

STUDENTS' PERCEPTIONS ON MERITS AND DEMERITS OF E-LEARNING IN VOCATIONAL AND TECHNICAL EDUCATION IN PUBLIC UNIVERSITIES IN EDO STATE, NIGERIA

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Abstract

This study assessed the merits and demerits of e-learning in Vocational and Technical Education from the perspectives of students in public universities in Edo State. Two research questions and two hypotheses guided the study. Descriptive survey design was used in the study. One hundred and ninety-nine Vocational and Technical Education (VTE) students participated in the study. The instrument was validated by two experts in the field of Vocational and Technical Education. Reliability of the instrument was obtained using split half method. The pilot data was analyzed using Pearson Products Moment Correlation Coefficient and yielded an r value of 0.88. The data for the study was analyzed using mean, standard deviation and t -test. The findings revealed that e-learning in Vocational and Technical Education in public universities in Edo State has so many merits such as provides scientific learning materials in an interesting way, provides immediate and continuous feedbacks to learners, increases the learner's motivation to learn amongst others. The findings also revealed that e-learning usage also has numerous demerits such as making students focus on technology without paying attention to scientific contents, which reduces their understanding, increases students' financial burdens and responsibilities, increases the phenomenon of cheating in tests and limit the role of the teacher in guiding students, which affects their behaviour and ethics amongst others. It was recommended among others that management of vocational and technical education in public universities should regularly organize orientation programmes to create awareness on the benefits and ills of e-learning on students' career development.

Keywords: Merits, Demerits, E-learning, VTE Students, Nigeria

Introduction

The way students especially those in tertiary institutions in the 21st century and era of information and communication technology learn has change greatly. In our contemporary time, e-learning has become a strong and potent tool for teaching and learning not only in Nigeria but in the world over including Vocational and Technical Education. According to Al-Kayed (2020), e-learning is expanding rapidly all over the world and so many reasons have pushed educational institutions towards its usage and adoption. In the words of Al-Kayed, it is considered one of the most rapidly growing fields as a result of scientific and technical developments, and the increasing demand for

integrating technology into education with the aim of building a generation capable of dealing with the vocabulary of the new era.

E-learning is the use of network technologies to create, foster, deliver, and facilitate learning, anytime and anywhere. It also means a learning facility that uses electronic devices such as Local Area Network (LAN), Wide Area Network (WAN), or Internet to give lectures, to interact, or to guide and monitor the students Rusman (2016). According to Al-Atribi in Al-Kayed (2020), e-learning is the learning in which the teacher uses electronic media, modern technologies such as computers, and the Internet to deliver educational content to students through increasing communication and interaction between teachers and students, and between the learner and educational content in an interactive way that benefit students' use, enhance the level of performance and improve the quality of teaching. Negash & Wilcox in Obi, Charles Okoli, Agunwa, Omotowo, Ndu, & Agwu Umahi (2017) defined e-learning to comprise all arrangements of electronically mediated teaching. In other words, it is teaching and learning that is enabled by information and communications technology (ICT), both inside and outside the classroom.

E-learning provides a platform for the students to be completely involved as learning takes place together with texts, videos, sounds, collaborative sharing, and interactive graphics (Al Rawashdeh, Mohammed, Al Arab, Alara & Al Rawashdeh, 2021). E-learning has a number of tools such as videos and podcasts that educators can use as part of their lesson plans (Axmedov & Kenjaveva, 2021). Nigerian tertiary institutions including Vocational and Technical Education programmes have started adopting e-learning in the delivery of course contents. It is either adopted fully or partially. E-learning is also being used in processing so many students' related activities such as tuitions or assessment of performance and administration of examinations. Consequently, VTE students view learning contents via internet, mobile phones or the use a full-fledged course management system. According to Okafor (2022), the e-learning adopted in Nigeria is in form of lecture note on CD-ROM which can be played as at when the learners desires. The e-learning technologies such as computers and whiteboards are either provided by the school authorities or personally by the students. The e-learning contents are mainly provided by the educators or sourced from search engines.

