

# Availability, Accessibility, and Use of ICT in Learning by Students of Humanities and Management Faculty, Federal University Wukari

Philip Zhino Aboki<sup>1</sup>, Jonathan Iliya Apuru<sup>2</sup>, Lydia Endaben Lakan<sup>3</sup>

<sup>1</sup>ICT/MIS Directorate, Taraba State University, Jalingo, Taraba State, Nigeria

<sup>2</sup>Department of Computer Science, Taraba State University, Jalingo, Taraba State, Nigeria

<sup>3</sup>ICT and Library Division, National Veterinary Research Institute Vom, Plateau State, Nigeria

## ABSTRACT

The research surveyed the availability, accessibility and use of Information and Communication Technology, ICT in learning by students of Federal University of Wukari (FUW). Three research questions were formulated. A qualitative data collection technique was utilised. A simple random sampling technique was used to select two hundred and fifty-two (252) students. Data were obtained using a structured questionnaire. The instruments used for data collection were validated by experts in the field of Information Systems and Information Science. Collected data from the questionnaire were analysed using frequency distribution. Findings of the research revealed that the level of ICT infrastructure facilities availability for learning in the Faculty of Humanities and Management, Federal University, Wukari, is high. It also found that the extent of accessibility and use of ICT infrastructure facilities for learning is also high in the Faculty. Based on the findings, recommendations were proffered.

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## INTRODUCTION

The demand for Information and Communications Technology (ICT) skills is growing. The current trend for digital transformation is steadily driving the need for ICT skills to new levels. There is increasingly a convergence between ICT, business, education, and engineering, which were once considered to be unique in their own right. ICT now permeates almost all sectors of economies; hence strong ICT skills are relevant across many sectors (Mooney 2018). The educational sector has significantly thrived with the applications of ICT in learning. Worthy of note is the use of ICT in the educational sector during the COVID 19 lockdown. The critical global incident generated by the pandemic forced most teachers to assume virtual teaching where they had to use digital technologies, sometimes for the first time to facilitate their students' learning (Pozo, Echeveria, Cabellos,

Sanchez 2020.). The closure of schools as a consequence of COVID-19 led to substantial changes in education with profound consequences in terms of the financial cost. Among the many changes generated by this crisis, all teaching became mediated by digital technologies (Juan-Ignacio, María-Puy, Beatriz, Daniel, 2021). Even though, most African nations were not yet prepared for full ICT applications in learning during the lockdown due to inadequate information and communication technology (ICT) devices, internet/mobile network access (Montoya, 2020), countries that deployed IT-based learning derived so many benefits during the learning processes. One of the few benefits caused by the COVID-19 Pandemic is that the educational institutions moved from traditional to online learning quickly by the imposed conditions and thus enabled

online learning for all students (Qekaj-Thaqi, and Thaqi, 2021).

Furthermore, the COVID-19 pandemic paved way for the rethink of the adoption of online learning in many schools in Nigeria. While the need for the adoption of online learning was clear from the outset of the pandemic, achieving effective reach to students was more complex for Nigerian Universities. Though most national ministries of education in developed countries quickly pivoted to emergency remote instruction during the early phase of the pandemic (Osman, and Keevy, 2021). Nigerian Universities were left to their own devices and their responses varied according to their resources and resourcefulness (eLearning Africa and EdTech Hub, 2020). According to ASUU-UI Publicity Committee, 2020 as cited in Olayemi and Adamu, (2021), the Federal Government of Nigeria at a point directed heads of higher institutions of learning to recommence their aborted academic sessions as a result of the COVID-19 pandemic via online learning. However, this generated a lot of controversy and different opinions from the public, students, and lecturers which they ascribed to the lack of a properly laid framework for the implementation of online learning. Furthermore, other perceived challenges identified include lack of technological skills and experience and poor teaching infrastructural facilities required for running online learning smoothly. It is common knowledge that online learning depends on the availability and accessibility of ICT facilities. It is against this background that this study intends to investigate the availability, accessibility, and use of ICT in learning by students of Humanities and Management Faculty, Federal University Wukari, Taraba State in the face of future pandemics in the country.

