

PERCEPTION OF LECTURERS ON THE USE OF ICT FOR TEACHING IN TERTIARY INSTITUTIONS IN BAUCHI METROPOLIS, NIGERIA

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Abstract

The increasing integration of Information and Communication Technology (ICT) in education necessitates a deeper understanding of lecturers' perceptions toward its use in teaching. This study investigated the perception of lecturers regarding the use of ICT for teaching in tertiary institutions within Bauchi metropolis. The research was guided by two objectives, two research questions, and one hypothesis. A descriptive survey research design was employed, with a population comprising all 1,884 lecturers from the four tertiary institutions in Bauchi metropolis. Using a stratified proportional random sampling technique, a total of 767 lecturers were selected as the study sample. Data collection was conducted using a structured questionnaire titled Perception of Lecturers Towards the Use of ICT for Teaching Questionnaire (POLTU ICT TQ). The instrument was validated by experts in research, measurement, and evaluation at ATBU, Bauchi, and its reliability was established at 0.82 through a pilot test. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Mean and standard deviation were used to analyze research questions, while a t-test was applied to test the hypothesis at a significance level of $p \leq 0.05$. Findings revealed that lecturers in tertiary institutions in Bauchi metropolis hold a high perception of ICT use for teaching. Additionally, a significant difference was observed between male and female lecturers in their perception of ICT for instructional purposes. Based on these findings, several recommendations were made. Policymakers should consider lecturers' perceptions when integrating ICT into teaching and learning practices in tertiary institutions. Furthermore, institutional management should organize ICT capacity-building workshops and seminars for both male and female lecturers to bridge gender disparities in ICT utilization. Lastly, older lecturers should be encouraged to acquire ICT skills to align with modern teaching, learning, and research methodologies.

Keywords: ICT; Perception of Lecturers on the Use of ICT.

Introduction

The level of development and advancement of the nation is determined by the knowledge and application of ICT in solving day today problems. Chesenga (2014) defined information and communication technology as a set of tools and application that are facilitated by electronic means to capture, store, process, transmit and display information.

Information and communication technology is an umbrella term that includes any communication devices or application, encompassing; radio, television, cellular, phones, computer and other network hardware and software, satellite system and among others, as well as the various services and application associated with them, such as video conferencing and distance learning (Immam,

2022). Information and communication technology is utilized in various contexts such as education, health care, agriculture, library among others which make it important of educating the Nigerian citizens.

The rapid growth in ICT have brought remarkable changes in the twenty-first century and affected demands of the modern society. ICT is becoming increasingly important in our daily lives as well as in educational system. Therefore, there is a growing demand on educational institutions to use ICT to teach the required skills and knowledge that students need for the 21st century (Ibara, 2014). Realizing the effect of ICT on the workplace and everyday life today's educational institutions try to restructure their educational curricula and classroom facilities in order to bridge the existing technology gap in teaching and learning processes. This restructuring according to Ballentyne (2017) requires effective adoption of technologies into existing learning environments in order to provide learners with knowledge of specific subject areas, to promote meaningful learning and to enhance professional productivity.

Higher institutions have immensely contributed to an increase in developing knowledge, providing an enabling environment for innovation and in building human capital required for a potential knowledge economy. Global development in education and challenging ICT demands have made a remarkable shift in the structure of the enabling ICT environment and the utilization of ICT technologies in educational institutions. Such technologies have become the key force of the digital network in an era of technology-driven education (Carbonilla & Bhati, 2016). Many schools and communities now have access to ICT resources to join the global economy with knowledge workers who have 21st century skills and are inspired by life-long learning. ICTs have great potential for knowledge dissemination, effective learning and the development of more effective educational services (Ibara, 2014).

Moreover, integrating ICT into education has proven to be a powerful catalyst for educational transformation. It enhances students' preparedness for the information age, improves learning outcomes and competencies, and equips learners with essential skills needed to thrive in the digital era (Ramesh & Jayaprakash, 2017). Therefore, lecturers are expected to integrate ICT into their teaching and learning processes. To successfully initiate and implement educational technologies in the school program depends strongly on the lecturers support and their perception in using ICT. It is believed that if lecturers perceived technology programs as neither fulfilling their own needs nor their students' needs, it is likely that they will not integrate the technology into teaching and learning (Carbonilla & Bhati, 2016).

