



# **Problems in the Utilization of Information and Communication Technology in Teaching and Learning in Technical Colleges in Rivers State**

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## **ABSTRACT**

The study investigated the Problems in the utilization of information and communication technology in teaching and learning in technical colleges in Rivers State. Five research questions and five hypotheses guided the study. The study was a descriptive survey design. The population of the study was 914 which comprised of 102 teachers and 812 students from 5 technical colleges in Rivers State. A random sampling technique was used to select 406 (50%) of the students while the entire number of teachers were selected, making a total sample size of 508. The instrument used in the study was a self-structured questionnaire. The reliability of the study was determined using test retest method which yielded an internal consistency of 0.85, thus making the instrument reliable. Mean and standard deviation was used to analyze the data gathered while z test was used to test the hypotheses. The findings revealed that poor electric power supply, cost of ICT tools and equipment, lack of funds, school management attitudes are some major problems of that hinders the use of ICT in technical colleges in Rivers State. Based on the findings, the study recommended that government should employ skilled teachers in technical colleges for effective use of ICT, schools and government should ensure regular power supply is made available for ICT utilization and finally, funds should be given to technical colleges to purchase needed ICT software, equipment and tools for effective teaching and learning.

**Keywords:** Utilization, ICT, teaching, learning.

## **INTRODUCTION**

The advent of ICT has broadened the horizon of education as a result of increase in formation. Knowledge on various field are readily available at split seconds. ICT has led to a fast paced world in almost all spheres of human endeavors. The rate at which the world is moving with information and communication technology in this 21st century has left no choice to the educational sector especially in the area of teaching learning than to dance to the tune piped by recent technological trends (Augustine & Akpan 2014).

Since evolution of ICT, giving and retrieving information has not remained the same. Information communication technology is gaining global recognition in the evolution of information dissemination (National Open University, 2014). Information and communication tools for teaching and learning include computer, internet, PowerPoint software, television, overhead projector, camera, radio, video, tape, audio, world wide web(www), telephones, etc. Information communication technology has recognized to be a very powerful tool in education reform. It has radically influenced the way knowledge and information are generated, developed and transmitted. Information and communication technology has also reduced the entire world into a global village and replaced the use of physical strength n performance task with automation.

Teachers, trainers and educationalists who are not familiar with information and communication technology will find themselves threatened by professional obsolescence (Adewonjin, 2009). Since education is perceived generally as an instrument for excellence for effecting sound changes. Information and communication according to Adewonjin (2009) is the new communication and computing technology used for creating, storing, selecting, changing, developing, receiving and displaying kind of information. Adewonjin (2009) classified information communication into three groups namely (i) Those that process information eg computer (ii) those that disseminate information e.g. communication is electromagnetic devices and system and (iii) those for presentation of information e.g. multimedia. Obi (2002) described information and communication technology as a technological tool and resource used to communicate, create, organize, disseminate, store, retrieve and manage information. In this study information and communication does not only mean computers, it has to do with technological tools. Those technological tools according to Drika (2008) include computers, internet, broadcasting technologies such as radio and television and telephone.

For technology education teachers to meet up with the demand for the global trend they must be dynamic to innovations in the education system. This enables technology subjects to achieve the objectives for which they are established. The modern technology teacher is one who can source for information locally and globally as the entire world has been a global village. Materials acquired in one environment can be used to solve problems in another environment. Technical and vocational education is viewed as that form of education involving the study of technologies and related sciences, and the acquisition of practical skills, attitude, understanding and knowledge relating to occupation in various sectors of the economy and social life (UNESCO and Iho, 2002; FGN, 2004). According to FGN (2004) technical and vocational education is further understood to be an integral part of general education, a means of preparing for occupation fields and for effective participation in the world of work, an aspect of lifelong learning, a preparation of responsible citizenship and a method of facilitating poverty alleviation in Nigeria. Technical and vocational education course are taught in secondary schools, technical colleges, college of education (technical) and polytechnics to provide skilled manpower, craftsman, technical teachers at Nigeria Certificate of Education (NCE) level and Technical/Technologists in various sector of the economy for industrial and technological development (Federal Ministry of Education, 2002).

### **Statement of the Problem**

Despite the critical role of information communication tools in sectors like banking, construction, transport and communication, it has not been fully adopted in the teaching and learning process in major developing countries like Nigeria. Adowa-Ogiegaben (2005) posits that while there is a wide range of innovation in information communication technology, the support for effective and quality of delivery of education services, there is considerable technology lag in technical colleges in Rivers State. Most of these colleges still used nearly obsolete systems and consequently are unable to exploit educational potentials of the emerging technologies (Gok, 2006). The use of information communication technology in education at all level is limited by poor ICT infrastructure, weak policy and regulating framework, limited number of teachers who are ICT proficient, low telecommunication services penetration and poor quality services (Absulrazak, 2005). Access to information communication technology facilities is presently one of the major challenges in Rivers State and other states in Nigeria. Lewis and Smith (2008) posited that barriers of ICT utilization include inadequate skills of practitioners and lack of interest in computer usage. Similarly, Korte and Husing (2007) asserted that the fifth of European teachers felt that using computers in class did not have significant learning benefits for pupils.

