



Lecturers' Perception on the Use of Virtual Learning in Teaching Automobile Technology in Colleges of Education in North East, Nigeria

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ABSTRACT

This study was carried out to investigate the lecturers perception on the use of virtual learning in teaching automobile technology education in colleges of education in north east Nigeria, descriptive survey research design was used in the study, the population of the study consist of 22 automobile technology education lecturers in colleges of education and were purposively used as research sample. Three research questions guided the study and 30-item questionnaire was used as instrument for data collection. The questionnaire was validated by educational technology experts, automobile technology education experts, and pilot test was carried out in federal college of education (Technical) Bichi which is outside the study area, reliability coefficients ranging from 0.76 were obtained. Data collected from the administration of the research instruments were analysed using descriptive statistics of Mean and Standard Deviation. A decision rule was set, in which, a mean score of 3.00 and above was considered Agreed while a mean score below 3.00 was considered Disagreed. Findings revealed that lecturers perceived the use of virtual learning as easy to use and useful with mean scores of 4.18 and 3.34 respectively. Based on these findings, it was recommended among others that administrators should equip schools with adequate Information and Communication Technology facilities that would aid students and teachers' utilization of virtual-based learning environments in teaching and learning process.

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INTRODUCTION

Information and Communication Technology (ICT) has become a global phenomenon used in describing the various innovations and revolutions that have evolved in our society and educational lives. ICT refers to the totality of methods and tools that are used in gathering, storing, processing and communicating information. The improvements in the field of information and communication technologies have offered a new approach to education, by switching the conventional process of obtaining and transferring knowledge to learning via technologies (Rachad, Taoufik, & Idris. 2020).

Technology system in education has experienced evolutions of flexibility, dynamism and micro-system transformation when it was equipped with fundamental functions under the harmonization of several technical systems; hardware and software are important elements for virtual learning. It increased the possibility of the internet and networking abridged potential. As a result, the communicators can interact in a shorter response time, increasing the efficiency of information transfer through the use of the internet to access learning materials; to interact with the content, instructors, and other learners; to obtain support during the learning process, in order to acquire

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knowledge, to construct personal meaning, and to grow from the learning experience and the use of technology to promote efficiency in teaching and learning.

The role of virtual learning in education is to promote the exchange of knowledge and interactions between teachers and students by digital devices, users of virtual learning use to apply recommendation systems to obtain personalized learning resources. Machine learning, automatic classifications, and data mining algorithm, continuously improved flexibility and dynamism. The implement of Information Technology in learning ushered the dynamic evolution of virtual learning system. According to Aning and Baharum (2020), Virtual learning can be described as another alternative learning process platform that uses internet technology to communicate interactive and useful learning resources and programs to enhance the learning environment.

This learning system has been commonly used at all levels of education; it can mainly be seen in the higher education system since it has been evolved around 1960s. Some higher education institutions also use virtual learning as their primary education and offer interactive degrees that are more convenient and profitable for individuals (Aning & Baharum2020). These benefits include saving money, reliability and the versatility provided to incorporate this method in most higher education institutions. Generally, virtual learning can be used in numerous ways, such as television, radio, computer network. The most widely used method of higher education learning will be web-based virtual learning (Enemali, *et al*, 2016).

Virtual learning is use to be an auxiliary learning method due to its low cost and flexibility. Combining in person learning and a remote approach helps students enhance their learning skills as well as awareness of life-long learning (Dhawan, 2020). However, a series of government policies triggered students to complete their studies in a predetermine time and manner in a conducive learning environment. Many educational institutions around the world have fully digitalized their operations and adopt virtual

learning as the solution to the current phenomena. Virtual learning, therefore, became a necessity instead of an option in this circumstance (Dhawan, 2020). Since virtual learning has been more frequently and widely used during the recent period and has played an irreplaceable role in the education industry, the influence of self-efficacy on virtual learning adoption should be paid more attention to in higher institutions.