Evidence suggests that teachers' perception of using ICT influence successful integration of ICT into teaching and learning. If teachers' perceptions are positive toward the use of technology, then they can easily provide useful insight about the adoption and integration of ICT into teaching and learning processes. Teachers with e-readiness are able to use and adopt technology into their classroom when they think that technology is a tool that can be used by both teachers and students to obtain more knowledge and share meeting (Simsek & Can, 2020). However, study also noted that there are more factors that impact lecturers' use of technology in the teaching and learning process, which includes positive perceptions (factors that lead to its use) and negative perceptions (factors that limit its use) (Toffoli & Sockett, 2015).

In terms of positive perceptions, if lecturers perceive training in ICT is worthwhile, they are inclined to use it in their teaching and learning. Moreover, their openness toward the possible changes with technology is derived from their perception that technology can bring about innovation such as impact on higher thinking skill and on content acquisition for language teaching and learning (Elashhab, 2021). Besides, Guillen-Gamez and Fernandez (2020) found that teachers'

perceptions toward technology include 'how' and 'what' effects technology can bring to students, for instance, students can manipulate language with specific software and interact directly with computers. Likewise, teachers can also identify the potential of technology to motivate students.

On the contrary, negative perceptions from teachers reveal barriers which limit the use of ICT. These generally include insufficient facilities, knowledge, time, support, materials and training (Baydas & Goktas, 2017; Tondeur, 2018; Amhag, Hellstrom & Stigma, 2019; Rubach & Lazaridas, 2021). For example, insufficient numbers of computers were the most frequent problem found by Tondeur (2018), who specifically identified perceptions of educational practitioners from schools in 26 countries. Lecturers may have knowledge of using ICT for their teaching, but insufficient numbers of computers may prevent them from using it.

Moreover, lack of facilities may also mean lack of access. The limited number of computers may always be booked and cause frustration to users to gain access to them (Amhag, Hellstrom & Stigma, 2019). Lack of ICT knowledge also prevents lecturers from adopting technology. When there is no skill to use it, the equipment just becomes useless and availability does not bring benefits. Technical problems and effective operation of educational software are also among the concerns of lecturers (Baydas & Goktas, 2017). They can lead to lack of confidence because lecturers see themselves as incapable of running technological applications. The incompetence to use technology caused lecturers to be recognized as one of the limitations of information technology use in the classroom (Amhag, Hellstrom & Stigma, 2019).

Generally, the successful use of technology in higher institutions is very much determined by the lecturers' perception and concerns that pursue their probability to use technology (Aminatun, 2019). Moreover, the way that lecturers view their role will influence the way they teach with technology (Lubis, Idrus & Sarji, 2018). Lecturers' beliefs toward a particular practice will help them set their goals for technology use. Sackstein, Coleman and Ndobe (2019) assert that those lecturers who believe technology tools can be used to enhance lessons, motivate, and bring changes to their teaching and strategies will tend to adopt technology with confidence. In contrast, those who do not will tend to block the implementation of technology. Such external barriers as the belief on teaching and learning with computers established classroom practice and unwillingness to change confront them with the current practice (Sackstein, Coleman & Ndobe, 2019).

Statement of the Problem

Developments in Information and Communication Technologies (ICT) have radically taken over every sphere of activity in tertiary institutions. Tertiary institutions owe it a key duty to keep pace with technological advancement in order to cope with users' continual sophisticated information requirements. ICT plays a crucial role in shaping education in the 21st century, making it an indispensable tool for effective teaching and learning (Agrawal & Mittal, 2018). Its integration enhances instructional delivery, fosters digital literacy, and equips learners with essential skills needed for the modern knowledge-based economy.

