Influence of Digital Technology Tools on Implementation of New Curriculum in Secondary Schools in Kano State, Nigeria

Shaibu, Ahmodu Jacob[1], Mary Oyere, Aibangbe[2] & Shehu, Bello[3]

[1]Bayero University Kano, Faculty of Education, Department of Education, Kano State Nigeria

[2]Faculty of Education, Department of General Studies Education, Yusuf Maitama Sule Federal University of Education Kano, Kano State Nigeria

[3]Department of Education, Kano, Bayero University Kano. Kano State Nigeria

CITATION

Copyright

ABSTRACT

The study investigates the influence of digital technology tools on implementation of new curriculum in secondary school in Kano State Nigeria. The study adopted descriptive survey. Three research objectives and corresponding research questions guide the study. The population of the study consist of secondary school teachers with the population of 3,564 teachers. The sample of the study is 350 teachers which was sample through multi-stage sampling technique and purposeful sampling technique. The instrument for data collection is researcher made questionnaire tittle Digital Technology Tools and it influence in Curriculum Implementation (DTTICI). The instrument was face and content validated by three experts in Curriculum Department in Bayero University Kano and two experts in Computer Science Department in Federal University of Education Kano. The reliability of the instrument was determined using Cronbach alpha coefficient which yielded 0.79 reliability coefficient.. The instrument was administrated to the teachers by the researcher and research assistants and also through online Google form. The administration of the questionnaire lasted for three weeks. The data collected was analysed using descriptive statistics Mean and Standard Deviation. The discovered that digital tools have great influence on implementation of New Curriculum in secondary school, it also discovered that the digital tools used in implementation of new curriculum includes computer, mobile phones, tab, online lesson. It discovered that problems of implementation of new curriculum are inadequate fund to purchase the digital tools, inappropriate understanding of the new curriculum by the teachers. Based on the finding's recommendations were made that government should provide fund for educational institutions and also teachers should be trained on the new curriculum.

Keywords: Implementation, Curriculum, Digital Technology, Tools

Introduction

The advent of digital technology has significantly transformed educational landscapes globally, and Nigeria is no exception. In recent times, the Nigerian educational system has witnessed a paradigm shift with the introduction of new curriculum aimed at enhancing the quality of education. With the introduction of new curriculum, the role of digital technology tools has become increasingly crucial in ensuring effective implementation and overall success.

Digital technology tools refer to the use of various hardware, software, and online platforms to enhance the learning experience in the classroom. Digital technology also encompasses a wide range of tools and resources that facilitate learning and teaching processes. These include computers, tablets, smartphones, and various software applications designed for educational purposes. These tools have transformed the traditional methods of teaching and learning, making it more interactive, engaging and student-centered. With the implementation of new curriculum in secondary schools, digital technology tools have played a critical role in bridging the gap between the curriculum and the students. The integration of digital technology in education has been linked to improved student engagement, personalized learning experiences, and enhanced access to information (Baker, 2018). Incorporating digital technology tools in the classroom is the creation of a dynamic and personalized learning environment. These tools provide teachers with the means to cater to the individual needs and learning styles of their students. With the use of multimedia presentations, interactive videos and educational games, students are able to grasp complex concepts with ease and in a more engaging manner (Ogunleye, 2020).

Moreover, digital technology tools have also proven to be effective in improving the overall efficiency and organization of the curriculum. With the use of online platforms and software, teachers are able to plan and implement lessons more effectively. This not only saves time but also allows for better collaboration among teachers, resulting in a more streamlined curriculum implementation.

Digital technology tools make learning more accessible and inclusive. In Nigeria, where students come from diverse backgrounds, these tools provide equal opportunities for all students to access the curriculum. With the use of online learning platforms, students can access educational resources and materials anytime and anywhere, breaking barriers of time and location which aids fast implementation of new curriculum.

Influence of Digital Technology Tools on Implementation of New Curriculum in Secondary Schools in Kano State, Nigeria

Digital tools are specific applications or platforms that support educational activities. These tools can range from learning management systems (LMS) to interactive whiteboards and educational apps. The successful implementation of a new curriculum often hinges on the effective use of these digital tools. Research indicates that when teachers are equipped with appropriate digital tools, they can deliver content more effectively, foster collaborative learning, and assess student performance in real-time (Adedoyin & Soykan, 2020).

