

INFLUENCE OF TVET LECTURERS' DIGITAL LITERACY ON REMOTE LEARNING IMPLEMENTATION IN UNIVERSITIES IN NORTHERN NIGERIA

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ABSTRACT

The study aimed to determine the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria. The study was guided by one objective, one research question and one null hypothesis respectively. The research design adopted for the study was a descriptive survey design. The population of this study comprise of all 341 TVET lecturers in public Universities of Northern Nigeria consisting of 168 lecturers of Technology Education and 173 lecturers of Vocational Education in Universities in Northern Nigeria and census approach was adopted for this study. The instrument for data collection in this study was a structured questionnaire developed by the researcher. The validity of the instrument in this study was ascertained by three experts one from the field of Test and Measurement in the Department of Educational Foundation, one from the Department of Vocational Education and one from Department of Construction Technology Education, Abubakar Tafawa Balewa University Bauchi, Bauchi State. The overall reliability coefficient of the entire instrument is .934 which indicates that the instrument is reliable and appropriate for the study. The data was collected with the help of eleven trained research assistants and the data was analyzed using SPSS version 25 and the statistical tool used were descriptive statistics of mean and standard deviation while independent t-test was used to test the null hypotheses at 0.05 level of significance. In line with the analysis of data collected for this study, the findings of the study revealed that Digital literacy of TVET Lecturers is effective for the implementation of remote learning in Universities in Northern Nigeria. Based on the finding, the study recommends that Government at all level should improve the digital literacy of TVET Lecturers for more effectiveness for the implementation of remote learning in Universities in Northern Nigeria.

Keywords: TVET Lecturers, Digital Literacy, Remote Learning, Implementation and Universities

Introduction

In recent years, the global nature of education process has undergone a profound transformation, driven primarily by the rapid advancement of technology. This shift has been particularly pronounced in Nigeria, where Technical and Vocational Education and Training (TVET) institutions play a pivotal role in preparing individuals for the demands of the modern workforce. As universities strive to adapt to the digital age and provide quality education in the face of various challenges, the acquisition of digital literacy and remote learning skills has emerged as a critical imperative for TVET lecturers (Syerina, Khalid & Eman, 2023).

The rapid shift to remote learning in Nigeria has required a fundamental change in teaching methodologies and many TVET lecturers lack the necessary training and skills to effectively design and deliver digital content and assessments. There are challenges faced by TVET lecturers in adapting their teaching approaches to a remote learning environment (Kennedy et al, 2022). The success of this rapid shift in Nigeria to remote learning hinges on robust technological infrastructure, the effectiveness of the digital literacy acquired and it's unfortunate that Nigerian universities often face infrastructure limitations, including unreliable internet connectivity and outdated hardware. Thus, these infrastructure challenges hinder the development of effective digital literacy and remote learning among TVET lecturers and measures must be taken to address these limitations (Cyril, et al, 2023). These challenges affect the effectiveness of digital literacy among TVET Lecturers in Nigeria.

The effectiveness of digital literacy among TVET lecturers has emerged as a pivotal factor determining the success of remote learning implementation in tertiary institutions. The proliferation of digital tools and online platforms has not only reshaped the way education is delivered but has also ushered in a new era of learning opportunities and challenges (Mlambo & Nleya, 2020). The COVID-19 pandemic, in particular, accelerated the adoption of remote learning in Nigeria, compelling educators and learners alike to navigate this digital frontier. In this context, the integration of digital literacy and remote learning into the pedagogical landscape of Nigerian TVET institutions has become essential for sustaining educational continuity, fostering innovation, and enhancing the employability of graduates (Kennedy, Ekong & Okorie 2022). The utilization of digital tools and online platforms can only possible when lecturers acquire digital literacy.

Digital literacy is the basic understanding of how to interact with a computer, how to interact with applications on that computer, how to make it do what one wants in real time. Digital literacy is the ability to locate, organize, understand, evaluate, and create information using digital technology. According to Usoro and Calab (2014) digital learning encompasses many different facets, tools and applications to support and empower teachers and students, including online courses, blended or hybrid learning, or digital content and resources. Digital literacy is the ability to understand and use digital technologies effectively for everyday tasks. In education, TVET in particular it extends to all aspects of teaching and learning, and the usage extends into citizenship, industrial and e-safety.

