



Approaches for Enhancing Adoption of ICT Resources in Vocational and Technical Education Programmes for Quality Instructional Delivery in Universities

Michael Onwumere, Lilian O. Nwandu, Guma, Elisha T.
Department of Vocational and Technical Education, Faculty of Education,
Alex Ekwueme Federal University, Ndufu-Alike Ikwo, Ebonyi state,
Department of Business Education, Faculty of Education,
University of Nigeria, Nsukka,

ABSTRACT

The study was centered on the approaches for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state, Nigeria. A descriptive research design was used for the study. Two research questions and two null hypotheses were posed; tested at 0.05 level of significance. The target population consisted of 117 Vocational and Technical Education lecturers drafted from the 2 Public Universities in Abia state, Nigeria (i. e - MOUAU and ABSU), while there was no sampling carried out because of the manageable size of the population; hence the whole population was used as the sample. A self-structured questionnaires titled: Measures for Effective Adoption of ICT Resources Questionnaire (MEAIRQ) was developed, validated and used for the study. The internal consistency reliability of the instruments was calculated using Cronbach's Alpha procedure and reliability estimate of 0.82 was obtained for MEAIRQ. The instruments were made up of a total of 20 content items, 10 items each in both session. It adopted a four point modified type scale model of 4 (Strongly Agreed), 3 (Agreed), 2 (Disagreed) and 1 (Strongly Disagreed). The questionnaires were administered by hand with the help of 7 trained research assistants and all the copies were returned. The data obtained from data collection were analyzed using mean and standard to answer the research questions and t-test for the hypotheses at 0.05 level of significance. The results identified several self-help approaches and governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities. However, the study recommended among others that VTE lecturers should be given more and necessary training in ICT usage so that they become familiar with modern pedagogy of imparting knowledge and skills.

ARTICLE INFO

Article History

Received: June 2023
Received in revised form: July, 2023
Accepted: August, 2023
Published online: September, 2023

KEYWORDS

VTE, ICT Resources, Enhancement,
Adoption, Instructional delivery.

INTRODUCTION

The rate and level of development of any nation is dependent on her level of her Vocational and technical education development. Vocational and Technical Education (VTE) is a

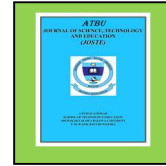
standard form of education and training to acquire practical skills, know-how and understanding necessary for employment in a particular occupation. The conceptual definition of VTE cut across educational levels and sectors. Osito

Corresponding author: Michael Onwumere

✉ onwumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekwueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



(2011) submitted that VTE is an intellectually based form of education that goes beyond manual dexterity. It's aimed at providing the manpower who will apply acquired knowledge and skills in solving problems. Also, Okoye and Arimonu (2016) defined vocational and technical education as the type of education that emphasize the application of skills, knowledge and attitudes required for employment in a particular occupation or cluster of related occupations in any field of social and economic activity. Vocational and technical education equips people with a broad range of knowledge, skills and attitudes that are now recognized as indispensable for meaningful participation in work and life. Nwolu-Elechi (2013) expressed that no nation can develop to its fullest and keep pace with trends in science and technology without effective and efficient technical and vocational education and training. However, the teaching of Vocational and Technical Education (VTE) programmes can be facilitated by the use of information and communication Technology (ICT).

ICT, or information and communication technology, has, nevertheless, taken on a very significant role in society at large and in education today. As a result, it was expected that understanding how to use a computer would soon be just as crucial as being able to read and write. Long-distance electromagnetic communication tools and systems make up communication technology. Information is the material object of these technologies. In education, this technology includes the use of computers, radio, satellites, online self-learning courses, interactive CDs for telepresence systems, video, internet optical fiber technologies, and all varieties of information technology (IT) hardware and software. According to Adebayo (2005), Information communication technology is any technology that permits the exchange and transfer of information. Information communication technology. It is a catchall term for computers, software, networks, satellite linkages, and related technologies that let users access, analyze, produce, share, and use data, information, and knowledge in ways that were previously almost unthinkable. ICT and "internet" are interchangeable terms. Information

communication technology, according to De Watteville and Gilbert (2015), entails the necessary analysis, manipulation, storage, and distribution of information as well as the design and deployment of tools and software to accomplish these tasks. Information communication technology (ICT) is defined by Iloanusi and Osuagwu (2011) as the management and processing of information, as well as the use of all computer, communication network, and mobile technologies.