In terms of integration, Singh (2003) noted that e-Learning materials can be delivered using different modes like asynchronous or self-study learning, synchronous learning and blended learning. Asynchronous or self-study learning as a form of e-learning consists of content that is available online at any time that the student wants to access it (Singh, 2003). Is where communication, collaboration and learning can occur in different time and different place, and users can select when they wish to communicate. According to Gülcha, Al-Ghorania, Quedenfeldtb and Braunb (2012), asynchronous learning is a combination between off-line and online e-Learning forms. It enables the learner to interact with other students and the trainer, but does not necessarily require the learner to be in contact with any other learner or instructor at the time of learning.

Synchronous learning as another form of e-learning is generally occurring in real-time with highly interactive and structurally dynamically characteristics and is led by the instructor (Singh, 2003). Singh noted that it allows students to interact with each other at the same time in different places, synchronous e-learning imitates a classroom, which means classes take place in real-time and connect instructors and students via streaming audio or video or through a conference room. Synchronous learning requires the presence of both parties at the same time for the learning to take place. Therefore, it is also referred to as live or real-time interaction (Harriman, 2005). According to Gülcha,

Al-Ghorania, Quedenfeldtb, Braunb (2012), synchronous learning is done in real-time with a live instructor facilitating the training. Moreover, the common source of content is distributed to students at the same time in different places, that avoiding repetition work of the lecture. The environment is named Videoconference Classroom. The most important advantages of synchronous learning are immediate feedbacks and more motivation and obligation to be present and participate (Harriman, 2005). Everyone logs in at a set time and can communicate directly with the instructor and with each other.

Blended learning is a mixture of online learning and traditional face-to-face learning. Chen (2009) describes blended learning as a learning environment that either combines teaching methods, delivery methods, media formats or a mixture of all these. Blended learning involves the blending of various forms of learning activities. These may include classroom, learning experiences, and e-learning or various forms of e-learning or some combination of all three (Clark and Mayer (2008). On the other hand, Graham (2004) enumerated three components in blended learning that can be mixed: combining instructional modalities, combining instructional methods, and combining online teaching with face-to-face instructions.

The use of e-learning in education has its merits including Vocational and Technical Education. Al-Kayed (2020) noted that e-learning is flexible in terms of time and place. It provides all students with the possibility to select time and place and time that is appropriate for learning. In this regard, e-learning provides educational institutions and their students with more flexibility in terms of time and place for receiving learning information. In e-learning, students are given the opportunity to learn with images and virtual animations. This keeps them engaged and involved, eliminating boredom and frustrations (Okafor, 2022). E-learning increases the possibility of communication between students, among themselves, and between students and the school through the ease of communication between these parties in several directions, such as discussion boards, mail, chat rooms (Al-Kayed, 2020). According to Axmedova & Kenjaveva (2021), e-learning facilitates access to knowledge that is relevant and useful to anyone at anytime and anywhere. E-learning ensures that students are completely involved as learning takes place together with texts, videos, sounds, collaborative sharing, and interactive graphics (Al Rawashdeh, Mohammed, Al Arab, Alara & Al Rawashdeh, 2021). According to Obi et. al. (2017), there are several advantages of e-learning in Nigeria such as broadening the scope of learning, allowing learners to learn at different paces and global reach.

The use of e-learning has also been noted to have some demerits. According to Torruam (2012), despite the roles ICTs can play in education, schools in Nigeria have yet to extensively adopt them for teaching and learning. Efforts geared towards integration of ICTs into the school system, have not had much impact. Problems such as poor policy, project implementation strategies and poor information infrastructure militate against these efforts Torruam (2012). In the opinions of Axmedova. & Kenjaveva (2021), for many students, one of the biggest challenges of e-learning is the struggle with focusing on the screen for long periods of time. With e-learning, there is also a greater chance for students to be easily distracted by social media or other sites. Furthermore, Axmedova and Kenjaveva (2021) noted that another key challenge of e-classes is internet connectivity. While internet penetration has grown in leaps and bounds over the past few years, in smaller cities and towns, a consistent connection with decent speed is a problem. Without a consistent internet connection for students or teachers, there can be a lack of continuity in learning for the child. This is detrimental to the education process. The disadvantages of e-learning that have been given by studies according to Hetsevich