It was observed that several factors influence lecturers' use of technology in their teaching, leading to both positive and negative perceptions. From a positive perspective, we found that lecturers who recognize the value of ICT training are more likely to integrate technology into their teaching practices. This aligns with previous studies that highlight the role of training in fostering ICT adoption (Tulinayo, Ssentume & Najjuma, 2018; Li, Garza, Keicher & Popov, 2019; Syaiful et al., 2019; Rusli, Rahman & Abdullah, 2020). Additionally, we noted that lecturers' willingness to embrace technological advancements stems from their belief that technology drives innovation,

enhances higher-order thinking skills, and improves content delivery in teaching (Amhag, Hellstrum & Stigmar, 2019).

On the negative perceptions, teachers reveal barriers which limit the use of ICT. These generally include insufficient facilities, knowledge, time, support, materials and training (Baydas & Goktas, 2017; Tondeur, 2018; Amhag, Hellstrom & Stigmar, 2019; Rubah & Lazarides, 2021). Lecturers may have knowledge of using ICT for their teaching, but insufficient numbers of computers may prevent them from using it. Moreover, lack of facilities may also mean lack of access. The limited number of computers may always be booked and cause frustration to users to gain access to them (Amhag, Hellstrom & Stigma, 2019). Lack of ICT knowledge also prevents lecturers from adopting technology.

Although many researchers conducted studies on the perception of lecturers towards the use of ICT for teaching in higher institutions in developed countries and in Africa with inconclusive findings see for instance (Tulinayo, Ssentume & Najjuma, 2018; Li, Garza, Keicher & Popov, 2019; Amhag, Hellstrum & Stigmar, 2019; Syaiful, Mukminin, Habibi, Marzulina, Astrid & Tersta, 2019; Guillen-Gamez and Mayorga-Fernandez, 2020; Rusli, Rahman & Abdullah, 2020). However, in Nigeria, similar studies have also been conducted to that effect see for instance (Omeluzor, Akibu & Akinwoye, 2016; Nicholas-Omoregbe, Azeta, Chiazor & Omoregbe, 2017; Tella, Orim, Ibrahim & Memudu, 2018; Tahir & Sani, 2019; Kuliya & Usman, 2021; Ilo, Izuagbe & Iroaganachi, 2021). The results from the previous studies were also recorded a few number of lecturers were inconclusive for instance (Jatileni & Jatileni, 2018; Nashruddin, Alam & Tanasy, 2020; Nuraziza, Oktaviani & Sari, 2021; Rejeki, 2021). However, in the case of Bauchi State, there is scarcity of research conducted to that effect. It is against this background that this study investigated the perception of lecturers on the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Aim and Objectives of the Study

The main aim of this study was to investigate the perception of lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. Specifically, the following objectives were to:

- i. Determine the lecturers' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis;
- ii. Find the difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Research Questions

The following research questions were raised to guide the study:

- i. What is the lecturers' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis?
- ii. What is the difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis?

Hypothesis

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

H₀₁: There is no significant difference between male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Methodology

Descriptive survey research design was adopted for the purpose of this study. The survey research design was used for this study because the researcher collected data quantitatively about the current attitude, opinion, behavior, or characteristics of the population using questionnaire. According to Creswell (2012), survey research designs are procedures in quantitative research in which investigators administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviors, or characteristics of the population. The population of this study comprises of all the one thousand eight hundred and eighty-four 1,884 lecturers from the four tertiary institutions in Bauchi metropolis. Stratified random sampling technique was used to select the sample for the study. According to Shahrokh and Dougherty (2014) stratified proportional sampling is a probability sampling technique whereby the researcher divides the entire population into different subgroups (strata), then randomly selected the final subjects proportionally from the different strata to ensure the representation of the subgroup. This technique was used because the researcher intends to treat the four different tertiary institutions within Bauchi metropolis as strata to ensure representation of all the institutions in the study.

