



Challenges of Integrating Modern Technologies in Teaching and Learning in College of Education Zing, Taraba State, Nigeria

Danladi Ibrahim Yakoko¹, Rhoda Elisha² and Lawson Luka³

¹Department of Curriculum and Instructions, College of Education, Hong, Taraba State, Nigeria.

²Department of Home Economics, Federal College of Education (Technical), Potiskum, Yobe State, Nigeria.

³Department of Educational Foundations, Federal College of Education, Yola, Nigeria.

Email: diyakoko@gmail.com, elbakakut05@gmail.com, lawsonluka9@gmail.com*

ABSTRACT: This paper aims to investigate the difficulties in using contemporary technologies into teaching and learning at College of Education Zing, two goals and two research questions were posed. The study design chosen was the descriptive survey. The research was conducted at Zing College of Education. The study's population comprised 249 lecturers and all 4616 students enrolled in Zing Taraba State's colleges of education, for a total of 4,865 participants. Random selection was used to pick 521 respondents from the study region out of the 4,865-target population. There were 368 students and 153 lecturers among these responders. The questionnaire was used to gather information for the investigation. The study employed two distinct approaches to data analysis: the first technique involved using simple percentages to examine the biodata of the respondents, while the second method involved utilizing the mean score method to assess the data related to the research topics. The study comes to the conclusion that, in spite of how important new technologies are, emerging nations like Nigeria are having a difficult time integrating them into their conventional educational methods. The study suggests that the government conduct extensive in-service training and retraining through workshops, conferences, seminars, and symposia in light of the aforementioned result. In order to guarantee that every postsecondary institution has access to high-speed Internet broadband, the Federal Government is moving quickly to implement the National ICT Policy.

KEYWORDS: Challenges, Contemporary Technologies, Modern Technologies, Teaching & Learning, Zing, Taraba State.

INTRODUCTION

The introduction of contemporary technologies has profoundly changed how the world works, including the way that education is delivered. National policymakers have collaborated ever since the development of these modern technologies to ensure that their country does not lag in the profound changes that technology has brought about. Nigeria's education sector is not excluded thanks to the substantial investments made by the Ministry of Education and other educational institutions like the Tertiary Education Fund (Tetfund), the National Universities

Commission (NUC), the National Commission for Colleges of Education (NCCE), and others in the infrastructure and human capital development of the education sector (Onuegbu, 2020).

The adoption of modern technologies in the classroom, according to Onyesom and Utoware (2012), has fundamentally changed the nature of education. It takes more than just imparting fundamental computer skills to incorporate contemporary technologies into classroom education. Using technology in the classroom has grown in popularity in the modern era. Although there are many ways that technology can improve teaching and learning, there are also many issues that come with it that organizations and teachers need to deal with. Technical problems, educational difficulties, and even societal ramifications can be among these difficulties.

Many educational institutions have not been successful in incorporating contemporary technologies into their curricula. In higher education institutions, there is a general lack of qualified personnel to effectively manage modern technological equipment and facilities. The efforts of users may be compromised if these facilities are not managed by experts, as some of them may become obsolete. When equipment is available, sometimes the technicians needed to operate it are either unavailable or ill-equipped. The academic and support staff are not routinely trained or retrained to keep their knowledge up to date. Additionally, a major obstacle to the advancement of technology is some lecturers' resistance to change (Johnson, Jacovina, Russell, & Soto, 2016).

The challenges of utilizing contemporary technology for e-learning and e-teaching are not unique to the College of Education Zing; they are shared by many other colleges and universities in Nigeria. In the country's educational system, e-learning adoption is slow, if not unreal, according to Ojeaga and Igbinedion (2012). Computer availability and internet accessibility are two factors contributing to e-learning's sluggish pace. All Nigerian educational institutions are having difficulty integrating technology as a means of ensuring academic excellence through instruction, according to Adavbiele (2016), who also noted that this struggle is similar to all other development-related issues in the nation. College of Education Zing is also in that struggle. It is in line with the above that this paper is designed to examine the challenges of integrating modern technologies in teaching and learning in College of Education Zing.