(2017) in Al-Kayed (2020) is its dependence on technology, although e-learning is available to everyone, many people may not have computers or a network that supports online learning. Again, Aina in Ogbu (2015) noted that there is problem of inadequate qualified teachers at almost all levels and types of education in Nigeria resulting to the poor utilization of the few available facilities and instructional materials. Al-Kayed, 2020 added that e-learning does not focus on all the senses, but rather on the two senses of hearing and sight only without the use of the rest of the senses. Al-Shahrani (2017) further reiterated that e-learning requires extensive training for faculty members and students in the use of modern technologies before its successful implementation. In another study by Okafor (2022) on the problems and prospects of e-learning in Nigeria. It was discovered that most universities in Nigeria do not have e-learning library domain and lacked ICT facilities. The reasons given for the various problems were cost and unawareness of the benefit of e-learning by students.

Male and female students are found using e-learning in Vocational and Technical Education programme in public universities in Edo State. However, it appears that male students adopt e-learning more than the females. Female students appear to have lower confidence and less experience in the use of computers in teaching and learning. The results of a study by Zhou and Xu (2007) showed that females had lower confidence and less experience in the use of computers in learning. According to Zhou and Xu, females tended to learn how to use technology from others, whereas males were more likely to learn from their own experience. Also, the findings of the study by Egbo, Ifeanacho, Okoyeuzu and Onwumere (2011) showed that males and females do not differ significantly in attitudes toward e-learning acceptance but female students differ significantly towards e-learning acceptance. According to Bubou and Job (2021), individual differences with respect to e-readiness are also prevalent as many educators and students still lack basic computing skills to undertake e-learning modes of study in many academic programmes in tertiary institutions in Nigeria including vocational and technical education.

The field of e-learning has become a viable alternative to traditional models such as classroom-based learning and traditional education in many Vocational and Technical Education programmes in Nigeria. With effective use of e-learning, vocational and technical educators are able to reach a larger population of students. More so, the gap between students and teachers which is caused by increasing population of the students can be narrowed. The contents of e-learning in Vocational and Technical Education are either hosted in the internet or built into CD ROMs for individualized and self-learning. Vocational education, according to Olomola and Shodipe ((2017) is an education programme that prepares students mainly for occupations requiring manipulative skills or non-technical occupations in such fields as Agriculture, Business Education, Home Economics, painting, decorating to secure confidence and experience by the individual students for gainful employment.

A search in literature showed a complete dearth of empirical information related to the merits and demerits of e-learning from the perceptions of Vocational and Technical Education students in public universities in Edo State. Many of the empirical studies reviewed were done in foreign countries thereby creating a serious gap which this study tended to fill. This study in order to fill the existing gap, investigated the merits and demerits of e-learning from the perspectives of Vocational and Technical Education students in public universities in Edo States.

Purpose of the Study

The main purpose of this study was to investigate the merits and demerits of e-learning from the perspectives of students of Vocational and Technical Education in public universities in Edo State. Specifically, the study investigated:

1. The merits of e-learning in Vocational and Technical Education
2. The demerits of e-learning in Vocational and Technical Education

Research Questions

The following research questions were answered in the course of the study:

1. What are the merits of e-learning in Vocational and Technical Education?
2. What are the demerits of e-learning in Vocational and Technical Education?

Hypotheses

1. There is no significant difference between male and female students in mean responses on merits of e-learning in Vocational and Technical Education.
2. There is no significant difference between male and female students in mean responses on demerits of e-learning in Vocational and Technical Education.

