Awareness of Vocational and Technical Education Lecturers in Utilising the Emerging Technology Posed by Covid-19 Pandemic

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ARTICLE INFO   ABSTRACT

The study was carried out to examine the awareness of vocational and technical eduation lecturers in utilizing the emerging technology posed by Covid-19 pandemic in Oyo State Colleges of Education. To achieve the objectives of the study, three research questions were developed and answered while two null hypotheses were tested at 0.05 level of significance. The study adopted survey research design. The population for the study consisted of 150 lecturers. Total enumeration sampling technique was used for this research work. The questionnaire was faced and content validated by two experts from the Department of Business Education and one expert from Industrial Technical Education Department, Tai Solarin University of Education, Ijebu-ode. Cronbach Alpha method was adopted to ensure reliability of the instrument with the coefficient of r=0.96. This shows that the instrument is highly reliable. The questionnaire was administered on 150 respondents and all were successfully retrieved. Mean and Standard deviation were used to answer data related to research questions while t-test and ANOVA analysis were used to test the null hypotheses at 0.05 level of significance. The findings of the study revealed that awareness level of the Vocational and Technical Education lecturers on the use of available technological tools for teaching and learning is moderately high. The extent of usage of modern technological

tools for teaching and learning is low compare to their awareness. Challenges faced by Vocational and Technical Education lecturers in using modern technological tools is moderately high. The study revealed that there is significant relationship between male and female Vocational and Technical Education lecturers on the extent of lecturers` awareness on the use of modern technological tools. The study as well revealed that there is significant relationship between the respondents on the challenges faced by Vocational and Technical Education lecturers in using modern technological tools for teaching and learning with respect to their years of experience. Based on the findings, it was recommended among others that government through a relevant agencies like Tertiary Education Trust Fund (TETFund) should assist in providing some adequate modern technological tools for Colleges of Education, school management should provide modern technological tools for the smooth running of teaching and learning, Seminars and Conferences on the use of modern technological tools be attended at an interval.

Introduction

Corona virus disease 2019 (COVID-19) is firstly identified in Wuhan city, Hubei Province, China in December 2019 as a pneumonia of unknown origin. Later, the International Committee on Taxonomy of Viruses (ICTV) identifies the causative agent of COVID-19 as a novel coronavirus, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). COVID-19 outbreak spreads rapidly not only in China, but also worldwide, therefore, the World Health Organization (WHO) has announced it as pandemic on March 12, 2020.

In Nigeria, the first case of coronavirus disease (COVID-19) was reported in Lagos State, and it was confirmed on the 27th of February 2020. The case is an Italian citizen who works in Nigeria and returned from Milan, Italy to Lagos, Nigeria on the 25th of February 2020. He was confirmed by the Virology Laboratory of the Lagos University Teaching Hospital, part of the Laboratory Network of the Nigeria Centre for Disease Control (Osagie, 2020).

The emergence of COVID-19 and its increasing incidence in Nigeria has called for drastic review and changes in the earlier revenue expectations and fiscal projections. In an attempt to curb the spread of coronavirus, several measures were being put in place by the Federal Government of Nigeria such that regularly and thoroughly washing of hands with soap and water, and use alcohol-

based hand sanitizer; maintain at least 1 and half meters (5 feet) distance.

Consequently, as it was aimed at curtailing the spread of the coronavirus (Covid-19) disease in the country, the Federal Ministry of Education had ordered the immediate closure of all educational institutions which include tertiary, secondary and primary schools nationwide. Due to the suspension of classroom teaching in many Colleges, Polytechnics and Universities, switch to the online teaching for undergraduate and graduate students becomes effective. This form of learning provides an alternative way to minimize either the contact between students themselves or between the students and lecturers.

However, many students have no access to the online teaching due to lack of either the means or the instruments due to economical and digital divide. In the meantime, teachers face significant challenges in adapting to online teaching, and maintaining at least a minimum of communication with students and supporting students' learning and development through modern technological tools. Meanwhile, awareness to utilize modern tools amid COVID-19 is sacrosanct to effective teaching communication.

Modern technological tools, however, are various Internet resources, services, facilities, platforms, open educational resources, e-library resources, virtual resources, social networks among others that are found on the global networks of computers. These technological tools are connected via a computer system to another computer system, digital devices or computer networks. Online technologies are the modern tools for effective education management, administration and instructional delivery, especially in higher institutions of learning (Chika, 2012; Tsokura et al., 2013).