A structured questionnaire titled “Perception of Lecturers Towards the Use of ICT for Teaching Questionnaire (POLTU ICT TQ)” was the main instrument used for data collection in the study. The questionnaire is divided into two sections, section A and section B. Section A is the bio-data section which is designed by the researcher to collect information about respondents with respect to their (Qualifications obtained such as: First Degree, Master’s Degree and PhD, Faculty, Department and Gender). Section B is designed to collect information on the research question of the study which is the lecturers’ perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. The questionnaire was given to the experts in the field of research in Abubakar Tafawa Balewa University Bauchi for the validation. The questionnaire was pilot tested on 30 lecturers who were randomly selected from Gombe State University in order to determine the reliability of the questionnaires. Using Cronbach Alpha, the reliability index of the questionnaires obtained was 0.91 at 0.05 level of significance. Data collected were analyzed using mean and standard deviation while the t-test was used to test the hypothesis for the study.

Result

The presentation of the analyzed data was done in line with two research questions and one hypothesis guided this study. First the analysis of the demographic information of respondents is shown in the table below.

Table 1 shows the demographic information of the lecturers that participated in this study. Out of the 767 lecturers, 658 (85.79%) were male while 109 (14.21%) were female. However, in Abubakar Tafawa Balewa University Bauchi, the result from table 1 also indicated that out of the 274 lecturers in the university, 239 (87.23%) were male while 35 (12.77) were female. Result in table 1 from Bauchi State University Gadau also reported that out of the 92 lecturers in the university, 73 (79.35%) were male while 19 (20.65%) were female. Also from table I, result from Federal Polytechnic Bauchi also reported that out of the 205 lecturers in the polytechnic, 176 (88.85%) were male while 29 (14.15%) were female. In another result reported from table I also indicated that out of the 196 lecturers from Abubakar Tatari Ali Polytechnic Bauchi, 170 (86.70%) were male while 26 (13.30%) were female.

Table 1: Demographic Information of Lecturers Based on their Institutions.

Institution Name	Category	Group	Number of Participants	Percentage (%)
ATBU, Bauchi	Gender	Male	239	87.23
		Female	35	12.77
		Total	274	100.00
BASUG Bauchi	Gender	Male	73	79.35
		Female	19	20.65
		Total	92	100.00
FED. Poly Bauchi	Gender	Male	176	85.85
		Female	29	14.15
		Total	205	100.00
ATAP Bauchi	Gender	Male	170	86.70
		Female	26	13.30
		Total	196	100.00

Research Question One: What is the lecturers' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis?

To answer this research question, result from Table 2 presented the mean response and standard deviation of the lecturers' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. Five points scale of SD (Strongly Disagree), D (Disagree), N (Neutral), A (Agree) and SA (Strongly Agree) were used to indicate respondents' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. Table 3 also showed that all the twenty items had their mean value ranged from 2.60–4.48 minimum to maximum respectively. Items number 17 and 20 falls within the mean range of N (Neutral) while all the remaining items apart from 17 and 20 fall within the mean range of A (Agree). While there are no items fall within the mean range of SA (Strongly Agree), D (Disagree) and SD (Strongly Disagree). The items had a grand mean of 3.62 which falls within the mean range of A (Agree); 3.50-4.49. This generally indicates that lecturers in all the tertiary institutions in Bauchi metropolis have high perception towards the use of ICT for teaching in their institutions.

Table 2: Mean Response and Standard Deviation of Lecturers' Perception Towards the Use of ICT for Teaching in Tertiary Institutions in Bauchi Metropolis.

S/N	Items	N	Mean (M)	Standard Deviation (SD)	Decision
1	Using ICT for teaching increases teachers' confidence.	767	3.53	.483	A
2	ICT use makes teaching easier for me.	767	3.69	.402	A
3	ICT use makes teaching more difficult.	767	3.54	.436	A
4	ICT enhances the quality of my teaching.	767	3.59	.512	A
5	Good teachers anticipate lessons that require ICT	767	3.73	.483	A
6	ICT simplifies lesson preparation for teachers.	767	3.62	.512	A
7	Teaching does not interest me when ICT is used.	767	3.80	.498	A
8	ICT makes teaching more engaging.	767	4.48	.602	A
9	ICT use encourages teachers to tackle complex teaching situations.	767	3.69	.561	A
10	ICT provides great opportunities for effective teaching.	767	3.71	.463	A
11	I can teach effectively without using ICT.	767	3.90	.301	A
12	ICT use in teaching is a waste of time.	767	3.91	.301	A
13	My students learn best without ICT.	767	3.62	.498	A
14	Good teachers avoid using ICT.	767	3.53	.730	A
15	ICT makes teachers more effective.	767	3.71	.561	A
16	Classroom management worsens when ICT is used in teaching.	767	3.50	.548	A
17	Students pay less attention when ICT is used in teaching.	767	2.60	.539	N
18	Students make no effort in their lessons when ICT is used.	767	3.85	.590	A
19	ICT use in teaching may slow down syllabus coverage.	767	3.59	.463	A
20	ICT use in teaching speeds up syllabus coverage.	767	2.81	.873	N
Grand Mean			3.62		