Over two-thirds of colleges of education students used electronic technologies in their study while in class studying, or doing homework (Enemali *et al*, 2017). Hence, the necessity to use virtual learning technologies in higher education seems to be inevitable. Supporting this assertion, Orishi (2016) stated that we are moving into an era when virtual learning technologies not just for talking and texting, but also for accessing the internet and all it has to offer. Orishi further opined that virtual learning technologies are not resources for making just phone calls, but rather 'lifeline' to the social network and an instrument for smoothly operating and coordinating everyday life. In education, mobile technologies have led to the evolution of new model known as virtual learning technologies. Brammer and Timothy (2020) opined that students can be encouraged to construct their own knowledge using virtual learning which in turn can be used to present materials that purposely lead them to programmed instructions in highly controlled manner. The use of virtual learning technology in education has a significant history that at first, computers were used in behaviorist modes in line with Skinner's work which emphasized the teacher's control over what is learned and how it is to be learned (Orishi, 2016). In recent times, emphasis has been on the constructivist instructional delivery on use of technologies that provide students with opportunities to construct their own understandings.

Instruction delivery refers to the structure of the teaching and learning process to accomplish stated objectives. Use of effective strategies enables teachers to keep their students motivated which in turn lead to achievement of stated objectives. Adam *et al*. (2021) Observed that teachers need to use effective instructional

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approach to reduce students' boredom and enhance their interest to learn. This indicates that instruction delivery techniques are strategies adopted by teachers in maintaining the interest of their students towards learning by involving and directing the learners to appropriate learning activities, guiding them to appropriate knowledge, helping them to rehearse, encode and process information, monitoring students' performance and providing feedbacks on the appropriateness of the students' learning activities and practice performance (Adam *et al*, 2021). Globally, the use of technology has paved way for effective instructional delivery in the educational systems including Technical and Vocational Education (TVE). In fact, technology in TVE offers numerous benefits on learner's productivity.

Currently, the use of technology has brought global transformation in digital media information in the instructional practices. This has critically enhanced the teaching and learning process in TVE including Automobile Technology Education. This transformation would continue to grow and progress in the 21st century in which most nations endeavour to benefit from technological advancement in improving their educational programmes. Most developed countries have taken advantage of the ICT age and improved their educational structure which in turn transformed their academic landscape for economic development (Fairlie & Robinson, 2019). The facilitating condition in using virtual learning in teaching is that it refers to consumer's perceptions of the resources and support available to perform the behaviour (Samuel & Hillar, 2016). Lecturers have adequate exposure and experience in using old technologies as compared to their exposure and experience using virtual learning techniques on their students (Dhawan 2020). Researchers have been conducted on the use of modern technology for teaching in educational institutions. Such as, the Technology Acceptance Model (TAM) founded by Davis (1989), a successful virtual learning system should be designed to satisfy students' needs as usable and be adopted easily.

TAM model basically identifies the intention of someone to use technology is derived

from four factors, namely perceived usefulness, perceived ease of use, attitude toward using and behavioural intention to use. From these factors that influence someone to use technology from the TAM theory (David, Bagozzi & Warshaw, 1989), professional development, policies, and procedures that contribute to greater self-efficacy and increase in the sense of capability of lecturer may minimize lecturer's concern over the use of technology within their classrooms (Peter, 2015). Aligning the use of technology and self-efficacy, it is sufficient to note that, self-efficacy deals with peoples' perception or believe in specific abilities or actions, this study is mainly concerned with three factors, namely Self-efficacy, perceived ease of use and perceived usefulness. This is because these factors are the main factors that will lead teachers to adopt or reject using virtual learning.

Self-efficacy, a psychological construct first proposed by Bandura in 1977 (Topkaya, 2010), can be described as "a belief about one's own capability to organize and complete a course of action required to accomplish a specific task" Self-efficacy is the belief in one's ability to employ in specific actions that result in desired outcomes. Perceived ease of use determines the degree to which the users' expect the target system to be free of effort. Literature notes that the difficulties to use a particular technology may derive from technical and non-technical things. Technical things that teachers probably find can be related to inadequate electrical support, low Internet access, unavailability of equipment or others. On the other hand, the fact that teachers may also feel reluctant to use ICT relates to their incapability to operate the system, manage the classroom, or feel that the pedagogical approach in teaching does not suit them. These conditions make teachers believe that using technology needs a lot of effort and thus decrease their motivation toward its implementation. The growing awareness of the usefulness of electronic media application in teacher education program has prompted Colleges of Education in Nigeria to digitalize their libraries and establish computer literacy programs, colleges of education should be able to exploit the potential benefits inherent in computer

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and electronic learning (Adeoye, Adanikin and Adanikin (2020).