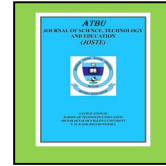
Telephones, radio, television, and cables are thus the main examples. Computers are the primary tool in information and technology, and telephones are the primary type of communication technology. Information and communication technology will change the focus of education from one that is faculty-centered to one that is learner-centered, improving instruction by replacing it with opportunities for interactive, personalised learning. By supporting academic "total quality management" and multidisciplinary links, it will enhance scholar educational organization. According to Nagunwa and Lwoga (2012), it is now possible to give education to a large number of people without having to pay for expensive physical infrastructure. Mohammed (2003) claims that several nations, particularly those in the industrialized world and some in the developing world, are implementing policies and programs intended to change their economies into ones based on information and technology. Teachers and students no longer have to rely solely on printed books and other materials in physical media housed in libraries, making ICT a potentially powerful tool for extending educational opportunities, both formal and non-formal, to previously under several constituencies and access to remote learning resources (Ssekakubo, Suleman, and Marsden, 2011). ICT is utilized in the classroom to prepare today's students for a job where ICTs, notably computers, the internet, and related technologies, are becoming more and more commonplace. Teachers can use ICT in a variety of ways to save material, such as lesson plans, diagrams, and images of things pertinent to their courses, for later retrieval. The internet can be utilized as a teaching tool to explore, study,

Corresponding author: Michael Onwumere

✉ onwumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



solve problems, and interact, according to Olugbeko and Izu (2013). This enables students to exchange ideas with peers from outside the classroom and even from other countries. As a result of ICT facilities, learner can no longer be viewed as empty vessels waiting to be filled but rather as active organisms seeking meaning, the teacher is that of a guide. In developed countries like Europe and American, ICT has almost replaced conventional way of teaching and learning.

Currently in Nigeria, there is a great demand for ICT driven education. The Federal Ministry of Education in conjunction with supervisory bodies like National Universities Commission (NUC) and National Commission for College of Education (NCCE) has taken a positive step towards meeting the computer demand in education. For example computer education courses are now made compulsory for students in tertiary institution throughout the country. Consequently ICT is assuming a very important position in the development of the Nigeria's educational system. Transferring relevant information, values, skills, attitudes, beliefs, and moral for the collective wellbeing of the individual and his society requires proper and effective communication. Nigeria, in a quest to join ICT world, further set up an ICT policy. The federal executive council approved this policy and established the National Information Technology Development Policy as the implementing body. This policy was launched for implementation in April 2001.

According to Iloanusi and Osuagwu (2010), it may be in keeping with the government policy as demonstrated above that a number of governmental and non-governmental organizations, banks, and private citizens have funded the adoption of ICT in Nigerian educational institutions at all levels, and that strategic plans and projects are constantly being carried out to review targets in the area of ICT. Due to the fact that teachers are the ones who actually carry out any curriculum, this commitment from governmental and non-governmental organizations also means that the importance of the teacher's role in the proper and effective use

of ICT in the teaching and learning process cannot be overstated. Thus, the teacher's aptitude, skill, knowledge, creativity, and competency are crucial. However, in spite of the enviable importance of ICT in teaching and learning, it was discovered by the researchers in the area of the study through focus discussion with some of the teachers of Vocational and Technical education that both the male and female teachers were having problems and serious difficulties in use of ICT for effective teaching and learning. The difficulties in use of ICT might be responsible for the failure in the inability of them to adequately adopt ICTs in teaching of VTE programmes which defeat the objective of teaching VTE for self-reliance (Ngimi, 2013). These teachers must be given the resources they need to give the students the ICT-based training they need in order to stop the male or female VTE teachers' inability to use ICT and to accomplish the goal of teaching VTE in tertiary institutions for self-reliance. His or her education must therefore provide opportunities for learning how to choose, apply, and employ ICT tools and materials for instructional activities. Therefore, the focus of the research is on identifying strategies to increase the usage of ICT resources in programs for vocational and technical education in order to give high-quality instruction in universities.

