

CHALLENGES FACING THE UTILIZATION OF ICT FACILITIES IN TECHNICAL COLLEGES IN ENUGU EDUCATION ZONE.**By**

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Abstract

This study was designed to determine the challenges facing the utilization of Information Communication Technology (ICT) facilities in the technical colleges in Enugu Education zone. A descriptive survey research design was used for the study. One research question was raised for the study and one null hypothesis tested at 0.05 level of significance was formulated to guide the study. and tested using the t-test statistical tool. A structured question naireon Challenges Facing Utilization of ICT Facilities in Technical Colleges (CFUICFTFC) was used to gather opinions and obtain data from 211 year two students and 36 teachers from the four technical colleges in Enugu Education zone. Three experts carried out the face validation of the instrument. The overall reliability coefficient applying the Spearman's rank order correlation co-efficient formula yielded 0.93. A simple random sampling technique was used to select the sample size of the students. The analysis showed that the mean scores of the teachers in respect of the challenges facing utilization of the ICT facilities in the technical colleges are of low extent across the board. Whereas the students' mean scores showed high extent in respect of the challenges facing the utilization of the available ICT facilities. There was a significant difference in the mean scores of teachers and the students. The t-calculated value of 16.73 is greater than t-table value of 1.64 at $P < 0.05$ level of significance. Therefore significant difference existed in the mean scores of teachers and students in respect of the challenges facing the utilization of ICT facilities in the technical colleges studied. Lack of computer literate teachers in technical colleges as well as the epileptic power supply without backup electricity generating sets constituted major challenges in the utilization of ICT facilities in the technical colleges in Enugu Education zone.

Keywords: Challenges, utilization, information communication, technology, technical, education.

Introduction

Technical colleges are positioned for the training of Craftsmen and Master Craftsmen.. Training at this level involves accelerated learning Ayo and Mashood (2016). Teaching and learning has developed over the years, moving from the conventional method to the present electronic and digital era. Teaching and learning in technical education entails experimentation and practical works. Dewey(1949) posited that teaching and learning would not be meaningful without employing instructional aids that would make for research, experiments and real life experiences. Information, communication and Technology, (ICT) has revolutionized the entire facts of human endeavour Nkanu (2008). Similarly, Shukla (2019) advocates that teachers of tomorrow should leverage on digital interactions and technology to facilitate learning. These digital interactions refer to the ICT facilities for instructional delivery. The benefits are not devoid of problems and challenges Kamba (2009).

In education, especially, teaching and learning, information, communication and Technology (ICT) has become veritable tools for instructional delivery. Information, communication and Technology (ICT) generally entails the application of computers, internet services, fax machines, websites and so on (Bamidele, 2006 in Ayoola, Ikuenomore and Eyengho, 2010). Ofodu (2007) in Apagu and Wakili (2015) defined ICT as electronic or computerized devices, assisted by human and interactive materials that can be used for a wide range of teaching and learning as well as for personal use. Apagu and Wakili (2015) thus defined ICT as processing and sharing of information using all kinds of technologies for the manipulation and communication of information. Olorunsola (2007) also posited that ICT facilities change the needs of education as well as the potential processes.

Technical education is the hub of national development and the disparity in levels of development between the developed and the under-developed world is principally due to the differential in technological attainments. This makes the teaching and learning of technical education a priority. It is not only a priority area but an imperative for economic and technological development. In line with the 'invasion' of virtually every sector by ICT, Akpagu and Wakili (2015) advocates the adoption of the ICT facilities will make the teaching and learning participatory and will improve the creative thinking of the learners.

Some of these ICT facilities needed for the teaching and learning in technical colleges in line with positions of Babajide and Bolaji, (2003); Bryers, (2004); Bamidele, (2006) and Ofodu (2007) in Apagu as Wakili, (2015) include; Radio Television, computers, overhead projectors, optical fibers, fax machines, CD-Rom, internet, electronic notice boards, slides, digital multimedia, Video/VCD machine e-library, amongst others. The study examined to what extent these facilities were been utilized in the technical colleges studied.

National Policy on Education defined technical and vocational education as a comprehensive term referring to those aspects of educational process involving- the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. In the light of this, vocational and technical education is the preparation of individuals to acquire practical skills as well as basic scientific knowledge, it provides skilled manpower, for the world of work, that is increasing the workforce in the country; individuals with specialized skills as off shoots of efficient vocational and technical education as they are trained, equipped with workable practical skills, knowledge, aptitude and competencies required in specific occupations (FRN, 2013).