Perceived usefulness determines that the users' acceptance toward using one specific item is believed to enhance their performances (Davis et al., 1989). The users know the benefits or advantages of the item that they use, either for themselves or for other users. When a user believes that using a kind of technological tool can enhance his performance, he tends to use it. In the teaching context, a teacher may feel that he can enhance his performance in teaching if he uses ICT. This arouses his motivation to accept using technology in teaching.

STATEMENT OF PROBLEM

The increasing concern in the development of teacher education in Nigeria is inadequate educational facilities, infrastructure and the failure of lecturers in the colleges of education to meet the demands of increased students' enrolment. The increase in students' enrolment has led to high students' teacher ratio, poor interaction between teachers and students, and had affected learning quality (Federal Ministry of Education (FGN, 2019). In order to arrest the trend in high students' enrolment and inadequate educational facilities virtual learning and use of technology have been suggested by researchers such as (Adesope, Oke and Odekunle, 2018; UNESCO-UNEVOC, 2019; Zheng, Naseer, Abbas and Sabir, 2020).

Virtual learning refers to an electronic learning environment where learning take place outside the classroom with no face to face contact, unlike traditional learning, there is no physical peer learners, and there is freedom of time and space. However, Virtual learning is flexible and provides an alternative for those who cannot attend traditional classrooms for any reason. With the growth of technology and the Internet, virtual learning has secured a good position in an academic world by providing both the learners and the instructors to participate in their cosiness with basic learning facilities when compared to the conventional teaching method where sometimes these facilities are not in place (Zheng, 2020). Virtual learning makes students to interact within

themselves through the discussion forum which abolishes the barrier of participation and allows for effective communication that fosters relationship between students and lecturers. Beside the technology being the dynamic factor in ensuring the implementation of virtual learning process in colleges of education, deprived internet infrastructure and unfavourable digital classroom environment negatively influenced the virtual learning as a teaching technology benefit to students, there are also many difficulties for students to adapt to the online system, such as login problems, installation and download problems. Students sometimes lose a sense of engagement because of those problems (Ping, Xiaoman, Yangzhi, Ying and Chuan, (2021).

Despite the relevance of virtual learning in educational environment, the utilization of virtual platform especially at colleges of education is not impressive because most of the instructional delivery are still taking place in classroom using conventional method of instruction where both the students and lecturers have to be present in the classroom (Adesope, et al, 2018; Yohanna, 2018; Mohammed 2019; Adamu &Bala, 2021). This is in line with the argument of Dhawan (2020); Adamu &Bala, (2021); Abubakar, (2021) that the use of technology in teaching in Nigerian tertiary institutions is very minimal which is affecting the opportunity of Nigerian students to explore in various educational environment across the globe. Abubakar (2021) suggested that the use of technology models in investigating the opinion of students on the application of technology for instructional delivery in Nigerian tertiary institutions. Based on this none of the existing studies investigate the perceptions of the students on the use of virtual learning for instructional delivery using technology models, therefore this study will address the gap by assessing the lecturers perception on the use virtual learning in teaching automobile technology in colleges of education in North-East Nigeria.

Purpose of the Study

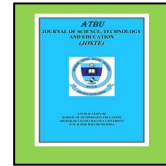
The main purpose of the study is to assess the lecturers' perception on the use virtual learning in teaching automobile technology in

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Colleges of Education in North-East Nigeria. Specifically, the study determines.

1. The perceived self-efficacy of lecturers on the use of virtual learning in teaching automobile technology in colleges of education in North East Nigeria.
2. The perception of lecturers on the ease of using virtual learning in teaching automobile technology in colleges of education in North East Nigeria.
3. The perception of lecturers on the usefulness of virtual learning in teaching automobile technology education in colleges of education in North East Nigeria.

Research Question

The following research questions are raised to guide the study.

1. What is the perceived self-efficacy of lecturers on the use of virtual learning in teaching automobile technology in colleges of education in North East Nigeria?
2. What is the perception of lecturers on the ease of using virtual learning in teaching automobile technology education in colleges of education in North East Nigeria?
3. What is the perception of lecturers on the usefulness of virtual learning in teaching automobile technology education in colleges of education in North East Nigeria?

