

# Survey on Postgraduate Students' Use of Information and Communication Technology (ICT) Facilities, in River State University of Science and Technology, Port Harcourt

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## Abstract

The study focused on the postgraduate students' utilization of Information and Communication Technologies facilities for an educational revolution in faculty of Technical and Science Education, River State University of Science and Technology, Port Harcourt, Nigeria. To elicit responses for the study, three research questions and hypotheses were formulated. One hundred (100) postgraduate students were randomly sampled across the departments; Ninety three (93) completed questionnaires which represent 93% recovery rate were analyzed for the study. Cronbach's Alpha method was used to determine the reliability of the instrument which yielded a reliability index of 0.89. Responses were analyzed using statistical package for social sciences (SPSS) version 20, mean and standard deviation are used in answering the research questions and one-way ANOVA in testing the hypotheses at  $p < 0.05$  level of significance. The result revealed that: ICT facilities are not available for PG students' use; the three groups of respondents significantly differed in their opinion on utilization of ICT facilities for different activities; incessant power outage with mean response of 4.00 is the most challenging to effective utilization of ICT facilities in Nigerian tertiary institutions. Based on the findings the study concluded that in spite of the potentials inherent in the use of ICT in educational process, its availability to postgraduate students for teaching and learning is abysmally low, thereby discouraging postgraduate students' active participation and interest in utilization of the facilities for educational purposes. The researcher recommended that authorities should brace up to the challenges through acquisition and installation of ICT infrastructure and active involvement of students in ICT related activities.

## Key words

Education, tertiary institutions, ICTs, Availability, Utilization, Postgraduate Students

## I. Introduction

The influence of Information and Communications Technologies (ICT) to education and educational activities worldwide is very glaring, especially in the reliance on ICT facilities to enhance the expected change in teaching and learning. ICT has been defined and described by various authors. Uhegbu & Igwe (2006) described ICT as a group of technologies that are used to handle and manage information and records as well as in transmitting information to whomever is in need of it. Olakulehin, (2007) ICT refers to the range of technologies that are applied in the process of collecting, storing, editing, retrieving, and transferring of information in various forms. The Federal Ministry of Education, Nigeria (2010) defined ICT as encompassing all equipment and tools (inclusive of traditional technologies of radio, video, and television to the newer technologies of computers, hardware, firm-ware, etc.), as well as the methods, practices, processes, procedures, concepts, and principles that come into play in the conduct of the information and communication activities.

The purpose of ICT in education is generally to familiarize students with the use and workings of computers, and related social and ethical issues. Hence, Oduma (2013) stated that ICT could be likened to a utility like water and electricity which plays a major role in education and has impacted on the quality and quantity of teaching and learning as well as research in educational methodology, to initiate a new age in education. On the other hand, internet as a digital tool of ICT has strengthened teaching and learning as it provides powerful resources and services for postgraduate students, thereby enabling them meet their educational needs, it also allows for networking among postgraduate students and teachers to facilitate exchange of ideas and improve opportunities for connecting schools to the world as

learning is expanding beyond the classroom, so real life context can be established (Dotimi & Hamilton-Ekeke, 2013).

The use of information and communication technologies has changed our conventional ways of learning and proposes the needed rethink education in terms of a more current context (White, 2010). The use of ICT in schools by staff and students have become a necessity as it can be used to improve the quality of teaching and learning in any tertiary institution (Hamilton-Ekeke & Mbachu, 2015). ICT is a key tool that is having a revolutionary impact on educational methodology globally; however, this revolution is not adopted and widespread in Nigerian universities, it needs to be strengthening to reach the large percentage of universities in the country as only a few universities can boast of ICT and internet connectivity on campus. Therefore, use of different information communication technologies has become inevitable for postgraduate students in learning. By using modern information communication technologies, students can retrieve their required information within a short time.