Digital literacy therefore is an essential competency in today's digital society, which encompasses diverse skills and knowledge needed to evaluate and create information in a digital environment and sadly this competency is lacking among TVET Lecturers in Nigeria. Cambridge Life Competencies Framework, (2022) highlights eight types of digital literacy which are needed by TVET Lecturers to include media literacy, information literacy, computer literacy, visual literacy, cultural and social literacy, critical thinking and problem-solving literacy and creative literacy.

Therefore currently, it is clear that the usage and reliance on digital technologies will continue to grow unprecedentedly. While reading books and paper resources and manual writing remain fundamentally important, this current period in time may well represent a pivotal point in the march towards digital domination. Therefore, it is expedient to provide

TVET lecturers with the necessary tools, understanding, capacity building and practice in using digital technologies to ensure that they are not disenfranchised from what is a probable, if not highly likely, shift towards technology-based literacy. TVET lecturers need to teach concepts and techniques to allow students to work with any digital device, and adapt to new technology quickly using the skills and concepts they have been taught.

According to UNESCO (2018a) a number of issues may hinder schools and lecturers in their effort to fully benefit from the windows of opportunities such as not being able to afford the equipment, lack of access to internet, lack of capacity building programmes or suitable materials might not be available in simple language. However, a fundamental issue is whether lecturers know how to use digital skills effectively in their instructional process (UNESCO, 2018a). This is because there's digital literacy skill and capacity building gap existing among Vocational and Technology Education Lecturers especially in instructional delivery and assessment in TVET in Nigeria. The digital literacy skills and capacity building gap is the divide between the technological skills a job requires and the skills a worker possesses. According to the Guardian (2015) urgent action is required to support lecturers who are currently not equipped to deliver the new computing curriculum through capacity building programmes, and insists no child should leave school without basic digital skills. The teaching of digital skills in schools should be regarded as equally important as lessons in numeracy and literacy. Acquiring this digital literacy and capacity building is essential for transition to remote learning. Acquiring this digital literacy is essential for transition to remote learning.

Remote learning, also known as distance learning, is defined as 'learning that occurs when the learner and the instructor, or source of information, are separated physically and hence cannot meet in a traditional classroom setting – it includes "online learning" as well as lower-tech remote learning options such as smart phone, tablets, kindle, kobo reader, e-board among others (UNESCO, 2020).

Assuming the possibility of future recurrence of another pandemic like the COVID-19 or deadlier than it, Daniel (2020) urged that all educational institutions, lecturers and students to continuously explore flexible ways to repair the damage already caused by the corona virus by the use of technology in the classrooms. Against these unprecedented contexts, remote learning can be a better alternative medium to be adopted during the pandemic crisis where lecturers in Nigeria can use affordable, accessible and cost-effective technology in education irrespective of any socioeconomic discrimination to effectively undertake the task of teaching. Daniel, (2020) opined Lecturers can undertake Facebook Live classes, resorting to Google classroom, uploading contents on YouTube, teaching through WhatsApp and meeting apps like Zoom, Cisco WebEx or Google Meet as an emergent response to the pandemic crisis.

This study was underpinned on the Technological Pedagogical Content Knowledge (TPACK) framework which was developed by Punya Mishra and Matthew Koehler in 2006. In the TPACK framework, effective teaching with technology requires an integration of all three knowledge domains. Teachers must understand how technology interacts with pedagogy and content to make informed decisions about when, where, and how to integrate technology into their teaching practices. Overall, TPACK provides a comprehensive framework for understanding the complex interplay between technology, pedagogy, and content knowledge in the context of teaching and learning.

This study investigated the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria within the Nigerian TVET sector. It finds out the evolving role of lecturers as they grapple with the demands of a technology-driven education system.

Statement of the Problem

Technical and Vocational Education and Training (TVET) institutions stand at the crossroads of adaptation and innovation (Kennedy et al, 2022). As the digital revolution sweeps

across the nation, the acquisition and utilization of digital literacy for the implementation of remote learning by TVET lecturers have become paramount. However, amidst this digital transformation, several pressing problems and challenges have emerged, which demand rigorous examination.

