

Human Journals **Research Article** June 2023 Vol.:24, Issue:4 © All rights are reserved by Tolorunleke Reuben Tunde et al.

# Investigating Lecturers' Competencies and Willingness on the Utilization of Information and Communication Technology for Teaching and Research in Kogi State Tertiary Institutions







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**Keywords:** ICT, Utilization, Competencies, Willingness and Teaching experience

# ABSTRACT

The successful integration of computers and ICTs into teaching and learning depends on the competencies, willingness and ability of lecturers to structure their learning environments to merge technology in non-traditional ways. This study investigated lecturers' competencies and willingness on the utilization of information and communication technology for teaching and research in Kogi State Tertiary institutions. The population of this study comprises all lecturers from the nine (9) tertiary institutions in Kogi State, totaling four thousand seven hundred and seventeen (4,717). A sample size of four hundred and eighty (480) respondents was sampled using Researchers' Advisors Model (2006). Multistage sampling technique was used to compose these samples. The result obtained from this study indicated that ICT resources are available and lecturers are competent and willing to utilize them for teaching and research in Tertiary institutions in Kogi State. The study concluded that lecturers are competent and willing to utilize ICT resources in teaching and research purposes in tertiary institutions across Kogi State. It was recommended among others that Tertiary institutions in Kogi State should make training of ICT mandatory for all lecturers as this will propel the few without ICT competency and unwilling to accept the integration of technology.

## INTRODUCTION

The Nigerian Educational system is failing to adequately equip lecturers with the essential 21<sup>st</sup> century knowledge and skills necessary to succeed in their academic careers. Contemporary knowledge society calls for the 21st century skills for learning, creativity, critical thinking and collaboration in Information and Communication Technology (ICT). These skills are also crucial for lecturers in terms of developing new teaching pedagogy and assessment tools, so as to prepare the citizens to be able to function in this knowledge-driven society (Krokfors & Myllari, 2015).

ICT can be defined as a means of accessing or receiving, storing, transferring, processing, sending ideas, perception or manipulating and transmitting of information through electronic based tools (Fabunmi, 2020). These tools are classified as hardware and software. The hardware includes central processing unit (CPU), monitor, keyboards, and printers, radio, telephones while the software comprises Microsoft word, excel, Corel draw, Social Sciences Statistical Package (SPSS), Opera Mini and Google chrome among others. These are very essential in the educational development program hence they are referred to as ICT in education. ICT in education is defined as a comprehensive approach to innovate education systems, methods, and management with the aid of new technology (Abubakar, 2020).

The importance of ICT cannot be overemphasized in our society as the level of technological development of a nation measures the level of scientific literacy obtained in that society (Ogunleye, 2017). ICT plays a vital role in the development of any nation, and it has been an instrument for achieving social, economic, educational, scientific and technological development (Adedeji, 2015). ICT provides innumerable benefits in enriching the quality and quantity of instructional materials accessible to both lecturers and learners (Onasanya, 2009). This versatile instrument has the capability not only of engaging students in instructional activities to increase their learning but helping them to solve complex problems to enhance their cognitive skills.

In spite of these enormous roles and significance of ICT to Education, there exist attendant barriers to it usage. Some of these barriers as stated by Peralta and Costa (2017) include poor maintenance and repair culture in which spare parts and technical experts from the manufacturers are imported whenever the technologies break down leading to waste of resources, incessant

electricity supply, poor infrastructural support base, and time constraints. The revised National Policy on Education (FRN 2009) gave prominence to computer education especially, in the 2004 edition; computer education was made one of the pre-vocational subjects at the basic level of education and a vocational elective at the senior secondary level. This shows the Government's recognition of the pervasive influence of computer technologies in this contemporary age and its commitment to the integration of technology in all its schools. Learning process is based on both the structural condition derived from the learning infrastructures and the personal characteristics of the users involved. This invariably means that for effective use of technologies, the users require positive attitudes or a strong sense of competencies, (personal) belief to grasp the new technology and use it as a means of achieving objectives (Prompt ,2010).