According to Adomi & k pangban (2010), the field of education has been affected by ICTs, which have undoubtedly affected teaching, learning, and research. A great deal of research has proven the benefits to the quality of education (Al-Ansari, 2006). It was observed in the study by Okiki & Asiru (2011) that one of the strongest factors that influence the use of electronic information resources is the need to carry out research. Ololube (2007, 2008) noted that it is generally believed that the use of internet in the educational sector in a developing nation like Nigeria would help bridge the information barrier between developed and developing nations. However, improved access does not result in improved utilization in educational institutions.

In a study by Ani (2012) it was found that ICT facilities are not

available for students use at the department and as such they do not have access to it. Also, Oduma (2013) study was carried out in the Northern part of Nigeria found that ICT facilities are not available for students use and its findings collaborated with a findings of a similar research carried out in the Southern part of Nigeria. Similarly, Eze & Eze (2013) discovered a lack of ICT facilities and lack of trained personnel in schools to operate ICT facilities. This goes to show that the non availability of ICT facilities in tertiary institutions in Nigeria cuts across the country. Accordingly, Omoni & Ifeanyichukwu (2015), based on their findings concluded that business education students in Anambra State often utilized e-learning and they are competent in the usage of basic computer operations. Hamilton-Ekeke (2011) revealed that majority of education students are not using the internet in studying; also internet/internet facilities are not readily available to students of education; it was also discovered that students do not make use of internet in studying and research writing. Mahmood (2009) pointed out that, ICT use by students has expanded to Internet, e-mail, chat, programming, graphics, spreadsheet, online shopping, online literature searching, and other educational materials. One worth mentioning finding of the literature is that the students mostly use ICT for general purpose, i.e., communication, word processing, entertainment, etc. rather than educational purpose. It was supported by Uribe & Marino (2006) that, the most commonly used Internet sites on at least a weekly basis were: email (92.2%); and search engines (88.3%). However, a very few of about (21.1%) used the Internet to search for dental information for their studies. Also, Ogur (2004) noted the reasons for students to use computers included hooking up to the Internet (91.9%), listening to music (70.5%) and watching videos (69.6%). The most common use of the Internet was e-mail communication (81.6%). Similarly, Naqvi (2002) maintained that students were using computers more for word processing, data analysis, presentations and emails. However, the uses for different and general purposes Ajadi, Salawu, & Adeboye, (2008) argued in their study that there is gross underutilization of ICT in Nigerian tertiary institutions. Luambano & Nawe (2004) revealed that majority of the students were not used to internet due to the inadequacy of computers with internet facilities, lack of skills in internet use and slow speed of computers. In same vain Ndubuisi & Udo (2013) reveal that the challenges to use ICTs as: Insufficient computers with Internet facilities; Incessant power outage; Slow Internet connectivity; Lack of ICT skills; Difficulty in finding relevant information and inadequate IT infrastructures. Okorie (2005), Anaehobi (2007), Onu & Uche (2008); Onyeneke (2007) Womboh & Abba (2008); and Ugwuanyi (2009) also identified the factors affecting use of ICT by postgraduate students to include, poor funding of universities, lack of ICT skills and competencies among librarians, high cost of facilities, lack of ICT infrastructure, lack of implementation of ICT policy, laissez-faire attitude of students, lecturers and librarians, inadequate computers, copyright problem, and problem preservation of digital information resources and irregular power supply. In conclusion, Shakeel, Rubina, & Aqeel (2011), reported that majority of the students have been facing the problems of slow speed of PCs due to viruses, inadequate number of PCs in Labs, lack of time in utilizing e-resources, slow internet connectivity and electricity failure.

Determining postgraduate students' ICT usage is important because most of the postgraduate students at the Faculty of Technical and Science Education (FTSE), in River State University of Science

and Technology Port Harcourt are teachers in schools and some of them will be teachers. In most cases, the teacher is a key to effective ICT implementation in the educational system; given that teachers have tremendous potential to transmit epistemological beliefs and values to students.

## II. Statement of The Problem

The advent of ICT has dramatically transformed information service delivery in universities and other tertiary institutions in Nigeria, postgraduate student are expected to use the ICT facilities to enable them obtain current information for assignments, research and recreation.

The availability and utilization of ICTs on the other hand is a major challenge across higher institutions of learning (Hamilton-Ekeke, 2011). That is to say that, tertiary institutions in Nigeria lack adequate ICT infrastructure to effectively tap into the opportunities offered by the cyberspace.