Methodology

This study which was intended to investigate the students' perceptions on merits and demerits of e-learning in Vocational and Technical Education in public universities in Edo State utilized two research questions and two hypotheses were formulated for the study. The design of the study was descriptive survey with a sample of 199 vocational and technical education students in public universities in Edo State. The sample was selected using simple random sampling technique. The study utilized a 4-point structured questionnaire of Strongly Agree, Agree, Disagree and Strongly Disagree which was weighted 4, 3, 2 and 1 respectively. Items of the questionnaire were adapted from Al Rawashdeh, Mohammed, Al Arab, Alara & Rawashdeh (2021). The instrument was validated by three experts in the field of Vocational and Technical Education. Reliability of the instrument was established using split half method. Twenty (20) copies of the instrument were given to 20 Vocational and Technical Education students who are in the population but not part of the sample. The data was analyzed using Pearson Products Moment Correlation Coefficient which yielded an r value of 0.88. Mean and standard deviation (SD) were used to analyze the research questions. A mean of 2.50 was set as the decision point. A mean value equal to or above 2.50 was taken as "Agree" on any item while a mean value lower than 2.50 was take as "Disagree". The alternative hypothesis was tested using t-test. Null hypothesis is reject when the probability value is less than 0.05 level of significance or otherwise accepted.

Results

Results of Analysis of research questions are presented below:

Research Question I: What are the Merits of E-learning?

Table 1: Merits of E-learning

S/N	Perspectives on Merits of E-learning	N	Mean	SD	Decision
1	The use of computers raises the level of students' culture and skills	199	3.55	0.62	Agree
2	It provides scientific material in an interesting way	199	3.60	0.60	Agree
3	It provides immediate and continuous feedback to the learner	199	3.49	0.59	Agree
4	It increases the learner's motivation to learn	199	3.33	0.66	Agree

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5	It encourages students to participate rather than listen	199	3.43	0.75	Agree
6	It raises the level of students' achievement of the scientific subject	199	3.20	0.68	Agree
7	It helps in increasing student-teacher interaction	199	3.02	0.76	Agree
8	It increases students' capacity of learning	199	3.25	0.74	Agree
9	It enriches the curriculum	199	3.58	0.62	Agree
10	Students can self-learn through digital vessels such as CDs or the internet	199	3.61	0.60	Agree
11	Students can communicate with the teacher by e-mail anytime and anywhere.	199	3.46	0.77	Agree
12	It helps family communicate with the university to follow and guide their children	199	3.16	0.73	Agree
13	It takes into account individual differences between students' levels.	199	3.18	0.82	Agree
14	The course is available 24 / 7	199	3.20	0.83	Agree
15	It increase the possibility of communication between students among themselves and between students and teachers	199	3.35	0.71	Agree
16	It helps to develop individual skills	199	3.30	0.80	Agree
17	ICT provides heavy book carry	199	2.98	0.89	Agree
18	It helps students among themselves, especially at the time of the exam	199	2.96	0.97	Agree
19	It facilitates study and communication with teachers in all comfort	199	3.18	0.76	Agree
Aggregate Mean			3.30		

Table 1 showed positive responses to all the items on merits of e-learning with mean values which ranged from 2.98 to 3.61. The standard deviation values ranged from 0.59 to 0.97 showing no wide gap in the responses. Aggregate mean value of 3.30 showed agreed responses to all the items on the merits of e-learning from the perspective of vocational and technical education students in public universities in Edo State.

Research Question 2: What are the Demerits of E-learning?

Table 1: Demerits of E-learning

S/N	Perspectives on Demerits of E-learning	N	Mean	SD	Decision
1	The presence of electronic illiteracy among parents reduces their ability to follow their children electronically	199	3.28	0.68	Agree
2	It increases students' social isolation (spends longer time in front of technology at the expense of social interaction face to face with others)	199	3.36	0.79	Agree
3	There is difficulty in providing extracurricular classroom activity classes	199	3.21	0.75	Agree
4	Students focus on technology without paying attention to scientific content, which reduces their understanding	199	2.88	0.85	Agree

5	It increases students' financial burdens and responsibilities	199	2.86	0.88	Agree
6	It increases the phenomenon of cheating in tests	199	2.62	0.84	Agree
7	It limits the role of the teacher in guiding students, which affects their behaviour and ethics	199	3.03	0.83	Agree
8	The greater focus of e-learning on the cognitive side rather than the skill and emotional side	199	3.00	0.78	Agree
9	The application of e-learning needs a certain type of qualified users to deal with the technological developments used in	199	3.21	0.80	Agree
10	It lacks availability at times and It needs more time	199	3.11	0.81	Agree
11	When using electronics, we don't seem to be studying for parents and they think we're playing and wasting time	199	3.01	0.74	Agree
12	It reduces students' interest in the material	199	3.14	0.78	Agree
13	It is difficult for the beginners to learn	199	2.68	0.81	Agree
Aggregate Mean			3.03		Agree