Statement of the Problem

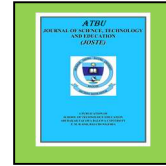
Given that the teacher is the one who actually implements any curriculum, the importance of both male and female teachers cannot be overstated in terms of the proper and successful use of ICT in the teaching and learning process. Therefore, the teacher's aptitude, talent, knowledge, creativity, and competency are very significant. In essence, Ngimi (2013) claimed that in order for any teacher, regardless of level, to be able to support national development in today's interconnected world, they must have the authority to give their students ICT-based training. His or her education must therefore provide opportunities for learning how to choose, apply, and employ ICT tools and materials for instructional activities. Kisanga and Ireson (2015) have a similar perspective. In his study, he made

Corresponding author: Michael Onumere

✉ onumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



the point that ICT allows for quick and precise feedback for students as well as quick computation and graphing, freeing up the learner to concentrate on tactics and interpretations.

Despite the advantages that ICT devices provide for teaching and learning, teachers and school administration have not yet embraced and integrated ICT into instructional activities, therefore their use in classrooms is still minimal. Because of this, Ahmed (2010) argued that the value of educational technology tools depends on how the instructor uses them. Studies have shown that ICTs are not seen as being essential to the teaching and learning process, particularly in developing nations where the majority of tests and exams are still administered using paper and pencil rather than more modern methods like online assessment, teleconferencing, etc. The use of ICT resources in vocation and technical education programs to give high-quality instruction in universities has not received much attention in the literature, if any, according to a review of the available research. This study was therefore necessary.

Purpose of the Study

The purpose of the study was to examine the approaches for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities.

Specifically, the study was designed to identify:

1. Self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities.
2. Governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities.

Research Questions

The following research questions were put forward to guide the study:

1. What are the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities?
2. What are the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities?

Hypotheses

The null hypothesis was tested at 0.05 level of significance.

HO₁: There is no significant difference between the mean responses of male and female VTE lecturers on the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities

HO₂: There is no significant difference between the mean responses of male and female VTE lecturers on the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities

METHODOLOGY

The study adopted descriptive survey research design and it was considered suitable because the opinion of a representative sample of respondents was sought using questionnaire and the finding was generalized on the entire population. The target population consisted of 117 Vocational and Technical Education lecturers drafted from the 2 Public Universities in Abia state, Nigeria (i. e - MOUAU and ABSU). However, there is no department of Technical and Vocational Education (TVE) being run in the Universities located in area of the study, nevertheless the programmes of TVET exist in the area of study: Agricultural Education, Business Education, and Home Economics Education. Additionally, there was no sampling carried out because of the manageable number of the population; hence the whole population was used as the sample. The

Corresponding author: Michael Onwumere

✉ onwumere michael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



instrument for data collection was questionnaire titled: Measures for Effective Adoption of ICT Resources Questionnaire (MEAIRQ). The questionnaire was developed from literature by the researchers and used for data collection. The instrument was a four point response scale of strongly agreed (SA), Agreed (A), Disagreed (D) and strongly disagreed (SD) with corresponding values of 4, 3, 2, and 1 respectively. The instrument was face – validated by three experts: Two from Vocational and Technical Education Department and one from Measurement and Evaluation Department- all in University of Nigeria, Nsukka and Michael Okpara University of Agriculture, Umudike respectively. Their corrections and suggestions were utilized to improve the initial copies of the questionnaire to produce the final copies. Cronbach's Alpha

reliability method was adopted to determine the internal consistency of the questionnaire items. A Cronbach Alpha coefficient of 0.83 was obtained and the collected data was analyzed using mean for research questions and t-test was used for the test of hypothesis. Any mean response of 2.50 and above was considered positive or agreed while any mean response below 2.50 was considered negative or disagreed, more so the hypothesis was tested at 0.05 level of significant.