### **Availability and Accessibility of ICT in Learning**

Availability of ICT in learning refers to “the opportunity, at a micro or a macro level, to materially access technology at reasonable prices, whether at home, at work, at school, or in public places (IGI, 2022). Availability of ICT tools in secondary schools as well as in tertiary institutions is critical for effective instructional delivery. The quality of graduates, whether at high school or tertiary, is impacted by both the availability and accessibility of ICT facilities (Mndzebele, Dlundu, and Mndebele, 2018). Some of the educational ICT facilities include computer systems, Internet facilities, Projectors, Public Address System (P.A.S), E-Library learning facilities, Social-Media Platforms, electronic storage devices like CD-ROM, audio-visual aids, and photocopiers. In some contexts, ICT has also become

integral to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students’ own smartphones or other devices for learning during class time, and the “flipped classroom” model where students watch lectures at home on the computer and use classroom time for more interactive exercises (Learning portal, 2022). Students and teachers use these ICT tools so much that it create favourable learning atmosphere, and aid students improve innovative thinking and building their confidence to be self-reliant. The generation has created new challenges for better education (Das, 2019). Thus, the successful integration of ICT in teaching and learning depends, largely, on the availability of infrastructure and teachers’ adoption and embracing of ICT in education.

Availability and accessibility are not synonymous; ICT tools can be available and yet not accessible. It is important to recognize that accessibility (ease of use) of ICT is enabled by the combination of technologies that enables access to PCs, Internet facilities, E-Library learning facilities, and other devices available for remote learning, as well as the accessible design and planning that goes into the development of ICT compendium (United Nations General Assembly, 2013). These technologies include computers, smartphones, Learning Management System and internet access among others (Galanek, Gierdowski and Brooks, (2018), and electricity that provides stable light for the ICT facilities (Jegade, Ebio, and Iroegbu 2019). Without any of these, accessibility to ICT facilities for remote learning is near impossible. Accessibility of ICT in learning is, therefore, the ability of individuals and organizations to connect to ICT infrastructure such as computer terminals, and other devices; and to access services such as email, the World Wide Web, Library Web sites/Portals, multimedia resources, E-Library learning facilities, Social-Media Platforms and Online information Instructions. Accessibility to ICT facilities is, therefore, vital because it will enhance the participation of students in learning, and also connect them to global information and peer support networks; thereby, fostering the achievement of Sustainable Development Goals in Nigeria's education.

### **Use of ICT in Learning**

The use of ICT in learning is mediated by availability and accessibility to ICT facilities without which the use is impossible. ICT allows students to monitor and manage their own learning, think critically and creatively, solve simulated real-world problems, work collaboratively, engage in ethical decision-making,

and adopt a global perspective towards issues and ideas (Ra, 2016). ICT also enables rapid access to ideas and experiences from a wide range of people, communities, and cultures, and allows students to collaborate and exchange information on a wide scale. ICT in education improves engagement and knowledge retention: When ICT is integrated into lessons, students become more engaged in their work. This is because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the same things in different ways (ICTESOLUTIONS, 2022). In addition, Agim, Iroze and Osuji, (2018) stated that ICT is used to retrieve information, make research, disseminate information, chat with friends and download files, among others. Joe, (2019) also asserted ICT enables the use of innovative educational resources and the revitalization of learning methods, starting a more active teamwork of students and the concurrently gaining of technological knowledge. Furthermore, ICTs enable students to develop discernment skills; being able to search for various sources and contrast them, as well as structure information.

Furthermore, with an increasing number of students with disabilities in higher institutions of learning, integrating information and communication technologies (ICTs) in the educational system will be helpful for these students, as ICTs provide them students with adaptive ways to compensate for disabilities and enable them to improve learning. This article seeks to explore answers to the following questions.

#### Research Questions

1. What is the level of availability of ICT facilities for learning by students of the Faculty of Humanities and Management in Federal University, Wukari?

2. To what extent are ICT facilities accessible to students for learning in the Faculty of Humanities and Management at Federal University, Wukari?
3. What is the level of usability of ICT facilities by students for learning at the Faculty of Humanities and Management in Federal University, Wukari?