Source: Field Survey, 2022

Key: N = Number of Respondent = **767**; M=Mean, SD=Standard Deviation.

Strongly Disagree (SD)=1.00-1.49, Disagree (D)=1.50-2.49, Neutral (N)=2.50-3.49, Agree (A)=3.50-4.49, Strongly Agree (SA)=4.50-5.00 (Bhattacharyya, Maiti & Halder, 2015).

Research question three: What is the difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis?

Table 3: Mean Response and Standard Deviation of Difference Between the Perception of Male and Female Lecturers Towards the Use of ICT for Teaching in Tertiary Institutions in Bauchi Metropolis.

Status		N	M	SD
ICT P Male	ICT P	658	1.86	.638
	Valid N (listwise)			
ICT P Female	ICT P	109	1.42	.620
	Valid N (listwise)			

Source: Field Survey, 2021

Key: N = Number of Respondent = 658 (Male); 109 (Female); M=Mean, SD=Standard Deviation

To answer this research question, result from table 3 presented the mean response and standard deviation of the difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. The result from the table 3 showed the mean value for the difference in perception between male and female lecturers towards the use of ICT for teaching of 1.86 for male lecturers and 1.42 for female lecturers respectively. This clearly shows that there is no statistical significant difference between the male and female lecturers in terms of their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. Although, male lecturers have a marginally higher perception towards the use of ICT with mean value of 1.86 than the female lecturers in the institutions with mean value of 1.42. Therefore, the result showed that there is no statistical significant difference between the male and female lecturers in tertiary institutions in Bauchi metropolis in terms of their perception towards the use of ICT for teaching.

H₀₁: There is no significant difference between male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Hypothesis

Table 4: Result of Independent t-test on the Mean Ratings of Male and Female Lecturers on Their Perception Towards the Use of ICT for Teaching in Tertiary Institutions in Bauchi Metropolis.

Respondents	N	Mean	SD	df	t	P-value	Decision
Male	658	4.0521	.37273				
				765	2.56	0.011	Significant
Female	109	3.6312	.40650				

Decision rule: reject the null hypothesis if $p < 0.05$ otherwise accept the null hypothesis.

Table 4 shows the result of an independent sample t-test carried out to compare the mean score of male and female lecturers in their perception towards the use of ICT for teaching in tertiary

institutions in Bauchi metropolis. The result showed that there was significant difference in the mean value and standard deviation of male and female lecturers in their perception towards the use of ICT for teaching with male lecturers having mean score of 4.0521 and standard deviation of 0.47273 ($M=4.0521$, $S.D=0.47273$) and female lecturers having the mean score of 3.6312 and standard deviation of 0.40650 ($M=3.6312$, $S.D=0.40650$). The result of the independent t-test also showed that there was significant difference between the male and female lecturers in their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis with $p=0.011$. Going by the decision rule, the null hypothesis was rejected and the alternate hypothesis was accepted since $p<0.05$. Therefore, it can be concluded that there is significant difference between the male and female lecturers in their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Discussion of Findings

This study explored lecturers' perspectives on the use of ICT for teaching in tertiary institutions within Bauchi metropolis.