RESULTS AND DISCUSSIONS

Research Question 1: What are the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities?

Table 1: Mean and Standard Deviation on self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities (N=117)

S/N	Self-help approaches	\bar{x}	SD	Remark
1	Developing of adequate interest in online learning can help me adopt ICT resources in teaching and learning	3.20	.82	Agreed
2	Adopting ICT resources can be enhance through my contributing and exploring avenues for acquiring technology resources for myself	3.23	.85	Agreed
3	Attending workshop to get awareness on the application and management of technological tools is a aware to improve my ICT adoption capability	3.30	.83	Agreed
4	Adequate self-confidence and positive perception about ICT makes it easier for its adoption in teaching and learning	3.10	.80	Agreed
5	Personal learning about ICT in my own time can help in enhancing adoption of ICT resources in school	3.07	.82	Agreed
6	Being receptive to change enhances the adoption of ICT resources utilization in school	3.03	.82	Agreed
7	Participating in online communities (e.g. mailing list, twitter, blogs etc) for professional discussion with other lecturers improves my ICT competencies	2.93	.80	Agreed

SD = Standard Deviation of the respondents and \bar{X} = Mean of the respondents

Data in Table 1 revealed that all the 7 items had their mean rating ranged from 2.93 to 3.30 and were above the cut-off point of 2.50. This indicated that the respondents agreed that all the 7 items were the self-help approaches that

lecturers could use for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities. The standard deviation of all the 7 items ranged from .80 to .85, which showed that

Corresponding author: Michael Onwumere

✉ onwumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



the respondents were not too far from the mean and opinion of one another in their responses on the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state.

Research Question 2: What are the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities?

Table 2.1: Mean and Standard Deviation on the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities (N=117)

S/N	Governmental approaches	\bar{x}	SD	Remark
1	Conducting workshop by the government to create awareness on technological tools for students enhances its adoption in teaching	2.65	.48	Agreed
2	Adequate provision of financial support for the purchase and maintenance of technological tools makes it easier for its adoption	2.72	.50	Agreed
3	Providing grants to lecturers to buy Computers motivates me in having interest in ICT resources adoption	2.95	.85	Agreed
4	Employing capable computer experts to train Nigerian universities lecturers on how to use e-learning technologies to deliver their lectures is a good way to motivate me	2.60	.49	Agreed
5	Favorable policies adoption for ICT utilization in school enhances its adoption in teaching and learning	2.63	.58	Agreed
6	Giving lecturers computers to enable them prepared their e-learning lectures and notes is a good way to motivate me	3.18	.83	Agreed
7	Adequate provision of e-learning experts or manpower to train the lecturers on utilization of technological tools can help its adoption	3.17	.76	Agreed
8	Providing enough security to e-learning centres, to prevent looting of the computers by armed robbers	2.65	.48	Agreed
9	Prioritizing ICT equipment in the teaching and learning motivates me in having interest in ICT resources	2.72	.50	Agreed

SD = Standard Deviation of the respondents and \bar{X} = Mean of the respondents

Data in Table 2.1 revealed that all the 9 items had their mean rating ranged from 2.63 to 3.18 and were above the cut-off point of 2.50. This indicated that the respondents agreed that all the items were the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities. The standard deviation of all the 9 items ranged from .48 to .85, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the governmental approaches that could be used

for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state

Test of Hypotheses

Ho₁: There is no significant difference between the mean responses of male and female VTE lecturers on the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities.

