ASSESSMENT OF PRE-SERVICE TEACHERS' UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY RESOURCES FOR LEARNING IN KWARA STATE

BY

Hassan M.O.
Department of Mathematics
Kwara State College of Education (Technical), Lafiagi
08033772504
hasmaths@yahoo.com

Isiaka K.S
Department of Mathematics
Kwara State College of Education , Ilorin
08035270078
Isiakakola@gmail.com

Abstract

zThis paper investigated the pre-service teachers' utilization of Information and Communication Technology resources for learning in Kwara State Colleges of education, the extents of use of ICT resources for learning based on gender and field of study.The research adopted the cross-sectional approach, 371 copies of the questionnaire were distributed and analyzed. Frequency count, percentage, t-test and analysis of variance (ANOVA) was used in analyzing the data obtained. The finding revealed that; pre-service teachers do not use ICT resources for their learning as expected, also female pre-service teachers utilized ICT resources for their learning than their male counterpart irrespective of their field of study. Based on the above finding, it was recommended that; the use of ICT resources should be embraced in and outside the classroom environment by the pre-service teachers, instructional facilitators and all stakeholders.

Keywords: Pre-service teachers, ICT, utilization, learning.

INTRODUCTION

Globalization and the incorporation of Information and Communication Technology (ICT) in all spheres of life have created a society which is motivated by knowledge and driven by technology. The advent of information and communication technology especially the product aspect has influenced both the content as well as methods of teaching. The use of ICT provides an enabling environment through which different types of learners (visual, audio, kinesthetic etc) learn. Most of the developed countries have exploited the potentials of Information and Communication Technology (ICT) to transform their educational landscape at the tertiary, secondary and even primary school levels particularly the instructional process (Abdulrahman, Bello & Bauchi, 2019; Ezeaghasi, 2018; Bello, 2014; Olubola & Aladejana, 2013). Information and Communication Technology could be seen as the engine for growth and tool for empowerment, with profound implications for education, change and socio-economic development. ICT is the term that is currently used worldwide to describe new technologies which depend mainly on computer, Internet, WIFI, smart phone, Tablet Pc among others. Asabere and Enguah (2012) asserted that Information and Communication Technology can be broadly defined as the resources and equipment that provide the required environment with the physical infrastructure and the services for the generation, transmission, processing, storing and dissemination of information in all forms including voice, text, data, and graphics.

Information and Communication Technology is noted to be an electronic or computerized device, assisted by human and interactive materials that can be used to enhance teaching and learning as well as for personal use (Apagu & Wakili, 2015).

Similarly, Ogunlade (2015), equally asserted that Information and Communication Technologies are the resources, tools, and gadgets available for students use in learning in a more efficient and stimulating manner than the sole use of teacher's voice.

Information and Communication Technology are resources or tools used by both pre-service teachers and lecturers to enhance teaching and learning activities. Ogunlade (2015) equally noted that students are aware that ICT resources can enhance course delivery and facilitate independent and self–governing learning by learners and enhance self-development and self–improvement for the teacher. The use of ICT resources in the teaching-learning process is needed to attract students' attention and to make teaching-learning activities more interesting and also effective (Abdulrahman, Bello & Bauchi, 2019). This has made it vital that pre-service teachers not only need to use ICTs, but they need to become comfortable with it using ICTs.

Ololube (2017) equally noted that the ICT utilization, integration, and diffusion has originated a new age in the educational system, thus completely changed the traditional method of instructional delivery and usage patterns as well as offering modern-day learning skills for both lecturers and students. The application of ICT to education will greatly improve the quality of learning in any tertiary institution. Students need to cope with the demand of emerging information and communication technology which have moved away from analog to digital technology (Nkokelonye, 2008).

Marshall, Elgort, and Mitchell (2013) also identified different types of technologies that can be used to support and enhance learning. This includes video players, laptop computers and handheld technologies. Through ICT efficient,

effective and reliable information, the network would be disseminated for systems interactivity. ICT in the classroom came as a result of the search for better classroom and better teachers that will open their minds to positive changes. Meenakshi (2013) opined that Information and Communication Technology resources can enhance the quality of instructions in several ways: by increasing learner motivation and engagement; by facilitating the attainment of basic skills; and by enhancing facilitators training.

Information and Communication Technology resources such as educational videos, television and multimedia computer software that combine text, sound, and colorful, moving images can be used to provide challenging and realistic content that will have interaction with the scholars within the learning method (Abdulrahman, Bello & Bauchi, 2019). The knowledge about what ICT offers pre-service teachers' the opportunity to put new passion and new approaches into learning.

