

INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN TEACHING TECHNICAL EDUCATION SUBJECTS.

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Abstract

The study was designed to ascertain the influence of information and communication technology (ICT) in teaching technical education subjects in Rivers and Bayelsa States. A survey design was adopted which used four research question to guide the study. A structured questionnaire of 20 items was used to gather data from the population of 253 teachers in all the five technical colleges of Rivers and Bayelsa States. A sample size of 234 teachers was selected through a purposive sampling technique. The mean was used to analyze the data. The findings showed that ICT as sources of information, medium of instruction, means of drafting/designing and means of troubleshooting in the teaching of technical education subjects were extremely low. Based on the findings of the study, it was recommended that government should provide internet connections in technical colleges; provide computer accessories; ICT software and trainings and enact laws to enhance computer compliance in the technical colleges.

Introduction

Information and communication technology (ICT) according to Toomey (2001) refers to the technology that is used for accessing, gathering manipulating and presentation of data. The technology could include hardware (computer system and other devices) and software (windows, Linux, Unix etc). Alebaro and Olusanya (2007) conceptualized ICT as the combination of items of equipment (hardware) and computer programmes (software) that allow operators to access, retrieve, store, organize, manipulate and present information by electronic means. Information and communication technology (ICT) is a diverse technology

in which its tools and resources are used to enhance the manipulation of information. It also provides a broad perspective on the nature of other technologies, how to use and apply them to impact on self and society. ICT in its entirety covers virtually many aspect of life in the society.

As a field of technology, ICT is one of the most dynamic; accruing to itself a distinct disseminating patterns that make it impossible for other fields of technology to improve drastically without it. It creates, innovates, improves and imitates platform in which other technologies are rooted. According to Albarta (2000), technology is about the way things are done; the process, tools

and techniques that alter human activity. Hence, it is stressed that information and communication technology (ICT) is about the new ways in which we can communicate, inquire, make decisions and solve problems.

In research ICT plays a great and easy provision of information and fast manipulation of data in order to get good result. The brain behind it is the high level of information that cuts across different nations, persons, fields and ideas. The collation, organization and manipulation of this information through the help of ICT go a long way to facilitate research.

Education today has become a large global market with aggressive players in place for countries willing to invest in ICT. The result is the involvement of countries around the world to use ICT as a great tool to improve and update the educational sector that will benefit the younger generation. ICT indeed has literally powered the level of education in the world so much that teaching and learning can take place from distance through on-line services. Therefore, Nigerian education is also gradually being enhanced in the global market through the presence of ICT.

The introduction of information and communication technology into the world has influenced all aspects of education and technical education is no exception. Though Linn (2003) explained that information and communication technology is complicated and difficult to understand, but it has advantageous influence on science and technical education teaching. This influence is even more important in implementing the technical education curricular programmes which

take into consideration the needs of the industrial sector as well as the socio-economic needs of the learners.

Ikyumen and Gbodi (2007) investigation in the performance pattern in the NABTEB examination results from 2000 to 2004 showed that student's performance was very poor, only very few candidates qualified for admission into the university. According to them, the board attributed some of the students weakness to inadequate exposure to the training machines, poor, response to sketches and schematic diagrams and other drawings due to lack of poor learning skills which in the researcher's view ICT can easily address. It implies that ICT is in the position to transform the learning of technical education subjects.

UNESCO (2004) in Ikyumen and Gbodi (2007) explained that the NABTEB reviewed curricular gave an average of 10 subjects to be offered by students including information and communication technology (ICT). However, despite the inclusion, the influence of ICT is yet to be felt in technical education. Finding the level of influence of ICT in technical education subjects is the essence of this study. The study investigated the level of use of ICT as sources of information, medium of instruction, means of drafting and troubleshooting in technical education subjects.

Technical education subjects prepares tradesman like craftsman, technicians and technologists. The recipients involved in these trades are expected to acquire practical skills as well as basic scientific knowledge such as mathematics, physic, chemistry and technical drawing. It is expected that Trainees completing technical education

programmes should be able to secure employment, or become self-employed.

The goals of technical education emphasize self-reliance and technological development of the nation. Debels (2006) noted that ICT can facilitate work in various ways. The work that was traditionally done can be performed better with automated machines. The work of wood planning, molding, sanding and furnishing can easily be done by pressing buttons. Drawings can be done with simple software design. Therefore, it is obvious technical education can really do well if its subjects are closely mentored with sufficient knowledge and skills of ICT facilities.

Statement of the Problem

Information and communication technology (ICT) brought tremendous improvement to education years ago (Ajelabi, 2000). According to Ikyumen and Gbodi (2007), technical education is yet to get the impact of ICT since the failure of students in NABTED examination is still high. This invariably means a proper integration of ICT and technical education subjects to enhance teaching/learning process and reduce the high failure. Hence, the reviewed NBTE curricular should develop activities that will include ICT as teacher's sources of information, instructional medium, means of drafting and troubleshooting in technical education. These will in due time give ICT a better influence in technical education.

