



Article

MANAGEMENT OF TECHNOLOGY-BASED INSTRUCTION AS A PREDICTOR OF ATTITUDE TO WORK AMONG NIGERIAN UNIVERSITY TEACHERS

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Abstract

The present study focuses on learning the management of technology-based instruction as a predictor of attitude to work among university teachers. The study used a correlation design with a sample size of 450 university teachers in the Faculty of Education of selected two public Nigerian Universities using a simple random sampling technique. Technology-Based Instruction Scale (TBIS) and University Teachers' Attitude to Work Scale (UTAWS) were used for data collection. Three experts validate the instruments. Internal consistency reliability coefficients of 0.88 and 0.78 were obtained for (TBIS) and (UTAWS) respectively using the Cronbach alpha method. To test the hypotheses, a t-test associated with linear regression was used. The results indicated that management of technology-based instruction can significantly predict university teachers' attitudes to work to a high extent. Based on the findings, some recommendations were highlighted including that the Nigerian government should collaborate with non-governmental bodies such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and other international organizations in providing financial support to acquire viable technology tools for instruction to promote a positive attitude to work among university teachers in Nigeria.

Keywords: Management, Technology-Based Instruction (Video Conference, Interactive Whiteboard and Virtual Field Trip), Attitude and Work.

Introduction

Engaging higher learners in purpose-driven educational activities based on the advancement of responsible usage of emerging technologies in the classroom may not be easily achieved without acknowledging the strategic position of university teachers. The position of university teachers is necessary on the basis that FGN (2013) stated that teaching and learning should be activity-based, learner-centred, and experimental with the support of modern technologies. Empirically, Akpotu and Nwadiani (2003) observed that university teachers contribute tremendously to the workforce in Nigeria. In Nigeria's education system, university teachers, also known as academic staff, are the main force of higher institutions with the responsibility of handling the

teaching, research program, and other academic/community services (Ogunode et al., 2022). In elaboration, university teachers are involved in teaching at undergraduate and graduate levels in areas allocated by the Head of Department, which will be reviewed after some time by the Head of Department. They conduct research and produce publications, or other research outputs, in line with personal objectives agreed upon in the staff review process. They obtain research funding support and engage with the broader scholarly and professional communities.

They also assist with the supervision of undergraduates, contribute to the development,

planning, and implementation of a high-quality curriculum, assist in the development of learning materials, prepare schemes of work, and maintain records to monitor student progress, achievement, and attendance. University teachers can also be involved in preparing and delivering lectures, supervising students in fieldwork/industrial training, final year projects, postgraduate students, marking assessments, and grading scripts (Ogunode et al., 2022). Other activities are based on the development and promotion of innovative teaching methods, consultation with students, and production of teaching materials for students. The research role involves carrying out investigations on the identified problem(s), presenting the findings of such investigations in conferences/seminars, and publishing the findings in journals and/or textbooks. At the community level, services include heading a department, faculty committee, external supervision, advising student societies, and participating in other recognized committees at departmental, faculty, and university levels – for example; sports, graduation, and convocation, among others (Uchenna et al., 2018).

Based on the above-mentioned responsibilities of teaching, research, and human/community services, university teachers in the Nigerian educative process require effective attention, especially concerning their attitude to work. Attitude is an essential psychological construct that cannot be overlooked in this study. Attitude could refer to feelings attached to the individual's display of action towards an object or a given situation. Attitude is defined as the intensity of the total disposition, feelings, ideas, notions, and all forms of convictions about objects and activities around the environment (Kpolovie et al., 2014; Kpolovie, 2014). According to Bohner and Wanke (2002), attitude is defined as a summary evaluation of an object of thought. As an object of thought, individuals tend to react in a certain way towards a certain idea, object, person, or situation. Attitude could manifest in every sphere of life. It applies to work-related situations, which could be referred to as work attitude or attitude to work.