OBJECTIVES OF THE STUDY

The main objective of the study is to examine the challenges of integrating modern technologies in teaching and learning in the College of Education Zing, Specifically, the study is designed to:

1. Identify the impact of integrating modern technologies in teaching and learning in College of Education Zing, Taraba State
2. Asses the challenges of integrating modern technologies in teaching and learning in the College of Education Zing, Taraba State.

RESEARCH QUESTION

The following research questions were raised to guide the conduct of the study

1. What are the impacts of integrating modern technologies in teaching and learning in the College of Education Zing, Taraba State?

2. What are the challenges of integrating modern technologies in teaching and learning in the College of Education Zing Taraba State?

LITERATURE REVIEW

Concept of Modern Technologies

According to Mormah and Bassey (2021), different types of modern technology can be used depending on the user's perspective, design, and other factors. According to the United States Department of Education, Office of Technology (2017), the term "modern technology" refers to a variety of electronic media devices and devices connected to the internet, including radios, televisions, iPads, interactive boards, broadband desktops, laptops, tablets, smartphones, cassette tapes, and audio streams.

The Impact of Modern Technologies on Teaching and Learning

Individual education plans and reports for students, collecting and analyzing student attainment data for target setting, recording and analyzing attendance and disciplinary data, and preserving the connection between the school and the parent to ensure parental involvement in school activities, lecturers can reduce their workloads (British Educational Communications and Technology Agency, BECTA), The Internet is one modern technology that can help lecturers grow. Courses, workshops, and other activities can be used to use e-learning for both initial and ongoing professional development for lecturers. Many international portals provide access to online resources that aid in the professional development of lecturers. According to Anderson (2004), these include: ICTs in Education, developed by UNESCO, Paris; Education Network of Australia, developed by Education Institute, Adelaide; Institute of Education Technologies in Education, developed by UNESCO, Moscow; and so on. These portals provide opportunities for users to ask questions, post materials, and submit assignments, the author added.

According to Cradler and Bridgforth (2004), modern technologies can help students become more adept at solving problems, offer opportunities for student-constructed learning, foster greater teamwork among students on projects, help them become more proficient in workforce and vocational skills, better prepare them for the majority of careers and vocations, and boost their self-esteem and attitude. 21st-century learners, who are the most frequent users of emerging technologies and online services, have seen significant changes in their lives as a result of modern technologies (OECD, 2016). Emerging technologies have always held great promise for revolutionizing our teaching, thinking, and learning processes, according to Halverson and Smith (2009). It is impossible to overstate the significance of emerging technologies and how they can be used as tools for teaching and learning (Milovanovi, et al., 2013).

Challenges in Implementing Modern Technologies in Teaching and Learning

Nagel (2013) claims that major obstacles are standing in the way of widespread effective implementation, even though modern technologies are being used in almost every facet of education. Empirical research, according to Azuh and Modebelu (2013), has shown that even teachers who are proficient in using contemporary technologies do not incorporate them into their lessons. This is due to several difficulties, including Lack of resources and poor quality are made worse by the new challenges that higher education institutions must contend with as they try to accommodate an ever-growing student body. According to Kwacha (2007), the most

frequent issue with the successful integration of modern technologies is absence of proper implementation.

According to Edeh, Nwafor, Faith, Shuvro, Aabha & Alhaseen (2020), Due to the convenience of having everything at their fingertips while remaining seated, most students in educational institutions still choose to study in the comfort of their own homes. However, many instructors, students, and parents may find the reality of home-based formal education extremely difficult, particularly those who live in impoverished nations where access to, and usage of, technology in the classroom are not commonplace. In addition to the high expense of modern technology, a number of other difficulties can make studying from home difficult, including network problems, low power supplies, interruptions, inadequate digital skills, accessibility problems, and availability challenges.

