An Investigation of Teachers' Awareness on the Usage of Technology Tools in Teaching and Learning in Public Schools in Ekiti State, Nigeria

OMODARA O.D (Ph.D)

Department of Educational Technology, College of Education,
Bamidele Olumilua University of Education, Science and Technology, Ikere Ekiti, Nigeria.
Email: omodara.oladele@bouesti.edu.ng

Abstract

The study employed a descriptive survey design, which included 210 instructors from all the public primary and secondary schools in Ekiti State, Nigeria. A sample size of 88 primary school teachers and 122 secondary school teachers from Ekiti State who participated in the study were stratified along the three senatorial districts. The approved instrument used to gather the data was a questionnaire (ATTUEN). Experts in measurement and evaluation confirmed the face and content validity and the reliability was calculated using the Cronbach alpha method, resulting in an overall reliability index of 0.82. The statistical tools of mean, standard deviation, and criterion mean of 2.50 were utilized to answer the research questions. Statements that fell below 2.50 were therefore rejected, whilst those that were equal to or above 2.50 were allowed. Z-test at 0.05 alpha level was used to examine the null hypotheses. It was found that teachers at primary and secondary schools in Ekiti State, Nigeria, needed a better degree of understanding regarding the use of technological tools for teaching and learning. Additionally, there needed to be a higher technology tool usage in Ekiti State's primary and secondary schools. It was determined that public elementary and secondary schools in Ekiti State, Nigeria, are still aware of and have access to technology tools for teaching and learning. Additionally, suggestions were made regarding raising primary and secondary school teachers' awareness of the need for and availability of technology tools for teaching and learning in Ekiti State, Nigeria.

Keywords: Public, Education, Profession, Teaching, Learning, Technology, Multimedia.

Introduction

Recently, the reality of education has made it clear to the teaching profession that if students are not learning through our methods of instruction, teachers must instruct them through their methods of learning (Tate, 2020). As a result, students will need more than just information but the skills to impact their community. Thus education should educate kids about a world that has yet to be created. Additionally, because this generation has a wider variety of knowledge that cannot be taught using traditional teaching methods, teachers today have a challenging job. As mentioned earlier, the claim echoes Dewey's (1944) long-standing contention that if we continue to teach, we will deprive our children of the future, much like we did in the past.

Today's fundamental structural changes and experiences in the teaching profession are accompanied by technology, providing classrooms with digital learning resources. Computers and handheld devices are among the tools that can be used to expand course offerings, experiences, and learning materials, support daily learning, develop skills for the twenty-first century, boost student engagement and motivation, and speed up learning (U.S. Department of Education, 2010). Electronic, digital, and physical resources that support instructors in delivering lessons are called technology tools in education.

The resources increasingly employed in teaching and learning processes, such as applications, platforms, and software, can be used remotely, hybrid, or in traditional classroom settings. Using new models and media to connect teaching instructors with their students and professional information, resources, and systems to support them in improving instruction and professional development has also altered teaching. With the help of technology, the classroom is changed into a dynamic teaching environment where the teacher doubles as a learner and facilitator who guides the students on their educational journey. Many people value it. Thus, young students' daily activities and technology are increasingly necessary for effective teaching and learning in schools today. They consider these technologies to be beneficial and, in particular, enjoyable for texting, social networking, and web browsing as forms of communication.

While Nwokeocha (2015) argued in opposition to this claim that students who are accustomed to using technologies can also use them in the classroom with appropriate guidance from the teacher, there is concern that students are now relying heavily on technology for almost everything. According to Raja and Nagasubramani (2018), technology use in education has four facets: curriculum preparation, instructional delivery, instructional materials, and improvement of the teaching and learning processes. Gilakjani (2017) also argues that technology has other benefits, Such as creating teaching strategies to encourage student participation and letting them move at their speed.

Technology is thus altering everything in the World, which should be seriously considered in the field of education, particularly in the teaching process. The classroom environment is evolving due to how technology transforms people's teaching and learning. The role of the instructor cannot be replaced by technology; it just enhances and amplifies the teaching and learning process. Furthermore, technology cannot replace teachers since computers cannot teach human skills, and technology cannot replace human contact. Technology is advancing quickly, changing the World and how we live, and education is following suit. The emphasis on effective functioning in the labour market, where there is competition with other possible candidates from around the World, is another feature of education in modern society. As a result, the mission of educating people around the World is growing more complicated since it appears that the economies of different nations are interdependent, which impacts how we teach kids to be future-ready (Switala, 2012).

