that the advent of ICT usage in academics has also become a major distraction to students' academic performance. The scholar avers that instead of searching for good academic content, the students resort to chatting on various social media sites. The will also leverage this finding as it examines the impact of the adoption of ICT in the process of teaching and learning on academic excellence at Federal University Wukari.

7. Theoretical framework

The study is built on the Creative Destruction theory propounded by Schumpeter in 1950. The theory assumes that each innovation produces new technological knowledge which can improve material possibilities and render obsolete some of the technological knowledge that was created by previous innovations. The theory explains the relationships between technological innovation creating wealth through savings and capital investment. The theory defines economic growth as a social process bound up with institutional policies, social customs, and other phenomena that affect not only the incentives to save but also the incentives to create new knowledge and the willingness to adapt to change. The theory concludes that the gains and losses of technological progress depend on social arrangements, and how such arrangements affect society's ability to create and cope with technological change

The adoption of technology is crucial to achieving the present and future development of any nation. The future of the university, among other educational institutions, depends on the adoption of technology in all its activities. Achieving academic excellence through technology is a combination of knowledge, methods, tools, and skills. These elements were put into consideration in assessing the impacts of the adoption of ICT on achieving academic excellence at Federal University Wukari. The achievement of technological-based development in the university depends on the efforts at developing the skills of staff and students on ICT, providing the necessary facilities and funds, and surmounting the challenges that could be an obstacle to achieving this objective. Thus, the study is based on this premise.

8. Methodology

The research adopts the survey research design. The survey design is suitable for the study because the elements or variables under study will be observed without any attempt to manipulate or control them. The relationships among the variables are observed and recorded without any manipulation. Here, the independent variables of ICT adoption and availability are observed as they affect academic excellence at Federal University Wukari. The survey design is also suitable because it allows for the collection of qualitative and quantitative data to observe the phenomenon under study. The study will adopt a questionnaire to collate quantitative data and interviews and official documents of the university to collate qualitative data.

8.1. Population and sample size 1

The population of the study comprised the academic staff and students of Federal University Wukari. The total population of the study is 6122 which comprises 463 academic staff and 5659 students of the university during the 2017/208 academic session. (Academic Unit and Establishment Unit, Federal University Wukari. 2018). The Yamane's formula was used to determine the sample size from the population. The formula is denoted as:

$$n = \frac{N}{1 + N(e)^2}$$

Where

n = Sample size

N = Population

e = error of margin

1 = constant

$$n = \frac{6122}{1 + 6122(0.05)^2}$$

$$n = \frac{6122}{1 + 6122 \times 0.0025}$$

$$n = \frac{6122}{1 + 15.305}$$

$$n = \frac{6122}{16.305}$$
$$n = 375$$

Thus, the sample size for the staff is 375.

The stratified random sampling method was adopted in selecting the sample. The academic staff and students were stratified according to the three faculties in the school i.e. Faculties of Pure and Applied Sciences, Agriculture and Life Sciences and Humanities, Management and Social Sciences. The Boundley (1964) proportionate sampling allocation formulae were used to distribute the respondents. It is given thus:

$$Nb = n(N) N$$

Where

$$Nb = ?$$

n= sample size

N= population of the study

Since the total number of academic staff is 463, the percentage of the respondents was further scientifically determined. Thus:

Academic staff

$$\frac{463 \times 375}{6122} = 28$$

The number of academic staff that were issued questionnaire are **28**.

The total number of students was 5659 the percentage of the respondents was further scientifically determined. Thus:

Students

$$\frac{5659 \times 375}{6122} = 347$$

Then the number of students that were issued questionnaires was **347 and 28 respectively**, totaling 375. The University was stratified according to the three faculties in the school and others. Faculties of Pure and Applied Sciences, Agriculture and Life Sciences and Humanities, and Management and Social Sciences. Two departments were randomly selected from each faculty. Department of Bio-Chemistry and Micro-Biology was selected from the Faculty of Pure and Applied Sciences; the Department of Life Science and Food Science were selected from the Faculty of Agriculture and Food Sciences; and the Department of Public Administration and Political Science from the Faculty of Humanities, Management and Social Sciences. Although the number of faculties and departments has increased over time, they were not reflected during the cause of this study. The respondents were scientifically and randomly selected from each of the departments.