According to Catherine, Aina, and Langehoven (2020), to lessen the impact of the coronavirus-related school closures, UNESCO put together an online guide with links to resources for distance learning applications and other tools. Students were supposed to make the most of the mandatory Coronavirus school closures to enhance their habits of independent study and digital learning. The difficulties brought about by the coronavirus may present a chance for students to improve their digital and problem-solving abilities.

In the Nigerian context for instance according to Adeoye et al (2020), the number of students attending tertiary institutions outnumbered the schools' infrastructure. The high cost of Modern technologies and accessories and inadequate resource persons are among the problems limiting e-learning in Nigeria. In Nigeria, many institutions find it difficult to conceptualize and implement e-learning initiatives locally.

According to Lawn, Zhi, and Morello (2017), these include bad study habits, a sense of isolation among students, a lack of peer-to-peer engagement and learning, a delay in responding from teachers to problems that arise, particularly in asynchronous contexts, and instructional materials that are standardized and unlikely to allow for much improvisation or reworking. Inadequate telephone lines, especially in rural areas; a lack of qualified ICT staff; the expense of equipment; management's attitudes; inconsistent electric power supply in most of the nation are among the other difficulties listed by Kyari, Adiuku-Brown, Abechi, Pyochi, & Adedokun (2018). Lack of ICT integration in teacher preparation programs and/or elementary school curriculum.

Yusuf (2005) summarized the various constraints to ICT utilization as follows: Inadequate computer-trained and certificate teachers, poor funding, irregular power supply, cost of equipment, and lack of relevant software. According to Salomon cited in Granados (2011), there are clear indications from many countries that the supply of relevant and appropriate software is a major obstacle hindering wider application of the computer, especially for teaching and learning in higher institutions.

METHODOLOGY

Research Design and Location

In the process of conducting this study, the descriptive survey research design was adopted. A descriptive survey design was considered most appropriate for this study because according to Bostley (2019), Survey research design provides a numeric description of attitudes, opinions, or trends of a population by studying a sample of the population. The study was carried out in the College of Education, Zing.

Population of the Study, Sample and Sampling Techniques

The population of the study consisted of all the 4616 students in Colleges of Education, Zing Taraba State, and 249 lecturers totaling 4, 865. Out of the target population of 4, 865, a total of 521 respondents were randomly selected from the study area. These respondents comprised of 368 students and 153 lecturers.

Instrument for Data Collection

To collect data for the study, the questionnaire was used. The questionnaire has two sections. Section A of the questionnaire was used to collect general information about the respondents, while section B of the questionnaire has 14 items designed to elicit responses on the challenges of integrating modern technologies in teaching and learning in College of Education Zing, Taraba State. The items in section B of the questionnaire were structured using a Modified four-point Likert rating scale of: Strongly agree, agree, disagree, and strongly disagree.

Validity and Reliability of the Instrument for Data Collection

The questionnaire was validated by experts in the field of educational technology, curriculum and instruction, and Teacher education. The reliability of the instrument was confirmed through a pilot study involving 10 percent of the sampled population where an Alpha Cronbach index of 0.83 was obtained.

Method of Data Analysis

Two methods of data analysis were utilized for the study:

1. Data analysis with regards to the respondent's bio-data was analyzed using simple percentages.
2. Data collected regarding the research questions were analyzed using the mean score method of data analysis.

Decision Rules

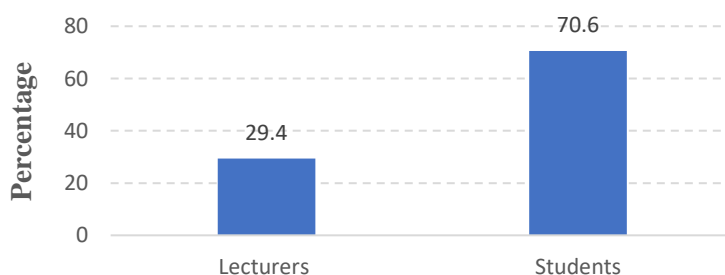
Any item whose mean score is 2.50 and above qualifies to be accepted or retained. On the other hand, any item with a mean score below 2.50 did not qualify to be accepted or to be retained.

