

# Extent of Information and Communication Technology (ICT) Utilization for Students' Learning in Tertiary Institutions in Ondo State, Nigeria

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## ABSTRACT

*This study investigated the extent of information and communication technology (ICT) utilization for students' learning in Ondo State tertiary institutions. The research design was descriptive survey. The target population comprises of all students in tertiary institutions of learning in Ondo State. A sample of two hundred (200) undergraduate students from Adekunle Ajasin University, Akungba-Akoko was used for this study. Stratified random sampling technique was used to select the sample across the six faculties in the university based on proportion. Data were carefully collected through questionnaire and were analyzed using mean, standard deviation and T-test to test the null hypothesis. The study finds out that facilities like computer systems, email accounts, projectors, Public Address System (P.A.S), E-Library, printers for print out of learning materials by students and Social-Media Platforms are available for students' learning in Ondo State tertiary institutions, ICT facilities like internet, computer training centre for students on campus and stored lecture notes on CD-ROM are not available to students for learning, Computer training classes and projectors for academic activities are not accessed by students' on campus, female students' have the highest level of utilization of ICT facilities compared to male students in Ondo State tertiary institutions. The studies recommends that school management should continue to provide ICT facilities like internet, projector, E-Library facilities, computer printers and social-media platforms to broadens students' knowledge and improve their overall learning experiences, government and educational managers should often encourage proper utilization of ICT facilities to enhance students' learning.*

**Keywords:** *ICT, utilization, students', learning, tertiary institutions.*

## 1. INTRODUCTION

Information and communication technology (ICT) has become one of the basic building blocks of the present society. Many developing countries now regard the understanding of ICT and mastering the basic skills and concepts of ICT as part of the core of education. Education is the overall development of an individual in all ramifications and not limited to classroom jurisdiction. (Akinfolarin, 2014). ICT is a term used to refer to technologies that are used in creating, accumulating, storing, editing and disseminating information in various forms.

Tan, Chong, Lin & Eze (2009) defines Information and Communication Technology as application of Information and Communication Technology tools including computer network, software and hardware required for internet connection. Ifueko (2011) also sees ICT as the digital processing and utilization of information by the use of electronic computers. It comprises the storage, retrieval, conversion and transmission of information.

Irrespective of streams of definitions of ICT by various scholars, and for the purpose of this study, ICT can be defined as the application of modern technological facilities for the purpose of enhancing effective communication in the society. ICT in education therefore, implies the adoption and utilization of modern technological facilities to ensure effective flow of information among teachers, students and administrators' for better communication within the education system.

ICT constitutes an input in students' learning process that should help produce better learning output. According to Menzel (2013), learning is the capacity to change behaviour as the result of individual experience in such a way that the new behaviour is better adapted to the changed conditions of the environment. However, it is important to note that conceptualizing learning as a change in behavior only is still a mirage as individual may learn something without changing his/her behavior or perception. Therefore, learning is the acquisition of knowledge by individual which may cause adjustment in behavior or perception resulting from experience and discoveries within the micro and macro environments. Learning can take place within individual's immediate environment or external environment which may involve the use of technological recourses like television, radio set, e-learning, social media, etc. Trucano (2005) reviews a series of studies on ICT's impact on schools and concludes that the impact of ICT use on learning outcomes is unclear.

Mereku, Yidana, Hodzi, Tete-Mensha & Williams (2009) highlight the following as the impact of ICT on students: the use of ICT had equipped them with skills to search for information and this had helped them gain more knowledge of some of the things they study in many subjects, increasing their confidence in making contributions during class discussions, helped in understanding abstract ideas and concepts. As Brush, Glazewski and Hew (2008) have stated, ICT is used as a tool for students to discover learning topics, solve problems, and provide solutions to the problems in the learning process. ICT makes knowledge acquisition more accessible, and concepts in learning areas are understood while engaging students in the application of ICT. Students are now more frequently engaged in the meaningful use of computers (Castro Sánchez & Aleman 2011). Maharana, Biswal and Sahu (2009) explored the use of Information and Communication Technology used by medical students. They found 77% of the respondents were of the opinion that ICT should be included in their syllabus. Nearly all respondents expressed their desire to have a computer lab in their college. One hundred respondents out of 128 opined that medical education is not effective without ICT based resources and services.

ICT has also enabled learning through multiple intelligence as ICT has introduced learning through simulation games; this enables active learning through all senses (Gateway 2010). Effective use of different information communication technologies has become imperative for students in learning environments. The utilization of modern ICT facilities can make students, teachers' and administrators retrieve their required information within a short period. They can access and disseminate electronic information like e-books, news, e-journals which can advance teaching and learning process at all levels of education. Effective utilization of ICT resources can help facilitate good communication within and outside any organization. There must be a good communication mechanism among teachers', students' and school administrators' within and outside the school for goals achievement at all levels of education.