Attitude to work is a condition that could determine the level of productivity among workers in organizations, including university teachers. A correlation study regarded attitude to

work as the expression of certain behaviour towards assigned tasks (Amoke et al., 2023). In Nigeria, university teachers are mostly engaged with assigned tasks or responsibilities. The nature of the assigned instructional responsibilities may predispose university teachers to a certain work attitude. Operationally, attitude to work is the disposition of university teachers towards their assigned tasks for learners in a classroom setting where a strong teaching-learning process is established using a modern technology approach. Maintaining a strong learning process using modern technology seems to depend on the dimensions or nature of attitude to work. In other words, the attitude to work of university teachers tends to be positive or negative oriented (Williams & Iruloh, 2014). When their attitude to work is positive, university teachers mostly exhibit seriousness towards their assigned tasks with expectations to record more successes in their instructional delivery. Among other educators, university teachers who have positive attitudes to work tend to record effective time management, classroom management, teaching, and research (Amoke et al., 2023). A positive attitude to work can inspire university teachers to maintain strong learning activities that are learner-centered using technology support towards the development and promotion of innovative and sound education.

University teachers with a positive attitude toward work move forward with confidence and optimism, and they remain happy with their assigned responsibilities of teaching, research, and community services (Churchill, 2016). On the other hand, a negative attitude toward work is the inability of university teachers to seriously engage in their assigned responsibilities of teaching, research, and community services. This kind of attitude can deprive university teachers of many impressive teaching-learning opportunities aimed at improving the holistic education of learners. Individuals with negative attitudes toward work often find a way out of tough situations by avoiding them (Kell, 2019). The danger of university teachers avoiding their duties in teaching, research, and community services is disheartening and could jeopardize the benefits of using modern technology instruction in the 21st century to engage learners in meaningful learning processes. Observations by researchers noted that

many university teachers in Nigeria may have some challenges or negative attitudes toward work. This observation is supported by the study of Nwakpa (2013) on indiscipline among staff of Ebonyi State-owned tertiary educational institutions, which revealed that many university workers reported poor attitudes toward work.

As regards this study, attitude to work is all about the manifestation of certain feelings and behaviours of university teachers on their assigned tasks of instructional delivery, research programs, and community services in the era of 21st-century teaching and learning using a modern technology approach. The attitude to work of university teachers could manifest in the form of positive or negative behaviour. University teachers who have a positive attitude to work are always ready to deliver sound lectures, engage in result-oriented problem-solving, and are highly committed to delivering community services in the interest of the university and humanity. They also value their work, which could be ascribed to the supportive environment of appropriately managing the use of modern technology tools. This cannot be the same where the attitude to work of university teachers is known for unsatisfactory behaviour towards teaching, research, and community services in the higher institutions of learning. Apparently, in many Nigerian universities, the researchers of this study observed that the three key duties of university teachers, such as teaching, research, and community services, are not satisfactorily achieved. Some university teachers are alleged to exhibit poor commitment to their assigned duties of engaging students in proactive learning, coupled with many problems facing academic staff in Nigerian universities. Consequently, undergraduates of such universities are likely to experience poor learning outcomes, which are dangerous to their future. Many of the university undergraduates under the tutorship/care of university teachers whose attitude to work is poor cannot easily survive the era of 21st-century teaching and learning experience where the use of modern technology prevails. This situation of poor attitude to work among university teachers could be managed using modern technology in teaching and learning. In other words, the attitude to work of university teachers could be predicted

under the supportive environment of modern technology tools (Amoke et al., 2023; Morgan, 2010).

Under the supportive environment of modern technology tools, university teachers could strive to embrace a positive attitude to work to make the teaching and learning process attractive and fascinating to the learners through pragmatic modern methods of instructional delivery. One of the modern methods of instructional delivery could be referred to as a technology-based instructional delivery strategy. Technology-based instruction is the application of technological gadgets in the discharge of teaching-learning responsibility. Technology-based instruction implies the use of digitally compliant tools in teaching activities. Technology-based learning could foster improvements in the teaching career, skills, knowledge, content, resources, as well as teachers' classroom management and control. Technology-based knowledge is suggested to be an impressive teaching support tool that can advance educational productivity with a target to increase the rate of acquiring knowledge, reduce costs associated with instructional program delivery, and better manage instructional time (US Department of Education, n.d.). Technology-based instruction can be carried out through various platforms such as virtual field trips, video conferencing, and interactive whiteboards, among others (Conwell, 2005).