Social media such as Facebook and Twitter are online platforms useful for connecting people as well as conveying of ideas and information. Streaming technologies are suitable for pushing video and audio contents to connect end users, while virtual learning environments help bridge the distance between the institution, course contents, tutors and the learners (Biello, 2009; Kaplan et al., 2010). There are also various tools used for effective instructional delivery, such as, Global Digital Library, Feed the Monster, Antura and the Letters, Bloom, eKitabu, World Around You, Bookshare, KitKit School, Sema, Worldreader, Google Meet, Zoom, Telegram, Whatshap.

Workplace awareness is very important in this study as it is referred to knowledge about the workplace design and job characteristics of co-workers and is strongly related to other forms and aspects of awareness. Moreover, it is important to know what is going on around as a lecturer in order to go along with the need for background information about the job descriptions and responsibilities that their co-workers have within their affiliation and projects in order to enhance workplace awareness and subsequently improve the collaborative work. Information about the

usage of modern technological tools especially during the Covid-19 issues remains sacrosanct, which would contribute in assessing the institutional involvement and engagement.

Statement of the Problem

It has been acknowledged that the integration of modern technological tools in education has made tremendous impact on the effective delivery of instruction in any academic environment. Yusuf (2005) indicated that the internet is an essential tool for teaching, learning and research activities in education setting. With the emergence of Covid-19 pandemic, the Federal Government of Nigeria gave directive on the closure of the schools irrespective of their status Colleges of Education inclusively, during this period, the Oyo State Colleges of Education were closed down in an attempt to observe Federal Government Covid-19 protocol. In order to avoid academic disruption, the use of modern technological tools become imperative for teaching and learning. Therefore, the online teaching become essential and this can only be facilitated by the use of modern technological tools and significantly, the preparation of lecturers to adopt/embrace it for teaching and learning becomes essential.

It was observed that, the use of these modern technological tools was hesitated by some Vocational and Technical Education lecturers in Oyo State Colleges of Education and this could be based on their level of the awareness on the use of modern technological tools on teaching and learning. This may have a lot of negative implications on the curriculum, quality of manpower and competitive skills among the graduates of Colleges of Education in Oyo State. Hence, this study, therefore examine the awareness of vocational and technical education lecturers in utilizing the emerging technology posed by covid-19 pandemic in Oyo State Colleges of Education.

Objectives of the Study

The main purpose of the study is to examine awareness of vocational and technical education lecturers in utilizing the emerging technology posed by covid-19 pandemic in Oyo State Colleges of Education. Nigeria. Specifically, the study sought to:

1. Eexamine level of awareness of lecturers on the application of available modern technological tools for teaching and learning in Oyo State Colleges of Education, Nigeria.
2. Iinvestigate the perceived extent of usage of modern technological tools for teaching and learning amid COVID-19 pandemic in Oyo State Colleges of Education, Nigeria.
3. Identify challenges faced by lecturers in using modern technological tools for teaching and learning amid Covid-19 pandemic in Oyo State Colleges of Education., Nigeria

Research Questions 1

Three research questions were raised to guide the study.

 1. What are the levels of lecturers' awareness on the application of available modern

technological tools for teaching and learning in Oyo State Colleges of Education?

2. What are the extents of lecturers' usage of modern technological tools for teaching and learning in Oyo State Colleges of Education?

3. What are the challenges faced by lecturers in using modern technological tools for teaching and learning amid Covid-19 pandemic in Oyo State Colleges of Education?

Research Hypotheses

Two null hypotheses are formulated for the study and to be tested at 0.05 level of significant.

$H_0$1: There is no significant difference between the mean responses of male and female lecturers on the extent of lecturers' awareness on the use of the modern technological tools for teaching and learning in Oyo State Colleges of Education.

$H_0$2: There is no significant difference between the mean responses of respondents on the challenges faced in using modern technological tools Amidst Covid-19 pandemic for teaching and learning with respect to their years of work experience in Oyo State Colleges of Education, Nigeria.

Method

This study adopted a survey research design. The population for this research comprised of 150 Vocational and Technical Education lecturers from three Colleges of Education in Oyo State. There was no sampling for the study, total enumeration sampling technique was used for this study because the size of the population is manageable to carry out the study. The instrument used for data collection of this research work was self-structured developed by the researcher titled: Use of Modern Technological Tools Questionnaire (UMTTQ).