Bamidele and Yoade (2017) submitted that pre-service teachers are experts in the actual use of simple skills like MS Word, MS PowerPoint, Searching and Browsing at Internet, Social networking, Email, File attachment, and Computer games but have inadequate skilled on other skills like using digital library, discussion forums, and Blogs. Information and Communication Technology has opened wide opportunities for educators to integrate technology auxiliary materials within the teaching-learning method and to enhance the accomplishment of scholars.

ICT resources that enhance learning can be used by either male or female pre-service teachers. Attuquayefio and Addo (2016) affirmed that male and female students are different in the use of various ICT based services such as the Internet, email and chat. Male students use these services more than female students

regarding the use of a search engine and searching databases for educational purposes. Neil (2008) opined that pre-service female teachers are more likely to use the Internet to seek academic information than male students.

Field of study/course of study is one of the aspects that will determine how pre-service teachers' make use of ICT resources. Field of study is the discipline an individual studied in the institutions and specialized on (Samuel, 2016). Agbatogun (2006) opined that with a worldwide technological wave that's ravaging each sector and each side of academics' life wherever male or female, experienced or inexperienced, humanities, science, and art oriented discipline need to struggle zealously to be computer literate in order to face the present educational challenges become evident. This can be classified into various categories namely: Applied Sciences, Basic Sciences, Social Sciences, Humanities, Vocational, and Technical Education among others. For pre-service teachers to ensure academic success throughout their stay in the college of education, it is important to do away with bad ICT resources use (Ntui, 2014).

Ajayi (2008) submitted that effective utilization of ICT in learning depends on the availability of these facilities and pre-service teachers' competence in using such as the Internet, WIFI, e-journal, Smartphone, laptop, academic websites, Computers and so on by the students to enhance their learning and academic performance. However, some pre-service teachers use ICT resources to watch pornography, facebook and use it to engage in non-academic tasks.

Purpose of the Study

The main purpose of this study is to assess pre-service teachers' use of ICT

resources for learning in Kwara State College of Education (Technical), Lafiagi. Specifically, the study:

1. Examined pre-service teachers' actual use of ICT resources;

2. Examined pre-service teachers' male and female access to ICT resources for learning;

3. Investigated pre-service teachers' extent of use of ICT resources for learning;

4. Examined pre-service teachers' extent of use of ICT resources for learning based on gender.

5. Ascertained pre-service teachers' extent of use of ICT resources for learning based on Field of Study.

Research Questions

The following research questions were answered in this study:

1. How do pre-service teachers actually use ICT resources?

2. What is the difference between pre-service teachers' male and female in their access to ICT resources for learning?

3. What is the extent of pre-service teachers' use of ICT resources for learning?

4. What is the extent to which pre-service teachers' use of ICT resources for learning vary based on gender?

5. What is the extent to which pre-service teachers' use of ICT resources for learning vary based on the field of study?

Research Hypotheses

The following hypotheses were tested at 0.05 level of significance

H_{01}: There is no significant difference in pre-service teachers' use of ICT resources for learning based on gender

H_{02}: There is no significant difference in pre-service teachers' male and female in their access to ICT resources for learning

H_{03}: There is no significant difference among pre-service teachers' use of ICT resources for learning based on the field of study.

Scope of the Study

This study examined the assessment of pre-service teachers' use of ICT resources for learning in Kwara State, Nigeria. This research was limited to all pre-service teachers' in Kwara State, Nigeria. This study is descriptive research using a survey method. It was carried out in 3 State Colleges of Education in the Kwara State of Nigeria. The researcher makes use of Israel (2013) model to determine the sample size. The sample size for this study was 374pre-service teachers' which was sampled from the total population of 48, 576 in the 3 selected Colleges of Education in Kwara State, Nigeria. 200 and 300 levels pre-service teachers were involved the study because of their exposure to ICT resources that are available within the Colleges. The moderating variables like gender and field of study were considered in this study to find out if there is any significant difference between them.

line of which a pre-service teacher undergoes

Data Analysis Techniques

Data collected were analyzed by using frequency count and percentages to answer the research questions 1 and 3. Mean was used to answer research question 2. Hypothesis 3 was analyzed using Analysis of Variance (ANOVA) while hypotheses 1 and 2 were tested using the independent *t*-test. All hypotheses were tested at 0.05 level of significance.

