

*Full Length Research Paper*

## Teachers' opinion on availability of e-learning opportunities for effective technical and vocational education and training (TVET) programme in tertiary institutions in South east Nigeria

Agbo, Benjamin C. D.<sup>1\*</sup>, Onaga Paul Okwudili<sup>2</sup> and Omeje Hyginus O.<sup>3</sup>

<sup>1</sup>University of Minnesota, Twin City, United States.

<sup>2</sup>Enugu State College of Education (Technical), Enugu, Nigeria.

<sup>3</sup>School of Technical Education, Enugu State College of Education (Technical), Enugu, Nigeria.

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Modernity and technological developments have necessitated the need to expose opportunities in e-learning for effective technical and vocational education and training (TVET) programme. The opinion of the teachers regarding availability of these e-learning opportunities raises concern in teaching circles. It could be that teachers appear not worried about the availability of these opportunities. Against this background, it becomes necessary to determine the opinion of teachers on the availability of e-learning opportunities for effective TVET programme in tertiary institutions in South east Nigeria. To achieve this, three research questions and one null hypothesis were raised. The study adopted a descriptive research survey using a sample of 98 TVET lecturers from Enugu State South. Instrument for data collection was validated by three experts and reliability established using Cronbach alpha statistics which yielded a coefficient index value of 0.71 and was adjudged as high enough. It was found out that in the teachers' opinion, e-learning opportunities for effective TVET programme were not available, and that this opinion was not dependent on experience. It was further recommended that teachers be sent on capacity building programmes to get acquainted with the skills to exploit the availability of e-learning opportunities in higher institutions.

**Key words:** E-learning, availability, opportunities.

### INTRODUCTION

Modernity and technological developments have necessitated the need to expose opportunities in e-learning for effective technical and vocational education and training (TVET) programme. This is evidenced in the use of computers, and computer accessories by individuals as essential tools for skill development and

learning. The development of effective teaching methods to help technical and vocational education and training (TVET) in the use of technology resources are of great concern in Nigeria, but exploitation of modern opportunity such as e-learning (Enebechi and Otiji, 2013) is a relief.

This demand for adopting technology-based education

\*Corresponding author. E-mail: [agbox003@umn.edu](mailto:agbox003@umn.edu).

is increasing exponentially as schools in Nigeria especially in the South East are eager to catch-up with the trend of technology development. In view of this high demand, most teachers are found using the old methods of teaching instead of adopting the new technology-driven methods. Such practice is contrary to the opinions of Ifeakor and Okoli (2010) that developed countries have adopted e-learning methods in teaching university students. It therefore appears that students are increasingly becoming reliant on the virtual classrooms for solutions to academic problems based on the demand but it seems as if the teachers are not interested. It appears the opportunities surrounding this form of teaching and learning abound without the awareness of some teachers, especially technical and vocational education and training (TVET) teachers who believe with the opinion of Terande (2012), that computers and other hardware are not available for teaching and learning.

It is therefore expected that TVET teachers should adopt and utilize the available e-learning opportunities for teaching and learning process. Such opportunities are access to the provisions of computer hardware like CD ROMs, flash drives, printers, scanners, mouse, and software like internet connectivity, belonging to social media like Facebook, YouTube, tweeters, having knowledge about Yahoo, G-mail, Wiki, and ability to open and manage an e-mail address. TVET teachers in a society with availability and provision of internet facilities must not isolate themselves from exposure to these facilities especially at the university level where most, if not all the students are expected to be computer literate. This singular act of integration will help in technology development.

The teaching and learning of TVET subjects at the university level should involve, according to Inomiesa and Osakwe (1998), helping students to learn, develop critical thinking skills and acquire problem-solving skills. It also involves helping students to know where and how to acquire needed information and prepare them for the process of life-long education. The students are also expected to develop the spirit of enquiry. To achieve these goals, TVET teachers should employ new technological resources in the teaching and learning process for maximum benefit. To keep pace with the rapid growth and changes in technology, there is urgent need to move beyond the inactive learning activities that characterize lectures towards more engaged, active and investigative TVET lessons by the use of e-learning methods.