The questionnaire was divided into two sections, A and B. Section A dealt with personal data of the respondents which includes, Gender and work experience while Section B of the questionnaire was further divided into 3 parts: Part 1 covers research question 1 on the levels of lecturers' awareness on the available technological tools for teaching and learning in Oyo State Colleges of Education, and it contains 10 items. Part 2 covers research question 2 on the extents of lecturers' usage of modern technological tools for effective teaching and learning in Oyo State Colleges of Education, and it contains 10 items.

Part 3 covers research question 3 on the challenges faced by lecturers in using modern technological tools amid Covid-19 for teaching and learning in Oyo State Colleges of Education, and it contains 10 items. The instrument was faced and content-validated by two experts in the Department of Business Education and one expert in the Department of Industrial Technical Education Department, Tai Solarin University of Education, Ijebu-Ode, Ogun State. Reliability test was carried out to determine the consistency of the instrument in collecting the data as required,

data collected was subjected to analysis using Cronbach alpha method and a value of 69% was obtained, this showed that the instrument was reliable.

Data were analyzed using Mean and Standard deviation to answer research questions while t-test statistics and ANOVA were used to test research hypotheses at the 0.05 level of significance. Decision rule: for research question one, the rating scale for mean responses was structured on High Level (HL) 3.50 – 4.00, Moderate Level (ML), 2.50 – 3.49, Low Level (LL), 1.50 – 2.49, Not Aware (NA) 0.0 – 1.49. For research question two, the rating scale for mean responses was structured on High Extent (HE) 3.50 – 4.00, Moderate Extent (ME) 2.50 – 3.49, Low Extent (LE) 1.50 – 2.49, Not Used (NU) 0.0 – 1.49.

For research question three, any item with a mean score of 2.5 and above were accepted while any item with a mean score below 2.50 were rejected. For hypotheses, when the observed p-value is less than the fixed value p-value (0.05), the null hypotheses were rejected. On the other hand, when the observed p-value is greater or equal to the fixed p-value (0.05), the null hypothesis were accepted.

Result and Discussion

Research Question 1: What are the levels of lecturers' awareness on the application of available modern technological tools for teaching and learning in Oyo State Colleges of Education?

Table 1 reveals that lecturers are moderately aware of the available modern technological tools used for teaching and learning in their various Colleges. This is indicated by the mean values ranging from 2.79 to 3.42, with the standard deviation values of 0.60 to 1.01. The standard deviations of the items indicated that their responses are not too widespread. Summarily, awareness on the application of modern technological tools for learning and teaching by Vocational and Technical Education lecturers in Colleges of Education is of moderate level.

Research Question 2: What are the extents of lecturers' usage of modern technological tools for teaching and learning in Oyo State Colleges of Education?

Table 2 reveals low utilization of modern technological tools such as videoconferencing, zoom, google classroom, bloom and teleteaching. This is indicated by the mean values ranging from 2.19 to 2.44, while google, whatsapp, blog and worldreader are moderately utilized. This is indicated by the mean score ranging from 2.76 to 3.14. The standard deviations of the items ranging from 0.88 to 0.96 as well 1.01 to 1.09 indicating that their responses are not too widespread. Summarily, usage of modern technological tools for teaching and teaching in Oyo State Colleges of Education is of low extent.

Table 1: Mean and Standard Deviation of Responses on level of Lecturers' Awareness   on the Application of Available Technological Tools for Effective Teaching and Learning

S/N	Item Statements	Mean	SD	Remarks
1.`	Videoconferencing could be used to pass information between people in different locations	3.34	.74	ML
2.	Google classroom gives room for grading of assignment in a paperless classroom	2.99	.90	ML
3.	Zoom provides chat services that encourages distance education.	3.42	.77	ML
4.	World reader gives avenue to access digital books online	3.29	.81	ML
5.	Whatsapp allows users to send text messages and voice messages, video calls.	3.69	.60	HL
6.	Bloom enables teachers to decode books in many languages	2.84	.96	ML
7.	Blog gives the writers the avenue to share his view on any concept	3.08	.81	ML
8.	Teleteaching help teachers to dictate subjects contents to students online	2.95	.86	ML
9.	Edmodo allows in creating online collaborative groups and measure students` performance	2.78	1.01	ML
10.	Project enables teachers to share with students, academic presentation	3.32	.79	ML

Source: Field study (2021)

Table 2: Mean and Standard Deviation of Responses on the Extents of lecturers' Usage of Modern Technological Tools for Teaching and Learning in Oyo State Colleges of Education.