In most technical colleges both students and teachers complain of difficulties in getting on with teaching and learning of ICT. Students claim that ICT equipment is not readily available in their collages and that there is lack of qualified teachers for ICT teaching and learning. Teachers on their own part argue that they lack necessary ICT equipment and facilities in their technical colleges for effective teaching. Hence this paper sought to investigate these claims.

### **Purpose of the Study**

The purpose of this study is to investigate the problems in the utilization of information communication technology in teaching and learning in technical colleges in Rivers State. Specifically, the study sought to:

1. Find out extent inadequate funding hinders the utilization of ICT in teaching and learning in technical colleges in Rivers State.
2. Find out the extent poor electricity supply affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State.
3. Investigate if teachers incompetence in the use of ICT affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State

### **Research Questions**

The following research questions were drawn to guide the study

1. To what extent does inadequate funding hinder the utilization of ICT in teaching and learning in technical colleges in Rivers State?
2. To what extent does poor electricity supply affect the utilization of ICT in teaching and learning in technical colleges in Rivers State?
3. To what extent does teachers' incompetence affect the utilization of ICT in teaching and learning in technical colleges in Rivers State?

### **Hypotheses**

The following null hypotheses were postulated and tested at 0.05 level of significance

**Ho<sub>1</sub>:** There is no significant difference in the mean response of the teachers and students on extent inadequate funding hinder utilization of ICT in teaching and learning in technical colleges in Rivers State.

**Ho<sub>2</sub>:** There is no significant difference in the mean response of the teachers and students on extent poor electricity supply affect the utilization of ICT in teaching and learning in technical colleges in Rivers State.

**Ho<sub>3</sub>:** There is no significant difference in the mean response of the teachers and students on extent teachers' incompetence affect the utilization of ICT in teaching and learning in technical colleges in Rivers State

### **METHODOLOGY**

The study was carried out in Rivers State. The state is divided into 23 local governments Area. The state has five government technical colleges with locations at Ahoada, Tombia, Port Harcourt, Ele-Ogu and Federal Science and Technical College Ahoada. A sample of 102 government technical college (GTC) teachers and 406 final (Voc. III) students were randomly selected through balloting method making a total sample size of 508 respondents used for the study. The reliability of the instrument was determined using test retest method at two intervals while PPMCC was used to correlate the responses. The instrument showed to be reliable at 0.85. Copies of the instrument were administered directly to the respondents by the researcher and two other assistants. To gather adequate data, the copies were retrieved at the spot.

**RESULTS**

**Research Question 1:** *To what extent does inadequate funding hinder the utilization of ICT in teaching and learning in technical colleges in Rivers State?*

**Table 1: Mean rating of teachers and students on extent Inadequate Funding Hinder Utilization of ICT in Teaching and Learning in Technical Colleges**

S/N	Statements Decision	Teachers (n=102)			Students (n=406)		
		$\bar{X}_1$	SD	Decision	$\bar{X}_1$	SD	Decision
1.	Incapability of technical colleges in employment and payment of teachers that will enhance the teaching of ICT	3.31	0.90	HE	2.87	1.08	HE
2.	Inability of technical colleges to procure ICT facilities like computers, internet access installation, etc.	2.71	1.10	HE	3.04	1.01	HE
3.	Inability to procure the right training materials to enhance teaching and learning	2.74	1.09	HE	2.86	0.89	HE
4.	Inability to procure basic infrastructure like furniture in ICT rooms	3.34	0.84	HE	2.79	1.06	HE
5.	Inability to procure working power generating set	2.74	1.17	HE	2.59	1.10	HE
6.	Inability to purchase right training software programs	2.66	1.06	HE	2.86	1.04	HE
7.	Inability to employ technicians of service providers	3.23	0.88	HE	2.77	1.03	HE
8.	Inability to upgrade existing ICT facilities	3.03	1.12	HE	2.75	1.11	HE
<b>Grand Mean/SD</b>		<b>2.97</b>	<b>1.03</b>	<b>HE</b>	<b>2.82</b>	<b>1.03</b>	<b>HE</b>

From Table 1 above, it was observed that all the items (from 1 to 8) for both teachers and students recorded mean above 2.50 and grand mean of 2.97 and 2.82 for both teachers and students respectively. This indicates that inadequate funding hinders the utilization of information communication technology in teaching and learning in technical colleges in Rivers State.