Corresponding author: Michael Onwumere

✉ onwumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



Table 3: t-test analysis of mean difference between male and female VTE lecturers on the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities

Gender	N	X	SD	Df	t-cal	t-crit	Sig.	Decision
Male	75	2.70	.52	50	1.22	1.67	.063	Accepted H ₀₁
Female	42	2.89	.61					

Source: paired Samples t-test Result from SPSS

Data on table 3 shows that t-cal of 1.22 is less than the t-cal of 1.67 at 0.05 level of significance, which indicates that the hypothesis stated is accepted. With the forgoing, we therefore accept the null hypothesis for the items and reject the alternate hypothesis. Which means there is no significant difference between the mean responses of male and female VTE lecturers on the self-help approaches that could be used for enhancing adoption of ICT resources in vocation

and technical education programmes for quality instructional delivery in Universities in Abia state.

Ho₂: There is no significant difference between the mean responses of male and female VTE lecturers on the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities

Table 4: t-test analysis of mean difference between male and female VTE lecturers on the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities

Gender	N	X	SD	Df	t-cal	t-crit	Sig.	Decision
Male	75	2.789	.62	50	1.24	1.64	.061	Accepted H ₀₂
Female	42	2.60	.53					

Source: paired Samples t-test Result from SPSS

Data on table 4 shows that t-cal of 1.24 is less than the t-cal of 1.64 at 0.05 level of significance, which indicates that the hypothesis stated is accepted. With the forgoing, we therefore accept the null hypothesis for the items and reject the alternate hypothesis. Which means there is no significant difference between the mean responses of male and female VTE lecturers on the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state.

FINDINGS OF THE STUDY

The following findings emerged from the study based on the research questions answered and hypothesis tested.

- A. Seven (7) self-help approaches that could be used for enhancing adoption of ICT resources in vocational and technical education programmes for quality instructional delivery in Universities;** They are among others:
1. Developing of adequate interest in online teaching and learning using ICT resources in e-classes
 2. Contributing and exploring avenues for acquiring technology resources for myself

Corresponding author: Michael Onwumere

✉ onwumere michael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



3. Attending workshop to get awareness on the application and management of technological tools
4. Being receptive to change enhances the adoption of ICT resources utilization in school
5. Participating in online communities (e.g. mailing list, twitter, blogs etc) for professional discussion with other lecturers

However, there is no significant difference between the mean responses of male and female VTE lecturers on the seven (7) self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state.

B. Nine (9) governmental approaches that could be used for enhancing adoption of ICT resources in vocational and technical education programmes for quality instructional delivery in Universities were found; They are among others:

1. Conducting workshop by the government to create awareness on technological tools for students
2. Adequate provision of financial support for the purchase and maintenance of technological tools makes it easier for its adoption
3. Providing grants to lecturers to buy Computers motivates me in having interest in ICT resources adoption
4. Employing capable computer experts to train Nigerian universities lecturers on how to use e-learning technologies to deliver their lectures
5. Favorable policies adoption for ICT utilization in school enhances its adoption in teaching and learning
6. Giving lecturers computers to enable them prepared their e-learning lectures and notes is a good way to motivate me

7. Adequate provision of e-learning experts or manpower to train the lecturers on utilization of technological tools can help its adoption
8. Provision of enough security to e-learning centres, to prevent looting of the computers by armed robbers
Prioritizing ICT Equipment in the teaching and learning motivates me in having interest in ICT resources

More so, there is no significant difference between the mean responses of male and female VTE lecturers on the Nine (9) governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state.

DISCUSSION OF FINDINGS

Findings on research question 1 revealed that developing of adequate interest in online teaching and learning using ICT resources in e-classes, contributing and exploring avenues for acquiring technology resources self, attending workshop to get awareness on the application and management of technological tools, being receptive to change enhances the adoption of ICT resources utilization in school and participating in online communities (e.g. mailing list, twitter, blogs etc) for professional discussion with other lecturers among others were the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state. The standard deviation of all the 7 items ranged from .80 to .85, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the self-help approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state.. However, the findings of the above study were in agreement with the view of Qureshi, Ilyas, Robina

Corresponding author: Michael Onwumere

✉ onwumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



and Michael (2012), who revealed that support for e-learning from teachers has been identified as critical for its successful implementation. More so, according to Tarus and Gichoya (2015), possession of relevant self-technical computer skills is a crucial factor necessary for adoption of technology. This view is shared by Qureshi et al. (2012), who stated that having “confidence in skills and ability to use e-learning contributes significantly to use of technology”