Table 1:

Personal Data of Respondents based on Institution

Name of Institution	Frequency	Percentage
College A	153	40.91
College B	148	39.57
College C	73	19.52
Total	374	100

From table 2 above, it was revealed that, out of 374 pre-service teachers sampled, 153 (40.91%) respondents are from College A, 148 (39.57%) are pre-service teachers from College B while 73 (19.52%) of pre-service teachers are from college C. This implies that the majority of the respondents are from College A and B respectively.

Table 2:

Personal Information of Respondents based on Gender

Gender	Frequency	Percentage
Male	175	46.8
Female	199	53.2
Total	374	100

Table 2 shows the respondents' demographic information based on gender. The table revealed that 175 (46.8%) of the respondents are male and 199 (53.2%) of the respondents are female. This implies that pre-service females' teachers have the largest respondents sampled when compare with their male counterpart.

Table 3:

Personal Information of Respondents based on Field of Studies

Field of Studies	Frequency	Percentage
Sciences	91	24.33
Vocation	178	47.60

Technical	30	8.02
Arts	75	20.05
Total	374	100

Table shows the personal information of respondents based on field of studies. The table revealed that, the majorities of the respondents were pre-service teachers from vocation with 47.6%, while the minorities of the respondents were pre-service teachers from the field of humanitarian. This implies that the field of vocation has the highest respondents sampled while the field of technical has the least respondents sampled.

Analysis of Research Questions

This part presents the result of the analyses on pre-service teachers' utilization of ICT resources for learning in Kwara State Colleges of Education.

Research Question 1: How do pre-service teachers actually use ICT resources?

Table 4:

Pre-service teachers' Use of ICT Resources for Learning

S/N	Items	Yes	No	Rank
1	I like reading educational materials online	311 83.2%	63 16.8%	1st
2	I use ICT resources to download educational YouTube video	270 72.2%	104 27.8%	7th
3.	I can use ICT resources to plot graph	87 23.3%	287 76.7%	18th
4	I use ICT resources for chatting	296 79.1%	78 20.9%	3rd
5	I do attend organized tutorial classes using ICT resources	198 52.9%	176 47.1%	15th
6	I download non-educational materials using ICT resources	266 71.1%	108 28.9%	8th
7	I do create a presentation with simple animation functions	186 49.7%	188 50.3%	17th
8	I download educational software using ICT resources	286 76.5%	88 23.5%	4th
9	I do online shopping using ICT resources	199 53.2%	175 46.8%	14th

10	I patronize educational websites using ICT resources	279 74.6%	95 25.4%	5th
11	I do download educational materials online using ICT resources	310 82.9%	64 17.1%	2nd
12	I do play non-educational games using ICT resources	188 50.3%	186 49.7%	16th
13	I do attend organized online learning group discussion	227 60.7%	147 39.3%	12th
14	I do download non-educational video using ICT resources	237 63.4%	137 36.6%	10th
15	I do solve difficult concept in my course of study using ICT resources	275 73.5%	99 26.5%	6th
16	I like to make friends using ICT resources	263 70.3%	111 29.7%	9th
17	I use ICT resources to play educational games	233 62.3%	141 37.7%	11th
18	I use ICT resources to patronize the non-educational website	223 59.6%	151 40.4%	13th

The result in Table 4, shows that most pre-service teachers use ICT resources to: read educational materials online (83.2%); download educational material (82.9%); chat (79.1%); download educational software (76.5%); patronize educational websites (74.6%); solve difficult concept (73.5%); download educational YouTube video (72.2%); download non-educational materials (71.1%); make friends (70.3%) among others

However, very few pre-service teachers use ICT resources to plot graph (23.3%); few pre-service teachers create a presentation with simple animation function (49.7%); average pre-service teachers play educational games (50.3%) among others. This implies that the majority of the pre-service teachers use ICT resources to read educational materials online while very few of the pre-service teachers use ICT resources to plot graph.

Research Question 2: What is the difference between male and female pre-service teachers in their access to ICT resources for learning?

Table 5:

Male and Female Pre-service Teachers Access to ICT Resources

	Gender	N	Mean
Access	Male	175	29.23
	Female	199	39.46

The result of table 5 shows that female pre-service teachers have higher access to ICT resources with the mean value of (39.46) while the male pre-service teachers have a mean value of 29.23. This implies that female pre-service teachers have greater access to ICT resources than their male counterpart.

Research Question 3: What is the extent of pre-service teachers' use of ICT resources for learning?