The National Policy on Education (2013) emphasized the need to integrate ICT into the education sector in Nigeria having recognized its prominent role in modern world (FRN, 2013). The national policy on education went further to say that government should provide basic infrastructure and training materials for the schools. Technical and vocational Education and Training (TVET) require adequate provision of instructional facilities such as ICT for a more effective teaching and learning. The effective use of ICT facilities will demystify the abstractions involved in teaching and learning technical education. Computer literacy for instance enhances ones employability in the technology driven age. Basic to many disciplines taught in technical colleges is technical drawing.

Presently a number of computer applications have eroded the traditional use of analogue drawing instruments. Such applications include, Computer Aided Design (CAD), Corel draw as well as Computer Aided Manufacture (CAM). If the students of technical colleges are not availed the opportunity of using these ICT facilities the tendency is that they may graduate as eccentric products of contemporary technical colleges. The ability to be ICT complaint has become a major

requirement in the labour market considerations and human capital development. Most of the hitherto devices and machines which used to be mechanical or electrical contrivance are fast been transformed to electronic and digital systems. This development generates more efficient devices and the products of the technical colleges in this part of the world cannot afford to be left behind.

The school net initiative of Federal Ministry of Education www.sung.org (FRN, 2006) was intended to equip all schools in Nigeria with computers and communication Technology facilities. To what extent does this initiative flow down the ladder is one of the major concerns of the study. For instance, So many craft centres in Enugu like, Coal Camp industrial Area, Aria market wheel barrow fabrication centre, Obiagu foundry and smithy centers, to mention but a few, are all yawning for modern technological influence on these craft centres with a view to enhancing the economic and development stride of Enugu state in particular and Nigeria in general.

The utilization of ICT facilities is predicated on their availability, where they are available, the poser becomes, are they being adequately utilized? Are there competent teachers who could apply the ICT facilities for teaching (Ohiweri, Azi and Okoli 2013)? Lack of adequate provisions of ICT facilities has been hampering the development of technical education in Enugu Education zone. A swift action aimed at according the technical education the priority it deserves need to be carried out urgently. Primus amongst these priorities, is the provision of information, communication and technology (ICT) facilities. Therefore, the main purpose of the study was to determine the challenges facing the utilization of ICT facilities in the technical colleges in Enugu Education zone. Specifically the study determined: The challenges facing the utilization of ICT facilities in technical colleges in Enugu Education zone.

Review of Related Literature

The Concept of Pragmatism

The concept of Pragmatism was made popular by an American Philosopher John Dewey in 1949. He posited that realistic learning can only be achieved when its content reflects the real-life experiences. He decried the abstraction pedagogy being fed the learners and insisted that experimentation and practical activities as it applies in real world of work of the student's field of study should constitute the training curriculum. The concept lends credence to the Students'

Mentorship and other such programmes.

Application of this concept with ICT facilities will enhance the skills of the graduates of technical colleges. This will make them acquire employable skills and skills for self-employment or self-reliance so that they can function optimally in the technological space of the economy. By so doing they will effectively contribute their quota to the growth of the economy. Therefore, as we move into the 21st century, schools have to acculturate students to be lifelong learners, students need to learn, how to seek new information, think critically and show initiative to meet up with the challenges of the fast-changing world (Lim, 2002).

Concept of Utilization

Utilization is also a quantitative concept like availability. Utilization as a quantitative concept is a simple variable which may be directly measurable or indirectly derivable (David, 1999). The value of degree of utilization forms a reasonable objective in planning. Utilization is a technical tool to establish the degree/level at which the available resources are being appropriated for one to be able to determine its adequacy or otherwise. Utilization on the other hand is a fancy way of saying 'use'. For instance, when you utilize something, you use it. It could be a tool, equipment, skill or talent. Thus utilization is the act of using the available facilities to enhance teaching and learning of technical education in technical colleges in Enugu Education zone.

Concept of Challenges

Challenges associated with the use of ICT facilities for the modern day teaching – learning are apparently enormous especially for the traditionally oriented teachers. A challenge literally means an invitation or call to action (Beghetto, 2018). Challenges vary in scope and complexity. There are four basic structures of challenges no matter how simple or complex they may be. These structures according to (Beghetto, 2018) include :

- **The Problem** – is the task, question or issue students will address or solve.
- **The Process** - is the approach, method or procedure students will use to solve the problem or complete the task.
- **The Product** – is the solution, outcome or demonstration of solving the problem.
- **Criteria** - are the guidelines, rules and the standards for evaluating success.