Competencies have to do with a person's belief of his or her capabilities to successfully accomplish a particular task (Delcourt & Powers 2016). In order for lecturers to use ICT Tools successfully for teaching and research, they need to have self-confidence and willingness in computer related tasks (Compeau & Higgins 2016). Competencies affects every facet of human endeavor by determining the beliefs a person hold regarding the ability to affect situations which invariably influence the power a person actively has to face challenges. Therefore, an important construct of competencies has been a parameter for an individual's ability to successfully complete a task. It is an individual expression of what one is capable of doing. For example, if lecturers value their interpersonal skills and believe that they are capable of pursuing a goal to its logical conclusion, their competencies in that area will likely contribute to positive goal attainment. In the utilization of ICT for teaching and research, variables such as gender and years of experience, are important determinants of the rate ICT is used in teaching and for research purposes (Schaumburg, Babetos & Antomous, 2018). Emerging technologies are universal tools in education that are increasingly recognized as an integral part of the sustainable national development process. The integration of technology resources into teaching and learning can improve interactions and performances of lecturers and also to provide efficient benefits in teaching (Tolorunleke & Olonikawu, 2021).

Research is the systematic inquiry that investigates hypotheses, suggests new interpretations of data or texts, and poses new questions for future research to explore (Creswell, 2014). In research, the researcher has to choose and focus on research been conducted, find background

books that give information about the topic, find articles that give information about the topic, evaluate the information found and cite the information used in research. Research by Trochim (2012) is the investigation and writing based upon the idea of scientific inquiry. Clifford (2016) defined research as the systematic investigation into and study of materials and sources in order to establish facts and reach new conclusions. Research may be qualitative or quantitative (Matusov & Brobst, 2021). Quantitative research uses the application of mathematical tools to analyze data that is collected during the research. If this method is not used, then the research can be considered to be qualitative. At tertiary institutions, research is been conducted to find solutions to a particular problem where purposes, research questions and hypothesis are raised. At the end of the study, conclusions and recommendations are included.

Thus, gender is defined as social attributes and opportunities associated with being male or female. There is a 'technological gender gap' between males and females, with female subjects falling behind their male peers in ICT utilization (Enochson, 2008; Reimer & Steinmetz, 2007). Studies have shown over the years that males dominate in the use of ICT. Even in a situation where males and females are given equal opportunity, men are more likely to be the main ICT user than women. Similarly, studies concerning lecturers' gender and ICT use have rated female lecturers low due to their limited access to computer use, skill and interest.

## Statement of the Problem

Despite the importance and the quest for ICT, its application, competencies and willingness in the use of teaching and research especially in tertiary institutions in Kogi State is still at a micro scale; even though National University Commission (NUC) has made it mandatory as part of the promotion criteria, therefore, the need to alert the lecturers on the utilization of ICT resources for teaching and research purposes in Tertiary Institutions in Kogi State.

The 21st century ideas about knowledge and learning demand shifts from the traditional method of teaching to collaborative approach (Bandhana, 2020). Traditional educational environment does not seem to be suitable for lecturers in preparing learners to function or be productive in the work places of today's society. Onasanya, Sheu, Ogunlade and Adefuye (2015) reported that Studies have shown that lecturers computer literacy level and ICT utilization resources were low. Hence, to achieve effective teaching and research among lecturers in tertiary institutions in Kogi

State, there should be shift from traditional educational environment to technological advancement that has remain a hope of many decades to come. The study therefore attempted to examine ICT competencies and willingness among lecturers in utilizing ICT resources for teaching and research in Tertiary Institutions in Kogi State.

## **Review of Related Literature**

The ICT world has initiated a transition of emphasis from analogous educational research based technological development to that of digital knowledge based technological development in education (Jude & Dankoro, 2021). Therefore, in order to produce competent lecturers for human capacity building, information and communication technology (ICT) must be given prior focus in teacher education system. The advancement which ICT resources offer higher education can be evident through accessibility to quality resource material and utilization in instructional delivery, particularly when lecturers are competent in the use of these resource materials because productive instructional delivery enhances learners' creativity and intellectual development. Information and communication technology (ICT) has become an integral part of daily lives for the last decades (Yusuf & Afolabi, 2010). Many countries now regarded understanding ICT and mastering the skills and concept of ICTs as of the core of education, alongside reading, writing and calculations.