Furthermore, the teaching profession is highly complex in light of the current worldwide war against globalization, demographic difficulties, mutation, the ICT revolution, the food crisis, climate change, energy, and many other factors (EUNEC, 2009). Because of the modifications to the World today, society and economies are constantly changing, posing challenges for the educational system and raising different demands on teachers. All across the World, teachers act as catalysts for the educational processes. According to this assertion, teaching is a crucial component of education that requires ongoing adaptability in practice. Therefore, it is essential to remember that teaching is fundamentally about learning and that any teacher who uses technology to spread knowledge will soon stay caught up. Although it cannot replace them, instructors who cannot use technology in the classroom may be replaced by colleagues who can.

According to NPE (2013), Ogunlade, Mustapha, and Fakuade (2019), teachers can only do better using technology as a resource and mentor. According to research on national education technology standards for students (NETSS), 82.9% of respondents said they knew how to use some standard technology tools. In comparison, 17.1% (mean 2.80, SD=0.913) and 57% of respondents said they could communicate meaningfully with technology tools. Teachers use various technology tools, including Facebook, WhatsApp, and others. This medium demonstrates the technological proficiency of early childhood educators. The findings presented above align with those of Nuhu, Soetan, Adedokun & Owononi (2020), who found that teachers are still trying to stay informed about using technology tools effectively. They also noted that most teachers are technology literate and have acquired technical skills. However, they need more motivation and altitude to fully integrate technology tools into teaching and learning (Namatovu, 2011). When teachers and students use technology tools for teaching and learning, they can swiftly and efficiently do activities that would otherwise be too complex by storing and handling enormous amounts of information in various ways. (Usuf & Eddie, 2019) According to Rifwan (2015), and Orin, Adam-Agbor, and Olaniyi (2019), the use of technological tools has increased the range of record generation and information distribution methods.

Asuquo & Babalola (2020) emphasized that adopting and using digital tools in education favour teaching and learning. According to research findings, everyday usage and integration of technological tools in teaching and learning might benefit teaching and learning (Calimag, Miquel, Cande & Aquino, 2014; Oyekunle & Issa-Onilu, 2020). However, despite their best efforts, Dworkin (2000), Oyekunle, and Issa-Onilu (2020) noted in their comments that teachers might need to pay more attention to their professional obligations due to using technology tools like the Internet and While Awingura (2022), Dasar, Polmi, Linda, Nokshuwan & Jari (2022) further emphasized that technology tools fostered lousy study habits, forced students and teachers to miss class, and prevented them from reading their books. In their research, Oshinaike & Adekunsimi (2012) and Omodara (2022) discovered that the use of appropriate technology tools for teaching different science subjects in Nigerian schools would increase the objectivity, depth of reflection, realism, and applicability of evaluation in the teaching process.

Researchers Mehmood & Tawir (2013). Aboderin, Odukoya & Omodara (2020), who conducted their research outside of Nigeria in Oman, concluded that using technology tools like social media networks, the Internet, and various others are the most crucial elements that can positively affect students' academic performance. For example, according to research on the impact of students' daily social media usage on their academic performance, People who utilize social media for a prolonged time are more likely to be deep learners.

In contrast, those who use it less frequently are more likely to be surface learners (Aboderin, Odukoya & Omodara, 2020). In addition, according to a study by Albirine (2006) on teachers' attitudes toward using ICT and information technology, the success of using

technological tools in educational settings heavily relies on teachers' awareness of and attitudes toward teaching and learning.

In their study on the use of e-learning for better learning outcomes among business education students in the public schools in Ekiti State, Aina & Omidiji (2019) found that teachers' and students' awareness of how to use technology tools facilitate and promote teaching and learning as the majority of students continue learning with it. According to Ogunlade & Akhigbe's (2016) research, teachers frequently employ digital tools to improve the quality of their classes' teaching and learning. Social media was identified as one of these tools. According to UNESCO (2002), Formsi, Nwosu & Ochuba (2015), technology tools are increasingly seen as the fundamental building blocks of contemporary society, and adequate knowledge of their utilization, comprehension, and mastery of their foundational abilities are now considered essential components of core education.