Lecturers need to be digitally literate to utilize the online platforms effectively for teaching and there are obstacles and difficulties encountered by the lecturers such as internet problem, inadequate infrastructures among others when transitioning to remote learning environments. The rapid shift to remote learning has required a fundamental change in teaching methodologies. Many TVET lecturers lack the necessary training and skills to effectively design and deliver digital content and assessments. There are challenges faced by TVET lecturers in adapting their teaching approaches to a remote learning environment (Kennedy et al, 2022).

The success of this rapid shift to remote learning hinges on robust technological infrastructure, the effectiveness of the digital literacy acquired and it's unfortunate that Nigerian universities often face infrastructure limitations, among others and these infrastructure challenges hinder the development of effective digital literacy and remote learning among TVET lecturers of which measures must be taken to address these limitations (Cyril, et al, 2023). Technology Education and Vocational Education Lecturers however fail to keep abreast to this trend in order to remain relevant in teaching and learning especially in Technical Vocational Education and Training (TVET) (Orji, et al 2015).

The rising insecurity in Northern Nigeria represents a critical threat to national cohesion, regional stability and all aspects of development (Bassey *et al.*, 2024). Although insecurity is not unique to Nigeria, the magnitude, protracted nature and multifaceted characteristics of the crisis in its northern region have engendered significant apprehension (Okorie *et al.*, 2024). The global proliferation of extremist ideologies and organised criminal networks have manifested in Northern Nigeria through proscribed groups such as Boko Haram, the Islamic State West Africa Province (ISWAP), lakurawa, armed banditry among others which have crippled educational sector in region thereby forcing school to be closed and teaching and learning put on hold and this necessitate the implementation of remote learning in tertiary institution in Northern Nigeria.

It is against this background that this study seeks to address these pressing problems, providing insights to and to determine the investigated the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria.

Aim and Objectives of the Study

- i. Determine the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria.

Research Questions

This study was guided by one research question:

- i. What is the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria?

Research Hypothesis

This study was guided by one null hypothesis and was tested at 0.05 level of significance:

H₀₁: There is no significant difference in the mean response of Technology Education Lecturers and Vocational Education Lecturers on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria.

Methodology

The research design adopted for the study was a descriptive survey design. The study was carried out in Universities in Northern Nigeria. The population of this study comprise of

all 341 TVET lecturers in public Universities of Northern Nigeria consisting of 168 lecturers of Technology Education and 173 lecturers of Vocational Education in Universities in Northern Nigeria and census approach was adopted for this study. The instrument for data collection in this study was a structured questionnaire developed by the researcher. The validity of the instrument in this study was ascertained by three experts one from the field of Test and Measurement in the Department of Educational Foundation, one from the Department of Vocational Education and one from Department of Construction Technology Education, Abubakar Tafawa Balewa University Bauchi, Bauchi State. The overall reliability coefficient of the instrument was .934 which indicates that the instrument is reliable and appropriate for the study. The data was collected with the help of eleven trained research assistants and the data was analyzed using Statistical Package for Social Sciences (IBM SPSS) version 25 was used to analyze the data collected. The data obtained was analyzed using Descriptive Statistics of Mean and Standard Deviation. The class limit of the whole number was employed assigned as decision rule for the research question. Independent T-test was used for testing the null hypothesis. The decision rule for the hypotheses depends on the p value, when the p value is greater than 0.05 level of significance, the null hypotheses were accepted and where otherwise were not accepted.

Results

This section presents the data obtained, the results and finding of the study. What is the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria?

Table 1 shows the Mean and Standard Deviation of the respondents on the effectiveness of digital literacy of TVET Lecturers for the implementation of remote learning in Universities in Northern Nigeria. The table showed the mean of Technology Education Lecturers ranges from 3.76 to 4.03, the standard deviation also ranges from .830 to .970 and the mean of Vocational Education Lecturers also ranges from 3.43 to 4.07 while the standard deviation ranges from .725 to .992 respectively. The cluster mean of Technology Education Lecturers is 3.91 with the standard deviation of .895 and 3.68 for Vocational Education Lecturers with standard deviation of .850, the grand mean of the respondents is ranges from 3.71 to 3.98. and grand standard deviation ranges from .824 to .979 respectively. The cluster grand of the respondents is 3.81 with the standard deviation of .876 which means TVET Lecturers' Digital Literacy has influence on Remote Learning Implementation in Universities in Northern Nigeria.