Findings on research question 2 revealed that conducting workshop by the government to create awareness on technological tools for students, adequate provision of financial support for the purchase and maintenance of technological tools, grants from the Government to lecturers to buy Computers motivates me in having interest in ICT resources, government employing capable computer experts to train Nigerian universities lecturers on how to use e-learning technologies to deliver their lectures, favorable policies adoption for ICT utilization in school enhances its adoption in teaching and learning, giving lecturers computers to enable them prepared their e-learning lectures and notes is a good way to motivate me, Adequate provision of e-learning experts or manpower to train the lecturers on utilization of technological tools can help its adoption, Provision of enough security to e-learning centres, to prevent looting of the computers by armed robbers and Prioritizing ICT Equipment in the teaching and learning motivates me in having interest in ICT resources among others were the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state. The standard deviation of all the 9 items ranged from .48 to .85, which showed that the respondents were not too far from the mean and opinion of one another in their responses on the governmental approaches that could be used for enhancing adoption of ICT resources in vocation and technical education programmes for quality instructional delivery in Universities in Abia state. However, the findings was in agreement with Mtebe and Raisamo (2014) who stated that government provision of training

on knowledge, skill and conduct workshop in use of technological tools for learning purpose is a critical approach to ICT implementation in schools. Also, Nawaz (2013) revealed that implementation and adoption ICT resources could be made more easier if government should equip all schools with current internet facilities to help the teachers and students have access electronically to current information in Agricultural Science anytime, anywhere.

CONCLUSION

The roles of e-learning system to enhance the delivery of education to a large population in various Universities are well experienced and documented to bridge the high increasing demand of higher education. However, the e-learning advantages are not directly realized in Universities in Nigeria because they are not fully practiced, since, there are a lot of impediments of implementing e-learning. The researchers therefore extracted the most common basic approaches that will help the Universities to improve and successfully implement the e-learning systems. Thus, it is expected that if lecturers attends workshop to get awareness on the application and management of technological tools and government equip schools at every level with e-learning facilities, quality and effective teaching and learning will be guaranteed.

RECOMMENDATIONS

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

1. Tertiary institutions should concentrate on sustainable and internal power generation through usage of solar panel or independent power projects by converting dams in schools where they have them to power generation centres,
2. All the staff in educational institutions offering agricultural education as a course should be trained not only to become computer literate, but also be able to use ICT for teaching and learning process,
3. Government should subsidize the cost of computer and ICT gadgets for every institution of learning in Nigeria,

Corresponding author: Michael Onumere

✉ onumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



4. Lecturers that are used to traditional methods of teaching should be exposed to e-learning facilities through seminars and workshops to be organized periodically by the institution of learning,
5. Government should ensure that adequate mechanical and electronic devices are available in schools for practical experiences of students to enable them follow adequately in e-learning interactions with their lecturers.