ICT has been described as an essential tool in any educational system which has the potential of being used to meet the needs of individual lecturers/students and also to promote equality of educational opportunities (Tolorunleke, Akoji, Ibrahim & Muhammed, 2019). Computer has been a useful tool for research purposes. The experience of introducing ICTs in educational settings all over the world and over the past decades shows that the educational benefits of ICTs cannot be underestimated (Yusuf, 2005). The federal government of Nigeria recognizes that ICT is a strategic imperative for national development. According to Adeyanju (2016), the use of ICT makes lessons more interesting, more enjoyable for lecturers and their students, more diverse, more motivating and supportive of productive learning and research purposes. The most critical factor in the successful integration of ICT into education is the extent to which teacher educators (lecturers) are able to themselves with required knowledge and skills to utilize ICT proficiencies

for lecturers, they need training not only in computer literacy but also in the application of various kinds of educational software for teaching and research (Ololube, 2016).

Generally, the educational relevance of computers and other components of information technology cannot be overemphasized. From the period when skinner applied programmed instructions to teaching machines, through Brunner's experiment with computers in instruction, to the current wave of information transmission and exchange via the world wide web, we have seen different applications of ICTs in enhancing cognitive development.

Haddad (2002) categorized ICTs in education into three categories: Instrument (TV, DVD, Computer, Mobile Phones), Instructional (Video and Multimedia Modules) and Dissemination (TV broadcast, CD or Web). It is emphasized that the choice of technology and the way it is used is partially determined by what is expected in terms of education, learning and teaching objectives. It is further observed that to teach or not to teach, education is not the question; the real question is how to harvest the impact the power of ICTs to make education more relevant, responsible, and effective for school setting and lifelong learning. New and emerging technologies challenge the traditional process of teaching and learning, and the way education is managed.

Lecturers are the key component in the learning environment and therefore the impact of ICTs on lecturers and the strategies they employ to facilitate the environment are crucial. Lecturers of this century have to be skilled in ICTs usage to remain relevant in the system that shifted from pedagogy to demagogy (Asogwa, 2017). Kumar and Kumar (2018) suggest that lack of adequate training and experience and the resultant lack of confidence leads to reluctance to use computer by lecturers for teaching and research. Lecturers are the gatekeepers of students' access to educational opportunities afforded by technology. They therefore need technical skills training in the use of technology either through pre-service or in-service courses to improve the teaching and research process.

The advancement, which ICT resources offer in higher education, can be evident through availability to quality resources materials and instructional delivery for teaching and research purposes. This can only be attained when it is drastically integrated into the instructional process in the teacher education system. Productive instructional delivery enhances learners' creative and

intellectual development through the use of ICTs resources, for instance, in the use of multimedia images, graphics, audio, text and motion for high quality teaching and research.

World Bank (2011) identified different levels of ICTs competencies, skills, and knowledge that individual would possess at different levels as follows; Emerging Stage: In the emerging stage, the teacher developments focus on the uses of ICTs as an add-on to the traditional curriculum and standardized test systems. Lecturers and learners are discovering ICTs tools and their general functions and uses while the emphasis is usually on basic ICTs literacy and skills; Applying Stage: In the applying stage, the focus is on the development of digital literacy and how to use ICTs for professional improvement in different disciplines. This involves the use of general as well as applications of ICTs; Proficient Stage: In the proficient stage, the teacher developments focus on the use of ICTs to guide students through complex problem and manage dynamic learning environments.

Lecturers are developing the most appropriate tools for a particular task and using these tools in combination to solve real problem; Transformation Stage: In the transformation stage, the teacher development focus on experiment and innovating new ICTs skills to produce new knowledge in the teaching and learning process. Olumorin (2008) discovered that all lecturers in tertiary institutions in Kwara state irrespective of their areas of specialization have positive attitude and competence in utilization of computers. As the most important agents of change and the pivot of the education system, lecturers ought to be master of the art in the use of ICTs considering that the students they are teaching are "digital natives" born into the ICTs culture and who can best be taught and groomed using ICTs. Amazing numbers of students today are familiar with the internet (the World Wide Web), search engines, many applications software, online and offline, hardware, etc. They communicate through various social media; Facebook, 2go, Yahoo Messenger, Skype, WhatsApp's, Blackberry Messenger, snap chat, Instagram, Eskimi, WeChat, twitter, Imo etc. In a single mobile phone, they could have over 100 applications running live, informing and entertaining them. They also have electronic games to play with.