9. Methods of data collection

In the study, data was collection using both primary and secondary means. The major instruments for collecting the primary data was the questionnaires which was designed and distributed to respondents by the researcher. The secondary data were obtained from journals, official documents of the university, among others. While data from the questionnaire were presented in tables and was measured using frequency counts and percentages and subsequently analysed. The data from the questionnaire was calculated using the Chi-square (X²) to statistically test the hypotheses. The secondary data was used to complement the primary data was analyse via content analysis.

9.1. Data presentation and analyse

Research Question 1:-What is the extent of the adoption of ICT facilities in the process of teaching and learning at Federal University Wukari?

In answering the first research question above, the opinions of the staff and students were sought on their knowledge of computers and the usage of ICT accessories like sorting the internet, websites, and projectors.

Table 1: Are you a computer literate?

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Yes	28	100	Yes	163	47
No	0	0	No	184	53
Total	28	100	Total	347	100

Source: Field Survey, 2022

The table 1 above contained the respondents' opinions on whether they are computer literate; 100% of the academic staff agreed that they are computer literate while 47% of the students agreed and 53% responded with No which implies that they are not computer literate. This shows that all the academic staff that partakes in the study know how to operate a computer while the majority of the students representing 53% do not know how to operate a computer. The responses from the staff could be adduced to the fact that the academic staff used computers for uploading students' results, carrying out research and other academic-related functions.

The next question is focused on the years of experience of the respondents regarding their computer literacy. Their responses are contained in Table 2.

Table 2: How long have you been a computer literate?

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
1-5 years	0	0	1-5 years	243	70
Over 6 years	28	100	Over 6 years	104	30
Total	28	100	Total	347	100

Source: Field Survey, 2022

The table 2 shows respondents' opinions on how long they have been using computers. 28 of the staff respondents representing 100% have been using it for over 6 years; whereas 243 students representing 70% responded with 1-5 years, and 104 students representing 30% responded with over 6 years. This shows that while all the staff have known computers for over 6 years, the majority of the students have had the same knowledge for 1-5 years.

To further buttress the above point, the respondents were asked whether they got their experiences within or outside the University. Their responses are contained in Table 3.

Table 3: Where did you learn computer?

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Federal University Wukari	0	0	Federal University Wukari	0	0
Elsewhere	28	100	Elsewhere	347	100
Total	28	100	Total	347	100

Source: Field Survey, 2022

The table 3 above shows that 100% of the academic staff asserts that they learned how to operate computers elsewhere; whereas 100% of the students responded that they also learned how to operate elsewhere. This shows that both the students and the academic staff have not been taught how to operate computers from Federal University Wukari, rather they acquire the knowledge elsewhere. The respondents were asked if they owned a computer, their responses are contained in Table 4.

Table 4: Do you own a personal computer?

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Yes	28	100	Yes	163	47
No	0	0	No	184	53
Total	28	100	Total	347	100

Source: Field Survey, 2022

As contained in Table 4 above, 100% of the staff responded that they own their personal computer; whereas 163 students representing 47% have a computer, 184 students representing 53% do not have a computer. This shows that while all the staff have a computer, the majority of the students do not own a personal

computer. The respondents were further asked if they know how to surf the internet and their responses are contained in Table 5.

Table 5: You can surf the internet

Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	16	56.6	Strongly Agree	177	51.5
Agree	11	40	Agree	133	38.5
Strongly Disagree	0	0	Strongly Disagree	21	6
Disagree	1	3.3	Disagree	14	4
Total	28	100	Total	347	100

Source: Field Survey, 2022

The table 5 above indicates the respondents' opinion on whether they can surf the internet; 16 academic staff representing 56.6% strongly agree, 11 respondents representing 40% agreed, and 1 staff representing 3.3% disagree. While 177 students representing 51.5% strongly agree, 133 students representing 38.5%, 21 students representing 6% strongly disagree, and 14 representing 4% disagree. The outcome of the above responses shows that the majority of the academic staff and students can surf the internet. The academic staff were further asked if they could deliver lectures via projector. Their responses are contained in Table 6 below.