Table 6:

In answering this research question, analysis of pre-service teachers' on their extent of use of ICT resources for their learning were analyzed and the result is presented in Table 7

S/N	Items	Daily	Weekly	Monthly	Not at all
1	WIFI	116(31.0%)	89 (23.8%)	85(22.7%)	84(22.5%)
2	E-journals	48 (12.8%)	74 (19.8%)	61(16.3%)	191(51.1%)
3	E-textbook	69 (18.4%)	97(25.9%)	65(17.4%)	143(38.2%)
4	Laptop	181(48.4%)	62(16.6%)	51(13.6%)	80(21.4%)
5	Tablet Pc	182(48.7%)	43(11.5%)	33(8.8%)	116(31.0%)
6	Smartphone	250(66.8%)	26(7.0%)	31(8.3%)	67(17.9%)
7	Dedicated ICT laboratory	46(12.3%)	60(16.0%)	54(14.4%)	214(57.2%)
8	E-Library	54(14.4%)	68(18.2%)	92(24.6%)	160(42.8%)
9	Google classroom	73(19.5%)	97(25.9%)	82(21.9%)	122(32.6%)
10	Email	170(45.5%)	102(27.3%)	65(17.4%)	37(9.9%)
11	YouTube	139(37.2%)	94(25.1%)	88(23.5%)	53(14.2%)
12	Educational software	109(29.1%)	96(25.7%)	80(21.4%)	89(23.8%)
13	Cable Internet	76(20.3%)	61(16.3%)	52(13.9%)	185(49.5%)
14	Digital camera	78(20.9%)	59(15.8%)	60(16.0%)	177(47.3%)
15	Interactive board	54(14.4%)	56(15.0%)	56(15.0%)	208(55.6%)

16	E-bulletin board	54(14.4%)	62(16.6%)	63(16.8%)	195(52.1%)
17	E-notice board	66(17.6%)	59(15.8%)	56(15.0%)	193(51.6%)
18	Digital video disc player	74(19.8%)	73(19.5%)	70(18.7%)	157(42.0%)
19	CD/DVD writers	59(15.8%)	66(17.6%)	55(14.7%)	194(51.9%)

The results in Table 6, reveals that (1-15%) of the respondents frequently use: Wi-Fi, E-Journal, E-textbooks, Laptop, Tablet Pc, Smartphone, Dedicated ICT laboratory, Electronic Library, Google Classroom, E-mail, YouTube, among others monthly for their learning.

Also, (16-30%) of the respondents frequently use: Wi-Fi, email, cable Internet, e-textbook, and Google classroom among others weekly for their learning. More so, (31-70%) of the respondents frequently use Wi-Fi, YouTube, email, Laptop, Tablet Pc, Smartphone among others daily for their learning.

This inferred that Smartphone, laptop and Wi-Fi were frequently use by the majority of the pre-service teachers' while very few of the pre-service teachers' use dedicated ICT laboratory and cable Internet among others as expected.

Hypothesis Testing

The results of the hypotheses tested in this study are presented in subsequent tables. All hypotheses were tested at the significant level of 0.05

H_{01}: There is no significant difference in the pre-service teachers' use of ICT resources for learning based on gender

Table 7:

***t*-test Analysis of Male and Female Pre-service teachers' Use of ICT Resources for Learning**

Gender	No	X	SD	df	T	Sig (2-tailed)	Remark
Male	175	40.29	10.11	372	1.05	.76	H_0 Accepted
Female	199	41.40	10.24				
Total	374						

Table 7, shows the pre-service teachers' extent of use of ICT resources based on gender. The result showed that *t* (372) = 1.05, p>0.05 revealed that there is no significant difference between pre-service teachers' in the use of ICT resources for learning based on gender. This implies that gender does not influence the pre-service teachers' use of ICT resources for learning. Thus, the hypothesis was not rejected.

H_{O2}: There is no significant difference between male and female pre-service teachers' access to ICT resources for learning

Table 8:

***t*-test Analysis of Male and Female Pre-service teachers' Access to ICT Resources for Learning.**

Access	No	X	SD	df	T	Sig (2-tailed)	Remark
Male	175	29.23	3.58	372	-2.99	.003	H_0 Rejected
Female	199	30.46	4.25				
Total	374						

Table 8 shows the pre-service teachers' males and females' access to ICT resources for learning. The result showed that *t* (372) = -2.99, p< .05 revealed that there is a significant difference between pre-service teachers' males and females access to ICT resources. This implies that there was a significant difference between pre-service teachers' males and females in their access to ICT resources for learning. Thus the hypothesis was rejected.