LITERATURE REVIEW

Technology Acceptance Model (TAM)

The goal of Technology Acceptance Model (TAM) is to foresee information technology acceptance and identify design problems before user experience with the technology. TAM forecasts users' acceptance of any technology as determined by two factors which are perceived usefulness and perceived ease of use. Davis (1989) developed the TAM which deals more specifically with the prediction of the acceptability of an information technology. The purpose of this model is to predict the acceptability of technology

and to identify the modifications which must be brought to the system in order to make it acceptable to users. This model suggests that the system is determined by two main factors which include, perceived usefulness and perceived ease of use, perceived usefulness is defined as the degree to which a person believes that the use of technology will improve his performance, while perceived ease of use refers to the degree to which a person believes that the use of technology will be free from effort.

Based on the TAM, the technology acceptance model postulates that the use of technology is determined by the behavioral intention, but on the other hand, that the behavioral intention is determined by the person's attitude towards the use of the technology and also by his perception of its utility. According to Davis (1989) the attitude of an individual is not the only factor that determines his use of technology, but is also based on the impact which it may have on his performance, therefore, even if a lecturer does not welcome technology use in classroom instruction, the probability that he will use it is high if he perceives that the technology use will improve his performance in classroom instruction. Perceived ease of use can also contribute in an instrumental way in improving a lecturer's performance due to the fact that the user will have to deploy less effort with a tool that is easy to use, will be able to accomplish other tasks. The TAM is applied in this research to determine the perceived virtual learning use in classroom instruction. Perceived usefulness and ease of use are factors that determine the use or otherwise of virtual learning by the users. TAM has a number of limitations in school systems as it fails to recognize teachers' belief of use of technology.

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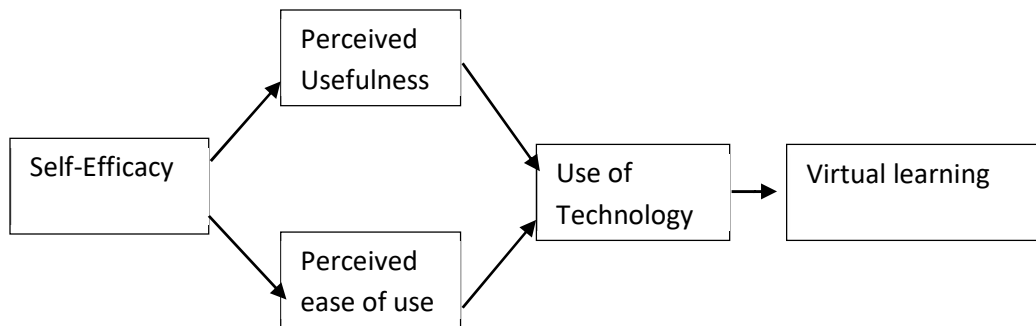


Figure 1: Technology Acceptance Model (Davis, 1989)

METHODOLOGY

The study adopted descriptive survey research design. The study was carried out in North- East Nigeria with a numbers of colleges of education. The population of the study comprise all automobile technology education lecturers in Colleges in North-East Nigeria. Total Population Sample (TPS) was used in the study for the collection of data. TPS is used where the population is considered to be of manageable size. It is a sampling technique in which the whole populations will be used in the study (Etikan, Musa &Alkassim2016). In this study the population of automobile lecturers in the study area is considered to be of manageable size hence, the TPS was used. The instrument for data collection in the study was a structured questionnaire adopted from Tengku Maya Silviyanti (2018) by the researcher. The items in the questionnaire were restructured in accordance with the Research questions considered in this study. The scale is as follows Strongly Agree (SA) = 5 points,

Agree (A) = 4 points, Undecided (U) =3 points, Disagree (D) = 2 points, strongly disagree (SD) = 1 point. (Likert, 1932). The instrument was validated by two experts in the field of automobile technology education; Data was collected with the help of trained research assistants for easy administration. Data collected were analyzed using mean and standard deviation with the help of Statistical Package for Social Science (SPSS) software, version 27.

RESULTS

The data were presented and analysed based on the research questions posed in the study

Perceived self-efficacy

Research question 1: What is the perceived self-efficacy of lecturers on the use of virtual learning in teaching automobile technology in colleges of education in North East Nigeria?