Interactive Whiteboards

Interactive whiteboards (IWBs) could be referred to as digital learning devices designed with the capacity to transmit a series of information sent into them to various computers at a very fast pace. IWBs can be used for various purposes (Al-Saleem, 2013), enabling individuals to share ideas, present messages, and engage in collaborative problem-solving through the internet and instantly digitize tasks and operations (WhatIs.com, 2020). IWBs, as a pedagogical tool, use projectors and computers to promote innovative-based teaching, facilitate discussion, and inspire learners to assimilate information for learning (Smith et al., 2005; Onal & Demir, 2017). When teaching and learning are innovative due to IWBs, universities could find it easy to promote a healthy competitive classroom at the tertiary level

(Morgan, 2010) with a high level of concentration in learning (Ekholm, 2002; Glover & Miller, 2002). Similarly, IWBs have been found to independently predict quality service delivery among academic staff (Omemu & Veronica, 2021). It is also necessary to note that IWBs accommodate different styles of learning into one experience, promote learners' attention, and generally increase learning activities (Platinum Copier Solutions, 2017). To this end, IWBs not only increase learning activities but could also support university teachers to embrace innovative ways of teaching with their attitude to work expected to improve. To improve the learning-teaching process, IWBs can function exceptionally well when engaged with the support of video conferencing.

Video Conferencing

Video-conferencing (VC) is an innovative approach to pedagogical practices for maximum interaction (Promethean, 2016), involving the use of video, audio, text, and pictures to improve teaching and learning irrespective of location (Horton, 2020). Location is not a barrier because learning interaction on a screen is usually done in two ways that allow users to see, hear, and talk to one another (Stem Audio, 2020). As argued by Horton (2020), the use of classroom video conferencing can be very interesting in instructional delivery to learners. Research revealed that video conferencing predicts quality service delivery in Nigerian universities (Omemu & Veronica, 2021). In this study, using video conferencing in teaching could support university teachers to engage students in teaching and research even when in distant locations. Again, using video conferencing technology, university teachers who usually exhibit lackadaisical attitudes in delivering lectures/teaching and other research-related programs may bring positive change in their attitude to work. Video-conferencing is technologically relevant in learning-teaching enhancement, especially when integrated with the activities of virtual field trips.

Virtual Field Trip

The virtual field trip is one of the modern technology tools that cannot be overlooked in the teaching-learning domain. It is called a virtual

field trip because teaching-learning activities could occur outside the conventional setting, though supported with internet services to enable learners to be exposed to the real world so that they can source, assess, and appreciate what they have learned in a real context (Cox, 2012; Discovery Education, 2020). Using virtual field trips in the classroom, learners can avail themselves of the opportunity to see different materials posted online without the usual physical visitations of the known area. The virtual field trip makes the learners fully engaged in-class instruction as they do not want to miss any piece of information shown on the platform (Morgan, 2010). On this note, educators, including university teachers with satisfactory attitudes to work, can get the students committed to classroom activities through the support of virtual field trips (Fried, 2008). Through virtual field trips online platforms, learners can be well-educated on how to search for or acquire information for enhanced academic activities (Fried, 2008). Virtual field trips have also been found to independently predict quality service delivery in higher institutions (Omemu & Veronica, 2021). Studies established that virtual field trips can increase the zeal of academic commitment of learners as well as decrease the time of instruction (Horton, 2020; Omemu & Veronica, 2021).

Based on the established studies that technology-based instruction is highly supportive of the improvement of teaching and learning, the attitude to work of university workers could also be transformed to meet the learning needs of learners in the 21st-century era where modern technology thrives. For example, virtual field trips, among others, offer university teachers unique experiences that are consistent with successful instructional strategies. On this basis, a shred of empirical studies has been highlighted to strengthen the position of modern technological tools and the work attitude of educators in learning endeavours. Previous research (Adamu, 2018) supports that technology-based instruction is very effective in academic activities in universities, mostly where the attitude to work of university teachers is satisfactory. Other studies revealed that the position of modern technology in teaching and learning could be determined based on the attitude to work of educators who finally

make decisions on how to use them in the teaching process (Albirim, 2006; Ferdousi, 2009; Chen, Liao, Chen, 2009). Additionally, one important initiative for supporting technology-based instruction in any educational program depends mostly on the attitude to work of the teachers (Rana 2012; Sadik 2006). For example, managing effectively the use of modern technological tools in the learning process may inspire university teachers to engage in proactive teaching, research, and community services. A similar study revealed that classroom instructional-based technology can significantly predict quality service delivery (Omemu & Veronica, 2021).

