E-CURRICULUM IMPLEMENTATION PANACEA FOR SUSTAINABLE EDUCATION DEVELOPMENT IN NIGERIA

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Abstract

The paper discussed E-curriculum implementation in schools in Nigeria and its importance to sustainable educational development. Secondary data were used in the study. The data were collected from both print and online publications. Content analysis was used to analyze the selection of literature for the study. The paper concluded that the implementation of e-curriculum in Nigerian schools is essential for modernizing the education system and promoting sustainable educational development. It enhances access to quality resources, encourages interactive and personalized learning, improves teacher effectiveness, and equips students with the digital skills necessary for the 21st century. The study also identified inadequate ICT infrastructure, poor digital literacy among teachers and students, high cost of implementation, resistance to change, unstable or limited internet connectivity and lack of relevant local digital content as challenges militating against E-curriculum implementation in schools in Nigeria. Based on these findings, the study recommends that the government and school management should prioritize the provision of modern ICT infrastructure in schools, including computers, projectors, smartboards, and reliable electricity supply. Establishing functional ICT laboratories in both urban and rural schools will ensure that digital learning resources are accessible to all students, thereby promoting equitable education development. Regular training programs and workshops should be organized to enhance digital literacy among teachers and students. Teachers must be trained on using Learning Management Systems (LMS), educational software, and other e-learning tools, while

students should be equipped with basic ICT skills to navigate the digital learning environment effectively.

Keyword: E-curriculum, implementation, schools

1.0 Introduction

The rapid advancement of digital technologies has transformed educational systems across the world, prompting nations to rethink traditional models of teaching, learning, and curriculum delivery. In Nigeria, where the education sector continues to grapple with challenges such as inadequate infrastructure, limited access to quality learning resources, outdated curricula, and disparities between urban and rural schools, the adoption of an **e-curriculum** has emerged as a viable pathway toward achieving sustainable education. An e-curriculum—defined as a digitally developed, delivered, and managed curriculum—provides a flexible, interactive, and learner-centered approach that aligns with global trends in 21st-century education. It supports innovative pedagogy, enhances access to learning materials, bridges geographical barriers, and equips learners with the digital competencies required for national development.

As Nigeria strives to meet the goals of quality education outlined in the Sustainable Development Goals (SDG 4), the integration of e-curriculum becomes increasingly essential. It offers opportunities for inclusiveness, lifelong learning, and improved instructional delivery, particularly in an era where digital literacy is directly linked to socio-economic progress. Therefore, embracing e-curriculum is not merely a technological upgrade but a strategic solution—a **panacea**—for building a resilient, equitable, and sustainable education system in Nigeria.

2.0 Conceptual Terms

2.1 Concept of E-curriculum

E-curriculum is *the systematic integration of digital tools, online resources, and ICT-enabled instructional strategies into curriculum design, delivery, and assessment to enhance teaching and learning (*UNESCO. 2013). The Organisation for Economic Co-operation and Development (2016) defines **e-curriculum** *as curriculum content and learning activities that are developed, stored, distributed, and managed through digital platforms, enabling flexible and personalized learning pathways.* According to Anderson and Elloumi,(2004) an **e-curriculum** *is a structured set of learning experiences delivered through electronic technologies, enabling learners to interact with content, instructors, and peers in digitally mediated environments.* Al-Fraihat and Joy (2020) describe **e-curriculum** as *a digital instructional framework that uses ICT tools to support interactive learning, assessment, feedback, and competency development in virtual or*

blended learning environments. Hew and Cheung (2014) define **e-curriculum** as *a technology-enhanced curriculum design that leverages multimedia, online collaboration tools, and computer-based instructional methods to improve learning outcomes and expand educational access.*

2.2 Important uses of e-curriculum in schools.

1. Enhances Access to Learning Resources

E-curriculum provides learners with continuous access to learning materials anytime and anywhere. Digital textbooks, video lectures, simulations, and interactive content ensure that students do not depend solely on classroom resources. This is especially important in schools with limited physical textbooks or inadequate libraries. With e-curriculum, every learner has equal access to the same quality of instructional materials, reducing educational inequality.

2. Promotes Interactive and Engaging Learning

Traditional chalk-and-board instruction can be passive, but e-curriculum incorporates multimedia elements such as animations, graphics, audio explanations, quizzes, and virtual labs. These interactive features promote engagement, stimulate interest, and improve learners' understanding and retention of knowledge. Students become active participants rather than passive listeners.

3. Supports Personalized and Self-Paced Learning

One of the major advantages of e-curriculum is that it allows learners to study at their own pace. Students can revisit difficult topics, replay videos, complete assessments independently, and access supplementary materials. Advanced learners can move faster, while struggling learners have time to catch up. This individualized approach promotes mastery learning and reduces failure rates.