**Research Question 2:** *To what extent does poor electricity supply affect the utilization of ICT in teaching and learning in technical colleges in Rivers State?*

**Table 2: Mean rating of teachers and students on Extent Poor Electricity Supply affect the Utilization of ICT in Teaching and Learning in Technical Colleges in Rivers State.**

S/N	Statements	Teachers (n=102)			Students (n=406)		
		$\bar{X}_1$	SD	Decision	$\bar{X}_1$	SD	Decision
1.	Inability to conduct ICT lectures and conferences	3.30	1.12	HE	2.70	1.09	HE
2.	Bring about lack of motivation to teachers and students	2.86	1.14	HE	2.78	1.08	HE
3.	Exposition to damage of ICT facilities and equipment due to un-operational usage	2.63	1.09	HE	2.79	1.05	HE
4.	Leads to discouragement of technical college administrator from purchasing necessary required ICT equipment and materials	2.89	1.16	HE	2.76	1.06	HE
5.	Results to irregularities of ICT research by teachers	2.71	1.18	HE	2.86	1.03	HE
6.	Leads to poor academic performance especially in the area of ICT usage and application	2.84	1.14	HE	2.70	1.07	HE
7.	Do not encourage good pay package and allowances for ICT teachers	3.46	0.99	HE	2.86	1.05	HE
8.	Keep school behind expected outcomes	3.20	0.89	HE	2.89	1.08	HE
	<b>Grand Mean/SD</b>	<b>2.96</b>	<b>1.09</b>	<b>HE</b>	<b>2.79</b>	<b>1.06</b>	<b>HE</b>

From Table 2 above, the study revealed that the means and standard deviations in all the items (1 to 8) for both group of respondents were above 2.50 and grand mean of 2.96 for teacher and 2.79 for students. The result indicates that poor electricity supply affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State at a high extent.

**Research Question 3:** *To what extent does teachers' incompetence affect the utilization of ICT in teaching and learning in technical colleges in Rivers State?*

**Table 3: Mean rating of Teachers and Students on Extent Teachers' Incompetence affects the Utilization of ICT in Teaching and Learning in Technical colleges**

S/N	Statements	Teachers (n=102)			Students (n=406)		
		$\bar{X}_1$	SD	Decision	$\bar{X}_1$	SD	Decision
1.	It makes teachers shy away from their responsibilities in teaching ICT in the school time table possibly prepare by the school	3.09	0.70	HE	2.80	1.08	HE
2.	Inability to provide the necessary ICT skills and training to the students.	2.77	1.11	HE	2.74	1.06	HE
3.	Inability of the teacher to recommend the right ICT materials and journals to the school management and students	2.69	1.02	HE	2.69	1.14	HE
4.	Inability of the teacher to provide and apply the right ICT tools and equipment during teaching	2.98	1.21	HE	2.69	1.07	HE
5.	Teachers show no much interest and time to ICT issue making it unimportant to the students	2.74	0.85	HE	2.79	1.11	HE
6.	Limited learning experience	2.91	1.15	HE	2.91	1.07	HE
7.	Students are unable to compete with other ICT students from other schools	2.80	1.16	HE	2.84	1.05	HE
8.	Enhance students' lack of interest in ICT classes	2.78	1.12	HE	2.78	1.09	HE
<b>Grand Mean/SD</b>		<b>2.88</b>	<b>1.09</b>	<b>HE</b>	<b>2.78</b>	<b>1.08</b>	<b>HE</b>

From Table 3 above, it can be observed that all the items 1, 2, 3, 4, 5, 6, 7 and 8 for both group of respondents recorded mean score above 2.50 and grand mean of 2.88 and 2.78 for teachers and students respectively. The table revealed that teachers' incompetence affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State to a high extent.

### Testing of Hypotheses

**Hypothesis 1:** There is no significant difference in the mean response of the teachers and students on extent inadequate funding hinder utilization of ICT in teaching and learning in technical colleges in Rivers State.

**Table 4: Table 4: z test on extent inadequate funding hinder utilization of ICT in teaching and learning in technical colleges in Rivers State .**

Groups	N	M	S.D	DF	Z-cal	Z-crit	Decision
Teachers	102	2.97	1.03				
				506	1.30	1.96	Fail to reject
Students	406	2.82	1.03				

Table 4 shows the result of z test on no significant difference in the mean response of the teachers and students on extent inadequate funding hinder utilization of information communication technology in teaching and learning in technical colleges in Rivers State. As shown in the table, the calculated z value of 1.30 is less than the z critical which stood at 1.96. Therefore, the null hypothesis was accepted. This implies that there is no significant difference in the mean response of the teachers and students on extent inadequate funding hinder utilization of information communication technology in teaching and learning in technical colleges in Rivers State.