S/N	Item Statements	Mean	SD	Remarks
1.`	I use videoconferencing to present text and graphic in the classroom to the students	2.44	1.02	LL
2.	I use zoom to demonstrate practical class virtually	2.37	.96	LL
3.	I use google class to keep related materials in the internet for easy location when need arises	2.76	1.02	ME
4.	I send text messages and voice messages using whatsapp to the students	3.14	.95	ME
5.	I do consult blog to view journal papers related to the subject being taught in the class	2.86	.86	ME
6.	I do conduct test using google classroom	2.30	1.09	LL
7.	I use bloom to send books to the students	2.19	1.04	LL
8.	I dictate the subject contents using teleteaching	2.40	.96	LL
9.	I do treat contents with pictures, diagrams using bloom	2.42	1.01	LL
10.	I do access worldreader to understand new concepts to be used in teaching	2.76	.88	ME

Source: Field study (2021)

Research Question 3: What are the Challenges faced by lecturers in using modern technological tools for teaching and learning amidst Covid-19 pandemic in Oyo State Colleges of Education?

Table 3 reveals that all the mean score were all above the cut-off point of 2.50 which indicated that all the lecturers were facing some challenges in using modern technological tools used for

teaching and learning in their various Colleges. The standard deviations of the items were ranging from 0.56 to 0.77 indicating that their responses are not too widespread, except that of 0.90.

Table 3: Mean and Standard Deviation of Responses on the Challenges faced by lecturers in using modern technological tools for teaching and learning amidst Covid-19 pandemic in Oyo State Colleges of Education.

S/N	Item Statements	N	Mean	SD	Remarks
1.`	Inadequate knowledge on the use of modern technological tools	150	3.26	.736	Accepted
2.	Attitudinal differences of the lecturers towards the use of modern technological tools	150	3.16	.705	Accepted
3.	High cost of internet data to search for materials online	150	3.27	.776	Accepted
4.	Epileptic power supply	150	3.64	.569	Accepted
5.	The expensive nature of modern technological tools	150	3.50	.621	Accepted
6.	Lecturers` low motivational factor to use modern technological tools	150	3.30	.730	Accepted
7.	Lecturers rarely attend conference/seminar on the effective use of modern technological tools in the classroom	150	2.73	.909	Accepted
8.	Poor maintenance/repair of the available modern technological tools	150	3.36	.644	Accepted
9.	Poor internet connectivity	150	3.48	.744	Accepted
10.	Inadequate provision of ICT infrastructure and tools support as an instructional devices	150	2.76	.672	Accepted

Source: Field study (2021)

Summarily, the challenges faced by Vocational and Technical Education lecturers in Oyo State Colleges of Education in using modern technological tools for teaching and learning mean responses were all being agreed upon.

Test of Hypotheses:

H_01: There is no significant difference between the mean responses of male and female lecturers on the extent of lecturers' awareness on the use of the modern technological tools for teaching and learning in Oyo State Colleges of Education.

The analysis of data in table 4 reveals that there are 105 male and 45 female respondents in the study. The table shows the mean and standard deviation of male and female responses ($\bar{x}$=30.96, SD=5.67) and ($\bar{x}$=33.57, SD=4.55). Therefore, the null hypothesis is rejected, signifying that there is a significant difference between the mean responses of male and female lecturers on the use of modern technological tools for teaching and learning in Oyo State Colleges of Education (t148=P<0.05).

Table 4: Summary of the T-test result of the mean response of male and female respondents on

the extent of lecturers` awareness on the use of modern technological tools for teaching and learning in Oyo State Colleges of Education.

S/N	Group	N	Mean	SD	T	df	P-value	Decision
1.`	Male	105	30.96	5.67	-2.74	148	0.007	Sig
2.	Female	45	33.57	4.55				

P<0.05

Source: Field Survey, 2021

Thus, the null hypothesis that states that there is no significant relationship between the mean responses of male and female Vocational and Technical Education lecturers on the use of modern technological tools for teaching and learning in Oyo State Colleges of Education was rejected and the alternative hypothesis accepted. This implies that male and female respondents do differ in their responses regarding their readiness on the use of modern technological tools.

$H_0$2: There is no significant of the mean response of respondents on the challenges faced in using modern technological tools amidst Covid-19 pandemic for teaching and learning with respect to their years of work experience in Oyo State Colleges of Education.

Table 5: Summary of the ANOVA result of the mean response of respondents on the challenges faced in using modern technological tools amidst Covid-19 pandemic for teaching and learning with respect to their years of work experience in Oyo State Colleges of Education.