Despite the importance and the quest for ICT, its application in the teaching and research especially in colleges of education, even though National Commission for College of Education (NCCE) is the regulatory body the colleges of education has made it mandatory as part of the

promotion criteria, is still at a micro scale; therefore, the need to alert the lecturers of colleges of education of some underlying issues that can make or mar the use of ICT in the institutions. The review of the NCE curriculum that was launched in October 2010, all students in the colleges of education are required to achieve minimum technology standards as a mandatory component in pre-service programs (NCCE Minimum Standards, 2010).

Objectives of the Study

The purpose of this study investigated the lecturer's competencies and willingness in the utilization of information and communication technology for teaching and research among the tertiary institutions in Kogi State, Specifically, this study:

1. investigated the available ICT resources among the tertiary institutions in Kogi State

2. determined the competencies of lecturers in the utilization of ICT in teaching and research among the tertiary institutions in Kogi State

3. examined the willingness of lecturers in utilization of ICT teaching and research among the tertiary institutions in Kogi State

4. determined the lecturer's usage of ICT in teaching and research among the tertiary institutions in Kogi State

5. determined the influence of gender in the utilization of ICT in teaching and research among the tertiary institutions in Kogi State

6. determined the influence of teaching experience in the utilization of ICT in teaching and research among the tertiary institutions in Kogi State

**Research Questions** 

The following research questions were raised in this study.

1. What are the available ICT resources in among the tertiary institutions in Kogi State?

2. What is the level of ICT competencies by lecturers in the utilization of ICT in teaching and research among the tertiary institutions in Kogi State?

3. What is the level of willingness by lecturers in the utilization of ICT in teaching and research among the tertiary institutions in Kogi State?

4. Do lecturers use ICT for teaching and research among the tertiary institutions in Kogi State?

5. What is the gender difference of lecturers in the utilization of ICT among the tertiary institutions in Kogi State?

6. What is the teaching experience in the utilization of ICT among the tertiary institutions in Kogi State?

# **Research Hypothesis**

The following null hypothesis was formulated and was tested at 0.05 level of significance.

 $H_{01}$ : There is no significance difference between male and female lecturers' competences in the utilization of ICT for teaching among the tertiary institutions in Kogi State.

H<sub>02</sub>: There is no significant difference between male and female lecturers in the utilization of ICT for teaching among the tertiary institutions in Kogi State.

 $H_{03}$ : There is no significant difference among highly experience, moderately and less experience lecturers in the utilization of ICT for teaching and research among the tertiary institutions in Kogi State.

# METHODOLOGY

Descriptive survey design was used for the study. The study aimed at investigating Lecturers competencies and willingness on the utilization of information and communication technology for teaching and research among the tertiary institutions in Kogi State. The population of this study comprises all lecturers of the nine (9) tertiary institutions in Kogi State, totaling four thousand seven hundred and seventeen (4,717). A sample size of four hundred and eighty (480) respondents was sampled using Researchers' Advisors Model (2006). Multistage sampling technique was used to compose these samples. Stage one, purposive sampling technique was used to select six tertiary institutions, one each of federal and state university, federal and state Polytechnics; Federal and state Colleges of Education while in stage two, simple random

sampling technique by balloting with replacement was used to select (80) respondents each from the sampled institutions, totaling (480) respondents. A researcher designed questionnaire and interview were used to collect information for this study. The questionnaire for the research was titled "Questionnaire for Lecturers competencies and willingness on the utilization of information and communication technology for teaching and research purposes. The instrument contained three phases on the availability, competencies, and willingness of lectures in utilizing ICT in teaching and research in Kogi State tertiary institutions. Percentage, frequency count and mean were used to answer the research questions. The three-hypothesis formulated were tested using *t*-test. Data collected was coded using Statistical Package for Social Sciences (SPSS) version 23.0 for windows.

# RESULTS

# **Research Question One:**

What are the available ICT resources among the tertiary institutions in Kogi State?