**Hypothesis 2:** There is no significant difference in the mean response of the teachers and students on extent poor electricity supply affect the utilization of ICT in teaching and learning in technical colleges in Rivers State.

**Table 5: Z test on extent poor electricity supply affect the utilization of ICT in teaching and learning in technical colleges in Rivers State.**

Groups	N	M	S.D	DF	Z-cal	Z-crit	Decision
Teachers	102	2.96	1.09				
				506	1.41	1.96	Fail to reject
Students	406	2.79	1.06				

Table 5 shows the result of z test on extent poor electricity supply affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State. As shown, the calculated z value of 1.41 is less than the z critical value which stood at 1.96. Therefore, the null hypothesis which stated no significant difference in the mean response of the teachers and students on extent poor electricity supply affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State was accepted. Hence, this implies that there is no significant difference in the mean response of teachers and students on extent poor electricity supply affect utilization of information communication technology in teaching and learning in technical colleges in Rivers State.

**Hypothesis 3:** There is no significant difference in the mean response of the teachers and students on extent teachers' incompetence affect the utilization of ICT in teaching and learning in technical colleges in Rivers State.

**Table 6: Z test on extent teachers' incompetence affect the utilization of ICT in teaching and learning in technical colleges in Rivers State .**

Groups	N	M	S.D	DF	Z-cal	Z-crit	Decision
Teachers	102	2.88	1.09				
				506	0.49	1.96	Fail to reject
Students	406	2.78	1.08				

Table 6 shows the result of z test on extent teachers' incompetence affect utilization of information communication technology in teaching and learning in technical colleges in Rivers State. As shown, the calculated z value of 0.49 is less than the z critical value which stood at 1.96. Since the calculated z value is less than the z critical value, it therefore implies that the null hypothesis which stated no significant difference in the mean response of teachers and students on extent teachers' incompetence affect

utilization of information communication technology in teaching and learning in technical colleges in Rivers State was accepted.

### DISCUSSION OF FINDINGS

From research question 1 which focused on extent inadequate funding hinder utilization of ICT in teaching and learning in technical colleges in Rivers State. Findings revealed that inadequate funding hinders procurement of ICT facilities, right training materials, basic infrastructure and purchase of working power generating set. The finding is in line with Ajayi and Ekundaya (2009) who revealed that factors that hinder effective use of ICT include lack of funding and inadequate facilities to support the application of ICT. Finally, the result from the null hypothesis also supports these findings.

From research question 2 which focused on the extent poor electricity power supply affect the utilization of information communication technology in teaching and learning in technical colleges in Rivers State. It was observed that all the items in the questionnaire attracted mean score above the benchmark. The table revealed that poor electricity power supply affect teachers' conduct of ICT lectures and conferences, bring about lack of motivation to teachers and students, leads to poor academic performance in the area of ICT usage and application and Keep school behind expected outcomes. The finding is in corroboration with Ajayi and Ekundaya (2009) who found out that irregular power supply hinders effective use of ICT application. The result from the null hypothesis also supports these findings.

From research question 3 which concerns the extent at which teachers incompetence affect utilization of information communication technology in teaching and learning in technical colleges in Rivers State. The revealed that teachers' incompetence cause inability to provide the necessary ICT skills and training to students, inability of the teacher to provide and apply the right ICT tools and equipment during teaching and enhance students' lack of interest in ICT classes. The finding is in agreement with Lewis and Smith (2008) who summarized the barriers of ICT utilization to be inadequate skills of practitioners and lack of interest in computer usage. Supporting the findings, Korte and Husing (2007) asserted that the fifth of European teachers felt that using computers in class did not have significant learning benefits for pupils.

### CONCLUSION

Based on the findings of the study, the researcher conclude that, lack of fund, poor electricity, cost of ICT equipment and tools, teachers incompetence are problems that hinders the utilization of information communication technology in teaching and learning in technical colleges in Rivers State.

### RECOMMENDATIONS

Based on the findings of this study the following recommendations are made:

1. Government should employ skilled teachers in technical colleges for effective use of ICT.
2. School and government should ensure there is regular power supply for utilization of ICT in technical colleges in Rivers State.
3. Government should regularly fund technical colleges in the state to purchase needed ICT software, equipment, tool for effective teaching and learning of computer.
4. Teacher should be sensitized on the benefits of the use of ICT in teaching and learning in technical colleges of the state.
5. Competent teachers with sound knowledge of computer should be employed in to teach in the technical colleges of the state.

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