RESULT AND DISCUSSION

Analysis of Respondents' Demographic Data

This unit discussed the categories of respondents and the characteristics about information obtained through the use of research instruments as further described below:

Categories of Respondents:

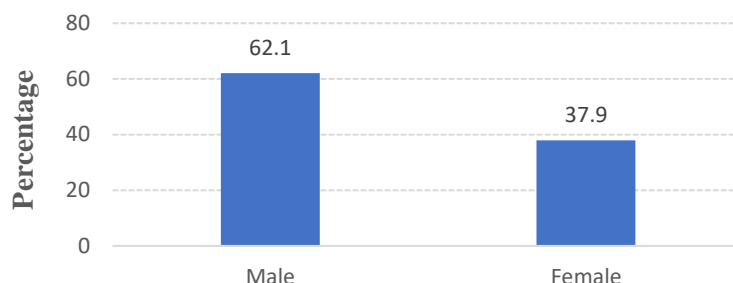


[Source: Survey, February, 2024]

Figure 1: Distribution of Respondents by Categories

In the figure above, there are two categories of respondents to the research instrument for data collection and these were the lecturers and the students in College of Education, Zing. The analysis shows that 70.6 percent of the respondents were students while 29.4 percent were lecturers.

Categorization of Respondents by Gender:



[Source: Survey, February, 2024]

Figure 2: Gender of Respondents

As shown in Figure 2, the majority of the respondents are male which is 62.1 percent, while 37.9 percent are female. The male is in the majority because most of the lecturers in the departments of the school are male. There are few female lecturers in all the sample departments of the schools similarly most of the graduates within the period of study are male with females relatively associated.

Answering the Research Questions

Research Question 1: What are the impacts of integrating modern technologies in teaching and learning in College of Education Zing, Taraba State?

Table 1: The impacts of integrating modern technologies in teaching and learning in College of Education Zing, Taraba State, Nigeria.

S/N	ITEM	Lecturers		Students	
		Mean	Decision	Mean	Decision
1	Modern technologies can assist in reducing lecturers' workloads	3.35	Accepted	3.05	Accepted
2	Modern technologies can assist in individual education plan,	3.28	Accepted	3.18	Accepted
3	Modern technologies can assist in ensuring parental involvement in school activities	3.11	Accepted	3.01	Accepted
4	Modern technologies can assist in lecturers' development	3.51	Accepted	3.13	Accepted
5	Modern technologies can improve students' problem-solving skills	3.22	Accepted	3.00	Accepted
6	Modern technologies increase the preparation of students for most careers and vocations	3.28	Accepted	3.07	Accepted

7	Modern technologies improve the confidence of students	3.71	Accepted	3.73	Accepted
8	Modern technologies have always held enormous potential to change the way we think, teach, and learn.	3.46	Accepted	3.52	Accepted
	Total:	3.37	Accepted	3.21	Accepted

[Source: Survey, February, 2024]

From the analysis represented in Table 1, it is clear that the impacts of integrating modern technologies in teaching and learning in College of Education Zing, Taraba State are:

- Modern technologies can assist in reducing lecturers' workloads, Modern technologies can assist in individual education plan,
- Modern technologies can assist in ensuring parental involvement in school activities,
- Modern technologies can assist in lecturers' development, Modern technologies can improve students' problem-solving skills,
- Modern technologies help students become more prepared for the majority of occupations and vocations, boost their self-confidence, and have always held great promise for revolutionizing our methods of instruction, thinking, and learning.

The cumulative mean scores for instructors and students confirm this, which are 3.37 and 3.21, respectively.

Research Question 2: What are the challenges of integrating modern technologies in teaching and learning in College of Education Zing Taraba State?

Table 2: Challenges of integrating modern technologies in teaching and learning in College of Education Zing Taraba State, Nigeria.