However, various ideas regarding this study have been explored with supported literature/empirical studies. The empirical studies captured in this study are mainly foreign (Onal & Demir, 2017; Albirim, 2006; Ferdousi, 2009; Chen et al., 2009) and seem not to vividly represent the whole ideas needed to address issues regarding emerging modern technology tools in higher institutions. In other words, none of these studies above investigated specifically on management of technology-based instruction and attitude to work of university teachers. Again, to the best knowledge of the researchers, the predictive power of management of technology-based instruction on the attitude to work of university teachers appears not to have been adequately documented in Nigerian universities. With this in mind, the predictive power of technology-based instruction on attitude to work among university teachers is still not sure. Hence the need for this present study.

Hypotheses

The current study tested the following research hypotheses:

1. Interactive whiteboard does not significantly predict the attitude to work of university teachers.
2. Video conferencing does not significantly predict the attitude to work of university teachers.
3. Virtual field trips do not significantly predict the attitude to work of university teachers.

These hypotheses were formulated to investigate the potential relationships between the use of modern technology tools (interactive whiteboard, video conferencing, and virtual field trips) and the attitude to work among university teachers.

Methodology

The study adopted a correlational design with a population of 1,021 university teachers from 2 public Nigerian universities to investigate the predictive power of management of technology-based instruction on the attitude to work of university teachers. The sample for the study comprised 450 university teachers drawn through a simple random sampling technique, representing 10% of the population of university teachers. The sample size was determined through balloting, where the names of the respondents were folded on a piece of paper, and any paper picked at random had the name of one of the respondents. Two self-report measures, titled Technology-based Instruction Scale (TBIS) and the University Teachers' Attitude to Work Scale (UTAWS), were used for data collection. These measures were designed with Likert response options ranging from Very High Extent (4) to Very Low Extent (1). The TBIS consisted of three clusters: Interactive Whiteboard with 7 items, Video Conferencing with 7 items, and Virtual Field Trip with 6 items, totalling 20 items to measure technology-based instruction (see Appendix). The UTAWS, on the other hand, comprised 12 items to measure the attitude to work of university teachers (see appendix). UTAWS was structured similarly to TBIS in terms of response options. The measures had Cronbach alpha reliability coefficients of 0.88 and 0.78 respectively.

Results

Table 1 reveals that the t-test value of 10.52 associated with simple regression is rejected because the significant value was 0.00. Therefore, the interactive whiteboard was a significant predictor of the attitude to work of university teachers. Table 2 reveals that the t-test value of 9.67 associated with linear regression is rejected because the significant value was 0.00.

Table 1: Result of hypothesis 1 showing the linear regression of the interactive whiteboard predicting attitude to work of university teachers

Model	B	Unstandardized Coefficients		Standardized Coefficients		Sig.	Decision
		B	Std. Error	Beta	t		
1	(Constant)	81.147	3.969		20.443	.000	Significant
	Interactive whiteboard	1.135	.108	.752	10.523	.000	

$P < 0.05$

Table 2: Result of hypothesis 2 showing the results of linear regression of the video conferencing in predicting the attitude to work of university teachers

Model	B	Unstandardized Coefficients		Standardized Coefficients		Sig.	Decision
		B	Std. Error	Beta	t		
1	(Constant)	65.807	2.739		24.025	.000	Significant
	Video conferencing	.756	.078	.724	9.670	.000	

$P < 0.05$

Table 3: Result of hypothesis 3 showing the linear regression of virtual field trips predicting the attitude to work of university teachers

Model	B	Unstandardized Coefficients		Standardized Coefficients		Sig.	Decision
		B	Std. Error	Beta	t		
1	(Constant)	33.221	2.122		12.033	.000	Significant
	Virtual field trip	.656	.012	.800	5.790	.000	