The use of technology is essential for achieving high-quality education in the modern society. Additionally, teachers in Nigeria's public schools should be seen as the core of high-quality education. Therefore, they should possess the technological know-how and abilities required for efficient teaching and learning. However, considerable work must be done in Nigeria's public schools to ensure teachers can get the tools to carry out their duties successfully. Unfortunately, our public schools have evidence of abandoned and underutilized computer labs. In addition, a lot of these institutions need more electricity or even the know-how to use technology in teaching and learning in a way that supports sustainable development goals. Therefore, this study's investigation of teachers' awareness of using digital tools in public schools in Ekiti State, Nigeria, is motivated by a desire to counteract these shortcomings.

Research Questions
The following research questions were posed to direct the study:
1. To what extent are primary and secondary school teachers in Ekiti State, Nigeria, aware of technology's role in teaching and learning?
2. How do teachers in Ekiti State, Nigeria, use digital tools in their primary and secondary classrooms?

Hypotheses
1. No statistically significant distinction exists between the mean scores of primary and secondary school teachers' awareness of using technology tools in teaching and learning in Ekiti State, Nigeria's public schools.
2. No statistically significant distinction exists between the mean scores of primary and secondary school teachers' responses to questions about the use of technology in teaching and learning in Ekiti State, Nigeria, public schools.

Methodology
The research used a descriptive survey approach. Two hundred ten teachers from all the public primary and secondary schools in Ekiti State, Nigeria, comprised the study's population. The sample size for the study, which included 88 primary school teachers and 122 secondary school teachers, was stratified along the three senatorial districts in Ekiti State. The validated instrument for data collection was a questionnaire (ATTUEN). A and B are the two portions of the instrument. Section A of the survey contained the respondents' demographic data, whereas Section B, divided into three parts, contained the variable items. Using a four-point Likert scale, the survey was graded. Responses: Experts in measurement and evaluation confirmed the face and content validity, and the reliability was calculated using the Cronbach alpha method, resulting in an overall reliability index of 0.82. The

statistical tools of mean, standard deviation, and criterion mean of 2.50 were utilized to answer the research questions. Therefore, statements that fell below 2.50 were rejected, whilst those equal to or above 2.50 were allowed. Z-test at 0.05 alpha level was used to examine the null hypotheses.

Research Question One

To what extent are primary and secondary school teachers in Ekiti State, Nigeria, aware of technology's role in teaching and learning?

Table 1: Mean scores and standard deviation analysis on primary and secondary school teachers' knowledge of how technology is used in teaching and learning in Ekiti State, Nigeria's public schools.

S/N	Items	Primary school teachers (n=88)		Remarks	Secondary school teachers (n=122)		Remarks
		$\bar{x}$	S.D		$\bar{x}$	S.D	
1	In my school, I have access to ICT equipment.	1.24	0.03	LL	2.10	1.03	AL
2	I am competent in word processing..	1.65	1.21	LL	2.35	1.91	AL
3	I am proficient in digital audio and video editing.	0.78	0.99	VLL	1.68	0.73	LL
4	I am familiar with web 2.0 tools like Wikkis, blogs, and reels.	0.65	1.26	VLL	1.05	0.29	LL
5	I constantly change my status on social media.	2.18	1.99	AL	2.79	1.05	AL
6	Frequently, I am a member of any social media group.	2.23	0.84	AL	2.63	1.34	AL
7	I frequently post to a teachers' discussion site in my state.	2.56	0.42	AL	2.88	0.87	AL
8	I am familiar with free online options for learning.	0.34	0.17	VLL	0.74	0.17	VLL
9	I have an institutional email	0.56	1.24	VLL	1.36	1.55	LL
10	On two or three social networking sites, I have a profile.	2.28	0.66	AL	2.54	1.86	AL
	Grand Mean	1.45	0.88		2.01	1.08	

Scale: 0.00 – 0.99: Very Low Level, 1.00 – 1.99: Low Level, 2.00 – 2.99: Average Level, 3.00 – 3.99: High Level, 4.00 – 5.00: Very High Level

Table 1 demonstrated that all of the respondents' items had Grand Mean scores less than the 2.50 criterion mean, indicating that primary and secondary school teachers in Ekiti State, Nigeria, needed to be sufficiently aware of technology's contribution to teaching and learning.