It was reported that Abubakar Tafawa Balewa University, Bauchi has the highest participants of lecturers, followed by Federal Polytechnic, Bauchi, then Abubakar Tatari Ali Polytechnic, Bauchi and finally, Bauchi State University, Gadau (see Table 1 for details). This is not surprising because it has been anticipated by the researcher that the institution with the highest population will also have the highest respondents.

Result from Table 2 presented the mean response and standard deviation of the lecturers' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. Five points Likert scale of Strongly Disagree, Disagree, Neutral, Agree and Strongly Agree were used to indicate respondents' perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. also showed that all the twenty items had their mean value ranged from 2.60–4.48 minimum to maximum respectively. Items number 17 and 20 falls within the mean range of N (Neutral) while all the remaining items apart from 17 and 20 fall within the mean range of A (Agree). While there are no items fall within the mean range of SA (Strongly Agree), D (Disagree) and SD (Strongly Disagree). Table 3 further indicated that the item with the highest mean ($M=4.48$) is "Using ICT makes teaching more interesting" while the item with the lowest mean ($M=2.60$) is "Students' pay less attention when ICT is used in teaching". This clearly indicates that most of the lecturers are using ICT to enhance the quality of their teaching in various institutions in Bauchi metropolis. It is surprising that good lecturers are not using ICT to enhance their teaching in tertiary institutions in the metropolis of the state considering the fact that lecturers are expected to do more in developing their self academically with ICT in terms of teaching, learning and research. However, the overall mean for analysis of research question one ($M=3.63$) indicated that generally, lecturers in tertiary institutions in Bauchi state have a positive perception towards the use of ICT for teaching in their institutions. This is related to the other similar studies conducted by (Haastrup, 2009; Olelewe & Okwor, 2017; Ugwoke, Edeh & Eemma, 2019). But contradicts the findings of (Akpan, 2008; Akinde & Adetimirin, 2017; Isiyaku, Ayub & AbdulKadir, 2018) who found that lecturers have low level of ICT literacy.

Table 3 also shows the mean response and standard deviation of the difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. The result from the table also shows the mean value for the difference between the perception of male and female lecturers of 1.86 and 1.42 respectively. This clearly shows that male lecturers in tertiary institutions in Bauchi metropolis have a marginally higher perception towards the use of ICT for teaching with mean value of 1.86 than

the female lecturers with mean value of 1.42. Therefore, male lecturers in tertiary institutions in Bauchi metropolis have a marginally higher perception towards the use of ICT for teaching than the female lecturers in tertiary institutions in Bauchi metropolis. However, it can be clearly seen that there is no statistical significant difference in the mean rating between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. This finding is in line with the findings from similar studies conducted on the difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions, see for instance (Ghavifekr, Kunjappan, Ramasamy & Anthony, 2016; Enyi & Otu, 2021) whose findings indicated that there is no significant difference between the perception of male and female lecturers towards the use of ICT for teaching in tertiary institutions and the finding also differs from the findings of the study conducted by (Akpan, 2008).

Table 4 also showed the result of independent t-test that determined whether there is statistical difference between male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis. The result of the independent t-test conducted revealed that there was significant difference between the male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis with ($p=0.011$). This finding contradict the findings of (Ghavifekr, Kunjappan, Ramasamy & Anthony, 2016; Enyi & Otu, 2021) which they showed in their findings that there is no significant difference between the male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions, and is also in line with the findings of (Akpan, 2008) who found out that there is significant difference between the male and female lecturers in tertiary institutions.

Summary of the Major Findings

The Result of the data analysis for this research yielded the following findings:

- i. Lecturers in tertiary institutions in Bauchi metropolis have high perception towards the use of ICT for teaching in their institutions.
- ii. Similarly, there is no statistical significant difference between the male and female lecturers in tertiary institutions in Bauchi metropolis in terms of their perception towards the use of ICT for teaching.