ICT has had a major impact in higher institutions of learning, in organizations and in teaching and learning methods. Several researchers (Iqbal and Ahmed, 2010) argued that, this century demands confidence and efficiency in ICT use in all fields, at both the academic and industry levels. Shaikh and Khoja (2011) supported this assertion that, to achieve success in education, employment and everyday life, ICT should be seen as a key contributing factor in getting the right impact of education. Malcolm and Godwill (2008) also states that, ICT has impacted on students, administrators and teachers respectively in the following ways: serve as extra reference materials to deepen understanding of the subjects taught in classrooms, computer software is used to track progress of students' performance and record grades, it changes pedagogical approaches, help to motivate and improve teacher-student interactions, increased self-confidence and increased excitement about teaching. In other words, high extent of ICT utilization can facilitate instructional improvement. In the context of this study, instructional improvement refers to

the act of making progress in instructional delivery for better academic achievement. The effective utilization of information and communication system would not only improve students' learning but promotes teachers' instructional delivery and effective school management for sustainable educational system. Afolabi (2009) observed that a random sampling of ICT in the universities in Nigeria shows that the prospects of ICT and the ideal situation of educational research in our ICT driven campus is still a mirage. However, some facilities in our schools are underutilized while some are overutilized and some are not available. This study is set out to determine the extent of ICT utilization for students' learning in tertiary institutions in Ondo State.

### 1.1 Statement of the Problem

As enormous as the benefits and roles ICT are to every level of educational system, a lot of challenges abound. These challenges militate against effective and efficient teaching and learning with ICT. The most significant of these appears to be poor usage of ICT facilities among students', unavailability and inaccessibility of ICT facilities for students' learning, lack of good educational and ICT policies among others. Irrespective of the present jet age, some students' still find it difficult to excel in examinations conducted with electronic device like computer based test (CBT) which may be due to poor skill in application and utilization of ICT facilities for learning.

### 1.2 Purpose of the Study

The primary purpose of this study was to investigate the extent of information and communication technology (ICT) utilization for students' learning in tertiary institutions in Ondo State. Specifically, the objectives of the study are to:

1. Examine the ICT facilities available for students' learning in tertiary institutions in Ondo State.
2. Ascertain student's accessibility to the ICT facilities in tertiary institutions in Ondo State.
3. Extent of male and female students' utilization of ICT facilities in tertiary institutions in Ondo State.

### 1.3 Research Questions

1. What are the ICT facilities available for students' learning in tertiary institutions in Ondo State?
2. How often do students access the ICT facilities in tertiary institutions in Ondo State?
3. What is the extent of male and female students' utilization of ICT facilities in tertiary institutions in Ondo State?

### 1.4 Hypothesis

One null hypothesis was tested at 0.05 level of significance;

1. There is no significant difference between male and female students' on the utilization of ICT facilities in tertiary institutions in Ondo State.

## 2. METHOD

The study is a descriptive research survey type. The target population comprised all students' in tertiary institutions of learning in Ondo State. A sample of two hundred (200) undergraduate students' from Adekunle Ajasin University, Akungba-Akoko was used for this study. Stratified random sampling technique was used to select the sample across the six faculties in the university based on proportion. Thus, simple random sampling is used to proportionally select fifty-seven (57) respondents from faculty of Education, forty-eight (48) respondents from faculty of Science, thirty-eight (38) respondents from faculty of Arts, twenty-eight (28) respondents from faculty of Social and Management Science, nineteen (19) respondents from faculty of Law and ten (10) respondents from faculty of Agriculture. All questionnaires were personally administered by the researcher. The instrument used for data collection is a well-structured questionnaire titled; 'Utilization of ICT Facilities for Student's Learning'

(UIFSL) Questionnaire. Face and content validity of the instrument was ascertained by subjecting the instrument to criticism by colleagues, experts and authorities in the field of inquiry while test-retest method was used to determine the reliability of the instrument. Data were analyzed using mean, standard deviation and T-test.

### 3. RESULTS

**Research Question 1:** What are the ICT facilities available for students learning in tertiary institutions in Ondo State?