Research Question Two

How do teachers in Ekiti State, Nigeria, use digital tools in their primary and secondary classrooms?

Table 2: Mean scores and standard deviation analysis on the usage of technological tools among primary and secondary school teachers in Ekiti State, Nigeria public schools.

S/N	Items	Primary school teachers (n=88)		Remarks	Secondary school teachers (n=122)		Remarks
		$\bar{x}$	SD		$\bar{x}$	SD	
1	I am familiar with learning management systems.	0.10	0.53	VLL	1.44	1.03	LL
2	The smart board is a standard teaching tool for me.	0.05	1.91	VLL	0.65	1.06	VLL
3	I can use power-point to teach	1.28	0.73	LL	1.75	1.99	LL
4	I frequently prepare class notes using search engines.	1.45	0.16	LL	1.65	1.28	LL
5	My school's computer labs are still operational.	1.66	0.65	LL	1.78	1.08	LL
6	In my school, we have a functional library.	1.06	1.34	LL	2.72	0.44	AL
7	In my school, there is an ICT use policy for both teaching and learning.	1.88	0.87	LL	1.96	0.92	LL
8	In my school, there is ongoing support for the upkeep and repair of ICT resources.	1.74	0.87	LL	1.96	1.17	LL
9	I have access to various computer programs for teaching and learning in my school.	1.96	1.05	LL	2.56	1.86	AL
10	In my school, there is a privacy and data protection policy.	0.54	1.21	VLL	1.28	0.84	LL
	Grand Mean	1.17	1.10		1.78	1.17	

Scale: 0.00 – 0.99: Very Low Level, 1.00 – 1.99: Low Level, 2.00 – 2.99: Average, 3.00 – 3.99: High Level, 4.00 – 5.00: Very High Level

In my school, there is a privacy and data protection policy.

There is no statistically significant difference exists between the mean scores of primary and secondary school teachers' responses to questions about the use of technology in teaching and learning in Ekiti State, Nigeria, public schools

Table 2. Demonstrated that all respondents' items had Grand Mean scores less than the 2.50 criterion mean, indicating low technological tool utilization among primary and secondary school teachers in Ekiti State, Nigeria's public schools.

Hypothesis One

No statistically significant distinction exists between the mean scores of primary and secondary school teachers' awareness of using technology tools in teaching and learning in Ekiti State, Nigeria's public schools.

Table 3. Showing the summary of z-test analysis of primary and secondary school teachers' responses to questions about their knowledge of the use of technology in teaching and learning in public schools in Ekiti State, Nigeria.

Category	N	$\bar{x}$	S.D	Df	Alpha Level	Z- Cal	Z- Crit	Decision
Primary School Teachers	88	1.45	0.88					Not Significantly different (Ho1 failed to be rejected)
Secondary School Teachers	122	2.01	1.08	128	0.05	-1.47	1.68	

Table 3 summarizes the mean scores, standard deviation, and z-test analysis of the primary and secondary school teachers' understanding of the use of technology in teaching and learning in Ekiti State, Nigeria's public schools. According to the table, the computed z-value was -1.47, and the z-critical was 1.68 with 128 degrees of freedom and 0.05 alpha level. Consequently, the null hypothesis, which claims that there is no meaningful connection between mean scores of responses from primary and secondary school teachers on awareness about the role of technological tools in teaching and learning in public schools in Ekiti State, Nigeria, was not successfully rejected as a result of the calculated z-test value of -1.47, which is less than the critical z-value of 1.96.

Hypothesis Two

No statistically significant distinction exists between the mean scores of primary and secondary school teachers' responses to questions about the use of technology in teaching and learning in Ekiti State, Nigeria, public schools.

Table 4: Summary of z-test analysis of the difference between mean scores of the responses of primary and secondary school teachers on the status of technological tools in teaching and learning in public schools in Ekiti State, Nigeria.