In light of the above, the researcher sought to embark on a survey on postgraduate students' utilization of available ICT facilities for an educational revolution in faculty of Technical and Science Education, River State University of Science and Technology, Port Harcourt, Nigeria.

## III. Purpose of The Study

This study seeks to analyze the utilization of information communication technology facilities by postgraduate students in Nigeria. Specific objectives of the study are to:

1. To find out the ICT facilities that are available to postgraduate students;
2. Describe the activities for which Postgraduate students utilize ICT facilities;
3. To enumerate the factors inhibiting the Postgraduate students' utilization of ICT facilities.

## IV. Research Questions

1. What are the ICT facilities available to postgraduate students of the Faculty of Technical and Science Education in River State University of Science and Technology, Port Harcourt?
2. What are the activities postgraduate students of the Faculty of Technical and Science Education in River State University of Science and Technology, Port Harcourt, use ICT facilities for?
3. What are the problems faced by postgraduate students of Faculty of Technical and Science Education in River State University of Science and Technology, Port Harcourt in utilizing ICT facilities?

## V. Research Hypotheses

1. There is no significant difference amongst postgraduate students of technical & science, business education and educational foundation departments on the availability of ICT facilities for postgraduate students to utilization.
2. There is no significant difference amongst postgraduate students of technical & science, business education and educational foundation departments on the postgraduate students' utilization of ICT facilities.
3. There is no significant difference amongst postgraduate students of technical & science, business education and educational foundation departments on the problems faced by postgraduate students' in utilization of ICT facilities.

**VI. Methods and Materials**

**A. Design of study**

This study was carried out in the Faculty of Technical and Science Education in River state university of science and technology, Nkpolu-oroworukwo Port Harcourt, River state of Nigeria. A descriptive survey design was employed in carrying out the investigation. Because, Uhegbu (2009) noted that survey research is mainly an examination of current practices or approaches relating to an aspect of a social system and an attempt to relate certain results to particular cause, with a view to making effective moves for future improvement. The population for this study comprised of all 158 postgraduate students 2014/2015 academic session, in the faculty of Technical and Science Education, River State University of science and Technology Port Harcourt, Nigeria. A sample size of 100 post graduate students was used and questionnaire was administered by the researcher and a research assistant on one-on-one to each group of the PG students, when they gathered to have one of their lectures, their response were collected immediately. A total of 93 completed questionnaires were retrieved from the respondents which represents 93% recovery rate. The respondents were randomly stratified into three groups according to their departments: educational foundation (33 respondents 35.5%); technical & science education (36 respondents 38.7%); and business education (24 respondents 25.8%).

**B. Instrument for data collection**

Based on the literature review a data collection instrument was designed in 5-point Likert scale. Because, Chapelle (as cited in Zou, 2008:157) regards questionnaire as one of the major research methods which can present evidence about learner’s opinions

on the value of the CALL task are required. The instrument was validated by two experts in the Department of Science and Technical Education, Rivers State University of science and technology Port Harcourt. They made their inputs and suggestions and the items were revised accordingly. The reliability of the text was determined using response of 30 respondents across the groups. Cronbach’s Alpha method was used to calculate the reliability of the data and it yielded a reliability estimate of 0.89, which indicated that the instrument was reliable for the study.

**C. Method of data analysis**

Data collected were analyzed using statistical package for social sciences (SPSS), mean and standard deviation was used to answer the research questions based on 5- point Likert scale. Using the formula,  $\frac{5+4+3+2+1}{5} = 3.00$

One way ANOVA was used to test the Null hypotheses. Items whose mean score is less than the average mean 3.0 is regarded as not available, not utilized and disagreed. While items with mean value 3.0 and above were regarded as available, utilized, and agreed. The hypotheses were tested at 0.05 level of significance, the hypotheses is accepted if the calculated f-value is less than f-critical and rejected when f-cal is equal or greater than f-critical.