Despite the potential benefits of digital technology tools, several challenges impede their effective implementation in secondary schools in Kano State. These challenges include inadequate infrastructure, limited access to reliable internet, and a lack of training for teachers on how to effectively utilize digital tools (Ojo, 2021). Furthermore, cultural attitudes towards technology and education can also play a significant role in the acceptance and integration of digital tools in the classroom (Ibrahim, 2019). Addressing these challenges is crucial for the successful implementation of new curriculum that leverages digital technology.

Curriculum can be defined as a structured framework that outlines the educational experiences provided to learners. According to Tyler (1949) as cited in (Nwafor, 2022) curriculum is a plan for learning that includes objectives, content, learning experiences, and assessment methods. This definition highlights the multifaceted nature of curriculum, which encompasses not only the subjects taught but also the pedagogical strategies employed and the assessment techniques used to evaluate student learning.

In contemporary discourse, curriculum is often viewed through various lenses, including the formal, informal, and hidden curriculum (Eisner, 2002). The formal curriculum refers to the officially sanctioned courses and content, while the informal curriculum encompasses the unplanned and spontaneous learning experiences that occur in educational settings. The hidden curriculum, on the other hand, pertains to the implicit values and norms conveyed through the educational process, which may not be explicitly stated in the formal curriculum (Jackson, 1968 cited in Nwafor, 2022)

Curriculum serves as the backbone of educational systems, guiding the teaching and learning processes within various educational contexts. It encompasses the knowledge, skills, and attitudes that educational institutions aim to impart to learners. However, the mere existence of a curriculum does not guarantee its effectiveness; the process of curriculum implementation is equally crucial.

Shaibu, A. J., Mary Oyere, A. & Shehu, B.

Curriculum implementation refers to the process of putting the designed curriculum into practice within educational settings. It involves translating the theoretical framework of the curriculum into actionable teaching and learning activities. According to Fullan (2007), successful curriculum implementation requires not only a clear understanding of the curriculum itself but also the active engagement of educators, administrators, and stakeholders.

The integration of digital technology in education has been widely studied, with various scholars highlighting its potential to enhance learning outcomes. According to Adeyemi (2019), digital tools can foster interactive learning environments, promote student engagement, and facilitate personalized learning experiences. Similarly, Olatoye and Adebayo (2020) emphasize that technology can support teachers in delivering content more effectively and efficiently.

However, the successful implementation of digital technology in education is contingent upon several factors. A study by Akinola (2021) indicates that inadequate infrastructure and limited access to technology can significantly impede the effective use of digital tools in classrooms. Furthermore, teacher training is crucial for the successful integration of technology into the curriculum. As noted by Eze (2020), teachers must be equipped with the necessary skills and knowledge to utilize digital tools effectively.

In the context of Nigeria, particularly in Kano State, the challenges of implementing digital technology in education are compounded by socio-economic factors. Many schools lack the necessary resources, and there is often a disparity in access to technology between urban and rural areas (Ibrahim, 2022). Also, in same vein Aibangbe and Shaibu (2023) stated that there are several factors that influence curriculum implementation, including teacher preparedness, institutional support, and the alignment of assessment practices with curricular goals, this makes curriculum implementation fundamental components of the educational process. A comprehensive understanding of these concepts is essential for educators, policymakers, and stakeholders in the field of education. The successful implementation of curriculum requires a collaborative effort teachers and digital technology tools for effective implementation of new curriculum. Based on this, the study investigates the influence of digital technology tools on implementation of new curriculum in secondary schools in Kano State Nigeria.

Statement of the Problem

Influence of Digital Technology Tools on Implementation of New Curriculum in Secondary Schools in Kano State, Nigeria

Despite the potential benefits of digital technology in education, the implementation of the new curriculum in secondary schools in Kano State faces several challenges. These include inadequate infrastructure, limited access to technology, insufficient training for teachers, and resistance to change among educators and students. Furthermore, there is a lack of empirical evidence on the actual impact of digital technology tools on curriculum implementation in this context. This study seeks to address these gaps by examining the extent to which digital technology tools facilitate or hinder the implementation of the new curriculum in secondary schools in Kano State.