Table 1: Mean and Standard Deviation of the Respondents on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities

S/N	Item Statement	\bar{x}_T	SD_T	\bar{x}_V	SD_V	\bar{x}_G	SD_G	Remark
1.	Acquiring digital literacy gave me confidence using digital tools for remote learning.	3.76	.970	4.07	.992	3.89	.979	Agree
2.	Digital literacy gives me ability to use online learning platforms.	4.01	.854	3.95	.817	3.98	.838	Agree
3.	Digital literacy has improved my ability to communicate with peers during remote learning.	3.81	.917	3.85	.725	3.83	.835	Agree
4.	Digital Literacy enable me adapt to new digital tools and resources used in my remote classes.	3.76	.967	3.65	.857	3.71	.920	Agree
5.	My academic engagement in remote learning has increased because of my digital literacy.	3.92	.929	3.74	.948	3.84	.937	Agree
6.	I can efficiently manage time and resources for remote learning due to my digital literacy.	3.93	.837	3.54	.844	3.76	.840	Agree
7.	The effectiveness of my remote learning experience is directly influenced by how well I can use digital technologies.	4.02	.830	3.45	.817	3.78	.824	Agree
8.	Digital literacy enable me to handle remote learning effectively without stress.	3.93	.866	3.65	.844	3.81	.857	Agree
9.	My digital literacy enables me to access online learning materials more effectively.	3.90	.944	3.46	.747	3.71	.860	Agree
10.	Without strong digital literacy skills, remote learning would be less effective for me.	4.03	.839	3.43	.905	3.77	.867	Agree
Cluster Mean		3.91	.895	3.68	.850	3.81	.876	Agree

Source: Fieldwork, 2025

Results of Null Hypothesis

There is no significant difference in the mean response of Technology Education Lecturers and Vocational Education Lecturers on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria.

The result of the independent t-test is presented in Table 2 showed that there is significant difference on the mean response of Technology Education Lecturers and Vocational Education Lecturers on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria within the degree of freedom (Df) of 213, t-value = 2.445, p-value = .003. Since the p value is less than the confidence level (P<0.05) therefore, the null hypothesis was rejected which means that there is significant difference in the mean response of Technology Education Lecturers and Vocational Education Lecturers on

the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria.

Table 2: Independent t-test Analysis of the Mean Responses of Technology Education Lecturers and Vocational Education Lecturers on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities

Respondents	N	\bar{x}	S.D	Df	t-val	p-val	Decision
Technology Education Lecturers	123	3.91	.895	213	2.445	.003	Rejected
Vocational Education Lecturers	92	3.68	.850				

Findings of the Study

This study found that TVET Lecturers' Digital Literacy has influence on Remote Learning Implementation in Universities in Northern Nigeria and null hypothesis one was rejected which means that there is significant difference in the mean response of Technology Education Lecturers and Vocational Education Lecturers on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria.

Discussion of Findings

TVET Lecturers' Digital Literacy has influence on Remote Learning Implementation in Universities in Northern Nigeria and null hypothesis one was rejected which means that there is significant difference in the mean response of Technology Education Lecturers and Vocational Education Lecturers on the Influence of TVET Lecturers' Digital Literacy on Remote Learning Implementation in Universities in Northern Nigeria. This finding is in agreement with the finding of Iwuanyanwu and Eze (2022) that highlights the positive correlation between lecturers' digital literacy levels and student engagement in remote learning environments, which is vital for TVET disciplines. However, this finding disagrees with that of Obi, (2022) which argues that while digital literacy is important, factors like pedagogical approaches and institutional support may play more significant roles in enhancing the influence of remote learning.

Conclusion

In conclusion, based on the findings of this study it shows that TVET Lecturer's Digital literacy has influence on the implementation of remote learning in Universities in Northern Nigeria which means lecturers with higher digital literacy level exhibit superior abilities in leveraging digital platform which directly translate into enhanced remote learning outcomes particularly in Universities in Northern Nigeria.

Recommendations

Based on the finding of this study, the researcher recommends that Universities management in collaboration with ICT directorates should constantly provide TVET Lecturers with training and retraining opportunities on digital literacy which is essential for the implementation of remote learning in Universities in Northern Nigeria.

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