Table 2 showed positive responses to all the items on demerits of e-learning with mean values which ranged from 2.62 to 3.36. The standard deviation values ranged from 0.68 to 0.84 showing no wide gap in the responses. The Table showed aggregate mean value of 3.03 implying that the respondents agreed to all the items on the disadvantages of e-learning from the perspectives of vocational and technical education students in public universities in Edo State.

Testing of Hypotheses

Results of Analysis of Null Hypotheses are presented below:

Hypothesis 1: There is no significant difference between male and female students in mean responses on merits of e-learning in Vocational and Technical Education.

Table 3: Summary of t-test table on Merits of E-learning

Variable Categories	N	Mean	SD	Df	t-value	p-value	P ≥ 0.05
Male	101	3.34	0.42	196	1.49	1.13	Significant
Female	97	3.26	0.32				

Testing alternative hypothesis 1 at alpha level of 0.05 and at a degree of freedom of 196, the result on Table 3 revealed a t-value of 1.49 with a p-value of 0.137. Since the t-value is greater than the p-value at 0.05 level of significance, the alternative hypothesis of no significant difference on merits of e-learning from the perspectives of male and female students of vocational and technical education was rejected. There is a significant difference between male and female students in mean responses on merits of e-learning in Vocational and Technical Education.

Hypothesis 2: There is no significant difference between male and female students in mean responses on demerits of e-learning in Vocational and Technical Education.

Table 4: Summary of t-test Table on Demerits of E-learning

Variable Categories	N	Mean	SD	Df	t-value	p-value	P ≥ 0.05
Male	101	2.96	0.42	196	-0.64	0.52	Not Significant
Female	97	3.00	0.37				

Testing alternative hypothesis 2 at alpha level of 0.05 and at a degree of freedom of 196, the result on Table 4 revealed a t-value of 0-.64 with a p-value of 0.52. Since the t-value is lesser than the p-value at 0.05 level of significance, the alternative hypothesis of no significant difference between male and female students in mean responses on demerits of e-learning in Vocational and Technical Education was accepted. There is no significant difference between male and female students in mean responses on demerits of e-learning in Vocational and Technical Education.

Discussion of Findings

Results of research question 1 revealed that some of the merits of e-learning from the perspectives of Vocational and Technical Education students in public universities in Edo State include the fact that the use of computers raises the level of students' culture and skills, provides scientific material in an interesting way help students in retaining information for long periods, provides immediate and continuous feedback to the learner, increases the learner's motivation to learn, encourage students to participate rather than listen passively, raise the level of students' achievement of the scientific subject, helps in increasing student-teacher interaction and increases students' capacity of learning. The result also showed that e-learning also have the following merits from the perspectives of Vocational and Technical Education students such as enriching the curriculum, students can self-learn through digital vessels such as CDs or the internet, students can communicate with the teacher by e-mail anytime and anywhere, helps family communicate with the university to follow and guide their children, take into account individual differences between students' levels, the course is available 24/7, increase the possibility of communication between students among themselves and between students and teachers develop individual skills, ICT provides heavy book carry and helping students among themselves, especially at the time of the examinations. These findings agreed with the views of Smedley (2010) and (Hetsevich in Al-Kayed (2020) which noted that e-learning is flexible in terms of time and place. It provides all students with the possibility to select time and place and time that is appropriate for learning. The findings also corroborated the findings of Axmedova & Kenjaveva (2021) which reported that e-learning provides educational institutions and their students with more flexibility in terms of time and place for receiving learning information. The findings further supported the views of Lujara (2008) that e-learning facilitates access to knowledge that is relevant and useful to anyone, at anytime and anywhere.