#### Methodology

This study adopted a descriptive survey design. The location for the research is the Faculty of Humanities and Management, Federal University, Wukari Taraba State, Nigeria. The population of students used for data collection was 252. A Structured questionnaire was used to collect data. The questionnaire was subdivided into Part A and B. Part A consists of demographic data while Part B consists of questions on availability, accessibility, and use of ICT in learning in the faculty. 128 (50.2%) of the respondents were males, while 122 (49.8%) were females. Also, 212 (89.8%) were within the age range of 16 – 30 years, 22 (9.3%) were between 31 – 40 years, while 2 (0.8%) were between 51-60 years. At departmental levels, 65 (27.5%) were at 100 levels, 71 (30.1%) were at 200 levels, while 300 levels and 400 levels were 50 (21.2%). Collected quantitative data were analysed using frequency and percentage distribution.

#### Findings and Discussion

This section looks at the results and discusses their significance in terms of the three research questions raised.

**Research Questions One:** What is the level of availability of ICT facilities for learning by students in the Faculty of Humanities and Management, Federal University, Wukari? The different responses are presented in Tables 1 and 2.

**Table 1: Availability of ICT Infrastructure Facilities for Learning by Students**

ICT-based Teaching and Learning tools	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)	Mean	Std. Dev.
There are computer systems available for learning in my institution of learning	86 (34.7)	74 (29.8)	15 (6.0)	55 (22.2)	18 (7.3)	2.38	1.347
Internet Facilities are available for learning on campus	54 (21.8)	86 (34.7)	45 (18.1)	41 (16.5)	22 (8.9)	2.56	1.245
I have an email account	45 (18.3)	85 (34.6)	23 (9.3)	65 (26.4)	28 (11.4)	2.78	1.325
Projectors are available for learning in my institution of learning	87 (35.7)	104 (42.6)	22 (9.0)	23 (9.4)	8 (3.3)	2.02	1.060
There are Public Address System (P.A.S) in the school	47 (19.0)	99 (39.9)	42 (16.9)	38 (15.8)	22 (8.9)	2.55	1.213
There are E-Library learning facilities	41 (16.7)	91 (37.1)	27 (11.0)	45 (18.4)	41 (16.7)	2.81	1.366

There is availability of printers for print out of learning materials by students	28 (11.3)	76 (30.6)	37 (14.9)	80 (32.3)	27 (10.9)	3.01	1.234
There exist Social-Media Platforms for learning	29 (11.8)	59 (24.1)	33 (13.5)	75 (30.6)	49 (20.0)	3.23	1.332
Stored lecture notes on CD-ROM or other electronic storage devices are available to students for learning	35 (14.7)	66 (27.7)	33 (13.9)	42 (17.6)	61 (25.6)	3.34	3.657
There are Computer training Centre for students on campus	124 (50.8)	101 (41.4)	9 (3.7)	6 (2.5)	4 (1.6)	1.63	1.245

Table 1 (above) shows the analysis of respondents' responses as regards the availability of ICT infrastructure/facilities for learning by students in the faculty of Humanities and Management, Federal University, Wukari. It shows that 160 (64.5%) agreed that there are computer systems available for learning in the institution, 15 (6.0%) were undecided, while 73 (29.5%) disagreed. The majority of the students, 140 (56.5%) also agreed that internet facilities are available for learning in the institution, 45 (18.1%) were undecided, while 63 (25.4%) disagreed. Also, 191 (78.3%) agreed that projectors are available for learning in the institution, 22 (9.0%) were undecided, and 31(12.7%) disagreed. 146 (58.9%) agreed that there are Public Address Systems (PAS) for learning in the institution, 42 (16.9%) were undecided, while 60 (24.2%) disagreed. Again, 130 (52.9%) of the respondents claimed they have email accounts, 23 (9.3%) were undecided, while only 93 (37.8%) did not have. 132 (53.8%) respondents agreed that there are E-Library learning facilities available for learning in the institution, 27 (11.0%) were undecided, while 45 (35.1%) disagreed.

This shows that ICT infrastructure/ facilities such as; computer systems, projectors, public address system, E-library, internet facilities are available for learning at Federal University, Wukari. Therefore, to measure the level of this availability of ICT infrastructure/ facilities availability in Federal University, Wukari, answers provided in Table 2 are recorded and categorised. The result is provided in Table 2.