Summary of the Study

The study investigated the perception of lecturers on the use of ICT for teaching in tertiary institutions in Bauchi metropolis. Two research questions and one hypothesis were used in the study and survey research design (descriptive survey type) was adopted for the study which involves collecting and analyzing the data quantitatively. All the one thousand eight hundred and eighty four (1884) lecturers from all the four tertiary institutions in Bauchi metropolis constituted the population of the study and a sample of seven hundred and sixty seven (767) lecturers were selected across all the four tertiary institutions using Stratified Proportional Random Sampling. A structured questionnaire was the main instrument used for data collection in the study. The instrument was validated by experts in Faculty of Technology Education, Abubakar Tafawa Balewa University Bauchi. The reliability of the instruments was calculated using Cronbach Alpha using test retest to determine the internal consistency of the instruments. The data collected was analyzed using mean and standard deviation. The hypothesis was tested at 0.05 level of significance.

To analyze research question one and two, mean and standard deviation were employed. The result of research question one revealed that lecturers in tertiary institutions in Bauchi metropolis have high perception towards the use of ICT for teaching in their institutions. Similarly, research question two also indicated that there is no statistical significant difference between the male and female lecturers in tertiary institutions in Bauchi metropolis in terms of their perception towards the use of ICT for teaching.

To test the stated hypotheses, independent t-test was used. The results of hypothesis determined whether there is significant difference existed between male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis revealed that the p-value is less than 0.05 ($p=0.011$). This indicates a significant difference between male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Conclusion

The study investigated the perception of lecturers on the use of ICT for teaching in tertiary institutions in Bauchi metropolis. In conclusion, the findings of this study are; Lecturers in tertiary institutions in Bauchi metropolis have high perception towards the use of ICT for teaching in their institutions. This is encouraging as it has been realized that lecturers' perception towards the use of ICT for teaching is one of the significant factors in enhancing the quality of ICT usage for instruction delivery. There is no also no statistical significant difference between the male and female lecturers in tertiary institutions in Bauchi metropolis in terms of their perception towards the use of ICT for teaching. The results of hypothesis one also indicates a significant difference between male and female lecturers on their perception towards the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

Recommendation

In the light of the findings of this study, the following recommendations were made in order to improve on the perception of lecturers on the use of ICT for teaching in tertiary institutions in Bauchi metropolis.

- i. Since the result of this study indicated that lecturers and students from various institutions in Bauchi metropolis have high level of perception on the use of ICT for teaching and learning. Policy makers can make use of the perception of lecturers and students on the use of ICT in this current study for proper integration of ICT in teaching and learning practices in tertiary institutions in Bauchi metropolis.
- ii. The management in all the institutions should be organizing ICT capacity building workshops and seminars targeting both male and female lecturers in an effort to minimize gender disparity in the perception of ICT for teaching, learning and research purposes.
- iii. Older lecturers should be encouraged by the management to pursue skilled acquisition in ICT to improve in the modern system of teaching, learning and research.
- iv. To sustain the perception of lecturers, training of lecturers on how to use ICT for teaching purposes will play a motivational role which invariably will lead to more effective utilization of ICT in instructional delivery in tertiary institutions in Bauchi metropolis.

Suggestion for Further Studies

- i. Since this study investigated the perception of lecturers towards the use of ICT in higher institutions in Bauchi metropolis in terms of teaching, the researcher suggest that future research may focus on other factors like using the ICT for research by lecturers, should also focus on using ICT based on faculty, department and year of experience.
- ii. Approaching the current study using mixed-methods or qualitative analysis in different location or in Bauchi state entirely may provide deeper insight into the responses provided by participants. This study focused more on quantitative analysis.

Contribution to Knowledge

- i. This study has contributed to the better understanding of lecturers in higher institutions in Bauchi metropolis regarding their perception towards the use of ICT for teaching. Furthermore.
- ii. The study revealed that lecturers in higher institutions in Bauchi metropolis not only have high perception towards the use of ICT but they have positive perception towards the use of ICT in teaching, learning and research
- iii. Most of the research conducted on perception of lecturers towards the use of ICT were much conducted in developed countries with few in the developing countries like Nigeria. Lecturers in tertiary institutions in Nigeria are still lagging behind in using ICT for teaching processes, the study will be of great importance to higher institutions and future researchers. Specifically, the lecturers will find the present study useful in terms of motivating them through utilization of ICT facilities in teaching and learning.

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