$P < 0.05$

Therefore, Video conferencing is a significant predictor of the attitude to work of university teachers. Table 3 reveals that the t-test value of 5.79 associated with simple regression was rejected because the significant value of 0.00 was less than 0.05 alpha level of significance. Therefore, Virtual field trip is a significant predictor of the attitude to work of university teachers

Discussion

The study revealed that the management of interactive whiteboards (IWBs) can significantly predict the attitude to work of university teachers to a high extent. The outcome of this result is not surprising, given the previous report that technology-based instruction, involving the use of digital compliant tools in learning-teaching activities, has been considered suitable for advancing the educational sector (Conwell, 2005). One of the ways of advancing the educational sector using technological learning tools may

have to do with transforming university teachers to always embrace a satisfactory attitude to work, especially in their assigned responsibilities of teaching, research, and community services. In other words, IWBs not only increase learning activities but could also support university teachers to embrace innovative ways of teaching, with their attitude to work expected to improve. Improving the attitude towards the work of Nigerian university teachers is necessary, considering that most unsatisfactory attitudes towards the work of university teachers could occur because of their regular exposure to the stressful and uncondusive working environment where the engagement of modern instructional technology support in teaching-learning is unstable. On this note, the finding of this study is in tandem with a study that using IWBs, university teachers could find it easy to promote a healthy competitive classroom at the tertiary level (Morgan, 2010) with a high level of concentration in learning (Ekholm, 2002; Glover & Miller,

2002; Platinum Copier Solutions, 2017). This study agrees with the research by Adamu (2018) that technology-based instruction is very effective in academic activities in universities, mostly where the attitude to work of university teachers is satisfactory. Other studies supporting the finding of this study, however, revealed that the position of modern technology in teaching and learning could be determined based on the attitude to work of educators who ultimately make decisions on how to use them in the teaching process (Albirim, 2006; Ferdousi, 2009). Again, the finding of this study agrees with Rana (2012) that one important initiative for managing technology-based instruction in any educational program depends mostly on the attitude to work of the teachers. The finding of this study equally aligns with a similar study (Omemu & Veronica, 2021) that classroom instructional-based technology can significantly predict quality service delivery. The manifestation of quality service delivery represents the satisfactory attitude displayed by university teachers to their assigned responsibilities of teaching, research, and community services.

The study found that the management of video conferencing can significantly predict the attitude to work of university teachers to a high extent. The predictive effectiveness of video conferencing on the work attitude of university teachers is an indication that the platform encourages knowledge sharing through sound and vision by the users within and in other places. As a suitable technological tool that fosters improvements in the teaching career/skills and knowledge, university teachers who usually exhibit lackadaisical attitudes in delivering lectures/teaching and other research-related programs can bring positive change in their attitude to work. The change in their attitude to work is possible since the use of classroom video conferencing can be very interesting (Horton, 2020) in instructional delivery to learners. With this in mind, the finding of this study is in line with related research which revealed that video conferencing predicted quality service delivery at Nigerian Universities (Omemu & Veronica, 2021) where the use of video conferencing in teaching could support university teachers to engage students in teaching and research even

when in distant locations (Horton, 2020). The result of this study is also in tandem with the study that a critical condition for supporting technology-based instruction in any educational program depends mostly on the attitude to work of the educators (Sadik, 2006).

The study showed that the management of virtual field trips can significantly predict the attitude to work of university teachers to a high extent. The report on the prediction of virtual field trips on the attitude to work of university teachers is highly appreciated. This is because by using virtual field trips in the teaching-learning activities; learners have the opportunity of seeing different materials posted online without the usual physical visitations of the known area. The virtual field trip makes the learners fully engaged in-class instruction as they do not want to miss any piece of information shown on the platform (Morgan, 2010). On this note, educators including university teachers with satisfactory attitudes to work can get the students committed to the classroom activities through the support of virtual field trips (Fried, 2008). Through virtual field trip online platform, university teachers can guide learners on how to search or acquire information for enhanced academic activities (Fried, 2008) capable of increasing the zeal of academic commitment of learners; reducing the time of instruction for university teachers and motivating/inspiring university teachers with unsatisfactory attitudes to work for better disposition of rendering productive teaching, research, and community services. This study, however, agrees with a study on virtual field trips that has been found to independently predict quality service delivery in higher institutions (Omemu & Veronica, 2021). The finding of this study is also aligned with a study that revealed