Table 1: Descriptive statistics on Perceived Self-Efficacy

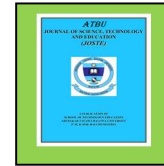
S/N	Items	N	\bar{X}	SD	Decision
1.	I feel understanding virtual learning capabilities well enough and maximizing them in my classroom	156	4.34	1.12	Agreed
2.	I feel I have the skills necessary to use the technology gadget for instruction.	156	4.63	.48	Agreed
3.	I feel I can successfully teach relevant subject content with appropriate technology.	156	4.43	.62	Agreed
4.	I feel confident in my ability to evaluate the software for teaching and learning.	156	4.35	1.39	Agreed

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S/N	Items	N	\bar{X}	SD	Decision
5.	I feel confident I can help students when they have difficulty with the software	156	4.06	.72	Agreed
6.	I feel confident I can effectively monitor students' to use virtual learning technology for project development in my classroom.	156	4.07	1.03	Agreed
7.	I feel confident that I can motivate my students to participate in technology-based projects.	156	3.65	.89	Agreed
8.	I feel confident I can mentor students with inappropriate uses of virtual learning technology.	156	4.59	1.24	Agreed
9.	I feel confident I can consistently use educational technology in effective ways.	156	4.21	.86	Agreed
10.	I feel confident I can provide individual feedback to students using virtual learning.	156	3.94	.96	Agreed
Grand Mean			4.23		

Table 1 indicates that all the items of the variable perceived self-efficacy are having mean scores above 3.0. The mean scores of perceived self-efficacy items ranges from 3.94 to 4.63. The grand mean of perceived self-efficacy is 4.23 which is above the benchmark of five points Likert scale. The result indicates that the lecturers of Colleges of Education in North East perceived that they have self-efficacy in using virtual learning in

teaching automobile technology in colleges of education

Perceived Ease of Use

Research question 2 what is the perception of lecturers on the ease of use of virtual learning in teaching automobile technology in colleges of education?

Table 2: Descriptive Statistics on Perceived Ease of Use of Virtual Learning in teaching automobile technology

S/N	Items	N	\bar{X}	SD	Decision
1.	I feel that it would be easy to become skilful at using virtual learning.	22	4.51	0.50	Agreed
2.	I know how to teach automobile technology using virtual learning.	22	4.50	0.50	Agreed
3.	I have easy access to teaching material for automobile technology using virtual learning	22	4.14	0.83	Agreed
4.	I feel that using virtual learning package would be easy for me	22	3.86	1.45	Agreed
5.	I have resources to teach using virtual learning.	22	4.49	0.50	Agreed
6.	I don't have time to access material in virtual learning.	22	2.49	0.82	Agreed
7.	I need training in how to use virtual learning	22	4.92	1.44	Disagreed
8.	Virtual system makes learning more enjoyable	22	3.99	1.13	Agreed
9.	Learning through virtual system makes learning more interesting	22	4.28	1.03	Agreed
10.	Learning through virtual system makes learning more fun	22	3.79	1.14	Agreed
Grand Total			4.10		Agreed

Table 2 shows the result of the research question one, which aimed at determining the lecturers' perceived ease of use of virtual learning

in teaching automobile technology in colleges of education, which indicated that all the items are having mean scores above 3.0 except for item 6

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which has a mean score 2.49. The mean scores of perceived ease of use items ranges from 2.92 to 4.51. The grand mean of perceived ease of use is 4.10. The result indicates that the lecturers' of Colleges of Education in North East, Nigeria perceived the use of virtual learning in teaching automobile technology in colleges of education as ease

Perceived usefulness

Research question 2 what is the perception of lecturers on the usefulness of virtual learning in teaching automobile technology in colleges of education?

Table 3: Descriptive Statistics on Perceived usefulness of Virtual Learning in teaching automobile technology

S/N	ITEMS	N	\bar{X}	SD	Remark
1.	Virtual learning is useful in teaching and learning automobile technology	22	4.72	.45	Agreed
2.	Using virtual learning in my teaching career would enable me to accomplish tasks more quickly.	22	4.43	1.05	Agreed
3.	virtual learning is useful in teaching automobile engine components	22	4.63	.48	Agreed
4.	Using virtual learning package as a teacher would increase my productivity	22	4.00	1.13	Agreed
5.	Using virtual learning as a teacher would enhance my ability to teach automobile technology education	22	4.36	.61	Agreed
6.	Virtual learning is useful in teaching the automobile technology contents such as transmission system	22	4.08	1.22	Agreed
7.	Using virtual learning would make easier to teach the automobile technology	22	3.65	1.11	Agreed
8.	Virtual learning is useful in teaching automobile engine diagnosis	22	4.29	.455	Agreed
9.	Using virtual learning would enhance my effectiveness as automobile technology lecturer	22	4.64	.481	Agreed
10.	Virtual learning is useful in studying the process involve in automobile technology repairs	22	4.42	.623	Agreed
Grand Mean			4.32		