Developments in internet and multimedia technologies are the basic enabler of e-learning, with consulting, content, technologies, services and support being identified as the five key sectors of the e-learning industry. E-learning is defined as the use of electronic machinery to convey education and training

applications, observe or monitor learners' performance and report the progress made by the learners. In Hedge and Hayward (2004), e-learning is described as an innovative approach for delivering electronically mediated, well designed, learner-centered and interactive learning environments to anyone, anyplace, anytime by utilizing the internet and digital technologies in conjunction with instructional design principles. Therefore, it may be said that e-learning is a system of learning electronically between or among people, regardless of distance, time or place. It is not only restricted to the use of internet which can be referred to as an online process, but it also involves the use of several electronic media outside the internet or web known as an offline process. This is in support to Islam (1997) who said that the applications and process of e-learning include computer-based learning, web-based learning, visual classroom and digital collaboration.

E-learning is a driving force for achieving better education in recent times. Computer- aided equipment therefore needs to be embraced as pedagogical tools in Nigerian schools owing to the advancement of technology (Ekoko, 2006). TVET teachers should endeavour to develop a burning desire to catch up with the rest of the world to deliver instructions in this area. Thus Okafor and Ejiofor (2013) informed that e-learning is student-centered, self-paced and hand-on learning.

Technical Vocational Education and Training (TVET) refers to a series of activities directed towards a person with skills and knowledge that will enable him work and become as self sufficient as possible (Alasa, 2010). Therefore, TVET programmes have an extensive link with e-learning as skill is highly needed in assessing the programme. Kareen and Garba (2008) in Okpor and Hasan (2012) stated that TVET is rooted on preparation of students for acquisition of necessary skills, knowledge and attitude to earn employment as expert assistants to professionals in any field of Technology and Engineering.

TVET teachers in tertiary institutions share dichotomous levels of experience. While some are more experienced others may be less experienced. Whether this teachers' opinion is influenced by their teaching experience is yet to be determined in the study. For this study, TVET teachers who have worked for less than 6 years (0 – 5years) are regarded as less experienced. All those who have worked for 6 years and above are regarded as more experienced. The State Department of Education report (2012) acknowledged that experience is certainly important in teaching and this is indicated as beneficial from five years. The report also indicated that experience influences the way curriculum is interpreted in most subject areas. This shows that experience contributes immensely to teaching-learning programmes.

The provision of e-learning resources in Nigerian

schools is manifested in the collaboration between New Partnership for Africa's Development (NEPAD) and Tertiary Education Trust fund (TETFund) to promote online learning in Nigeria. TETFund has invested billions of naira in the establishment of e-learning materials like e-libraries in schools across the country. The construction of micro-teaching laboratories in all Colleges of Education in Nigeria is one of such investments. Despite these huge amounts invested in the procurement of these (e-learning) equipment, TVET teachers are still found wanting in putting these available resources to use. Such opportunities like the use of smartboards, multimedia systems, CD Roms abound but the teachers still employ old methods of teaching while carrying out their obligations. Okafor and Ejiofor (2013) discovered that teachers' use of the resources is very little. Thus, the students have seriously been confined to the four walls of the classrooms and chalk-talk model of teaching employed thereby not giving the students the opportunity of moving into the modern acceptable level of education. It could be that teachers appear not concerned about the availability of these resources. Against this background the researcher was motivated to determine the teachers' opinion on availability of e-learning opportunities for effective TVET programme in tertiary institutions in South East Nigeria.

The study specifically aims to determine

1. Teachers' opinion on availability of hardware for effective TVET programme in tertiary institutions in South East Nigeria.
2. Teachers' opinion on availability of software for effective TVET programme in tertiary institutions in South East Nigeria.
3. The association between teachers' opinion and teaching experience on availability of e-learning opportunities for effective TVET programme in tertiary institutions in South east Nigeria.