**Table 1:** ICT facilities available for students' learning in tertiary institutions in Ondo State

S/N	Items	A	D	Mean	SD	Remark
1	There are computer systems available for learning in my institution of learning	127	73	1.6350	.48264	A
2	Internet Facilities are available for learning on campus	86	114	1.4300	.49632	NA
3	There are Computer training Centre for students on campus	69	131	1.3450	.47656	NA
4	I have an email account	171	29	1.8550	.35298	A
5	Projectors are available for learning in my institution of learning	122	78	1.9950	.07071	A
6	There are Public Address System(P.A.S) in the school	133	67	1.6650	.47317	A
7	There are E-Library learning facilities	129	71	1.6450	.47971	A
8	There is availability of printers for print out of learning materials by students	113	89	1.5650	.49700	A
9	There exist Social-Media Platforms for learning	108	92	1.5400	.49965	A
10	Stored lecture notes on CD-ROM are available to students for learning	51	149	1.2550	.43695	NA

A = Available

NA = Not Available

From the table above, mean values of less than 1.5 was taken as not available while mean values of 1.5 – 2.50 was taken as available. However, the Standard Deviation (SD) was also presented to show how the individual raw scores from which the mean was computed were dispersed or scattered about the mean.

From the analysis, item 1, 4-7,8 & 9 showed the mean of 1.64, 1.86, 1.99, 1.67, 1.56 & 1.54 which indicated that there are availability of ICT facilities to students in tertiary institutions in Ondo State while item 2, 3 and 10 indicated that ICT facilities are not available.

**Research Question 2:** How often do students access the ICT facilities in tertiary institutions in Ondo State?

**Table 2:** Accessibility of ICT facilities to students' in tertiary institutions in Ondo State.

S/N	Items	Reg.	RA	NAA	Mean	SD	Remark
1	I make use of computer systems in my institution of learning	56	98	46	2.05	.71	Rarely
2	How often do you access the internet for search of information	136	54	10	2.63	.58	Regularly
3	I do attend computer training classes on campus	15	48	137	1.39	.62	NAA
4	How frequent do you access your email account	140	49	11	2.65	.58	Regularly

5	How well do you make use of Projectors for academic activities	38	115	47	1.34	.61	NAA
6	Students have access to Public Address System (P.A.S)	56	97	47	2.05	.72	Rarely
7	I visit the E-Library facility section in my institution	42	62	96	1.73	.79	Rarely
8	I make use of computer Printers to prints learning materials	101	31	68	2.17	.91	Rarely
9	I make use of Social-Media Platforms for learning	52	83	65	1.94	.76	Rarely
10	Stored lectures notes on CD-ROMs are consulted by me as a students for supplementary learning	36	37	127	1.55	.78	Rarely

Reg. = Regularly  
 RA = Rarely  
 NAA = Not At All

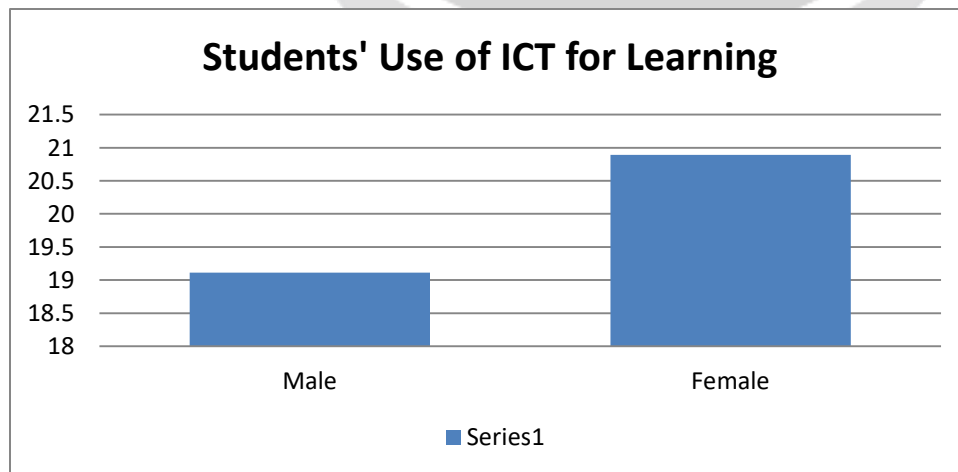
From the table above, mean values of less than 0.5-1.5 was taken as not at all, mean values of 1.5 – 2.50 was taken as rarely, while mean value of 2.5-3.5 was taken as regularly. However, the Standard Deviation (SD) was also presented to show how the individual raw scores from which the mean was computed were dispersed or scattered about the mean.

From the analysis, item 1 and item 6-10 showed the mean of 2.05, 2.05, 1.73, 2.17, 1.94, and 1.55 which indicated that students rarely access the ICT facilities in Ondo State tertiary institutions while item 2 & 4 showed the mean of 2.63 and 2.65 respectively, this indicated that students regularly access the ICT facilities in tertiary institutions in Ondo State. Test items 3 & 5 showed the mean of 1.39 & 1.34 which indicated that students do not access the ICT facilities.