Table 6: You can use projectors to deliver lectures

S/N	Response	Frequency	Percentage (%)
1	Yes	20	70
2	No	8	30
3	Total	28	100

Source: Field Survey 2022

The table 6 above indicates the academic staff responses on whether they can use projectors to deliver lectures; 20 of the respondents representing 70% responded with Yes, and 8 respondents representing 30% responded with No. Based on the responses above the study concludes that the majority of the academic staff can use a projector to deliver lectures if made available by the University. The responses in Table 4.1 to 4.6 indicates that the majority of the respondents have the required knowledge to adopt ICT. It is obvious from their responses that the majority of the staff are computer and ICT literate. And they are capable of using ICT for teaching and learning.

10. Impact of ICT on academic excellence in FUW

10.1. Availability of ICT to staff and students at Federal University Wukari

An important factor in determining the impact of ICT on academic excellence is the availability of ICT facilities in the institution. The number and quality of these facilities available to staff and students will greatly determine their impact on academic excellence in FUW. The respondent opinions on this issue are contained in Table 7- 14.

Table 7: Personal computer was issued to staff for academics

Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	3	10	Strongly Agree	0	0
Agree	2	6.6	Agree	0	0
Strongly Disagree	18	66.6	Strongly Disagree	298	86
Disagree	5	16.6	Disagree	49	14
Total	28	100	Total	347	100

Source: Field Survey, 2022

Table 7 indicates that 10% of academic staff strongly agree that they have been given Computers by the school, 2 representing 6.6% agreed, 18 respondents representing 66.6% strongly disagreed, and 5 respondents representing 16.6% disagreed. This shows that the majority of the respondents have not been issued a personal computer. Whereas 298 students representing 86% strongly disagree and 49 students representing 14% disagree. Further interview with some of the staff shows that those who agreed that they were given personal computer were exam officers who were given computers to enable them to perform their duties. They agreed that it is not their personal computers as they are expected to hand them over to their various departments at the end of their term of office. The above analysis also shows that all the students were not issued any personal computers by Federal University Wukari.

To further buttress the above point, the respondents were asked if ICT facilities that could aid in the teaching and learning process were made available to them. These facilities include the Internet, projectors, online teaching, and official communication via websites among others. Their responses are contained in Table 8.

Table 8: ICT facilities available to staff and Students in Federal University Wukari for Teaching and Learning

Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	1	3.3	Strongly Agree	118	34
Agree	4	13.3	Agree	118	34.5
Strongly Disagree	18	63.3	Strongly Disagree	52	15
Disagree	5	20	Disagree	57	16.5
Total	28	100	Total	347	100

Source: Field Survey, 2022

Table 8 above shows respondents' responses on whether ICT facilities are available to staff and students of Federal University Wukari for research and learning; 1 academic staff representing 3.3% strongly agreed, 4 respondents representing 13.3% agreed, 18 respondents representing 63.3% strongly disagreed, 5 respondents representing 20% disagreed. On the other hand, 118 students representing 34% strongly agreed, 118 representing 34.5% agreed, 52 representing 15% strongly disagreed, and 57 representing 16.5% disagreed. From the responses from both staff and students, there seems to be a disparity in their responses; while the staff disapproved of the availability of those facilities, the students on the other hand affirmed its availability. The students' responses could not be far-fetched because major academic activities (i.e. Students' admission, registration, payment of school fees, checking of results, and many more) are undertaken via the Internet.

The respondents' opinions were sought on whether the available facilities are easily accessible for teaching and learning in the university. Their responses are contained in Table 9.

Table 4.9: Access to ICT facilities at Federal University Wukari for Research and Learning

Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	21	73.3	Strongly Agree	36	10.5
Agree	7	26.6	Agree	45	13
Strongly Disagree	0	0	Strongly Disagree	153	44
Disagree	0	0	Disagree	120	34.5
Total	28	100	Total	347	100

Source: Field Survey, 2022

On whether the respondents have easy access to the available ICT facilities in the school, 21 staff representing 73.3% strongly agreed, 7 representing 26.6% agreed, while 36 students representing 10.5% strongly agreed, 45 students representing 13% agreed, 153 representing 44% strongly disagreed, 120 representing 34.5% disagreed. From the table above, there is a disparity among the respondents; while the majority of the academic staff agreed with the claim that they have access to ICT facilities, most of the students on the other hand disagreed with it.