Table 3 shows the result of the research question two, which aimed at determining the lecturers' perception on the usefulness of virtual learning in teaching automobile technology in colleges of education, which indicates that all the items of the variable perceived usefulness of virtual learning in teaching automobile technology are having mean scores above 3.0. The mean scores of perceived usefulness items range from 3.65 to 4.72. The grand mean of perceived usefulness is 4.32 which are above the benchmark of five points Likert scale. The result indicates that the lecturers of Colleges of

Education in North East, Nigeria perceived the use of virtual learning in teaching automobile technology in colleges of education as useful in teaching and learning.

DISCUSSION

The finding shows that all the items on the self-efficacy of lecturers on the use of virtual learning in teaching automobile technology education in Colleges of Education in North East Nigeria have been accepted. This finding is in line with that of Rhonda and Gerald, (2015) who found that self-efficacy measure for proficiencies

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fundamental to effective technology integration in the classroom learning environment was highly effective especially in evolution of a self-efficacy measure for technology integration using the Technology Proficiency Self-Assessment (TPSA) questionnaire for 15 years in the USA and other nations. It is also similar to that of Sharif (2018) who found that teachers were experiencing minor barriers as they integrated technology in instruction due to their self-efficacy. The finding further corroborate with Chidiebere and Onyia, (2011) who found a positive and statistically significant relation correlation between lecturer self-efficacy and the integration of technology. The results provide valuable information needed to address the concerns and fears of lecturer of education faculty as they integrate technology into their classroom instruction for enhance their self-efficacy.

The finding shows that all the items on the perceived ease of use of virtual learning in teaching automobile technology in colleges of education were accepted. Lecturers perceived the use of virtual learning in teaching automobile technology education as ease with the believe that virtual learning is easy to use in teaching and learning in colleges of education in north east Nigeria. Lecturers have easy access to teaching material for using virtual learning where materials are available on line for used. The finding conforms to the findings of Dhawan (2021) that virtual learning has been more frequently and widely used during the recent period and has played an irreplaceable role in the education industry, These could also be viewed from the perception of Zheng *et al.*, (2020) as said virtual learning provides opportunities for people to learn in a more personalized, flexible, and portable manner without the restriction of time and space. It emphasizes change in the mode of delivery, such as technology based learning in which learning materials are delivered electronically to remote learners. Guidance by teachers or experts enables students to handle complex tasks such as reading, comprehension, writing and problem solving.

The finding also shows that all the items on the perceived usefulness of virtual learning in

teaching automobile technology in colleges of education were accepted. Lecturers believe that virtual learning is useful in teaching and learning automobile technology, such as the working principles of automobile technology, the types of refrigerant used in automobile technology and the automobile technology fault detection and repairs. This supported the findings of Zheng *et al.*, (2020) as observed that virtual learning provides opportunities for people to learn in a more improved, malleable, and portable manner without the restriction of time and space. It emphasizes change in the mode of delivery, as learning materials are conveyed electronically to remote learners.

CONCLUSION

This study has revealed that lecturers perceived the use of Virtual learning in teaching automobile technology education as easy to use and useful in teaching and learning in colleges of education in North East Nigeria. It reveals further that the lectures perception on self-efficacy to the use of the package was positive. The use of the virtual learning would in no doubt improve students' achievement in automobile technology education and make lecturers more efficient in teaching of the subject if proper measures are put in place.

RECOMMENDATIONS

Based on the findings that emanated from the study, it was recommended that:

- 1) Developers of virtual learning environments should ensure that they develop packages that are easy to use and useful by users. This would enable them have positive self-efficacy and good intention to utilize such in teaching and learning process.
- 2) Administrators should equip schools with adequate Information and Communication Technology facilities that would aid students and teachers' utilization of virtual learning environments in teaching and learning process.

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Colleges of education should emphasize in the use of virtual learning among lecturers as they use it to simplify their work and expect to use virtual learning in instructional delivery as it is easy and useful.