Purpose of the Study

The purpose of the study was to determine the influence of information and communication technology in teaching technical education subjects. Specifically, the study sought to:

1. Ascertain whether ICT is among the sources of teacher's information in teaching technical education subjects in technical colleges in Rivers and Bayelsa States.
2. Ascertain whether ICT is a medium of instruction in teaching technical education subjects in technical colleges in Rivers and Bayelsa States.
3. Ascertain whether ICT is the means of drafting/designing in teaching technical education subjects in technical colleges in Rivers and Bayelsa States.
4. Ascertain whether ICT is a means of troubleshooting in teaching technical education subjects in technical colleges in Rivers and Bayelsa States.

Research Questions

The following research questions are formulated to guide the study.

1. What is the level of ICT as a source of information to teachers in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?
2. What is the level of ICT as a medium of instruction in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?
3. What is the level of ICT as a means of drafting/designing in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?
4. What is the level of ICT as a means of troubleshooting in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?

Research Method

The research design adopted for the study was a survey research meant to determine the influence of ICT in the teaching of technical education subjects in technical colleges in Rivers and Bayelsa States. Data used for the study was collected from teachers of technical colleges in Rivers and Bayelsa States. These were Government Technical College Tungbo, Government Technical College Port Harcourt, Government Technical College Ahoada, Government Technical College Tombia, and Government Technical College Ogu. A structured questionnaire of 20 items was used as instrument to collect response from the respondents in order to answer the research questions.

The questionnaire was developed with a 3-point Likert scale of High Level (HL) = 3; Low Level (LL) =

2 and Not At All (NA) = 1. The mean was used for the analysis of data collected from the respondents. A sample size of 234 teachers was randomly selected from a population of 253 using purposive random sampling technique. Decision was reached by calculating the mean of the response weighting thus $3+2+1 / 3 = 2.00$. Therefore, means of 2.00 and above were treated as high level, whereas those less than 2.00 were treated as low level.

Data Analysis

Research Question 1: What is the level of ICT as a source of information to teachers in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?

Table 1: ICT as a source of information in technical colleges in Rivers and Bayelsa States.

S/ N	Questionnaire Items	Teachers Response			Means (\bar{X})	No of Teachers	Decision	
		HL	LL	NA				
1	Technical teachers have easy access in technical colleges in Rivers and Bayelsa States to personal computers.	30	72	132	1.32	234	NA	
2	There are internet installations in technical institutions.	2	14	218	1.01	234	NA	
3	Technical teachers use internet correctly.	13	50	171	1.32	234	NA	
4	Technical teachers use downloaded information in teaching learning process.	10	38	186	1.25	234	NA	
5	Students are taught the use of internet connections in technical institutions.	1	5	228	1.03	234	NA	
		Grand Mean (\bar{X}) = 1.19 (NA)						

Table 1 above shows teachers response for research question 1. Items 1-5 respectively have Mean response of 1.32, 1.01, 1.32, 1.25 and 1.03, which are all representing a response of Not at All (NA). It also shows a Grand Mean of 1.19, which represents a response of Not at All (NA).

Research Question 2: What is the level of ICT as a medium of instruction in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?

Table 2: ICT as a medium of instruction in technical colleges in Rivers and Bayelsa States.

S/No	Questionnaire Items	Teachers Response			Means	No of Teachers	Decision	
		HL	LL	NA	(\bar{X})			
6	Adequate computers are available for teaching/learning process in technical colleges.	24	43	167	1.39	234	NA	
7	Computer laboratory/workshops are available in technical colleges.	5	18	211	1.12	234	NA	
8	Computers are used to encourage instructions in technical colleges.	4	22	208	1.12	234	NA	
9	Personal computers are used with projectors (in focus) to enlarge images during teaching/learning process.	8	13	213	1.12	234	NA	
10	Computer hardware is taught regularly in technical colleges.	18	33	183	1.29	234	NA	
		Grand Mean (\bar{X}) = 1.21						

Table 2 above shows teachers' response for research question 2. Items 6-10 respectively have mean response of 1.39, 1.12, 1.12, 1.12 and 1.29, which are all representing a response of not at All (NA). It also shows a grand mean of 1.21 which is represents a response of Not at All (NA).

Research Question 3: What is the level of ICT as a means of drafting/designing in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?

Table 3: ICT as a medium of instruction in technical colleges in Rivers and Bayelsa States.

S/No	Questionnaire Items	Teachers response			Means	No of teachers	Decision	
		HL	LL	NA	(\bar{X})			
11	Technical teachers are conversant with windows drafting/designing tools in the computer system.	21	73	140	1.49	234	NA	
12	Technical drafting design software are available in technical colleges.	6	19	209	1.13	234	NA	
13	Technical teachers have good knowledge of AutoCAD software.	2	11	221	1.06	234	NA	
14	Technical teachers can draft and design with the computer system.	5	9	220	1.08	234	NA	
15	Students are taught computer drafting design regularly in technical colleges.	3	8	223	1.06	234	NA	
		Grand mean (\bar{X}) = 1.16						

Table 3 above shows teachers' response for research question 3. Items 11-15 respectively have mean response of 1.49, 1.13, 1.06, 1.08 and 1.06, which are all representing a response of Not at All (NA). It also shows a grand mean of 1.16 which is represents a response of Not at All (NA).