**VII. Results**

The results of the data analysis are presented in the order of the research questions and hypothesis as follows:

**Question one**

What are the ICT facilities available to postgraduate students of FSTE in RSUST Port Harcourt for utilization?

Table 1: Respondents mean and standard deviation on available ICT facilities to postgraduate students.

s/n	Items	M <sub>1</sub>	SD <sub>1</sub>	M <sub>2</sub>	SD <sub>2</sub>	M <sub>3</sub>	SD <sub>3</sub>	M <sub>t</sub>	SD <sub>t</sub>
1	Computer training center for students on campus	3.11	1.617	4.04	1.160	3.06	1.391	3.33	1.477
2	Computer systems and printers for students use	2.00	1.014	3.04	1.459	2.85	1.202	2.57	1.280
3	Internet cyber café on campus for students use	2.19	1.238	3.42	1.613	2.85	1.004	2.74	1.357
4	WIFI internet network for free browsing by students	2.22	1.290	1.92	1.283	2.06	1.413	2.09	1.324
5	Audio/Visual instructional media	1.92	1.105	2.63	1.245	2.48	1.253	2.30	1.223
6	Instructional television	1.53	0.845	1.50	0.978	1.76	1.200	1.60	1.012
7	Radio for students use	1.97	1.276	1.46	0.977	2.09	1.100	1.88	1.160
8	Stored lecture notes on CD ROM	1.47	0.910	1.79	0.932	2.30	1.380	1.85	1.151
9	Electronic blackboard	1.89	1.469	1.87	1.076	2.03	1.287	1.94	1.301
10	Projector	2.47	1.207	2.79	1.474	2.61	1.223	2.60	1.278
11	An organized networking system between staff and students	2.08	1.131	2.33	1.167	1.94	1.273	2.10	1.189

Keys to the tables:

N<sub>1</sub> = 36; N<sub>2</sub> =24; N<sub>3</sub> = 33

$M_1, SD_1$  = mean and standard deviation technical and Science education  
 $M_2, SD_2$  = mean and standard deviation business education  
 $M_3, SD_3$  = mean and standard deviation educational foundation  
 $M_t, SD_t$  = average mean and standard deviation

Table 1: Addresses research question 1 on the ICT facilities that are available to postgraduate students in the faculty of technical and science education. The table shows in that items 2 to 11 were rated by the respondents as not available. The average mean response ranges from 1.60 – 2.74, signifies that these facilities are not available to PG students utilization in the faculty. Except item 1, this indicated that there is computer training center for students on campus with a mean 3.33. Though, there were divergent in opinions on the items 2 & 3 above, individual respondents differed on 2 and 3 where business education students agreed on the availability of items 2 and 3 while others disagreed.

**Question two**

What are the activities postgraduate students of FSTE in RSUST Port Harcourt utilize ICT facilities?

Table 2: Respondents mean and standard deviation on activities postgraduate students utilized ICT facilities

S/N	Items	$M_1$	$SD_1$	$M_2$	$SD_2$	$M_3$	$SD_3$	$M_t$	$SD_t$
1	Graphics	2.11	1.369	2.92	1.283	2.79	1.364	2.56	1.379
2	Chatting with friends	3.11	1.450	3.50	1.474	2.76	1.480	3.09	1.479
3	Internet Surfing	2.75	1.402	3.29	1.197	2.82	1.685	2.91	1.464
4	Drawing, painting	2.42	1.273	2.33	0.917	2.61	1.368	2.46	1.221
5	E-mail	3.17	1.276	4.04	1.122	3.42	1.062	3.48	1.203
6	Word processing	3.50	1.298	3.92	1.060	3.33	1.429	3.55	1.298
7	Online shopping	2.36	1.222	3.13	1.296	2.70	1.311	2.68	1.295
8	Playing games	2.61	1.440	3.58	1.100	2.88	1.673	2.96	1.488
9	Scanning journals	2.78	1.456	3.88	1.191	3.12	1.409	3.13	1.429
10	Downloading articles	3.56	1.252	4.08	1.412	3.55	1.460	3.69	1.375
11	Watching music and video	2.64	1.570	3.75	1.452	3.12	1.495	3.10	1.561