Results of research question 2 revealed that some of the demerits of e-learning from the perspectives of Vocational and Technical Education students in public universities in Edo State included amongst others that students focus on technology without paying attention to scientific content, which reduces their understanding and academic achievements, increases students' burdens and responsibilities, increases the phenomenon of cheating in tests and limit the role of the teacher in guiding students, which affects their behaviour and ethics. The result also showed more demerits of e-

learning from the perspectives of Vocational and Technical Education students to include among others the greater focus of e-learning on the cognitive domain of the students rather than the skill and emotional side, e-learning needs a certain type of qualified users to deal with the technological developments used in it, lack of availability at times and it needs more time. The students also reported that when using electronics for e-learning, parents do not seem to understand that they are actually studying and parents always think they are playing and wasting time. These findings agreed with the views of Axmedova. & Kenjaveva (2021) that for many students, one of the biggest challenges of e-learning is the struggle with focusing on the screen for long periods of time. With e-learning, there is also a greater chance for students to be easily distracted by social media or other sites. These findings further corroborated the views of Hetsevich in Al-Kayed (2020) that although e-learning is available to everyone, many people may not have computers or a network that supports e-learning. Furthermore, it causes isolation, because students interact with computers instead of communicating with other students and discussing with them and exchanging experiences, which makes them feel lonely and isolated.

Results from hypothesis 1 showed that there was a significant difference in mean responses of male and female students on merits of e-learning in Vocational and Technical Education. This findings supported the results of the study by Egbo, Ifeanacho, Okoyeuzu and Onwumere (2011) which showed that female students differ significantly towards e-learning acceptance from males.

Results from the study also showed that there was no significant difference in responses of male and female students on demerits of e-learning in Vocational and Technical Education. This finding supported results of the study by Zhou and Xu (2007) which showed that females had lower confidence and less experience in the use of computers in learning. According to Zhou and Xu, females tend to learn how to use technology from others, whereas males were more likely to learn from their own experience.

Conclusion

Based on the findings of this study, it is concluded that the use of e-learning has so many merits from the perspectives of in Vocational and Technical Education students such as the use of computers raises the level of students' culture and skills, provides scientific material in an interesting way, help students in retaining information for long periods and provides immediate and continuous feedback to the learners. In addition, the use of e-learning has demerits such as makes students focus on technology without paying attention to scientific content, which reduces their understanding, increases students' financial burdens and responsibilities and tends to increase the phenomenon of cheating in tests and examinations amongst others. It is a common knowledge that E-learning and virtual education are becoming an integral part of present and future education not only in Nigeria but the world over. To this end, it is necessary for management of Vocational and Technical Education to as a matter of urgency set in place strategies that will promote the good use of e-learning for their students' best advantage and mitigate activities that could encourage wrong use.

Recommendations

- . Based on the findings from this study, it is recommended that:
 - Since e-learning has become an integral part of present and future education, management of Vocational and Technical Education should continuously train

educators and students on how to source for open and free e-learning materials to reduce the cost of utilization.

- Management of Vocational and Technical Education should as a matter necessity and urgency ensure regular power supply to laboratories and lecture theatres for effective student e-learning engagement.
- There should be regular training for vocational and technical educators on how to develop e-learning contents so that their teaching can be fully engaging and interactive to the students at all times.
- Management of Vocational and Technical Education in public universities should regularly organize orientation programmes to create awareness on the benefits and ills of e-learning on students' career development.
- Students should be encouraged to learn to focus more on the merits of e-learning and shun the demerits in their own best interest and career development.