Challenges also can be said to present a situation of being faced with something that needs great mental or physical efforts in order to be done successfully and therefore tests a person's ability (Cambridge English Dictionary). Academic challenge is seldomly clearly defined (St. Clair and Hackett, 2012).

The concept of academic challenge applies to the study considering the fact that most of the teachers had their training with analogue and traditional instructional method/aides. Ability to adapt to emerging innovations of using the ICT facilities for teaching – learning in the present age poses a great challenge to the teachers already used to the traditional method (Oduma and Ile 2014). Thus the need for retraining has become inevitable to be able to surmount the obvious challenges. Moreso, with the new technology emerging in diverse forms exponentially, because while one is making attempt to grasp with a particular stage, a higher version emerges. The situation calls for a life-long learning process to be on top of the emerging technology in ICT resources. **Activity Theory**

The originators of the theory are Soviet cultural-historical psychologists-Vygotsky, 1978; Leont'ev, 1987 about 1920. The activity as propounded by the duo aligned with the 18th and 19th century classical German philosopher- Hegel's Idealism to the historical materialism of Marx and Engels in which the concept of activity was extensively elaborated. Like Marx and Engels, Vygotsky and Leont'ev took as their premises “real Individuals, Their activity and the material conditions under which they live, both those which they find already existing and those produced by their activity” (Marx and Engel, 1970 in Lim, 2002).

The theory is more of a descriptive meta-theory or framework than a predictive theory. It considers entire work/activity system including teams, Organizations, amongst others beyond just one actor or user. It also includes account for environment, history of the person, culture, role of the artifact, motivations, complexity of real life action (Engestrom, Miettinen and Punaaki, 1999).

Fields of study in technical colleges involve a lot of activities, for instance, Fine and Applied Arts, Auto-mechanic crafts practice, Welding and Fabrication craft practice, Mechanical Engineering craft practice to mention but a few. All involve myriads of complex activities which an exposure to the learning activities using ICT facilities would enhance easy assimilation and possible

domestication of the activities within the Enugu Education zone environment. Technical education system needs rapid transformation and overhaul. This leads us to the second theory of learning, the transformative learning theory.

Transformative Learning Theory:

The transformative learning theory was developed by Jack Mezirow in 1978. The theory has evolved into a comprehensive and complex description of how learners construe, validate and reformulate the meaning of other experiences.

Transformative learning theory seeks to explain how humans revise and reinterpret meaning (Taylor, 2008). Transformation learning is the cognitive process of effecting change in a frame of reference (Mezirow, 1997). A frame of reference defines our view of the world. The emotions are often involved (IIleris, 2001). Adults have a tendency to reject any ideas that do not correspond to their particular values, associations and concepts (Mezirow, 1997).

An empirical study on Availability and Utilization of Information and Communication Technology (ICT) in Ebonyi Local Government Area of Ebonyi State: Implications for effective teaching and learning by Eze, and Aja (2014) was reviewed.

The descriptive survey research design was used for the study. The population for the study comprised 225 teachers and 8,128 students from 15 senior secondary schools. By simple random sampling technique, 10 schools were selected. 10 teachers were selected and 26 students were selected from each of the 10 selected schools; making a total of 360 respondents. The instrument used for data collection was a structured questionnaire. The data collected were analyzed using mean scores. It was found among other things that ICT devices were not adequately utilized.

Another empirical study on Utilisation of Computer Technology for Academic work by lecturers of University of Jos - Nigeria. The study was carried out by Nwachukwu and Asom (2015). The research design was an Evaluative design. The population for the study was 974 academic staff. A sample size of 97 (10%) of the population was used for the study. The instrument for data collection was structured questionnaire. The data collected were analyzed using percentages, mean and frequency tables. The findings revealed that lecturers have average level of computer literacy skills. However, the study further found inadequate funds, inadequate power supply, lack of government sponsorship, inadequate internet services as militating factors.

Research Question

1. What are the challenges facing the utilization of ICT facilities in technical colleges in Enugu Education zone?

Null Hypothesis

Ho: There is no significant difference in the mean scores of teachers and students on the perceived challenges facing the utilization of ICT facilities in technical colleges in Enugu Education zone.

Method

Descriptive survey research design was used for the study. The survey research design was considered most appropriate for the ease of gathering information from the respondents because the researcher does not control or manipulate any of the variables but only observe and measure them. The population for the study is made up of 528 year two students of the technical colleges in Enugu Education zone. It is also made up of 36 technical teachers across the four technical colleges in the Education zone.