Research Objectives

1. To find out the influence of digital technology tools on implementation of new curriculum in secondary School in Kano State.

2. To find out the digital tools for the implementation of new curriculum in secondary school in Kano State.

3. To find out the problems of implementation of the new curriculum using digital technology tools in secondary school in Kano State.

Research Questions

1. What are the influences of digital technology tools on implementation of new curriculum in secondary school in Kano State?

2. What are the digital tools uses for the implementation of the new curriculum in secondary school in Kano State?

3. What are the problems of implementation of the new curriculum using digital technology tools in secondary school in Kano State?

Methodology

The study adopted descriptive survey research design, to determine the influence of digital technology tools on implementation of new curriculum in secondary school in Kano State Nigeria. This design is considered appropriate because it enables the researcher to generate information through the use of questionnaire from large population.

Shaibu, A. J., Mary Oyere, A. & Shehu, B.

The Population of the study consists of 3,564 secondary schools' teachers from public secondary schools. The sample sizes of 350 secondary school teachers were drawn from 5 educational zones in Kano State for the study usingmulti-stage sampling technique and purposeful sampling technique. The purposeful sampling technique was used to select the teachers for the study.

The instrument used for data collection was researcher made structure questionnaire tittle "Digital Technology Tools and it influence in Curriculum Implementation (DTTICI)". The instrument used five larker scale of strong agreed, agreed, undecided, disagreed and strong disagreed. The instrument was face and content validated by three experts in Curriculum Department in Bayero University Kano and two experts in Computer Science Department in Federal University of Education Kano. The reliability of the instrument was determined using Cronbach alpha coefficient which yielded 0.79 reliability coefficient. The instrument was administrated to the teachers by the researcher and research assistants and also through online Google form. The administration of the questionnaire lasted for three weeks.

The data collected was analysed using descriptive statistics Mean and Standard Deviation to answer the researcher questions. The mean of 3.00 and above was used to agree for an item and less than 3.00 is for disagreed.

Results

Answering Research Questions

Research Questions One: What are the influences of digital technology tools on implementation of new curriculum in secondary school in Kano State?

Table 1: Influence of digital technology tools on implementation of new Curriculum

Sn	Statement	Mean	Sd	Decision
1	Using digital technology tools makes lesson more interesting which ease the implementation of new curriculum	3.63	.083	Agreed
2	Using digital technology tools improves presentation of materials and Implementation of Curriculum.	3.70	.450	Agreed
3	Using digital technology tools makes lesson	3.87	.333	Agreed

	more diverse.			
4	Digital Tools for Curriculum Implementation: Enhancing Educational Outcomes	3.36	.483	Agreed
5	Digital technology tools have significantly improved accessibility to educational resources.	3.87	.337	Agreed
7	Digital technology enables personalized learning experiences, allowing students to progress at their own pace	4.27	.620	Agreed
8	The use of digital tools promotes collaboration among students and teachers.	3.61	.490	Agreed
9	Digital technology has expanded the availability of educational resources, providing teachers with a plethora of materials to enhance their curriculum.	3.39	.558	Agreed
10	The integration of digital technology necessitates a shift in pedagogical approaches.	3.24	.975	Agreed

From table 1 above shows Influence of digital technology tools on implementation of new Curriculum in secondary school in Kano State Nigeria, The study discovered that digital technology tools makes lesson more interesting which ease the implementation of new curriculum, Enhancing Educational Outcomes, expanded the availability of educational resources, providing teachers with a plethora of materials to enhance their curriculum, necessitates a shift in pedagogical approaches and improves presentation of materials. From the table above shows that all these items are agreed to influence of digital technology tools on implementation of new curriculum. This mean that digital technology tools influence implementation of new curriculum to large extended.

Research Questions Two: What are the digital tools uses for the implementation of the new curriculum in secondary school in Kano State?