	NOT AVAILABLE		Availab	Available NOT		ble and	Total	
			ADEQ	UATE	ADEQ	UATE		
	frequency	percent%	Frequency	percent%	frequency	percent%	frequency	percent%
LAPTOP	1	1.0%	26	26.0%	73	73.0%	100	100.0%
DESKTOP	5	5.0%	44	44.0%	51	51.0%	100	100.0%
MOBILE DEVICES	13	13.0%	40	40.0%	47	47.0%	100	100.0%
PUBLIC ADRESS SYSTEM	21	21.0%	54	54.0%	25	25.0%	100	100.0%
INTERNET FACILITIES	6	6.0%	27	27.0%	67	67.0%	100	100.0%
MULTIMEDIA PROJECTOR	5	5.0%	26	26.0%	69	69.0%	100	100.0%
MAGNETIC BOARD	11	11.0%	34	34.0%	55	55.0%	100	100.0%
INTERACTIVE WHITE BOARD	2	2.0%	33	33.0%	65	65.0%	100	100.0%
	7	7.0%	30	30.0%	63	63.0%	100	100.0%

Table 1: Percentage distribution of availability of ICTs resources in Kogi State

The result from Table 1 shows that laptop, desktop, internet facilities, multimedia projector, magnetic board, interactive white board where adequately available above 50% score except mobile device and public address system with 47% and 25% respectively which is below the benchmark of 50% with a grand mean of 2.72.

**Research** Questions 2: What is the level of ICT competencies by lecturers in the utilization of ICT in teaching and research among the tertiary institutions in Kogi State?

Table 2: Percentage distribution of level of ICT competencies in tertiary institutions inKogi State?

	SA		A		D f		SD f	)
	f	(%)	f	(%)	(%	(%)		)
I can create an account on ICT platforms.	480	(100)	0	(0.0)	0	(0.0)	0	(.0)
I can log into my ICT account and update information	340	(70.8)	140	(29.2)	0	(0.0)	0	(.0)
On social media, I can identify common icons	271	(56.5)	209	(43.5)	0	(0.0)	0	(.0)
I can send e-mails to my students	480	(100)	0	(0.0)	0	(0.0)	0	(.0)
I can upload course content on Learning	480	(100)	0	(0.0)	0	(0.0)	0	(.0)
Managements Systems and ICT platforms	271	(56.5)	209	(43.5)	0	(0.0)	0	(.0)

Table 2 shows the statement items: I can create an account on ICT platforms, I can log into my ICT account and update information, on social media, I can identify common icons, I can send emails to my students, I can upload course content on Learning, Managements Systems and ICT platforms where strongly agreed by the respondents with above 50% score with a grand mean of 4.655. Research Questions 3: What is the level of willingness by lecturers in utilization of ICT in teaching and research among the tertiary institutions in Kogi State?

Table 3: Percentage	distribution of level o	f willingness by	lecturers in tertiar	y institutions
in Kogi State?				

	STRONGLY AGREE		ACDEE LINDECIDED					STRONGLY		
			AG	AGREE UNDECH		DECIDE	IDEDDISAGREF			DISAGREE
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)
I am always ready to use ICT										
for teaching and research based	392	(81.7)	88	(18.3)	0	(.0)	0	(0.0)	0	(.0)
on need.										
It will take me time before I can										
use ICT for teaching my class	327	(68.1)	153	(31.9)	0	(.0)	5	(5.0)	0	(.0)
because of its complicity										
I am still planning on using ICT										
for discovery on a regular basis	247	(72.2)	4.4		0	( <b>0</b> )	0		20	(10.5)
to develop my teaching and	347 (72.3)	44 (9.2)	.) ()	0 (.0)	0	0 (.0)	89	(18.3)		
research skills.										
I would still do all my best to										
integrate ICT for instruction	347	(72.3)	44	(9.2)	0	(.0)	89	(18.5)	0	(.0)
and researches.										
I will advocate for the use of										
ICT in education due to their	391	(81.5)	88	(18.3)	0	(.0)	1	(.2)	0	(.0)
relevance and convenience										
I enjoy the use of ICT for	317	(72.2)	11	(0, 2)	0	( <b>0</b> )	0	( <b>0</b> )	80	( <b>0</b> )
teaching-learning activities.	547	(12.3)	44	(9.2)	U	(.0)	U	(.0)	07	(.0)

Table 3 shows the statement items: I am always ready to use ICT for teaching and research based on need, It will take me time before I can use ICT for teaching my class because of its complicity, I am still planning on using ICT for discovery on a regular basis to develop my teaching and research skills, I would still do all my best to integrate ICT for instruction and researches, I will advocate for the use of ICT in education due to their relevance and convenience where strongly agreed by the respondents with above 50% score with a grand mean of 3.699.