The researcher used a structured questionnaire to gather opinions and obtain data from 211 year two students from the four technical colleges in Enugu Education zone. They were selected by simple random sampling technique. Their respective technical teachers from the colleges totaling 36 were also studied. Simple random sampling technique was employed by the researcher because it is accurate in representation of larger populations as well as its ease of use. The sample size is 211 year two students of the technical colleges. The entire technical teachers numbering 36 were studied. Therefore, the total number of respondents was $(211 + 36) = 247$ respondents. The students studied were selected by simple randomization by casting lot.

The data were collected using the validated instrument, by direct administration. Five copies of the questionnaire served on the students were either double ticked or mutilated. Therefore, they were rejected; thus making the return rate 98%. The instrument for data collection is a 10-item structured questionnaire. The instrument elicited responses with response categories; Very High Extent (VHE), High Extent (HE), Low Extent (LE), Very Low Extent (VLE). The response ratings were; VHE-4 points, HE-3 points, LE-2 points and VLE-1 point. The instrument used for data collection was validated by three experts. Two of the experts were from Computer Science Education, while the third was from Measurement and Evaluation, Enugu State University of Science and Technology (ESUT), Enugu. Their observations and suggestions were used to improve the instrument. The instrument was further subjected to reliability test using 20 respondents from

technical colleges in Nsukka education zone because it shares similar characteristics with Enugu Education Zone. The validated instrument was subjected to test-retest with 20 respondents in technical colleges in Nsukka Education zone. Their responses were used to compute the reliability coefficient of the instrument. However, for want of time the split-half technique was employed. This method measured the internal consistency of the test. It involved administering one form of the test on a group of people and splitting the scores of the respondents in two (odd and even numbers) and correlating them (Ebuoh, 2004). After the splitting, the Spearman's rank order correlation coefficient formula was applied.

The correlation coefficient yielded 0.93. This is high enough, and indication of internal consistency and that the instrument can measure what it is intended to measure. The questionnaire collated was tallied. The raw scores were recorded. The research question was answered by analyzing the mean, grand mean and standard deviations item by item. The lower and upper limits of mean response value were given thus:

Lower limit	-	Upper Limit	
3.5	-	4.00	VHE
2.5	-	3.49	HE
1.5	-	2.49	LE
1.0	-	1.49	VLE

From the above response rating, mean response below 2.5 is low extent while from 2.5 and above is high extent. Similarly, the hypothesis was tested at 0.05 level of significance using the t-test statistic. With the t-calculated value less than the t-table (t-critical) we do not reject the null hypothesis. However, where the t-calculated was greater than t-table (t-critical) we rejected the null hypothesis.

Results

Table 1

Mean and standard deviation on the challenges facing ICT utilization in technical colleges in Enugu Education zone.

S/ No	Item	Teachers			Student			Overall				
		N	X	SD	Dec	n	X	SD	Dec.	X	SD	Dec.
1	Most of the technical colleges lack computer literate teacher	36	2.0278	.29141	LE	211	2.5403	.49958	HE	2.4656	0.4692	LE
2	There are complete lack of ICT facilities in the colleges	36	2.0556	.33333	LE	211	3.3081	.62859	HE	3.1255	0.5856	HE
3	Epileptic power supply is a challenge	36	1.7500	.43916	LE	211	2.9668	.66464	HE	2.7895	0.6316	HE
4	ICT programmes are not included in the teachers training	36	1.3611	.48714	LE	211	3.1043	.82146	HE	2.8502	0.7727	HE
5	Teachers are reluctant to adopt ICT facilities in their teaching and learning process	36	1.1944	.40139	LE	211	2.9479	.69836	HE	2.6923	0.6551	HE
6	There is fear of exposing the information pertaining to the colleges to the public	36	1.1389	.35704	LE	211	2.9716	.51561	HE	2.704	0.4916	HE
7	Computer center management needs sophistication beyond the scope of the technical college	36	1.1111	.31873	LE	211	2.0758	.86956	HE	1.9392	0.7939	HE
8	Ignorance on the part of the students	36	1.0556	.23231	LE	211	2.1801	.56550	HE	2.0243	0.5295	HE
9	No motivation for utilizing the available ICT	36	1.0556	.23231	LE	211	1.8057	.68672	HE	1.6964	0.6205	HE
10	Lack of commitment on the part of the teachers	36			LE	211	2.1517	.56546	HE	1.9919	0.5169	HE

Grand mean = 2.4279

The instrument for data collection as filled out by the respondents was collated. The scores were tallied. The mean and standard deviation were computed using the Statistical Package for Social Science (SPSS version 20). The package generated the item by item means and standard deviations. These were further analyzed to compute the item means and standard deviations as well as the groups' means and standard deviations.