The respondents' opinions were further sought on how often they have access to the available ICT facilities at the University. Their responses are contained in Table 10.

Table 10: Rate of access to ICT facilities in Federal University Wukari?

Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Regularly	8	30	Regularly	31	9
Not Regular	20	70	Not Regular	81	23.5
Never	0	0	Never	235	67.5
Total	28	100	Total	347	100

Source: Field Survey, 2022

The table 10 indicates the respondents' opinion on how often they have access to ICT facilities; 8 staff representing 30% responded that they regularly have access to ICT facilities, and 20 representing 70% responded that they rarely have access to the facilities. 31 students representing 9% responded that they regularly have access to ICT facilities, 81 representing 23.5% rarely have access to it, and 235 representing

67.5% never have access to ICT facilities in Federal University Wukari. This shows that most academic staff and the students rarely or never had access to ICT facilities respectively.

Based on the technological revolution across every sector of the economy, including education, there is a need to train personnel on the importance and usage of ICT facilities. The same can be said of an academic institution like FUW. The respondents were asked if various ICT training programmes are been undertaken to keep both the staff and students familiar with the new trend. Their responses are tabulated in Table 11.

Table 11: ICT training programmes are introduced at Federal University Wukari

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	7	26.6	Strongly Agree	78	22.5
Agree	11	40	Agree	57	16.5
Strongly Disagree	6	20	Strongly Disagree	170	49
Disagree	4	13.3	Disagree	42	12
Total	28	100	Total	347	100

Source: Field Survey, 2022

Table 11 shows the respondents' opinion on whether ICT programmes have been introduced by Federal University Wukari. 7 academic staff representing 26.6% strongly agreed, 11 representing 40% agreed, 6 representing 20% strongly disagreed, and 4 representing 13.3% disagreed. Whereas 78 students representing 22.5% strongly agreed, 57 representing 16.5% agreed, 170 representing 49% strongly disagreed, and 42 representing 12% disagreed. The above table shows that the majority of the academic staff agreed that ICT programmes have been introduced to them by the institution, while the majority of the students were of the contrary opinion.

The academic staff's opinions were sought on the effectiveness of the ICT training programme undertaken for staff in the institution, their responses are indicated below in Table 12.

Table 12: The ICT training programmes were effective

S/N	Response	Frequency	Percentage (%)
1	Strongly Agree	21	73.3
2	Agree	7	26.7
3	Strongly disagree	0	0
4	Disagree	0	0
5	Total	28	100

Source: Field Survey 2022

The above 12 table further inquiries from the academic staff whether the ICT programme introduced to them has been very effective. 21 respondents representing 73.3% strongly agreed, and 7 respondents representing 26.7% agreed. This shows that the majority of the academic staff find the programme very effective. The respondents were asked if the use of ICT in the process of teaching and learning should be on a permanent and continuous basis. Their responses are tabulated in Table 13.

Table 13: The need for the continued use of ICT facilities for academic activities at Federal University Wukari

S/N	Response	Frequency	Percentage (%)
1	Strongly Agree	28	100
2	Agree	0	0
3	Strongly Disagree	0	0
4	Disagree	0	0
5	Total	28	100

Source: Field Survey 2022

The table shows that 100% of the academic staff agreed that they would welcome the daily use of ICT facilities for academic purposes at Federal University Wukari.

Table 14: The use of ICT will lead to the academic performance of students at Federal University Wukari if effectively used

Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	98	46.7	Strongly Agree	191	50.1
Agree	84	40	Agree	129	33.8

Strongly Disagree	0	0	Strongly Disagree	27	7
Disagree	28	13.3	Disagree	34	8.9
Total	210	100	Total	381	100

Source: Field Survey, 2022

The respondents' opinions on whether the use of ICT will lead to the academic performance of students as presented in table 14 indicate that 98 academic staff representing 46.7% strongly agreed, 84 representing 40% agreed, and 28 representing 13.3% disagree. While 191 students representing 50.1% strongly agreed, 129 students representing 33.8% agreed, 27 students representing 7% strongly disagreed, and 34 representing 8.9% disagreed. The findings from the above responses show that both the staff and students jointly agreed that the use of ICT will further lead to the academic performance of students if properly utilized.