**Table 2: Level of ICT Infrastructure Facilities Availability for Learning by Students**

Level of ICT Infrastructure Facilities Availability for Learning by Students	Frequency	Percentage (%)
High	144	57.01
Moderate	31	12.29
Low	77	30.70

Table 2 shows the level of ICT infrastructure facilities available in the Faculty of Humanities and Management, Federal University, Wukari for learning. It revealed that the level of ICT infrastructure facilities available at Federal University, Wukari, for learning is high. Consequently, the findings from Tables 1 and 2; revealed that a high percentage of the respondents attested to the availability of ICT facilities for learning. Therefore, it is evident, that the level of ICT Infrastructure Facilities available for learning in the faculty of humanities and management at Federal University, Wukari, is high.

**Research Question Two:** To what extent are ICT facilities accessible to students for learning in the Faculty of Humanities and Management at Federal University, Wukari?

The different responses as regards to the accessibility of ICT infrastructure facilities for teaching and learning by lecturers and students in Federal University, Wukari are presented in Tables 3 and 4.

**Table 3: Accessibility of ICT Infrastructure Facilities for Learning by Students**

ICT-based Teaching and Learning tools	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)	Mean	Std. Dev.
Computer systems are accessible for learning in my institution	50 (21.1)	81 (32.5)	22 (8.8)	72 (28.9)	24 (9.6)	2.76	1.323
Internet Facilities are accessible for learning on campus	30 (12.2)	90 (36.6)	30 (12.6)	75 (30.5)	21 (8.5)	2.87	1.220
There is access to email account	41 (16.7)	127 (51.8)	38 (15.5)	29 (11.8)	10 (4.1)	2.35	1.023

Projectors are accessible for learning in my institution	36 (14.8)	75 (30.7)	62 (25.4)	44 (18.0)	27 (11.1)	2.80	1.219
Public Address System (P.A.S) is accessible in the school	49 (19.8)	102 (41.3)	57 (23.1)	31 (12.6)	8 (3.2)	2.38	1.040
E-Library learning facilities are accessible in my school	34 (13.9)	87 (35.7)	58 (23.8)	46 (18.9)	18 (7.4)	2.82	2.253
Printers and photocopier machines are accessible for print out of learning materials in my institution	50 (20.2)	100 (40.5)	36 (14.6)	37 (15.0)	24 (9.7)	2.53	1.242
There is access to Social-Media Platforms for learning	26 (10.6)	72 (29.4)	36 (14.7)	76 (30.0)	35 (14.3)	3.09	1.264

Table 3 shows that majority of the respondents, 131 (52.6%) agreed that computer systems are accessible for learning in the institution, 22 (8.8%) were undecided, while 96 (38.5%) disagreed to this. Also, 120 (48.8%), 111 (45.5%) and 151 (61.1%) respondents agreed that Internet facilities, projectors, and Public Address System (P.A.S) respectively are accessible in the school, while 96 (39.0%), 71 (29.1%) and 39 (15.8%) respectively disagreed. Similarly, 121 (49.6%) agreed that E-Library learning facilities are accessible for learning in the institution, 58 (23.8%) were undecided, while 64 (26.3%) disagreed. 168 (68.5%) of the respondents claimed they have access to their email accounts, 38 (15.5%) were undecided, and 39 (15.9%) did not have access to it. However, 111 (45.3%) respondents disagreed that there is access to Social-Media Platforms for learning, 36 (14.7%) were undecided, while 98 (40.0%) agreed.

This shows that a good number of ICT infrastructure facilities such as computer systems, projectors, public address systems, E-library, Printers, among others were accessible for learning at Federal University, Wukari. Therefore, to measure students' extent of ICT infrastructure facilities accessibility in Federal University, Wukari, answers provided in Table 3 were recorded and categorised. The result is provided in Table 4.

**Table 4: Extent of ICT Infrastructure Facilities Accessibility for Learning by Students**

Extent of ICT Infrastructure Facilities Accessibility for Learning by Students	Frequency	Percentage (%)
High Extent	135	53.41
Moderate Extent	43	17.24
Low Extent	74	29.35

Table 4 shows the extent of ICT infrastructure facilities accessible at Federal University, Wukari for learning. It revealed that the extent of ICT infrastructure facilities accessible in Federal University, Wukari, for learning is moderately high.

In conclusion, from the information provided in Table 3 and Table 4. This result shows that the majority of the respondents have access to ICT infrastructure facilities for learning. Therefore, it is evident, that the extent of ICT infrastructure facilities accessible for learning in the Faculty of Humanities and Management, Federal University, Wukari is great.