Research Question 4: What is the level of ICT as a means of troubleshooting in teaching technical education subjects in technical colleges in Rivers and Bayelsa States?

Table 4: ICT as a means of troubleshooting in technical colleges in Rivers and Bayelsa States.

S/No	Questionnaire Items	Teachers response			Means	No of teachers	Decision	
		HL	LL	NA	(\bar{X})			
11	Technical teachers have good knowledge of basic troubleshooting tools technical colleges.	48	80	106	1.75	234	NA	
12	Troubleshooting software are available in technical colleges.	1	3	230	1.13	234	NA	
13	Technical teachers make good use of troubleshooting software in the computer.	1	17	210	1.13	234	NA	
14	Technical teachers make good use of computerized oscilloscope in the technical colleges.	1	8	225	1.04	234	NA	
15	Students are taught computerized troubleshooting regularly.	2	5	227	1.03	234	NA	
		Grand mean (\bar{X}) = 1.19						

Table 4 above shows teachers' response for research question 4. Items 16-20 respectively have mean response of 1.75, 1.02, 1.13, 1.04 and 1.03, of which item 16 represent a response of low level (LL) while items 17-20 represent responses of not at All (NA). The table shows a grand mean of 1.19 which is represented by Not at All (NA) response.

Discussion of Findings

It was seen from research question one that the Grand Mean is 1.19, which is represented by the response of Not at All (NA). This revealed that the level of information and communication technology (ICT) as a source of information to teachers in teaching technical education subjects was extremely low or non-existence. Meaning

that teachers in technical institutions did not use information and communication technology (ICT) as a source of information to enhance teaching/learning process in technical education. Hence, rendering technical education subjects incapacitated of adequate information that would have brought about dynamic teaching/learning process and better knowledge to the field. This confirms Rafi, David and Anat (2008) view that ICT provided access to information, enables new forms of communication, culture, entertainment and education.

From research question two, it was noted that the Grand Mean was 1.21 which was represented by the response of Not at All (NA). This revealed that information and communication technology (ICT) level as a medium of instruction in

teaching technical education subjects was extremely at a low level or non existence. Meaning that, technical institutions did not use information and communication technology (ICT) as a means of instructional medium in order to enhance teaching/learning process of technical education subjects. The study was of the view that the absence of computer and its accessories to aid instruction in technical education was affecting practical know-how subjects. This was similar to the view of Toomey (2001), who suggested that when ICT was used as a medium of instruction, critical thinking and easy learning process would take place.

Again, it was shown from research question three that, the Grand Mean was 1.16 which was represented by the response of Not at All (NA). This revealed that the level of information and communication technology (ICT) as a means of drafting/design in teaching technical education subjects is extremely low or non existence. Meaning that, technical colleges did not use information and communication technology (ICT) as a means of drafting/design. The study indicates that computerized drafting/designing was not utilized in teaching technical education subject, which is the fact behind poor performance of technical drawing, drafting, designing etc. This view was supported by Raymond (2008) when he stated that computerized drawing would enhance technical education subjects.

It was indicated again from research question four that, the Grand Mean was 1.19 which was represented by the response of Not at All (NA). This revealed that the level of information and communication technology (ICT) as a means of troubleshooting in teaching

technical education subjects was extremely low or non existence. The meaning is that technical institutions don't use information and communication technology (ICT) as a means of troubleshooting in order to enhance repairs and maintenance in technical education subjects. The study also revealed that a computerized troubleshooting system was scale, making repairs and maintenance very difficult to address. This view was supported by Robinson (2006) who stated that the absence of computerized oscilloscope in technical workshops was affecting troubleshooting in technical education.

Conclusion

Recently the teaching of technical education subjects was passing through a serious challenge in the country. One reason was that emphasis on practical skilled acquisition was fast falling. However, with the innovation of ICT, technical education subjects could re-surface with newer strength and power to achieve its goals.

However, from the study ICT as a source of information medium of instruction, means of drafting/designing and troubleshooting to enhance the teaching of technical education subjects was far from reach. Hence ICT was yet to be placed in a condition to create impact in teaching technical education subjects. But with the better integration of ICT in technical education, the teaching of its subject would be better.

Recommendations

Based on the findings, the following recommendations were made.

1. Government should provide ICT facilities and make sure every technical institution is connected

to the internet.

2. Government should make provisions of computer system and its accessories to technical institutions.
3. Government should make adequate provision of ICT software trainings in technical institutions.
4. Government should enact laws that will force technical institutions staff to be computer compliance in their teachings, especially in the workshop.

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