The item by item analysis was used to answer the research question. Each item mean enabled

the researcher to determine in a broad sense the extent of the mean scores in line with decision rule. Thus all means scores below 2.5 were classified as low extent, while mean scores above 2.5 were generally classified as high extent. The research question was presented in table 1, above. The mean response scores of both the teachers and students followed a reverse trend as reflected in the research question. The analysis showed that the mean scores of the teachers in respect of the challenges facing utilization of the ICT facilities in the technical colleges are of low extent across the board. Whereas the students' mean scores showed high extent in respect of the challenges facing the utilization of the available ICT facilities.

Similarly, the mean scores were tested using the t-test statistical tool. With a degree of freedom of 245, a one tailed t-table value at $P=0.05$ was 1.64. The t-calculated value was compared with the t-table value in order to determine the acceptability or rejection of the null hypotheses. The results are presented in the tables below. The t-test table comes immediately after the research question.

Ho: There is no significant difference in the mean scores of teachers and students on the perceived challenges facing the utilization of ICT facilities in technical colleges in Enugu Education zone.

Table 2- t- test of the difference between the mean scores of teachers and students, on the extent of challenges facing the utilization of ICT facilities in technical colleges in Enugu Education Zone.

Respondents	Meanx	SD	Ndf	t-cal.	t-tab.	Decision
Teacher	1.3889	0.3437	36			
Student	2.6052	0.6515	211	245	16.73	1.64 S

Decision: From Table 2, the t-calculated value of 16.73 is greater than t-table value of 1.64 at $P<0.05$ level of significance. Therefore, we reject the null hypothesis. This implies that significant difference existed in the mean scores of teachers and students in respect of the extent of challenges facing the utilization of ICT facilities in technical colleges in Enugu Education zone.

Discussions of the Findings:

The results of this study also align with the finding from Eze and Aja (2014) who studied the availability and utilization of ICT in Ebonyi Local Government Area Ebonyi State. Their study also showed that ICT devices were available but not adequate in most of the schools studied. The present

study also reflected that, following the mean response score of low extent of utilization of ICT facilities in the technical colleges in Enugu education zone.

Eze and Aja (2014) also found out that the available ICT facilities were poorly utilized due to teachers who are not computer literate as well as epileptic power supply.

The findings of this study Synchronizes with Nwachukwu and Asom (2015). Item 1 concurred with the findings of Nwachukwu and Asom (2015) which revealed that lecturers have average level of computer literacy skills. However, Nwachukwu and Asom (2015) further found inadequate funds, inadequate power supply, lack of government sponsorship, inadequate internet services as militating factors similar to items 2 to 10 in this study..This corroborates the provision/lamentation in the National Policy on Education (FRN, 2013) on the challenges of provision of the state-of-the-art equipment for technical, vocational and education and training (TVET).

These are reflected in the challenges facing ICT utilization in technical colleges in Enugu Education Zone. With a grand mean of 2.4279, it indicates a low extent of challenges facing the utilization of ICT facilities. The teachers' means of 1.3889, it indicates a low extent of challenges of utilization. The students' means response score of 2.6052 showed a high extent of challenges facing ICT utilization in the technical colleges in Enugu Education zone. These findings align with the Eze and Aja (2014) which found that available ICT devices were poorly utilized.

Conclusion

From the results of the findings emerging from the respondents vide the mean response scores, it is obvious that so many challenges were facing the utilization of ICT facilities in the technical colleges in Enugu Education zone. For instance, the available ICT facilities are not being optimally utilized due to lack of appropriate skills from the teachers to use them; as well as other delimiting factors.

The challenges militating against the provision of ICT facilities in the technical colleges in Enugu Education Zone as well as the challenges of not optimally utilizing the available ones are also enormous. One of the technical colleges, which had a private partnership with a cybercafé operator, recorded low patronage and was on the verge of folding up the business. This is partly predicated on

the teachers' poor computer literacy, reflected in their mean scores.

Recommendations

Following the finding of the study, the researcher recommends as follows.

1. Improved government provisions of ICT facilities to the technical colleges.
2. Encourage private, public partnership in the provision of ICT facilities for the technical colleges.
3. Re-orientation of the serving teachers on the use of ICT facilities in order to be ICT compliant by improving their computer literacy skills.
4. There is an urgent need to improve the power supply to vital institutions of the society especially when it bothers on modern day technological studies.
5. There is urgent need also for the provision of e-library to encourage life-long learning and critical thinking by the students/learners as well as the teachers.

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