Table 15: Measuring academic excellence

Class of Degree	2016/2017 Academic Session		2017/2018 Academic Session		2018/2019 Academic Session		2019/2020 Academic Session		Total
	F	%	F	%	F	%	F	%	
1 st	26	3.7	26	3.1	24	2.4	32	2.4	108
2.1	194	27.8	248	29.5	294	30.5	376	29.3	1112
2.2	382	55	459	55	545	56.5	683	53.2	2069
3 rd class	95	13.6	96	11.4	98	10.1	162	13	451
Pass	-	-	09	1	05	0.5	29	2.2	43
Total	697	100	838	100	966	100	1282	100	3783

Source: Federal University Wukari (2022) & Students' Academic Records as compiled by the Researchers

Table 15 above shows students' academic records from the 2016-2020 academic sessions. The table indicates the classes of degrees awarded to students of the institution under study. From the 2016/2017 academic session, 26 students representing 3.7% graduated with first-class degrees, while 194 students representing 27.8% graduated with second-class upper division, 382 students representing 55% graduated with second-class lower division and 95 students representing 13.6% graduated with third class.

In the same vein, the data shows that as of the 2017/2018 academic session, 26 students, representing 3.1% graduated with first class, whereas there was an increase in the performance of the students as 248 students representing 29.5% graduated with second class, 459 students representing 55% graduated with second class lower division, 96(11.4%) graduated with third class degree and 9 of the students representing 1% graduated with a pass degree.

Again, the 2018/2019 academic session, shows that decline in the number of first-class as 24 students representing 2.4% were recorded; 294 students representing 30.4% had second-class upper, 545 students representing 56.5% graduated with second-class lower division, while 98 students representing 10.1% graduated with a third class degree and the numbers of students with pass degree decline to 5 which represents 0.5%.

In the 2019/2020 academic session, data indicates an increase in the number of students with first-class degrees 32 students representing 2.4% was shown in the table, another increase was shown as 376 students representing 29.3% was recorded with second-class upper division, further increase was recorded among students with second class lower division as 683 (53.2%) was recorded. In the same vein, 162 students representing 13% graduated with third class and 29 students representing 2.2% graduated with a degree.

The analysis of data shows a significant increase in the academic performance of the students within the years under review. This could be attributed to the adoption of ICT in the process of teaching and learning in the institution. The findings were in line with a similar study carried out by Asaju and Ogar (2022) on the attitudinal dispositions of exam officers to the adoption of ICT in the compilation of students' results at Federal University Wukari. Their findings revealed that the adoption of ICT has led to less error,

manipulation, and other misnomers associated with students' examination results in the institution. This not only ensures the efficacy and reliability of the results but also enhances academic excellence in the university.

10.2. Challenges of ICT in FUW

Finally, the study examines some of the challenges affecting the adoption and impact of ICT on academic excellence in the university. The respondents' opinions were sought on these issues and their responses are contained in Table 15-21. Electricity is very vital in the usage of ICT. ICT requires electricity to power the gadgets to function effectively. The respondents' opinion was sought on the issue of electricity supply to be used to power ICT. Their responses are contained in Table 16.

Table 16: Shortage of power supply in Federal University Wukari affects ICT use

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	12	42	Strongly Agree	180	52
Agree	11	39.1	Agree	127	36.5
Strongly Disagree	2	5.6	Strongly Disagree	25	7
Disagree	4	13.3	Disagree	16	4.5
Total	28	100	Total	347	100

Source: Field Survey, 2022

Table 16 above shows respondents' opinions on whether the shortage of power supply affects ICT usage in the university. 12 staff representing 42% strongly agreed that epileptic power supply is a major hindrance to the usage of ICT in the institution. 11 representing 39.1% agreed, 2 representing 5.6% strongly disagreed, 30 representing 13.3% disagreed. While 180 students represented 52% strongly agree, 127 represented 36.5% agreed, 25 represented 7% strongly disagree, and 16 represented 4.5% disagree. This implies that the shortage of power by the institution affects ICT usage.