Table 2: Mean and Standard Deviation scores of digital tools used in implementation of new Curriculum

Sn	Statement	Mean	Sd	Decision
1	Computer Desktop	1.38	.488	Disagreed
2	E-library	1.87	.948	Disagreed
3	Photocopy machine	1.75	.672	Disagreed
4	Printer	3.36	.483	Agreed
5	Projector	2.87	.707	Disagreed
6	Lap top	3.87	.337	Agreed
7	Radio Tape	3.63	.083	Agreed
8	Television	2.74	.706	Disagreed
9	Internet service	1.26	.440	Disagreed
10	Scanning machine	2.52	1.21	Disagreed
11	Smart phone	3.62	.457	Agreed
12	iPod	1.97	.703	Disagreed
13	Tablet	2.11	1.17	Disagreed
14	Microphone	1.13	.337	Disagreed
15	video camera	3.24	.975	Agreed

From table 2 above shows digital tools use for the implementation of the new curriculum in secondary school in Kano State, the digital technology tools use in the implementation of new curriculum as discovered in the study includes smart phone, video camera, radio, lap top printer, that is, items number 11, 15,7, 6 and 4 are agreed digital technology tools used the implementation of the new curriculum in the study area while the remaining items where not used because there are not available in the study area.

Research Questions Three: What are the problems of implementation of the new curriculum using digital technology tools in secondary school in Kano State?

Table 3: Mean and Standard Deviation of problems of implementation of new Curriculum

Sr	Statement	Mean	Sd	Decision
1	Teachers lack of interest on implementation process using digital technology tools	3.39	.558	Agreed
2	Teachers' poor understanding of the curriculum content.	3.24	.975	Agreed

Influence of Digital Technology Tools on Implementation of New Curriculum in Secondary
Schools in Kano State, Nigeria

3	Lack of fund for integration of digital technologies in classroom	3.39	.558	Agreed
4	Wrong use of methods and digital technology tools	4.27	.620	Agreed
5	Low quality of human and digital tools	4.36	.670	Agreed
6	Limited accessibility and network connection	4.31	.610	Agreed
7	Inadequate power supply	4.29	.680	Agreed
8	High cost of digital technologies tools	4.40	.531	Agreed
9	Poor access to internet at home and in the school	4.25	.684	Agreed
10	Lack of adequate time to cover the curriculum using digital technology tools.	4.31	.610	Agreed

From table 3 above shows problems of implementation of the new curriculum using digital technology tools in secondary school in Kano State. All the items were agreed by teachers to be problems of implementation of new curriculum. The study discovered that the problems of using digital technology tools in the implementation of new curriculum includes: Teachers lack of interest on implementation process using digital technology tools, Teachers' poor understanding of the curriculum content, Lack of fund for integration of digital technologies in classroom, Poor access to internet at home and in the school, Lack of adequate time to cover the curriculum.

Discussion of the findings

The study investigates influence of digital technology tools on implementation of new curriculum in secondary school in Kano State. The study discovered that digital technology tools make lesson more interesting which ease the implementation of new curriculum, enhancing educational outcomes, expanded the availability of educational resources, providing teachers with a plethora of materials to enhance their curriculum, necessitates a shift in pedagogical approaches and improves presentation of materials. From the table above shows that all these items are agreed to influence of digital technology tools on implementation of new curriculum. This mean that digital technology tools influence

implementation of new curriculum to large extended. This is agreement with Baker, (2018) who stated that the integration of digital technology in education has been linked to improved student engagement, personalized learning experiences, and enhanced access to information. Similarly, According to Adeyemi (2019), digital tools can foster interactive learning environments, promote student engagement, and facilitate personalized learning experiences. In the same vein Ogunleye (2020) stated that incorporating digital technology tools in the classroom is the creation of a dynamic and personalized learning environment, these tools provide teachers with the means to cater to the individual needs and learning styles of their students. Similarly, Olatoye and Adebayo (2020) emphasize that technology can support teachers in delivering content more effectively and efficiently.

Furthermore, the study discovered that the digital technology tools use in the implementation of new curriculum in the study area includes smart phone, video camera, radio, lap top printer. This agreement with Adedoyin and Soykan, (2020) who started that digital tools used in curriculum implementation are specific applications or platforms that support educational activities. These tools can range from learning management systems (LMS) to interactive whiteboards and educational apps. Adedoyin and Soykan further stated that for effective implementation of curriculum tools like desktop computer, tab, smart phone, personal computer, printers, scanner, television, digital camera and internet service must be effectively used.