Table 2 addresses research question 2 on the utilization of ICT facilities by postgraduate students in the faculty of Technical and Science Education. Table 2 reveal that items 1, 3, 4, 7&8 are not utilized as indicated in their average mean ranges from 2.46-2.96 which is less than the cut-off point of 3.0; while items 2, 5, 6, 9, 10 & 11 are utilized. However, respondents were divergent in opinions on different items. Like in item 2, Educational foundation students did not utilize ICT facility in Chatting with friends while others do. Likewise, Business education students utilize items 3, 7 & 8; while Technical & science and Educational foundations students on one side don't. Also individual respondents differed on items 9 & 11 above, where Technical and science education students disagreed on the utilization of ICT facilities for Scanning journals and watching music/video, while others agreed.

**Question three**

What are the problems faced by postgraduate students of FTSE in RSUST Port Harcourt in utilizing ICT facilities?

Table 3: respondents mean and standard deviation on the problems postgraduate students faced in the utilization of ICT facilities.

S/N	Items	$M_1$	$SD_1$	$M_2$	$SD_2$	$M_3$	$SD_3$	$M_t$	$SD_t$
1	Lack of search skills	3.67	1.171	4.00	1.063	3.76	1.347	3.78	1.206
2	Inaccessibility of some online materials	3.83	1.082	3.75	1.073	3.61	1.345	3.73	1.172
3	Teachers did not use ICT during lectures	3.69	1.431	4.13	1.296	4.03	1.237	3.92	1.329
4	Slow internet connectivity	3.67	1.309	4.42	1.018	4.03	1.403	3.99	1.298
5	Difficulties in navigation of some websites	3.64	1.355	3.92	1.139	4.15	1.093	3.89	1.220

6	Slow speed of PCs due to virus	3.75	0.996	4.12	0.992	4.03	0.984	3.95	0.993
7	Incessant Power outage	3.94	1.264	3.88	1.329	4.15	1.064	4.00	1.207

Table 3 addresses research question 3 on the problems faced by postgraduate students in utilizing ICT facilities in the faculty of Technical and Science Education. The result shows that all items in the cluster were rated by the respondents as agreed. The average mean response ranges from 3.73 – 4.00, signifies that PG students are faced with various problems in utilizing ICT facilities in the faculty. There were no divergent in opinions on all the items in the table, no individual respondents differed on any of items.

**VIII. Hypotheses**

**Ho 1:** There is no significant difference amongst three groups of PG students on the ICT facilities available for postgraduate students to utilize.

Table 4, ANOVA comparison of response of three groups of PG students on the ICT facilities available for postgraduate students to utilize

Source	Sum of squares	df	Mean squares	f-value calculated	f-value critical	Significance level
Between groups	2.287	2	1.144	1.816	3.07	0.05
Within groups	56.688	90	.630			
Total	58.975	92				

Significant at  $p < 0.05$  level

Table 4 shows that there is no significant difference in the mean opinion of the three groups on the availability of ICT facilities. From Table 4, the calculated f-value (1.816) is less than the critical f-value (3.07) thus, the null hypothesis is accepted.

**Ho2:** There is no significant difference amongst the three groups of PG students on the postgraduate students’ utilization of ICT facilities.

Table 5 ANOVA comparison of three groups of PG students on the postgraduate students’ utilization of ICT facilities

Source	Sum of squares	Df	Mean squares	f-value calculated	f-value critical	Significance level
Between groups	6.681	2	3.341	3.562	3.07	0.05
Within groups	84.401	90	.938			
Total	91.083	92				

Significant at  $p < 0.05$  level

Table 5 shows that there is a significant difference in the mean opinion of the three groups on the utilization of ICT facilities. From Table 5, the calculated f-value (3.562) is greater than the critical f-value (3.07) thus, the null hypothesis is rejected.

**Ho3:** There is no significant difference amongst the three groups of PG students on the problems faced by postgraduate students’ in utilization of ICT facilities.