Another challenge is internet connectivity within the vicinity of the University. Without effective internet connectivity, it will be impossible to connect to the internet. Activities regarding uploading and downloading of student results, students' registration, accessing the University website for information, communication via email, WhatsApp and many more will be difficult or impossible without strong internet connectivity. Accessing this connectivity at a personal cost might be too expensive for the users, especially the students. The respondents' opinions on the level of internet connectivity are contained in Table 17.

Table 17: Absence of internet connectivity hinders ICT usage

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	20	70	Strongly Agree	186	53.5
Agree	3	10	Agree	66	19.1
Strongly Disagree	2	6.1	Strongly Disagree	67	19.4
Disagree	4	13.8	Disagree	16	4.5
Total	28	100	Total	347	100

Source: Field Survey, 2022

On whether the absence of internet connectivity hinders ICT usage, 20 staff representing 70% strongly agreed, 3 10% agreed, 2 representing 6.1% strongly disagreed, and 4 representing 13.8% disagreed. Whereas, 186 students representing 53.5% strongly agree, 66 representing 19.1% agree, 67 representing 19.4% strongly disagree, and 16 representing 4.5% disagree. This shows that both the academic staff and students agreed that the absence of internet connectivity affects ICT usage in FUW. Another factor militating against the usage of ICT in FUW is the attitude of management staff to accept the use of ICT for various academic activities in the university. When the political will on the part of the university management is lacking, it might be difficult to convince them of the need to invest in ICT by providing the necessary facilities required for the usage of ICT. The psychological dispositions of the university management towards the application of ICT in carrying out academic activities could affect their investment in ICT. The respondents' opinions were sought on the above matter and their responses are contained in Table 18.

Table 18: Look-warmed attitude by management affects ICT usage

Academic Staff			Students		
Responses	Frequency	Percentage	Responses	Frequency	Percentage
Strongly Agree	13	46.7	Strongly Agree	173	49.8
Agree	11	40	Agree	117	32.2
Strongly Disagree	0	0	Strongly Disagree	38	11
Disagree	4	13.3	Disagree	24	6.9
Total	28	100	Total	347	100

Source: Field Survey, 2022

On whether the look-warmed attitude of the university on the application of ICT affects ICT usage within the Institution, 13 staff representing 46.7% strongly agree, 11 staff representing 40% agree, and 4 representing 13.3% disagree. On the other hand, 173 students representing 49.8% strongly agree, 117 representing 32.2% agree, 38 representing 11% strongly disagree, and 24 representing 6.9% disagreed. Thus, both staff and students agreed that look warm attitude by management affects ICT usage at Federal University Wukari. Given the findings from Table 15-17, we can deduce that the major factors militating against the usage of ICT in FUW, include epileptic and unstable power supply, absence of internet connectivity and the poor attitude of management staff to providing the facilities required for effective usage of ICT for teaching and learning in the University. The above deduction also provides an answer to the third research question.

Test of hypothesis

Test Statistic = Chi-Square (X²)

$$\text{(Formula) } \chi^2 = \frac{(fo - ft)^2}{ft}$$

Where: fo = Observed Frequency

ft = Theoretical Frequency

Degree of freedom (DF) = (R-1) (C- 1)

Where: R = Row total

C = Column total

Level of significance = 0.05%

$$= (r-1) (k-1)$$

$$(4-1) (2-1)$$

$$3 \times 1$$

$$DF=3$$

The critical value for a 0.05 level of significance and 3 degrees of freedom is **7.815**.

H₀₁: The adoption of ICT in the process of teaching and learning has not significantly improved academic excellence at Federal University Wukari.

Table 18: Chi-Square Tests

Tables Numbers	Observed frequency	Expected frequency	O-E	(O-E) ²	$\frac{(O-E)^2}{E}$
Table 15	591	0	591	349281	591
Table 16	591	0	591	349281	591
Table 17	502	89	413	170569	339.7
Table 18	538	53	485	235225	437.2
					1958.9

Decision Rule

Since the computed value of X² at 1958.9 is greater than the tabulated value of X² at 7.815, we hereby reject the null hypothesis and uphold the alternate which states that ‘the adoption of ICT in the process of teaching and learning has not significantly improved academic excellence at Federal University Wukari’.