To help the study, three research questions and one null hypothesis were posed and formulated respectively.

The research questions are;

1. What is the opinion of teachers on availability of hardware for effective TVET programme in tertiary institutions in South East Nigeria?
2. What is the opinion of teachers on availability of software for effective TVET programme in tertiary institutions in South East Nigeria?
3. What is the association between teaching experience and opinion of teachers on availability of e-learning opportunities for effective TVET programme in tertiary institutions in South East Nigeria?

$H_{01}$ : There is no significant differences between the

mean scores of more experienced and less experienced TVET teachers on their opinion on availability of e-learning opportunities for effective TVET programme in tertiary institutions in South East Nigeria.

## METHOD

The descriptive survey design was utilized for the study. -A population of 98 lecturers who served as the sample for the study was used. Data collected was done personally by the researcher with the help of three research assistance. Three experts in TVET validated the instrument. The reliability of the instrument was established using test-retest method and Cronbach Alpha statistics employed to determine the coefficient index value which yielded 0.71 and consequently adjudged as high enough. Among the 98 copies of the questionnaire distributed, 85 were duly returned and therefore qualified for data analysis. Data were analyzed using mean and standard deviation. The four response options of Highly Available (HA), Available (A), Not Available (NA) and Highly Not Available (HNA), were assigned weights of 4, 3, 2, and 1 respectively. Limit of numbers were used to determine the opinion of the teachers on the availability of e-learning opportunities, thus: 3.50 – 4.00 is HA, 2.50 – 3.49 is A, 1.50 – 2.49 is NA and 1.00 – 1.49 is HNA. The t-test statistic was employed to test the only null hypothesis at 0.05 level of significance. The null hypothesis was accepted because t-critical value is greater than the t-calculated value ( $t\text{-critical} > t\text{-cal}$ ) for the given degree of freedom.

## RESULTS OF THE STUDY

Data in Table 1 show a grand mean of 2.26. This means that in the opinion of the teachers, hardware is not generally available for effective TVET Programme in Tertiary Institutions in South East Nigeria. However, items 1, 6, and 10 have mean scores of 2.84, 3.31 and 2.57 respectively. The implication is that in the opinion of the teachers, computer systems, flash drives and CD ROMs are available hardware but other items like printers, multimedia, interactive smart boards, video player, television sets and others are not available.

Table 2 contains the data that showed a grand mean of 2.37. This implies that software generally is not available for effective TVET Programme in Tertiary Institutions in South East Nigeria. But items 15, 17, 19 and 20 indicated mean ratings of 2.56, 2.78, 3.07 and 2.68 respectively showing availability.

Table 3 contains the data that showed the opinion of the teachers on availability of e-learning opportunities according to their teaching experiences. According to the table a grand mean of 2.33 and 2.31 for the experience and less experienced respectively were shown. This means that in the opinions of both experienced and less experienced TVET teacher, e-learning opportunities were not available. However, item 20 showed mean ratings of 2.33 and 3.11 for experienced and less experienced respectively. This means that both experienced and less experienced

**Table 1.** Mean responses on the opinion of teachers on availability of hardware for effective TVET programme in tertiary institutions in South east Nigeria.

S/N	Item	$\bar{x}$	SD	Remark
1.	Computer systems are available for teaching	2.84	0.89	Available
2.	Printers are available for teaching.	2.11	1.05	Not Available
3.	Scanners are available for teaching.	2.03	0.67	Not Available
4.	Mouse are available for teaching.	2.40	0.87	Not Available
5.	Keyboards are available for teaching.	2.43	0.68	Not Available
6.	Flash drives are available for teaching.	3.31	0.99	Available
7.	Uninterrupted Power Supply (UPS) systems are available for teaching.	2.38	0.56	Not Available
8.	Multimedia projectors are available for teaching	1.69	0.62	Not Available
9.	Interactive smartboards are readily available for teaching.	1.17	0.91	Not Available
10.	CD ROMs are readily available for teaching.	2.57	1.11	Available
11.	Video players are readily available for teaching.	2.22	0.86	Not Available
12.	Televisions are available for teaching.	1.97	0.87	Not Available
	Grand mean	2.26	0.84	Not Available

**Table 2.** Mean responses on the opinion of teachers on availability of software for effective TVET programme in tertiary institutions in South east Nigeria.