References

- Aina, C. O. in Ogbu, J. E. (2015). Availability and utilization of instructional facilities for the teaching of basic electricity in Ebonyi State Technical Colleges. *Developing Country Studies*. 5(21). 162 – 168. Retrieved from www.iiste.org – Access 23/3/2023.
- Al-Kayed. R. I. (2020). Advantages and disadvantages of e learning in basic private schools in al Jama'a District in Jordan from teacher perspective. *Ilkogretim Online - Elementary Education Online*, 19 (4): 920-927 <http://ilkogretim-online.org>
- Alshahrani, S. Ahmen, E. & Ward, R. (2017). The influence of online resources on student-lecturer relationship in higher education: A comparison study. *Journal of Computers in Education*. 4(7), 87 – 106.
- Axmedova, T. B. & Kenjaveva, N. D. (2021). Advantages and disadvantages of online learning. *Eurasian Journal of Humanities and Social*. 3, 48 –50. Sciences www.geniusjournals.org
- Al Rawashdeh, A. Z., Mohammed, E. Y., Al Arab, A. R., Alara, M. & Al Rawashdeh , B. (2021). Advantages and Disadvantages of Using e-Learning in University: Analyzing Students' Perspectives. *The Electronic Journal of e-Learning*, 19(2), 107-117. Available at online at www.ejel.org
- Bubou, G. & Job, G. (2021). Benefits, challenges and prospects of integrating e-Learning into Nigerian tertiary institutions: A mini review *International Journal of Education and Development using Information and Communication Technology*
- Chen, N. S., Kinshuk, Ko H.C. & Lin, T. (2004). "Synchronous learning model over the internet", *Proceedings of the 4th IEEE International Conference on Advanced Learning Technologies (ICALT 2004)*, August 30 - September 1, 2004, pp. 505-509.
- Clark, R.C., & Mayer, R.E. (2003). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. San Francisco: Pfeiffer.
- Olomola, B. T. & Shodipe, O. T. (2017). Nigeria beyond Job Scarcity: The Role of Technical and Vocational Education and Training (TVET). *International Journal of Economic Development Research and Investment* 8(1), 31 – 36.
- Egbo, O. P.; Ifeanacho, I. C.; Okoyeuzu, R. C. & Onwumere, J. U. J. (2011). Gender perception and attitude towards e-learning: a case of business students, University of Nigeria. *International Journal of Computer Application*, 2(1), 135-148.
- Gülcha, E.; Al-Ghorania, N.; Quedenfeldtb, B. & Braunb J. (2012). Evaluation and development of e-learning tools and methods in digital photogrammetry and remote sensing for non-experts from academia and industry. *International Archives*

- of the Photogrammetry, Remote Sensing and Spatial Information Sciences, XXXIX-B6, XXII ISPRS Congress, Melbourne, Australia. Retrieved from <http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXIX-B6/1/2012/isprsarchives-XXXIX-B6-1-2012.pdf>
- Harriman, G. (2005), "Synchronous vs. asynchronous distance learning", Website Retrieved from URL: <http://www.grayharriman.com/e-Learning.htm> - Accessed 17/10/2012
- Hetsevich, I. in Al-Kayed. R. I. (2020). Advantages and disadvantages of e learning in basic private schools in al Jama'a District in Jordan from teacher perspective. *Ilkogretim Online - Elementary Education Online*, 19 (4): 920-927 <http://ilkogretim-online.org>
- Lujara, S.K. (2008). Development of e-learning content and delivery for self-learning Environment: Case of selected rural secondary schools in Tanzania. A dissertation submitted to Blekinge Institute of Technology. Licentiate dissertation series No 2008:04.
- Negash, S & Wilcox, M. V. In Obi, I. E, Charles-Okoli, A. N., Agunwa, C. C., Omotowo, B. I., Ndu, A.C. & Agwu-Umahi, O. R. (2018). E-learning readiness from perspectives of medical students: A survey in Nigeria. *Niger J Clin Pract.*, 21, 293-300.
- Okafor, C. P. (2022). E-learning as an effective method of education delivery in Nigeria. *Journal of Educational Research and Development*, 5(1), 19 – 24.
- Rusman, M. (2016). The Development of an e-learning-based learning service for MKDP curriculum and learning at the Indonesia University of Education.
- Singh, G., O' Donoghue, J. & Worton, H. (2003). A study into the effects of e-learning on higher education. *JUTLP*, (2) 1. Retrieved from: http://jutlp.uow.edu.au/2005_v02_i01/odonoghue003.html - Accessed 6/20/2012
- Torraum, J. T. (2012). Application of e-teaching and e-learning in Nigerian educational system. *Academic Research International*. 3(1), 30-36.
- Zhou, G. & Xu, J. (2007). Adoption of educational technology: How does gender matter? *International Journal of Teaching and Learning in Higher Education*, 19(2):140-153. <http://www.isetl.org/ijtlhe/> ISSN 1812-9129