REFERENCES

- Abubakar, M.B. (2021). Perception of business educators on the use of technology for instructional delivery in colleges of education in North East, Nigeria unpublished M tech thesis, submitted to the Department of Vocational and Technology Education, ATBU Bauchi.
- Adamu A.S, LKama J.D & Kumzhege S.Z. (2021). Effect of class- wide peer assisted learning strategy on students' academic performance using automotive diagnostic tools by NCE III students. *United International Journal for Research and Technology* 02/04,
- Adamu, I. A. & Bala, M. (2021). Assessment of lecturers and students' preparedness, readiness and challenges for online education amidst Covid-19 pandemic in Abubakar Tafawa Balewa University Bauchi, Nigeria. *Kashere Journal of Education (KJE)* 2/ 1, 10-23
- Adeoye, I. A., Adanikin, A. F. & Adanikin, A. (2020). COVID-19 and e-learning: Nigeria tertiary education system experience. *International Journal of Research and Innovation in Applied Science (IJRIAS)* 5/5
- Aning A. & Baharum A. (2020). A preliminary study of identifying the visualization pattern of e-learning website for HEIs in Malaysia using card sorting method. *TEST Engineering & Management*; **82**, 11948-11955.
- Brammer, S. & Timothy, C. (2020). COVID-19 and management education: Reflections on challenges, opportunities, and potential futures. *British Journal of Management* 31: 453.
- Chidiebere, R. & Onyia, M. O. (2011). Faculty perception for technology integration in Nigeria University System: Implication for faculty quality curriculum design. *International Journal of Business and Social Science*. 2(12), 81-92
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology", *MIS Quarterly*, 13(3), 319-340.
- Dhawan S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems* 49: 5-22.
- Enameli, V. A., Aliyu M.B. & Bulama, K.H. (2016) Readiness of pre-service business education teachers for web-based e-learning in colleges of education in North-East Nigeria. *Journal of Education and Practice* .7(20).
- Fairlie, R. W., & Robinson, J. (2019). Experimental evidence on the effects of home computers on academic achievement among school children. *National Bureau of Economic Research*, 5(3), 211-240
- Kumazhege, S.Z. (2016). Effects of edutainment on motivation and achievement of students in motor vehicle mechanics work in technical colleges in Adamawa State Nigeria. PhD thesis, Submitted to the Department of Technology Education, Modibbo Adama University Yola.
- Mohammed A.K. (2019). Effect of cognitive apprenticeship on student's achievement and attitude in automotive air conditioning system in colleges of education in north east Nigeria, unpublished M.tech thesis submitted to the department of vocational and technology education ATBU Bauchi
- NCCE. (2021). *Nigerian certificate in education minimum standard for vocational and technical education*. NCCE, Garki Abuja: National Commission for Colleges of Education Retrieved from www.ncce.edu.ng.

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- Orishi T.E., (2016). Digital literacy: A review of teacher education in Nigeria. *The official journal of The Institute of Chartered Accountant of Nigeria (ICAN)*, Web: www.ican-ng.org
- Oyenuga, A. O. (2016). *Effect of Models on Interest and Academic Achievement of Auto-Mechanics Students in Technical Colleges in Lagos-State.*
- Ping, Q, Xiaoman, Z, Yangzhi, G, Ying, S, & Chuan Q, (2021). The development and adoption of online learning in pre- and post-COVID-19: Combination of Technological System Evolution Theory and Unified Theory of Acceptance and Use of Technology *Journal of Risk and Financial Management* 14:162. <https://doi.org/10.3390/14040162>
- Rachad, T. & Ali, I. (2020). Intelligent mobile applications: A systematic mapping study. *Mobile information systems*
- Rhonda, C. & Gerald, K. (2015). The technology proficiency self-assessment questionnaire (TPSA): Evolution of a self-efficacy measure for technology integration: University of North Texas 3940 N. Elm St., #G-150, Denton TX 76207
- Samuel, N. & Hillar, A., (2016). Using the UTAUT model to analyze students' ICT adoption *International Journal of Education and Development using Information and Communication Technology*, 10/3, 75-86
- Topkaya, Z. (2010). Pre-service English language lecturers' perceptions of computer self-efficacy and general efficacy. *The Turkish Online Journal of Education Technology*. 9(1), 143-156
- Yohanna. G.B (2018) Behaviour intention and used of ICT in teaching science among lecturers in Nigerian polytechnics unpublished thesis submitted to faculty of technical and vocational education university of Tum Hussein Onnmalaysia
- Zheng, F., N., Abbas, K. & Sabir, H. (2020). The COVID 19 pandemic and digital higher education: Exploring the impact of proactive personality on social capital through internet self-efficacy and online interaction quality. *Children and Youth Services*.

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