11. Discussion of finding

The major finding of this study is that technology has a positive impact on the academic performance of students at Federal University, Wukari as indicated in the results of the graduating students for the 2017/2018 and 2018/2019 academic session. This was the period that the use of ICT was prioritized and encouraged in the process of teaching and learning and other academic activities in the university. Findings also revealed that various efforts were put in place by the university to raise the quality of ICT adoption and appreciation through various training programmes organized for lecturers. These training programmes were adjudged very effectively by the academic and non-academic staff of the university.

The study also revealed that no effort was made by the management to provide computers and internet facilities for academic purposes. The study revealed that most of the staff bought their personal computers and provided their Internet services. The study also revealed that there are ICT facilities at Federal University Wukari, but they are not adequate. The finding is in line with a related study undertaken by Okiki (2011) which reveals that ICT connects the process of teaching and learning to the intended users through e-learning. This, however, depends on the availability of the necessary infrastructure and strong internet connectivity.

On the problems militating against the effective usage and impact of ICT, findings revealed that lack of regular access to ICT facilities, epileptic power supply, and poor attitude of the university management are the main hindrances affecting the usage and impact of ICT at Federal University Wukari. The study revealed also that the University is a federal government-owned institution with very limited finance to meet the ICT demands of all the staff and students.

12. Recommendation

Based on the findings and conclusions, and with a desire for the development of academic excellence in FUW, and other institutions, this work hereby recommends as following;

- i. The management of Federal University Wukari should acquire more ICT facilities that can serve the population of staff and students to make the impact of ICT felt.
- ii. The school should connect directly to one of the main power distribution points to allow for a consistent power supply in the school. Although the cost of generating alternative power might be very expensive, especially with the cost of fuel, the University should not rule out the provision of alternative power supply via generators.
- iii. The management of Federal University Wukari should enhance students' access to Internet facilities by making them accessible in the classrooms and student hostels.
- iv. Being a public institution financed by the federal government, the school should partner with ICT companies that produce such facilities like Computers, projectors among others, to provide them to the staff and students at a subsidized rate which will be infused into the fees of the students and deducted from the salaries of the staff on the instalment basis.
- v. Management should come up with training programmes for students to aid those students who are not yet computer literate and boost the knowledge of those who are already literate. This would enable students to go about their academic work with ease and compete favourably with their counterparts in private universities which are believed to be better in ICT.
- vi. A well-equipped and functional ICT centred that will accommodate at least 200 students should be built that will give specific training to all students in different arrears of ICT.
- vii. To avoid the problem of funding, a small amount, at least N2000 can be charged to students interested in this training. The money can be used to maintain the ICT centre. Staff of the university can also benefit from these training programmes.

13. Conclusion

Information Communications Technology (ICT) has become a global phenomenon in every contemporary society because of its attendant positive contributions to every sector of the economy, including, education, especially university education. The above understanding spurred the desire for this study to examine the usage of ICT and its impact on academic excellence in FUW. Based on the findings from the data analysed, the study concludes that the use of ICT will lead to increased academic performance of students of Federal University Wukari if effectively used. This is because the adoption of ICT is greatly sought and appreciated by both staff and students of the University and the majority of them are computer literate. This will enable them to compete globally in disseminating knowledge and contributing to knowledge. However, This can be made possible when the ICT facilities (like projectors, computers, and the internet among others) are adequate and made easily accessible to the staff and students.

The study also concludes that the adoption of ICT in academic activities enhances the academic performance of the students. This is pertinent since one of the goals of the University is to become a world-class university, competing favourably with other world-class universities in the world.

Finally, the work concludes that although the Management of the school recognizes the importance of technology in the achievement of academic excellence by introducing ICT training programmes for its staff, the major problem is the access to the ICT facilities, challenges relating to power supply, inadequate facilities among others were militating factors to achieving the desired impact of ICT on academic excellence in the university.

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