**Research Questions 4: Do lecturers use ICT for teaching and research among the tertiary institutions in Kogi State?** 

	STRONGLY AGREE		AGREE UNDECIDED		<b>ZDD</b>	ISAGREE	STRONGLY DISAGREE			
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)
I normally get detailed explanation from the web than searching the textbooks	392	(81.7)	0	(25.3)	0	(.0)	0	(0.0)	88	(18.3)
The use of ICT for instruction would motivate learners and facilitate better understanding.	336	(70.0)	144	(30.0)	0	(.0)	0	(0.0)	0	(.0)
The quality of my instruction would be improved when ICT is fully integrated.	336	(70.0)	144	(30.0)	0	(.0)	4	(0.)	0	(.0)
Student-teacher relationship improves when ICT is fully integrated in teaching.	392	(81.7)	0	(25.3)	0	(.0)	0	(0.0)	88	(18.3)
I am interested in using ICT for teaching	336	(70.0)	144	(30.0)	0	(.0)	0	(0.0)	0	(.0)

Table 4: Percentage of distribution of respondents on ICT utilization

Table 4 shows the statement items: I normally get detailed explanation from the web than searching the textbooks, The use of ICT for instruction would motivate learners and facilitate better understanding, The quality of my instruction would be improved when ICT is fully integrated, Student-teacher relationship improves when ICT is fully integrated in teaching, I am interested in using ICT for teaching where strongly agreed by the respondents with above 50% score with a grand mean of 3.699.

Hypothesis Testing

# Hypothesis one

H<sub>01</sub>: There is no significance difference between male and female lecturers competences in the utilization of ICT for teaching among the tertiary institutions in Kogi State

 Table 5: t-test Procedures for Significant Differences between Male and Female lecturers'

 competence in the utilization of ICT for teaching and research purposes

Gender	Ν	Mean	Standard Deviation	Df	t	Sig (2-tailed)	Remarks
Male	432	1.138	0.317	MAN			
			110	478	-0.833	0.405	Not Rejected
Female	48	1.133	0.234				
Total	480						

Table 5 indicates that t (480) = -0.833, p = .405. This means that the stated null hypothesis was not rejected. This was as a result of the t-value of -0.833 resulting in 0.405 significance value which was greater than 0.05 alpha value. In other words, the null hypothesis, which states that not There is no significance difference between male and female lecturers' competences in the utilization of ICT for teaching among the tertiary institutions in Kogi State was rejected. However, the male lecturers have high mean scores of 1.138 than their female lecturers of 1.133. Thus, the male lecturers are competent towards the use of ICT resources than their female counterparts which could be as a result of male lecturers' exposure to ICT resources over the female lecturers.

# **Hypothesis** Two

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H<sub>02</sub>: There is no significant difference between male and female lecturers in the utilization of ICT for teaching among the tertiary institutions in Kogi State

Table 6: Lecturers'	utilization of ICT	for teaching and	l research b	based on Gender

Gender	Ν	Mean	Standard Deviation	Df	t	Sig (2-tailed)	Remarks
Male	432	1.140	0.005				
				478	2.043	0.042	Not Rejected
Female	48	1.121	0.016				
Total	480						

Table 6 indicates that t (480) = -0.833, p = .042. This means that the stated null hypothesis was not rejected. This was as a result of the t-value of 2.043 resulting in 0.042 significance value which was greater than 0.05 alpha value. In other words, the null hypothesis, which states that There is no significance difference between male and female lecturers' utilization of ICT for teaching among the tertiary institutions in Kogi State was not rejected. However, the male lecturers have high mean scores of 1.140 against their female lecturers of 1.121.