**Research Question 3:** What is the extent of male and female students’ utilization of ICT facilities for learning in tertiary institutions in Ondo State?

**Table 3:** Summary of descriptive statistics showing the mean difference between male and female students’ Utilization of ICT Facilities for Learning in tertiary institutions in Ondo State.

Gender	N	Mean	SD
Male	125	19.1120	5.46575
Female	75	20.8933	5.89909





**Chart -1:** Extent of male and female students' utilization of ICT facilities for learning

From table 3, the result showed that female students ( $M = 20$ ;  $SD = 5.89$ ) have the highest level of the utilization of ICT facilities compared to male students ( $M = 19.11$ ;  $SD = 5.47$ ). This implies that female students possess higher level of utilization of ICT facilities in tertiary institutions in Ondo State.

**3.1 Test of Hypothesis**

**Hypothesis:** There is no significant difference between male and female students' on the utilization of ICT facilities in tertiary institutions in Ondo State.

**Table 1:** Summary of t-test showing the significant difference between male and female utilization of ICT facilities in tertiary institutions in Ondo State

Gender	N	Mean	SD	Df	t-cal	t-crit	p
Male	125	19.11	5.47	198	-2.166	1.96	<0.05
Female	75	20.89	5.89				

From the table above, there is a significant difference between male and female students' on the utilization of ICT facilities [ $t(198) = -2.166$ ;  $p < 0.05$ ]. However, the result showed that female students ( $M = 20$ ;  $SD = 5.89$ ) have the highest level of the utilization of ICT facilities compared to male students ( $M = 19.11$ ;  $SD = 5.47$ ). Therefore hypothesis 4 is rejected.

**4. DISCUSSION OF FINDINGS**

Data analysis in research question one (1) shows that facilities like computer systems, email accounts, Projectors, Public Address System (P.A.S), E-Library, printers for print out of learning materials by students and Social-Media Platforms are available for learning while ICT facilities like Internet Facilities, Computer training Centre for students on campus and Stored lecture notes on CD-ROM are not available to students for learning on campuses in Ondo State.

Premised on research question two (2), the study found out that students have regular access to email account and internet facility for search of information while students' rarely have access to computer systems, Public Address System (P.A.S), E-Library facility, printers to prints learning materials, social-media platforms for learning and stored lectures notes on CD-ROMs for students supplementary learning. However, the study further revealed that computer training classes and projectors for academic activities are not accessed by students' on campus.

Finding in table three (3) also shows that female students' have the highest level of utilization of ICT facilities compared to male students in Ondo State tertiary institutions as the test of hypothesis also show a significant difference between male and female students' on the utilization of ICT facilities in tertiary institutions in Ondo State.

**5. CONCLUSION**

The following conclusions were drawn based on findings of the study.

1. Facilities like computer systems, email accounts, projectors, Public Address System (P.A.S), E-Library, printers for print out of learning materials by students and Social-Media Platforms are available for learning in tertiary institutions in Ondo State.

2. ICT facilities like internet, computer training centre for students on campus and stored lecture notes on CD-ROM are not available to students for learning in tertiary institutions in Ondo State.
3. Students have regular access to email account and internet facility for search of information.
4. Students' rarely have access to ICT facilities like computer systems, Public Address System (P.A.S), E-Library facility, printers to prints learning materials, social-media platforms for learning and stored lectures notes on CD-ROMs for students supplementary learning.
5. Computer training classes and projectors for academic activities are not accessed by students' on campus in Ondo State tertiary institutions.
6. Female students' have the highest level of utilization of ICT facilities compared to male students in tertiary institutions in Ondo State.

## 6. RECOMMENDATIONS

Based on the findings, the following recommendations were made:



1. The government in conjunction with the school administrators should run a free and compulsory ICT services in order to provide practical and functional knowledge to students in tertiary institutions.
2. Government in collaboration with school authorities should ensure adequate provision of computer training centers' for students on campus with good internet access.
3. Unlimited internet access within and outside the campus and stored lecture notes on CD-ROM should be made available to students for learning in tertiary institutions.
4. Government and other stakeholders should create special funds to enable universities improve their ICT capacity.
5. Government and school management should continue to provide ICT facilities like internet, projector, E-Library facilities, computer printers and social-media platforms to broadens students' knowledge and improve their overall learning experience.
6. Government and educational managers should often encourage proper utilization of ICT facilities to enhance students' learning.
7. The National universities Commission (NUC) should commence an urgent review of the course content of university education, with a view to compulsorily incorporate ICT usage as a standard for teaching, learning and examinations.
8. The school management should ensure balanced and equal utilization of ICT facilities between male and female students' in tertiary institutions to avoid gender disparity in learning.

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