H_{03}: There is no significant difference among pre-service teachers' use of ICT resources for learning based on the field of study.

Table 9:

ANOVA Analysis of Science, Vocational, Technical and Art Pre-service teachers' Use

of ICT Resources for Learning

	Sum of squares	df	Mean square	F	Sig	Remark
Between Groups	182.712	2	91.36	.881	.415	Ho Accepted
Within Groups	38462.873	371	103.67			
Total	38645.586	373				

The analysis in table 9 shows that there is no significant difference in pre-service teachers' use of ICT resources based on the field of study. F (2, 371) = .881, p=.415 (p>0.05) for the pre-service teachers' use of ICT resources for Learning in Kwara State based on the field of study (Science, Vocational, Technical and Arts). This shows that the significant value (.415) was greater than the alpha value (0.05) therefore null hypothesis was not rejected. By implication, the null hypothesis was established as: there was no significant difference among the science, vocation, technical and art pre-service teachers' on their use of ICT resources for learning based on their field of study. Hence, the field of study does not have any influence on pre-service teachers' extent of use of ICT resources for their learning.

for learning.

Conclusion

This research examined the assessment of pre-service teachers' utilization of ICT resources for learning in Kwara State. The result obtained from the data gathered and analyzed in this study indicated that few of the pre-service teachers make use of ICT resources for non-academic purposes. Also, pre-service teachers' do not like to use dedicated ICT laboratory, Electronic library among others for their learning. Similarly, it was revealed that gender had no significant effect on pre-service teachers' utilization of ICT resources. More so, it was discovered that there was a disparity in pre-service teacher's male and female in their access to ICT

resources. Finally, the field of study did not influence the use of ICT resources among pre-service teachers for their learning in Kwara State.

Recommendations

Based on the findings and conclusions of the study, the following recommendations were made:

1. Lecturers should always upload downloadable contents for the pre-service teachers to download
2. Lecturers should make use of social media to disseminate knowledge/instructions because of pre-service teachers of ICT resources to chat
3. Well, standard dedicated ICT laboratory should be built-in colleges of education and pre-service teachers should be allowed to have easy access to it.
4. Pre-service teachers should be given equal access to ICT resources for their learning
5. Colleges of Education administrator should encourage the pre-service teachers to make use of e-journal, electronic library and Google classroom as expected
6. Colleges of Education administrator should discourage the use of ICT resources for non-academic purposes
7. The government should improve the quality and accessibility of ICT resources by pre-service teachers

REFERENCES

Abdulrahaman B &Bauch. (2019). Gender Difference in Information and Communication.

Technology Use among University Students. *Journal of Information Technology and Application in Education, 1*(4), 207-210.

Adeosun (2010). The digital and university education systems in sub-Saharan Africa.

African Journal of Library, Archival, and Information Science, 13(1), 11-20.

Ajuwon, G. (2003). Computer and Internet use by first-year clinical and nursing students in a

Nigerian teaching hospital. *BMC Medical Informatics and Decision Making, 3(10)*. Retrieved October 21, 2006, from BMC Medical Informatics and Decision Making: www.biomecentral.com/1472-6947/3/10

Apagu & wakili (2015). The state of ICTs in Tertiary Institution in Nigeria Window on the

University. Retrieved from dspace.unijos.edu.ng/bitstream/10485/417/1/state%20of1%20ICTs%20in%Tertiary%20Institutions%20Window%20on%20Universities.pdf

Asabere & Engua (2012). Undergraduate students' perception of the effectiveness of ICT use in improving teaching and learning in Ekiti State University, Ado-Ekiti, Nigeria. *International Journal of Library and Information Science, 4*(7), 121-130. Retrieved from www.academicjournals.org/ijlis

Bamidele &Yoade,. (2017). A Study of Undergraduate Students' Use of Information

an

Communication Technology (ICT) and the Factors Affecting their Use: A Developing Country Perspective. *EURASIA Journal of Mathematics, Science and Technology Education, 14*(5), 1731-1746. Retrieved from //doi.org/10.29333/ejmste/85118

Marshall E., & Mitchel, R. (2013). Information Technology for CXC CSEC. UK: Oxford University.

Oulube (2017). Teaching and learning with technology:effectiveness of ICT integration in schools. *International Journal ofResearch in Education and Science* (IJRES), 1(2),175-191