S/N	ITEM	Lecturers		Students	
		Mean	Decision	Mean	Decision
1	Cost of equipment	3.56	Accepted	3.64	Accepted
2	inadequate computer-trained and certificate teachers	3.26	Accepted	3.47	Accepted
3	Incessant electricity power supply	3.79	Accepted	3.71	Accepted
4	Lack of qualified personnel	3.89	Accepted	3.50	Accepted
5	Poor digital skills	3.73	Accepted	3.66	Accepted
6	Poor funding	3.44	Accepted	3.18	Accepted
7	Problems of quality and lack of resources	3.50	Accepted	3.64	Accepted
8	The infrastructure of the schools was outnumbered by the number of students attending postsecondary institutions.	3.66	Accepted	3.47	Accepted
	Cumulative Mean:	3.60	Accepted	3.53	Accepted

[Source: Survey, February, 2024]

Table 2's analysis reveals that the College of Education Zing Taraba State faces several obstacles in incorporating contemporary technologies into its teaching and learning programs, including the high cost of equipment, a shortage of computer-trained and certified teachers, Continuous supply of electricity, a shortage of skilled workers, inadequate digital skills, and inadequate finance issues with resources, lack of quality, and The infrastructure of the schools was outnumbered by the number of students attending postsecondary institutions. Calculated cumulative mean scores of 3.60 and 3.53, respectively, provide evidence for this.

Discussions of Findings

From the analysis in Table 1, it is clear that the impacts of integrating modern technologies in teaching and learning in College of Education Zing, Taraba State are:

- Modern technologies can assist in reducing lecturers' workloads, Modern technologies can assist in individual education plan,
- Modern technologies can assist in ensuring parental involvement in school activities, Modern technologies can assist in lecturers' development,
- Modern technologies can improve students' problem-solving skills,
- Modern technologies increase the preparation of students for most careers and vocations,
- Modern technologies improve the confidence of students and Modern technologies have always held great promise for transforming our teaching, thinking, and learning.

This finding agreed with the findings of Cradler and Bridgforth (2004), Halverson and Smith (2009), the British Educational Communications and Technology Agency, BECTA), and Milovanovi, *et al.* (2013).

The analysis in Table two shows that the challenges of integrating modern technologies in teaching and learning at College of Education Zing Taraba State are the cost of equipment, inadequate computer-trained and certificate teachers, Incessant electricity power supply, Lack of qualified personnel, Poor digital skills, Poor funding, Problems of quality and lack of resources and the number of students attending tertiary institutions outnumbered the schools' infrastructure. This finding agreed with the findings of Kwacha (2007), Nagel (2013), Edeh, Nwafor, Faith, Shuvro, Aabha & Alhaseen (2020), Adeoye et al (2020), Azuh and Modebelu (2013), Gordon and Gabriel (2021) and Lawn, Zhi, and Morello (2017).

CONCLUSION AND RECOMMENDATIONS

The survival of tertiary education institutions in the 21st century and in the era of technological advancement will increasingly rely on various forms of modern technologies that requires education to be flexible. Modern technologies are now widely used in most of the developed countries to promote education and life-long learning effectively. Modern technology is the best alternative to solve the problem of access to tertiary education in Nigeria. Despite the imperativeness of modern technologies, developing countries like Nigeria are facing a lot of challenges in shifting from the traditional teaching method to the integration of modern technologies.

Based on the above conclusion, the paper recommends that:

1. Through workshops, conferences, seminars, and symposia, the government should conduct extensive in-service training and retraining.

2. In order to guarantee that all postsecondary institutions have access to high-speed Internet broadband, the Federal Government is moving quickly to implement the National ICT Policy.
3. The government needs to be ready to embrace the paradigm change without regard to party lines.
4. Enough money should be set aside by the government for the acquisition and upkeep of contemporary technology.
5. It is imperative that higher education administrators make investments in cutting-edge technology by updating their ICT architecture.
6. A change from the current classroom model to one that makes the most of technology to offer virtual learning is required.