**Research Question Three:** What is the level of usability of ICT facilities by students for learning at the Faculty of Humanities and Management in Federal University, Wukari?

The different responses of respondents as regards the usability of ICT infrastructure facilities for teaching and learning by lecturers and students in Federal University, Wukari are presented in Tables 5 and 6.

**Table 5: Usage of ICT Infrastructure Facilities for Learning by Students**

Statements	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly Disagree (%)	Mean	Std. Dev.
Projectors/Television are used during teaching	37 (14.9)	51 (20.5)	29 (11.6)	76 (30.5)	56 (22.5)	3.25	1.396
Subject materials are provided online for students	30 (12.0)	69 (27.6)	27 (10.8)	82 (32.8)	42 (16.8)	3.15	1.319
Some assignments are submitted online	39 (15.9)	92 (37.6)	52 (21.2)	28 (11.4)	34 (13.9)	2.70	1.264

Teachers and students communicate through E-mail	22 (8.8)	80 (32.0)	63 (25.5)	52 (20.8)	33 (13.2)	2.98	1.189
Public address system is used during learning	42 (17.2)	92 (37.7)	40 (16.4)	51 (20.9)	19 (7.8)	2.64	1.210
We use e-book materials to learn some subject	31 (12.9)	70 (29.2)	69 (28.8)	41 (17.1)	29 (12.1)	2.86	1.204
We use internet medium such as Google search to search and retrieve information during learning experience	58 (24.0)	111 (45.9)	32 (13.2)	27 (11.2)	14 (5.8)	2.29	1.123
We use audio equipment and materials (e.g. Audio cassette player) during learning experience	17 (6.9)	80 (32.4)	44 (17.8)	63 (25.5)	43 (17.4)	3.14	1.240
We use video equipment and materials (e.g. Video Player and CD) during learning experience	22 (8.9)	61 (24.7)	54 (21.9)	53 (21.5)	57 (23.1)	3.25	1.298

Table 5 shows analysis of respondents' responses as regards the usability of ICT infrastructure facilities for learning by students. A high number of respondents, 131 (53.5%) agreed that they use online platforms to submit assignments in the institution, 52 (21.2%) were undecided, while 62 (25.3%) disagreed. Also, 102 (40.8%) agreed that teachers and students use emails to communicate in the institution, 63 (25.2%) were undecided, while 85 (34.0%) disagreed. 134 (54.9%) and 101 (42.1%) respondents agreed that public address system (P.A.S) and e-book materials are used for learning in the school, while 70 (28.7%) and 70 (29.2%) disagreed respectively.

However, 106 (42.9%) and 101 (44.6%) respondents disagreed that they use audio equipment and video equipment for learning, while only 97 (39.3%) and 83 (33.6%) agreed respectively. This shows the extent ICT infrastructure facilities such as public address system, e-book, email, etc. are used for learning in the faculty of Humanities and Management, Federal University, Wukari. Therefore, in order to measure students' use of ICT infrastructure facilities in Federal University, Wukari, the findings are provided in Table 6.

**Table 6: Extent of Use of ICT Infrastructure Facilities for Learning by Students**

Extent of use of ICT Infrastructure Facilities for Learning by Students	Frequency	Percentage (%)
High	114	45.35
Moderate	47	18.52
Low	91	36.13

Table 6 shows the extent of use of ICT infrastructure facilities in the faculty of Humanities and Management, Federal University, Wukari for learning. It revealed that the extent of use of ICT infrastructure/ facilities in Federal University, Wukari, for learning is high.

Considering the results provided in tables 5 and table 6 under this research question, it could be said that many of the respondents agreed to the usage of some ICT facilities for learning. Therefore, it is evident that the extent of use of these ICT infrastructure/ facilities for learning in the faculty of humanities and management, Federal University, Wukari, is high.