S/N	Item	$\bar{x}$	SD	Remark
13	Internet facilities are available all the time	2.16	0.98	Not Available
14	e-book available in libraries	2.01	1.13	Not Available
15	Knowledge of Tweeter	2.56	0.86	Available
16	Access to tweeter is available	1.88	1.34	Not Available
17	Knowledge of YouTubes,	2.78	1.01	Available
18	Access to YouTube is available	2.13	0.77	Not Available
19	e-mail addresses available	3.07	0.81	Available
20	Familiarity with Facebook	2.68	0.82	Available
21	Knowledge and access to CADs and it's equivalent	2.03	0.89	Not Available
	Grand mean	2.37	0.96	Not Available

teachers share divergent opinions on availability of facebook opportunities for e-learning.

Data in Table 4 reveal that the t-calculated value of 0.107 is less than the t-table value of 1.960 (t- critical > t-cal) at 0.05 level of significance. Consequently the null hypothesis was accepted this means that the opinion of the teachers on availabilities of e-learning opportunities was not dependent on experience.

## DISCUSSION

In this study information has been generated on the opinion of TVET teachers over availability of e-learning opportunities. Research questions 1 and 2 looked for information on hardware and software respectively. These were designed to determine the opinion of teachers, on availability of e-learning opportunities for

effective TVET programme in the tertiary institutions in South East Nigeria. The general results in Tables 1 and 2 showed the mean score of 2.12 and 2.37 respectively in the study revealing that hardware and software are not available for effective TVET programme in the tertiary institutions in South East Nigeria. This is in line with the opinion of Terande (2012) who said that a big percentage of the schools are unable to purchase some hardware for use by their pupils. Adeoye (2013) agreed with the result of this study as shown in Table 2 that most of the software are not available. Adeoye showed that teachers are ignorant of most of the tools that facilitate e-learning, such as e-mail, tweeter, and some chat tools. According to his work non availability of the software does not necessarily mean that it is not there but that the teachers are not aware of its existence even when most of their phones have such tools.

The grand mean score of the results in Table 3

**Table 3.** Mean responses on the opinion of teachers on availability of e-learning opportunities for effective TVET programme in tertiary institutions in South east nigeria according teaching experience.

S/N	Item: There should be availability of	More experienced		Less experienced	
		x	SD	x	SD
1.	Computer systems for teaching	2.17	0.87	2.21	0.94
2.	Printers for teaching purpose.	2.11	0.86	2.19	0.88
3.	Scanners for teaching.	2.45	0.85	1.98	0.83
4.	Mouse for teaching	2.41	0.77	2.02	0.81
5.	Computer Keyboards for teaching	2.43	0.56	1.86	0.71
6.	Flash drives for teaching	2.98	0.97	2.84	0.80
7.	Uninterrupted Power Supply (UPS) systems for teaching	1.97	0.81	2.01	0.98
8.	Multimedia projectors for teaching	1.23	0.67	2.00	0.77
9.	Interactive smart board are readily available for teaching	1.83	0.97	1.09	0.87
10.	CD ROMs are readily available for teaching	3.18	0.52	3.60	0.89
11.	Video players are readily available for teaching	1.67	1.13	2.21	1.02
12.	Televisions are available for teaching	2.12	0.87	1.97	0.73
13.	Internet facilities are available all the time	2.12	0.87	2.34	0.81
14.	e-book available in libraries	2.37	0.87	1.79	0.55
15.	Knowledge of Teeter	2.50	1.17	2.76	0.67
16.	Access to tweeter	2.18	0.86	1.92	0.81
17.	Knowledge of YouTube	2.79	1.09	3.12	0.97
18.	Access to YouTube	2.32	0.83	1.87	0.99
19.	e-mail addresses	3.14	1.03	3.25	0.57
20.	Familiarity with facebook	2.33	0.97	3.11	1.07
21.	Knowledge and access to CADs and it's equivalent	2.76	0.66	2.56	0.65
	Grand mean	2.33	0.87	2.31	0.82