REFERENCES

- [1] Adavbiele, J.A. (2016) the use of ICT to enhance University Education in Nigeria. European Centre for Research Training and Development. 4(5), 1-11.
- [2] Azuh, O.J. and Modebelu, M. N (2013) Academic Staff Challenges to Effective Utilization of Information and Communication Technology (ICT) in Teaching/learning of Agricultural Education Sospoly Journal of Science & Agriculture 2(7),77-33.
- [3] Adeoye, I.A., Adanikin, A.F., Adanikin, A., 2020. COVID-19 and E-learning: Nigeria tertiary education system experience. *Int. J. Res. Innov. Appl. Sci.* 5 (5), 28–31.
- [4] Catherine, V., Aina, J. K. & Langenhoven, K. (2020). The likely implications of active learning in physics through peer instruction (PI) in Nigerian schools. *International Journal of Law, Education, Social and Sports Studies (IJLESS)*, 2 (3), 8-15.
- [5] Cradler, J. (2002). Finding research-based information about technology in teaching and learning. *Learning and Leading with Technology*, 29(7), 46-49.
- [6] Edeh, M. O., Nwafor, C. E., Faith, A. O., Shuvro Sen., Fyeface, G. A., Aabha Sharma & Alhaseen, O. A. (2020). Impact of Coronavirus pandemic on Education. *journal of Education and Practice*, 13 (11): 113-115.
- [7] Johnson, A. M., Jacovina, M. E., Russell, D. E., & Soto, C. M. (2016). Challenges and solutions when using technologies in the classroom. In S. A. Crossley & D. S. McNamara (Eds.) *Adaptive educational technologies for literacy instruction* (pp. 13-29). New York: Taylor & Francis. Published with acknowledgment of federal support.
- [8] Kyari, S. A., Adiuku-Brown, M. E., Abechi, H. P. & Adelokun, R. T. (2018). E-learning in tertiary education in Nigeria. Where do we stand? *International Journal of Education and Evaluation*, 4 (9), 1-10.
- [9] Lawn S, Zhi X, Morello A. An integrative review of e-learning in the delivery of self-management support training for health professionals. *BMC Med Educ.* 2017 Oct 10;17(1):183. doi: 10.1186/s12909-017-1022-0. PMID: 29017521; PMCID: PMC5634849.
- [10] Milovanovic M., Obradovic J., Milajic A. Application of interactive multimedia tools in teaching mathematics--examples of lessons from geometry. *Turk. Online J. of Educ. Technol.-TOJET.* 2013; 12(1):19–31. [Google Scholar]
- [11] Mormah, F. O., and Basse, B. A. (2019). Teacher education in Nigeria and the emerging technologies in the 21st-century classroom. *African Educational Research Journal*, 9(3): 641-647.
- [12] Nagel, D. (2013). Challenges of technology, Retrieved 6 October 2014.
- [13] OECD (2016). Education working papers, no 170, OECD Publishing, Paris <http://dx.doi.org/10.1787/1102456c7cc>. Retrieved August 10, 2019 Ojeaga, I.J & Igbinedion, V.I (2012) Potentials of e-learning as a study tool in Business Education in Nigerian schools. *International Education Studies* 5(5), 218-225.

- [14] Onuegbu, O.B (2020) Challenges of Using Modern Technologies in Teaching and Learning by Lecturers in Tertiary Institutions in Sokoto Metropolis.
- [15] Onyesom, M. & Utoware, J. D. A. (2012). Perceived benefits and challenges in ICT in business Education. *Nigeria Journal of Business Education*, 1 (1):82-90.
- [16] United States Department of Education, Office of Technology (2017). *Reimagining the role of Technology in Education: 2017 National Education Technology plan update*, Washington, D.C.



This is an open access article distributed under the terms of the Creative Commons NC-SA 4.0 License Attribution—unrestricted use, sharing, adaptation, distribution and reproduction in any medium or format, for any purpose non-commercially. This allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms. For any query contact: research@ciir.in