Conclusion and Recommendations

Based on the findings of this study, it was concluded that technology-based instruction can significantly predict the attitude to work of Nigerian university teachers. Specifically, it was concluded that technology-based instruction, with an emphasis on the use of interactive whiteboards, video conferencing, and virtual field trips, can independently but significantly predict the

attitude to work of university teachers in Nigeria. Based on these conclusions, several recommendations were highlighted. Firstly, the government should collaborate with non-governmental bodies and other international organizations like the United Nations Education, Scientific and Cultural Organization (UNESCO) to provide financial support for viable technology tools such as computers, projectors, internet connectivity, power supply, printers, and flash drives. These tools are essential for facilitating video conferencing for instructions, thereby promoting a positive attitude to work among university teachers in Nigeria. Recognizing the significance of technology-based instruction, particularly interactive whiteboards (IWBs) in teaching-learning activities, which have been found to significantly predict the attitude to work of university teachers, it is imperative for university management to adequately provide and mandate the use of such technology. University teachers should be encouraged to embrace these tools in discharging their assigned responsibilities of teaching, research, and community services. Furthermore, the management of virtual field trip platforms in Nigerian universities should be strengthened. These online platforms have been shown to increase the zeal of academic commitment among learners, reduce the time of instruction for university teachers, and inspire those with unsatisfactory attitudes to work to positively change and embrace productive teaching, research, and community services. In addition to technological support in teaching-learning activities, Nigerian universities should regularly organize character-building and attitudinal change programs, workshops, and seminars for university teachers. These initiatives aim to foster active commitment and cultivate positive dispositions towards their assigned roles of teaching, research, and community services in higher institutions in Nigeria.

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APPENDIX

Technology-Based Instruction Scale (TBIS)

S/N	ITEM STATEMENT
	Interactive whiteboards (IWBs)
1.	Interactive whiteboards such as projectors and computers promote innovative teaching-learning experience
2.	I use interactive whiteboards to establish a healthy competitive classroom.
3.	Quality teaching service delivery is certain with the use of interactive whiteboard technology.
4.	Interactive whiteboard technology accommodates various teaching approaches or styles.
5.	Interactive whiteboard technology promotes a high level of concentration in the teaching-learning process.
6.	Engaging interactive whiteboard technology in my classroom inspires learners to assimilate learning materials.
7.	Interactive whiteboards do not make me bored during the teaching-learning engagement of the students
	Video Conferencing (VC)
8	Video conferencing makes my teaching delivery interesting
9	The barrier of location is defeated when video conferencing technology is used for my classroom activities
10	Video conferencing increases learning interaction
11	Video conferencing technology reduces lackadaisical attitudes to work
12	Video conferencing technology reduces distraction in the teaching-learning environment
13	Video conferencing makes the learners fully engaged in the class instruction as it involves the use of video, audio, text, and pictures to improve teaching and learning, irrespective of the location
14	Video conferencing makes the instructional delivery more enjoyable
	Virtual Field Trips
15	Virtual field trips are one of the easiest platforms for enhancing academic activities
16.	Virtual field trip technology reduces boring experiences during teaching-learning engagement
17.	Virtual field trip technology saves time in the instructional delivery
18.	Virtual field trips provide teaching of students with the opportunity to learn various learning materials posted online.
19	Virtual field trips make teaching activities real
20	Virtual field trips motivate me to engage students in teaching-learning experience

UNIVERSITY TEACHERS ATTITUDE TOWARD WORK SCALE (UTAWS)

S/N	ITEM STATEMENT
1	I avoid attending to the learning needs of students
2.	I pay poor attention to the project supervision of students
3.	I feel so reluctant to carry out my assigned community service as a university teacher
4.	I usually come to school late with poor attention to the teaching of students.
5.	I do not care if students understand my lectures.
6.	Engaging in quality teaching service delivery in the university is time-consuming
7.	I don't like seeing students coming to my office for academic assistance /guidance.
8.	I hardly give out my best in the development of learning materials
9.	I usually give students learning materials late before the exams
10.	I am skeptical about the industrial training of students
11.	Using innovating teaching methods for students is not my concern
12.	I do not give students attention/ time to discuss their teaching-learning problems