### Discussion of Findings

The findings of the research are discussed in the succeeding paragraphs. This study found out that the level of availability of ICT facilities for learning in the faculty is high. Majority of the respondents attested to the availability of different category of ICT infrastructure facilities for teaching and learning such as computer systems, projector, public address system, E-library at Federal University, Wukari. It was revealed that lecture notes on CD-ROM or other electronic storage devices are available to students for learning. This high level of ICT infrastructural

facilities available at the faculty, could be said to be a testament to government's commitment to putting Nigeria on the global map of ICT and E-learning for education. Atsumbe, Raymond, Enoch and Patrick, (2012) strongly stressed government's commitment to implementing ICT in education, though, the process seems to be confronted with a number of challenges. Also, that e-learning infrastructures are available at Federal University of Technology, Minna for learning. This finding also aligns with the findings of Sibanda, Mapenduka and Furusa, (2016), who reported that ICT common infrastructural facilities for learning are

available in schools. Such technologies include computers, radios, televisions, wireless technologies, interactive boards, internet, email, e-learning applications, video conferencing and projectors among others.

It is important to emphasise that there is need for improvement on the provision of internet to aid and support the use of these facilities; even though the students agreed that to support this findings Apuke,(2016) that students of Taraba State University have access to the internet mainly through mediums such as smart phones and tablets. This gave credence to the findings of Odufuwa,(2012) who reported that the primary medium of access to internet connectivity in Nigeria is the mobile phones with a percentage of about 63.40. Therefore, it is important to state that internet is an essential part of ICT amenities that must be deployed in Nigerian tertiary institution.

From the submission of Agim, et al.(2018), availability of ICT do not only mean that the “thing” is provided but it also entails accessibility. It is believed that availability is meaningless if users are not able to make use of the facilities. Therefore, based on findings from this study, a good number of ICT facilities such as; computer systems, projectors, public address system, E-libraries, Printers among others were accessible for learning at the faculty. It was further revealed that the extent of ICT infrastructure facilities accessibility for learning in the faculty is high. However, this does not throw away the call for improvement by many of the respondents who believe that accessibility to some of the facilities should be improved upon. This corroborates the submission of Nwosu, John and Akorede, (2018) who carried out a study and reported that the accessibility of ICT-based instructional tools in colleges are moderate and still needs to be improved.

More still, findings show that the extent of use of ICT infrastructure facilities for teaching and learning in Federal University, Wukari is high. This is evident as some ICT infrastructure facilities such as; public address system, e-book, email, etc. are used for learning in the faculty. However, in a study conducted by Amesi and Yellowe,(2019), the result shows a poor level of utilization of ICT facilities for learning in Faculties of Education in Rivers State Universities, Nigeria. This may be attributed to facility inadequacy. Also, Tella, (2011) reported that computer facilities, telecommunication facilities, multimedia facilities, and internet facilities were utilized to a low extent for learning in South-Western Nigeria Colleges of Education.

Suffice to say, there is a steady increase in the level of use of ICT in learning. This surge is closely

associated with the closure of schools and restriction of movement as a result of COVID-19, thus, ICT facilities turn out to be the best option for communication. In line with, Yang, Fichman, Zhu, Sanfilippo, Li, Fleischmann, (2020) states that ICTs are pivotal in the existing social order and especially during the COVID-19 global pandemic. The implication is that ICT culture has come to stay globally and in all higher institutions. This is so because the use of ICT by students would enhance competence and confidence in them (Fabunmi, 2011)

### Conclusion

The need and importance of ICT in today’s academic world cannot be overemphasized. Not only has ICT reshaped the learning and teaching process of our society, but it has also dictated the future of our knowledge world, hence the quest for major institutions of learning, across the globe, to join this course. This study, therefore, concludes that the faculty of Humanities and Management, Federal University, Wukari, is one of the faculties that is making the most of the use of ICT in teaching and learning. However, there is still the need for the University authority to improve on the available what is obtainable now so as to fully maximize the benefits of ICT to teaching and learning. The government, management of universities, manufacturers of ICT facilities, and other stakeholders should ensure that policies are formulated and followed; enabling and improving the ICT environment and user-friendly ICT tools to encourage more use of ICT facilities.

### Recommendations

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

1. The University management should come up with a more robust ICT policy that will fully adopt and integrate ICT into teaching and learning processes so as to improve efficiency, effectiveness, reduce stress and provide more user-friendly and flexible services for teaching and learning
2. The university management should improve the standard of provisions made available for the support of ICT use such as; free Internet access, replacement of ICT tools consumables, maintenance among others
3. Government and the university management should inject more funds to support advanced training on ICT use for lecturers and students so as to improve their user experience.

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