Category	N	$\bar{x}$	S.D	Df	Alpha Level	Z- Cal	Z- Crit	Decision
Primary School Teachers		1.17	1.10					Not Significantly different (Ho2 failed to be rejected)
Secondary School Teachers		1.78	1.17	128	0.05	-1.37	1.68	

Table 4 summarizes the mean scores, standard deviation, and z-test analysis of primary and secondary school teachers' respective positions on using technology instruments while

educating and training students in Ekiti State, Nigeria, public schools. According to the table, the computed z-value was -1.37, and the z-critical value was 1.68 with 128 degrees of freedom and 0.05 alpha level. Therefore, it is implied by the null hypothesis that there is a statistically significant difference that existed between the average scores of primary and secondary school teachers' responses to questions about using technology in teaching and learning in Ekiti State, Nigeria, public schools. It was not successfully rejected due to the calculated z-test value of -1.37, which is less than the critical z-value of 1.68.

Discussion of Findings

According to the survey, there needs to be more knowledge among primary and secondary school teachers in Ekiti State, Nigeria, about using digital tools in teaching and learning. The findings support that teaching is currently highly challenging for teachers due to a new type of society and work environment (EUNEC, 2009). Additionally, the findings indicated that primary and secondary school teachers in Ekiti State, Nigeria, needed more technological tool utilization. Nevertheless, this is a sign that there is room for improvement when utilizing the various advantages of technological tools in teaching and learning, as Gilakjani (2017) emphasized. This medium includes creating instructional strategies to increase students' involvement during lessons and allow them to learn at their own pace.

Conclusion

According to the study's findings, primary and secondary school teachers in Ekiti state, Nigeria, need to be made more aware of the use of digital tools in teaching and learning. Additionally, due to the outdated computer lab, inadequate power supply, and low morale among teachers who will use these technologies to teach in primary and secondary schools in Ekiti State, Nigeria, the use of technology tools in public primary and secondary schools appears not to be taken seriously.

Recommendations

1. Teachers in Ekiti state, Nigeria, should receive new training, refresher training, and encouragement on using digital tools in teaching and learning.
2. 2 The government should see that the computer labs are revived in the pilot primary schools (where available) and secondary schools in Ekiti state, Nigeria.
3. The government should immediately work with organizations and international organizations to provide cutting-edge equipment to assist in situating public schools in Ekiti state, Nigeria, for effective use of technological tools.

References

Aboderin, O.S., Odukoya, O.O. & Omodara, O.D. (2020). Influence of hours spent on social media per day on academic performance of undergraduates in a Nigerian University. *AAUA Journal of Science and Technology Education, 3(1), 156-165.*

Aina, M.A. & Omidiji, S.A. (2019). Usage of e-learning for improved learning outcome among business education students in public tertiary institutions in Ekiti State. *International Journal of Research and Design in Technical, Vocational Education and training. 3(1), 164-170.*

Albirine, A. (2006). Teachers' attitude towards use of information and communication and information technologies. *Journal of Computer and Education, 373-398.*

Asuquo, E. & Babalola, T.O. (2020). Towards an enhanced information and communication technology empowerment in reading and writing in the Nigerian schools and Colleges. *Nigerian Journals of Educational Technology, 1 (2) 6-17.*

Awingura, A. (2022). Benefits and challenges associated with the use of social media application in education at the Basic education level in the Bolga-East District of Ghana, West Africa. *European Journal of Education and pedagogy, 3(1) ,111-114.*

Calimag, J. V., Miguel, P. A. G., Conde, R. S. & Aquino, L. B.(2014). Ubiquitous learning environment using android mobile application. *International Journal of Research in Engineering and Technology,* 2 (2), 119-128.

Dasar, D., Polmo, I., Linda, K.Y., Nokshuwan, E.J. & Dan, R.H. (2022). Perceived strategies to improve learning through social media in Federal College of Education, Pankshin, Plateau State, Nigeria. *Humanities, Management, Arts, Education & the Social Science Journal, 10(3), 33-42.*

Dewey, J. (1944). *Democracy and education.* New York: The Macmillan Company.

Dworkin, A. G. (2000). *Dworkin teacher burnout scale alienation burnout* P.E Lester and L. K. Bishop (Eds) *Handbook of Test and Measurement in Education an the Social Sciences 2nd ed.* Pp.313-314, London: Scarecrow Publishers.