**Table 4.** Summary of t-test statistics testing the opinion of the teachers on availability of e-learning opportunities based on teaching experiences.

Variables	N	$\bar{x}$	SD	df	t-cal	t-crit	p	Decision
Experienced	53	2.33	0.87	83	0.107	1.960	0.05	Accepted
Less Experienced	32	2.31	0.82					

showed 2.33 and 2.31 for the more experience and less experienced respectively. This means that in the opinions of both more and less experienced TVET teacher, e-learning opportunities were not available. However, item 20 showed mean ratings of 2.33 and 3.11 for more experienced and less experienced respectively. This means that the opinion of teachers on availability of facebook opportunities is influenced by their teaching experiences. Okafor and Ejiofor (2013) said that the use of e-learning resources has the capacity to enhance teaching skills which is increased with experience. This is not in agreement with result of this study which show that the less experienced are more familiar with the facebook more that the more experienced.

This indicates that in the opinion of the TVET

teachers, the e-learning opportunities are not readily available for effective TVET programme. It does not necessarily mean that they have not seen or own these items but that the items are not meant for TVET programme.

This result is in line with the result of Effiong (2005) and Nwana (2012) that there is acute shortage of e-learning materials. They maintain that computers, printers, scanners, e-books, textbooks, workbooks and books on ICT are not available and not in use in Nigerian schools. Also, the findings agree with that of Seiden (2000) and Uhaegbu (2001) which revealed a low level of usage of ICT equipment and facilities in secondary schools. However, to compare with another area, the finding is contrary to that of Becker (2000) which found that US schools use computers and e-

learning facilities in all subjects. It is therefore feared that with the situation the possibility of optimizing e-learning opportunities for teaching and learning TVET will not be realized by this inadequacy. The question then is what exactly happens to the huge amount of money pumped into the system by TETFund and NEPAD as claimed. If really their claims are right, then people are enriching themselves with such monies. No wonder Adetokunbo (2013) stated that the Transparency International and Socio-Economic Rights and Accountability Project is calling on the government to look into the huge sums of money that are invested in the education sector and be serious about teaching children the value of honesty. It is better to note that corruption has a devastating impact on developing nations, and stands at hindering progress towards the Millennium Development Goals and can jeopardizes social and economic development of any nation.

It is right to conclusively assert that this study has revealed the opinion of the teachers concerning the availability of e-learning opportunities for effective TVET programme in South East Nigeria. These reasons could be that most of these teachers are not knowledgeable enough in using the e-learning tools like the multimedia, smart boards. It may be because of incessant network failure or no access to the bandwidth around the school environments that made them less interested. If such scenarios continue a greater gap will be created between Nigeria TVET graduates and their counterparts in the developed countries. This will definitely defeat the objectives of the federal government of vision 20-2020.

## RECOMMENDATIONS

Based on the findings of the study, it is therefore recommended that,

1. ICT facilities should be provided in the classrooms and auditoriums in order to enhance web-based instruction. The government should have an understanding with the internet service providers (ISP) to provide internet services to schools. This will help increase the speed.
2. Capacity building programmes on the use of e-learning facilities should be conducted for the teachers to acquire the knowledge of ICT. A provision of in-service training of teachers, workshops, seminars, and conferences could accomplish this.
3. Teachers should endeavour on their own to develop and equip themselves without waiting for the government.

## Conflict of Interests

The authors have not declared any conflicts of interest.

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