S/N	Group	Sum of squares	Df	Mean Square	f	Sig.	Decision
1.`	Between	158.489	2	79.245	6.016	0.003	Sig.
2.	Groups	1936.344	147	13.172			
	Within Groups						
	Total	2094.833	149				

P>0.05

Source: Field Survey, 2021

The data in table 5 shows the analysis of the ANOVA used in testing the significant relationship between the mean responses of respondents with respect to their year of experience. From the F-ration distribution, the critical value of F with 2 and 147 degree of freedom (df) at 0.05 level of significance is 0.03. As such from the analysis it can be inferred that the respondents do not share identical opinion in their responses.

Thus, since the p-value of 0.03 is less than 0.05 level of significant, the null hypothesis which stated that there is no significant difference between the mean responses of respondents on the challenges faced in using modern technological tools amidst Covid-19 pandemic for teaching and learning with respect to their year of experience in Oyo State Colleges of Education was rejected, this signifies that there is significant relationship between the respondents with respect to their year of experience.

Discussion of Findings

The findings of the research question 1 in revealed that awareness level of lecturers on the application of available modern technological tools for teaching and learning in Oyo State Colleges of Education is moderately high. This is defined as the teaching and learning has gone beyond classroom level. The findings corroborate with earlier findings of Shulman (1987) who expressed that teachers must draw on this range of professional knowledge and weave it into coherent understandings and skills to master the core challenges of teaching. In response to the increasing significance of the Information Communication Technology (ICT) transformation process in educational systems Selwyn (2012) opined that the teachers` knowledge categories have been extended to incorporate the knowledge required to master the challenges associated with the using ICT in teaching and learning at school.

The findings of research question 2 showed that the extent of lecturers` usage of modern technological tools for teaching and learning in Oyo State Colleges of Education is low. Some teachers admitted they were reluctant ICT users because they might get embarrassed that the students knew more about the technology than they did (Hennessy et al., 2006). Oye et al. (2012) state that the use of Internet technology to support teaching and learning in certain subjects such as mathematics remains underdeveloped in developing countries. Majority of the teachers are not yet confident of using internet technology for classroom instruction, hence, they require further training to enable them to be better handlers of the technology and as well promote better teaching and learning.

The findings of the research question 3 revealed the challenges faced by Vocational and Technical Education lecturers in using modern technological tools for teaching and learning in Oyo State Colleges of Education. They include the following among others: inadequate knowledge on the use of modern technological tools, high cost of internet data to search for materials online, epileptic power supply, poor maintenance of the available tools. This indicates that Vocational and Technical Education lecturers in Oyo State Colleges of Education faced some challenges in using the tools which may pose many problems.

This finding is supported by Eze et al. (2018) who reiterates that poor internet connectivity and high cost of data has resulted in low attendance of students during the online classes, this low online class attendance has also been linked to the poverty situation in the country as some families and students might not be able to afford basic needs such as food and clean water let alone the expensive gadgets or resources to sustain them for online learning. Also, Eze et al. (2018) further expressed that another challenge posed by the e-learning education is the incapability of lecturers to assists learners develop the skills and training required to make the e-learning platform effective.

E-learning creates room for complete absence of physical personal interactions between students and lecturers and among their colleagues. The World Bank is sentient that few education systems, even the highest performing, may not be that well equipped to offer online learning for all students at such a large scale.

The finding of hypothesis 1 ($H_0 1$) revealed a significant relationship in the mean ratings of male and female respondents on the extent of lecturers` awareness on the use of modern technological tools in Oyo State Colleges of Education. This indicates that male and female lecturers do not have similar opinion on the awareness on the use of modern technological tools for teaching and learning.

The finding of hypothesis 2 ($H_0 2$) revealed a significant relationship in the mean ratings of respondents on the challenges faced in using modern technological tools for teaching and learning with respect to their year of experience in Oyo State Colleges of Education. This indicates that the respondents do not have similar opinion on the challenges faced in using modern technological tools for teaching and learning based on their experience at work.

Conclusion

Based on the findings of the study, it was revealed that awareness level of Vocational and Technical Education lecturers is moderately high and the extent of usage of the tools is low. It was therefore concluded that Vocational and Technical Education lecturers` level of awareness to adopt modern technological tools for teaching and learning in today`s academic environment is not that encouraging. This is because available technological tools in education require high awareness and at the same time putting them into use is the most important for effective instructional delivery and the challenges faced be minimized to the barest minimal because the eradication of challenges may be germane to the lecturers` readiness and high extent in using modern technological tools for teaching and learning.

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