Table 6: ANOVA comparison of three groups of PG students on the problems faced by postgraduate students’ in utilizing of ICT facilities

Source	Sum of squares	df	Mean squares	f-value calculated	f-value critical	Significance level
Between groups	1.441	2	.721	.915	3.07	0.05
Within groups	70.850	90	.787			
Total	72.291	92				

Significant at  $p < 0.05$  level

Table 6 shows that there is no significant difference in the mean opinion of the three groups on the problems faced by postgraduate students in utilizing ICT facilities. From Table 6, the calculated f-value (.915) is less than the critical f-value (3.07) thus, the null hypothesis is accepted.

**IX. Findings and Discussions**

Findings of the study in research question 1; table 1 indicated non availability of ICT facilities to postgraduate students. This is in agreement with the findings of Oduma (2013) which generalized that the non availability of ICT facilities in tertiary institutions in Nigeria cuts across the country. Also, this study is consistent with that of Ani (2012) which found out that ICT facilities are not available for students use at the department, not accessible

by student. Similarly, the research hypothesis also indicated that there is no significant difference in the opinion of the three groups on the availability of ICT facilities.

Research question 2 table 2, it was found that chatting with friends; sending and receiving e-mails; word processing; scanning journals; downloading articles and watching music and video were the main activities for which postgraduate students utilize ICT facilities. This finding agrees with Ogur (2002) which stated that

the reasons for students to use computers included hooking up to the internet; listening to music and watching videos; mostly used was e-mail communication. This result also supports the findings of Urie & Marino (2006) which, in their study to describe students' use of ICT. They found that the most commonly used internet sites on at least a weekly basis were: email (92.2%); and search engines (88.3%). These findings contrasts with the study by Ajadi, Salawu, & Adeboye, (2008) which argued that there is gross underutilization of e-learning in Nigerian tertiary institutions. Similarly, this finding disagree to an extent with Mahmood (2009) which revealed that ICT use by students expanded to internet, e-mail, chat, programming, graphics, spreadsheet, online shopping, online literature searching and other educational materials. Also, that students mostly used ICT for general purpose, i.e., communication, word processing, entertainment, etc. rather than educational purpose.

The research hypothesis 2, tested at  $p < 0.05$  level also indicated that there is significant difference in the opinion of the three groups of postgraduate students on the utilization of ICT facilities. The result showed that postgraduate students in faculty of Technical and Science Education differed in their utilization of ICT facilities.

The result revealed that business education postgraduate students utilized ICT facilities more than their counter-parts in the other departments. This is in consonance with Omoni & Ifeanyichukwu (2015) they, based on their findings concluded that business education students in Anambra State often utilized e-learning and they are competent in the usage of basic computer operations.

Research question 3 table 3, found that the problems postgraduate students faced in utilizing ICT facilities include: lack of search skills; inaccessibility of some online materials; teachers did not use ICT during lectures; slow internet connectivity; difficulties in navigation of some websites; slow speed of PCs due virus; and incessant power outage. The findings of this study collaborates with the findings of Ndubuisi & udo (2013) they revealed the challenges to use ICT as: insufficient computers with internet facilities; incessant power outage; slow internet connectivity; lack of search skills; difficulty in finding relevant information and inadequate IT infrastructure. Similarly, the research hypothesis also indicated that there is no significant difference in the opinion of the three groups on the problems faced by PG students in utilizing ICT facilities. Similarly, Luambano & Nawe (2004) Findings revealed that majority of the students were not using internet due to the inadequacy of computers with internet facilities, lack of skills in internet use and slow speed of computers.

## X. Conclusion

Based on the findings, the study concludes that in spite of the potentials inherent in the use of ICT in educational process, its availability to students for teaching and learning is abysmally low, thereby discouraging students' active participation and interest in utilization, coupled with several problems faced by postgraduate students, hampered the utilization of the available facilities for educational purposes.

## XI. Recommendations

It was also revealed that most students who used the internet did not use it for academic purposes. Therefore, there is the need for authorities to brace up to the challenges through acquisition and installation of ICT infrastructure and active involvement of students in ICT related activities.

It is also suggested that more computers connected to the internet

should be provided and training should also be given to the students on the use of ICT facilities.

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