The study also discovered that the problems of using digital technology tools in the implementation of new curriculum includes: Teachers lack of interest on implementation process using digital technology tools, Teachers' poor understanding of the curriculum content, Lack of fund for integration of digital technologies in classroom, Poor access to internet at home and in the school, Lack of adequate time to cover the curriculum. This is in line with Akinola (2021) who indicates that inadequate infrastructure and limited access to technology can significantly impede the effective use of digital tools in classrooms. In the same vein Shaibu and Aibangbe (2023) stated that there are several factors that influence curriculum implementation, including teacher preparedness, institutional support, and the alignment of assessment practices with curricular goals, inadequate time to cover curriculum content, poor access to internet service and inadequate power supply.

Conclusion

In conclusion, curriculum and curriculum implementation are fundamental components of the educational process. A comprehensive understanding of these concepts is essential for educators, policymakers, and stakeholders in the field of education. The successful implementation of curriculum requires a collaborative effort among all parties involved, emphasizing in digital technology tools have a profound influence on the implementation of curriculum in secondary schools. By enhancing accessibility, engagement, and personalized learning, these tools offer significant advantages for educators and students alike. The integration of digital technology tools in educational settings has transformed the landscape of teaching and learning, particularly in secondary schools. As educators strive to enhance curriculum delivery and improve student engagement, the role of technology tools has become increasingly significant in curriculum implementation

Recommendations

Based on the findings the following recommendations where made:

1. The government, private and educational stakeholders should provide fund for educational institutions for the purchase of digital technology tools

2. Teachers should be trained on the new curriculum and the use of digital technology tools to enhance curriculum implementation.

3. Educational institutions should provide the tools needed for curriculum implementation and also encourage the teachers to attend seminar and workshop on the use of technology in education.

References:

1. Adedoyin, O. B., & Soykan, E. (2020). Digital learning: A comprehensive overview. *Journal of Educational Technology Systems*, *49*(1), 1–15.
2. Adeyemi, A. (2019). The role of digital technology in enhancing educational outcomes. *Journal of Educational Technology*, *15*(2), 45–56.
3. Aibangbe, M. O., & Ahmodu, J. S. (2023). Techers perceived problems of new curriculum implementation in secondary schools in Fagge Local Government areas,

Shaibu, A. J., Mary Oyere, A. & Shehu, B.

Kano State, Nigeria. *Edumania-An International Multidisciplinary Journal*, *1*(3), 52–65. https://doi.org/10.59231/edumania/8995

4. Akinola, A. (2021). Challenges of integrating technology in Nigerian schools: A case study of secondary education. *International Journal of Educational Development*, *10*(1), 23–34.

5. Baker, R. S. (2018). Educational data mining: A review of the state of the art. *Journal of Educational Data Mining*, *10*(1), 1–20.

6. Eisner, E. W. (2002). *The educational imagination: On the design and evaluation of school programs*. Prentice Hall.

7. Eze, U. (2020). Teacher training and the effective use of digital tools in education. Nigerian. *Journal of Teacher Education*, *12*(3), 67–78.

8. Fullan, M. (2007). *The new meaning of educational change*. Teacher's College Press.

9. Ibrahim, M. (2019). Cultural attitudes towards technology in education: A Nigerian perspective. *International Journal of Educational Research*, *95*, 1–10.

10. Ibrahim, M. (2022). Socio-economic factors affecting technology integration in education in Nigeria. *African Journal of Educational Research*, *8*(4), 112–125.

11. Nwafor, C. (2022). Government policies and the integration of technology in Nigerian education. *Nigerian Journal of Educational Administration*, *15*(2), 45–60.

12. Ogunleye, A. (2020). The role of digital technology in addressing educational challenges in Nigeria. *African Journal of Educational Studies*, *12*(3), 25–40.

13. Ojo, A. (2021). Challenges of implementing digital tools in Nigerian secondary schools. *Journal of Educational Technology*, *18*(4), 30–50.

14. Olatoye, R., & Adebayo, T. (2020). Enhancing teaching through technology: A study of secondary schools in Nigeria. *Journal of Educational Innovations*, *5*(1), 15–29.

15. Smith, J. (2021). Digital tools and curriculum implementation: A global perspective. *International Review of Education*, *67*(2), 89–102.