REFERENCES

- Ahmed, Hassan M. S., (2010). Hybrid E-Learning Acceptance Model: Learners Perceptions. *Decision Sciences Journal of Innovation Education*, Vol.8, No.2, pp.313-346
- Adebayo. O (2005). Technical and vocational education for national transformation. Proceedings of 1st ASUP Zone D National Conference held at Akanu Ibiam Federal Polytechnic, Unwana pp.21-37.
- De Watteville and Gilbert (2015). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational technology research and development*, 55(3), 223-252.
- Hadullo, K., Oboko, R., and Omwenga, E. (2018). Status of e-learning quality in Kenya: Case of Jomo Kenyatta University of agriculture and technology postgraduate students. *International Review of Research in Open and Distributed Learning*, 19(1).
- Iloanusi, N. O and Osuagwu, C. C. ICT in Education (2010): Achievements so far in Nigeria. www.eaas-journal.org/survey/userfil...,2010.
- Kisanga, D., and Ireson G., (2015). Barriers and strategies on adoption of e-learning in Tanzanian higher learning institutions: Lessons for adopters. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 2015, Vol. 11, Issue 2, pp. 126-137
- Mohammad, Y., (2006). Factor Influencing the Implementation of ICT in Jigawa States Schools, Nigeria. Unpublished M. Ed. Thesis, University of Ilorin.
- Molony, T. (2006). ICT in Developing Countries. Postnote 222. U. K.: Parhamat, 2006. School Learning Theories and Applications. Enugu: Magnet Business Enterprise, 2006.
- Mtebe, J. S. and Raisamo, R. (2014). Investigating Perceived Barriers to the Use of Open Educational Resources in Higher Education in Tanzania. The international review of research in open and distributed learning (IRRODL), Vol 15, No: 2
- Nawaz, A., and Kundi, G. M., (2010). Demographic Implications for the user Perceptions of E-Learning in Higher Education Institutions of N-W.F.P, Pakistan. *The Electronic Journal on Information Systems in Developing Countries (EJISDC)* Vol.41, No: 5, 1-17
- Nwolu-Elechi O. (2013). Technical and vocational education for national transformation. Proceedings of 1st ASUP Zone D National Conference held at Akanu Ibiam Federal Polytechnic, Unwana pp.21-37.
- Nagunwa, T. and Lwoga, E. (2012). Developing eLearning technologies to implement competency based medical education: Experiences from Muhimbili University of Health and Allied Sciences. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, vol. 8, no. 3, pp. 07-21.
- Ngimi, H. M., (2013). Opportunities and Challenges of Integrating ICTs in Education Delivery in the Institute of Continuing Education at the

Corresponding author: Michael Onwumere

✉ onwumere michael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved



- Open University of Tanzania. M. ED (APPS) of Open University of Tanzania.
- Osito, G. A. T. (2011). Actualization of vocational education management in Nigeria by 2020: Not a mirage. *Journal of Science and Management*, 1(1), 57-65.
- Oluwatumbi O. S. (2015). ICT literacy among vocational and technical education teachers in Kogi State. *British Journal of Education* 3(5):21-30.
- Olugbeko, S. O, and Izu, G. O., (2013). The reality and challenges of E-Learning education in Africa: The Nigerian Experience. *International Journal of Humanities and Management Sciences (IJHMS)* Vol. 1, No: 3, pp.205 – 209
- Olawale, B. A., Jegede J. O. and Olamide, O. O. (2013). Technical and vocational skills depletion in Nigeria and the need for policy intervention. *International Journal of Vocational and Technical Education*, 5(6), 100 – 109.
- Okoye R. and Arimonu M. O. (2016). Technical and vocational education in Nigeria: issues, challenges and a way forward. *Journal of Education and Practice* 7(3):113-118.
- Ssekakubo, G., Suleman, H. and Marsden, G., (2011). Issues of Adoption: Have E-Learning Management Systems Fulfilled their Potential in Developing Countries? In *Proceedings of the South African Institute of Computer Scientists and Information Technologists Conference on Knowledge, Innovation and Leadership in a Diverse, Multidisciplinary Environment*. Cape Town, South Africa.: ACM New York, NY, USA ©2011, pp. 231–238.
- Tarus, J. K., and Gichoya, D., (2015). E-learning in Kenya Universities: Preconditions for Successful Implementation. *The Electronic Journal of Information Systems in Developing Countries (EJISDC)*, Vol.66, No: 4, pp. 1-14
- Qureshi, I. A, Ilyas Khola, Robina Yasmin, and Michael Whitty (2012). Challenges of implementing e-learning in a Pakistani university. *Knowledge Management & E-Learning: An International Journal*, Vol.4, No.3. pp. 310-324

Corresponding author: Michael Onwumere

✉ onwumeremichael@gmail.com

Department of Vocational and Technical Education, Alex Ekueme, Federal University, Ndufu-Alike, Ikwo, Ebonyi State

© 2023. Faculty of Tech. Education, ATBU Bauchi. All rights reserved