European Network of Education Councils. EUNEC. (2009). *The teaching profession. changes, challenges and perspectives report of the conference of the European Network of Education Councils,* Vilnius, 13 – 15 October 2008 with the support of the European Commission DG Education and Culture, Brussels. www.eunec.eu

Fumsi, E. F., Nwosu, E.H. & Ochuba, O.O. (2015). Incorporating blended learning into University education in Nigeria: the challenges.*Journal of Education media and Technology, 19(1), 180-186.*

Gilakjani, A.P. (2017). A review of literature on the integration of technology into the learning and teaching of English language skills. *International Journal of English Linguistics*; 7(5) , 95-105.

Mehmood, S. & Taswir, T. (2013). The effects of social networking sites on the academic performance of students in College of applied Sciences, Nizwa, Oman, *International Journal of Arts and Commerce, 2(1), 111-125.*

Namatovu, C. (2011). The national policy dialogue on the integration on ICT in teaching and learning within Uganda Educational institutions.

National Policy on Education. (N.P.E.) (2013). National Policy on Education, Lagos: NERDC Press.

Nuhu, K. M., Soetan, A.K,, Adedokun, S.N.A. & Owononi, F. .A. (2020). Senior secondary school teachers' compliance in the use of ICT tools for teaching Biology in Ilorin metropolis. *Nigerian Journals of Education Technology, 1(2), 53-61.*

Nwokeocha, S. (2015). *The adoption of instructional technologies in teacher education; Re-conceptualizing instructional technologies within the context of Nigeria's level of development.* In Nwachukwu Prince Ololube and Peter James Kpolovie (eds.), Handbook of Research on Enhancing Teacher Education with Advanced Instructional Technologies. IGI Global *(https://www.igi-global.com).*

Ogunlade B.O, Mustapha, M.J. & Fakuade, O.V. (2019). National educational technology standards for students (NETSS): ICT effectiveness for Teachers' training on instructional delivery. *Journal of library science education and learning technology (JOLSELT), 1(2) 10-21.*

Ogunlade, B.O. & Akhugbe, O. .J. (2016). Social media: a veritable tool for effective instructional delivery in the tertiary institution for sustainable national development. *Journal of Educational media and Technology, 21(1) 225-237.*

Omodara, O.D. (2022). Interactive media a determinant of teaching skills among basic

science and technology teachers in Ekiti State, Nigeria. *Journal of Digital Innovations and Contemporary Research in Science Engineering and Technology, 10(3), 113-120.*

Orin, F.M,, Adam-Agbor, I.B. & Olaniyi, O.T. (2019). The role of Technology in the preservation of record in the digital age. *Journal of library science education and learning technology (JOLSELT,) 1(2), 49-60.*

Oshinaike, A.B. & Adekunmisi, A. .R. (2012). Use of multimedia for teaching in Nigerian University system. A case study of University of Ibadan, library philosophy and practice.

Oyekunle, R.A. & Issa-Onilu, G.O. (2020). Impact of ubiquitous computing on users' teaching and learning experience..*Nigerian Journal of Educational Technology, 1(2), 27-39.*

Raja, R. & Nagasubramani, P.C. (2018). Impact of modern technology in Education. Proceedings of the conference on recent trend of teaching methods in education organized by Sri Sai Brharath College of Education, Dindigul- 624710, Tamil Nadu, India.

Ridwan, S.M. (2015). Application of Information and Communication Technology in management of information resources and services in Kaduna State tertiary institutions' libraries, Kaduna-Nigeria. *European scientific journal, 1, 10-18.*

Świtała, E.S. (2012). The Professional Role of a Teacher in the Era of Globalization on the Example of Poland. *Educational Research*, 1(1).

Tate, Marcia L. (2020). Engaging the brain: Strategies to motivate the student online and in the classroom. Learning and the BrainWebinar.*https://www.learningandthebrain.com/online-seminars*

UNESCO (2002) Information and Communication Technologies: a planning guide, division of higher education, ED/HED/TED/3.

United State Department of Education, (2010). Use of technology in teaching and learning. National Education Technology Plan.

Yusuf, S. & Eddie, I. K. (2019). School administrators and teachers' adoption of ict: penecea for effective secondary school system in Ugandan. *Journal of library science education and learning technology (JOLSELT), 1(2) 22-35.*