# **Hypothesis Three**

 $H_{03}$ : There is no significant difference among highly experience, moderately and less experience lecturers in the utilization of ICT for teaching and research among the tertiary institutions in Kogi State

Gender	N	Mean	Standard Deviation	Df	Т	Sig (2-tailed)	Remarks
Male	432	1.1392	.1275				
				478	2.043	0.042	Not Rejected
Female	48	1.1250	.1319				
Total	480						

 Table 7: *t*-test Procedures for Significant Differences between Male and Female lecturers

 utilization of ICT for teaching and research purposes

Table 6 indicates that t (480) = 0.042, p = 2.043. This means that the stated null hypothesis was not rejected. This was a result of the t-value of 2.043 resulting in 0.042 significance value which was greater than 0.05 alpha value. In other words, the null hypothesis, states that there is no significance difference between male and female lecturers' utilization of ICT based on teaching experience. There is no significance difference between male and research purposes in tertiary institutions in Kogi State was not rejected.

#### **Discussion of Findings**

Utilization of ICT for teaching will make learning to be fun to the students. Lecturers who are competent and willing to use ICT tools can easily download new materials from the internet which can be used for lecture preparation and teaching. They can also search for research materials in the internet and publish research findings in reputable international journals of their choice. Research question one examined the available ICT resources among the tertiary institutions in Kogi State. The result of the mean score established that tertiary institution in Kogi state has enough ICT resources for lecturers to utilize with a grand mean score of 2.72. These findings agreed with the previous findings of Adeleye (2014) whose findings established that ICT resources must be provided in tertiary institutions for better teaching and research purposes.

Lecturers' competences in the utilization of ICT for teaching among the tertiary institutions in Kogi State was investigated in hypotheses 1. The result of the hypotheses on competencies

reveals that there is no significant difference on the lecturer's competences in the utilization of ICT resources based on gender. The findings of this study agree with the report of Warg Olsen, Sorbring, and Stegberg (2020) that there is no difference on lecturers' competencies based on gender regarding the utilization of ICT resources for teaching.

Hypothesis two examined the utilization of ICT for teaching among the tertiary institutions in Kogi State based on gender. The result of the *t*-test revealed that there was no significance difference between male and female lecturers' utilization of ICT for teaching among the tertiary institutions in Kogi State. The findings of this study agree with the report. The findings agree with the previous findings of Hussain, (2017) who concluded that over 80% lecturers utilize ICT resources for teaching and learning purposes.

## CONCLUSIONS

From the findings of this study, the competencies and willingness towards the utilization of ICT in teaching and research have been effectively utilized in tertiary schools across Kogi State. in teaching-learning process. Hence, lecturers must be competent and willing to utilize ICT in lecture preparation and presentation, instructional delivery, individualized learning, research purposes, as well as collaborative and evaluation of learning will significantly be of great benefit to our society. The impact of ICT resources on lecturers in this present age has enhanced both the teaching and learning process and makes it easy for the achievement of the lecturers set objectives. The use of ICT resources creates room for individualized research and makes teaching/learning more interesting and meaningful within and outside the school settings. Despite the benefit of ICT tools in Nigerian educational system, most tertiary institutions in Kogi State are yet to extensively implement them for research and teaching. Efforts geared towards utilizing ICT resources into Nigerian school have not had much impact. Problems such as lecturers' competencies and willingness, lecturer's professional knowledge, frequent electricity interruption, environmental factors militate against the proper use of ICT resources in Kogi state tertiary institutions. For ICT resources to be successfully used in Kogi State, government, school administrators and individual lecturers are called upon to look into the problems stated in this paper and proffer solutions to them, as such would go a long way to making research, teaching and learning process more interesting.

## RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. ICT resources should be made available in all institutions for learning in Kogi State.

2. Tertiary institutions in Kogi State should make training in ICT mandatory for all lecturers as this will propel the uninterested or unwilling ones to undertake the training.

3. Workshop, training programs on the utilization of ICT facilities should be organized for lecturers so as to boost their competencies in using and manipulating these resources for teaching and learning.

4. Tertiary Institutions should organize training sections and in-service training for lecturers in the use of ICT tools.

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