4. Improves Teachers' Instructional Delivery

Teachers benefit from e-curriculum because it provides structured lesson plans, multimedia content, digital assessment tools, and automated grading systems. These tools save time and help teachers deliver more organized, efficient, and high-quality lessons. E-curriculum also supports modern teaching methods such as flipped classrooms, blended learning, and project-based learning, making teaching more effective.

5. Facilitates Continuous Assessment and Feedback

E-curriculum platforms often include built-in quizzes, assignments, and tracking systems. These help teachers monitor students' progress in real time and provide immediate feedback. Instant feedback helps learners identify their weaknesses early and improve before major examinations. Schools also use the data for decision-making, intervention programs, and curriculum review.

6. Prepares Students for the Digital Age

E-curriculum equips students with essential 21st-century skills such as digital literacy, problem-solving, creativity, and online collaboration. These skills are necessary for higher education, the modern workplace, and global competitiveness. By learning through digital platforms, students become familiar with technology, which improves their employability and prepares them for a digital economy.

3.0 Method

E-curriculum implementation in schools in Nigeria and its importance to sustainable educational development is a position paper that adopted a systematic literature review-based method. The method allows to collect and review the related previous literature from various online sources. With the aid of digital platform, the researcher collected secondary information to generate knowledge on this topic from 2015-2025. The position paper followed qualitative narrative design method. The researcher has visited different online sites to collect the previous literature and analyze the E-curriculum implementation in schools in Nigeria and its importance to sustainable educational development. The previous findings are critically analyzed and presented in different themes as on the E-curriculum implementation in schools in Nigeria and its importance to sustainable educational development (Adapted from Ogunode, 2025).

Inclusion and exclusion criteria

Inclusion

This output of the literatures on the E-curriculum implementation in schools in Nigeria and its importance to sustainable educational development presents an in-depth study and result that can infer conclusion on the topic. The study includes: online publication; conference paper, journals sorted from reputable international journals such as CEON, Elsevier, Hindawi, JSTOR, IEEE, Learn Techlib, SAGE, Nebraska and Springer (Adapted from Ogunode, 2025v).

Exclusion

Also, the literature review excludes information from edited books, preprints, monographs, information below 2015 and book chapters (Adapted from Ogunode, 2025).

4.0 Problems facing e-curriculum deployment in schools

The challenges **facing e-curriculum deployment in schools.**

1. Inadequate ICT Infrastructure

One of the major challenges to effective e-curriculum deployment in Nigerian schools is the lack of adequate ICT infrastructure. Many primary and secondary schools do not have sufficient

computers, projectors, smart boards, or functional ICT laboratories. In rural and semi-urban areas, schools often operate without electricity or rely on unstable power supply, making the use of digital tools very difficult. Without these fundamental infrastructures, schools cannot implement or sustain e-curriculum activities such as digital learning, online assessments, or multimedia instructional delivery. This infrastructural gap limits the full integration of technology into teaching and learning. Many schools lack basic digital facilities such as computers, reliable internet access, projectors, servers, and electricity. Without these infrastructures, implementing e-curriculum becomes difficult or impossible.

2. Poor Digital Literacy Among Teachers and Students

Another significant barrier is the low level of digital competence among teachers and students. Many teachers lack the necessary skills to use computers, learning management systems (LMS), educational software, and digital teaching tools effectively. Students, especially in rural and low-income communities, also have limited exposure to digital devices and lack basic ICT skills. This digital skills gap reduces teachers' confidence in using digital resources and makes it difficult for students to learn effectively in an e-curriculum environment. As a result, teaching and learning remain traditional, even when digital resources are introduced. Teachers often lack the necessary ICT skills to deliver lessons effectively through digital platforms. Students in rural areas may also be unfamiliar with computers and e-learning tools.

3. High Cost of Implementation

The deployment of an e-curriculum requires significant financial investment, which many schools, especially public schools, cannot afford. Costs include purchasing digital devices, installing internet facilities, training teachers, acquiring software licenses, maintaining ICT equipment, and ensuring continuous technical support. With limited government funding and competing demands in the education sector, many schools struggle to allocate adequate resources for e-curriculum development. This financial challenge slows down the implementation process and widens the gap between well-funded private schools and under-resourced public schools. E-curriculum deployment requires significant financial investment in hardware, software, ICT maintenance, internet subscription, and training. Many schools—especially public rural schools—cannot afford these costs.

4. Resistance to Change

Resistance from teachers, administrators, and even students poses a major challenge to e-curriculum integration. Some teachers are comfortable with traditional teaching methods and are reluctant to adopt new technologies due to fear of the unknown, fear of incompetence, or lack of motivation. In some cases, school administrators do not actively support change because they perceive digital transformation as expensive or unnecessary. This resistance delays adoption and prevents schools from benefiting fully from the opportunities offered by digital learning. Some

teachers and administrators prefer traditional teaching methods and resist transitioning to digital instruction. This slows down adoption and reduces effectiveness.

5. Unstable or Limited Internet Connectivity

Reliable internet access is essential for effective e-curriculum deployment, but many schools in Nigeria experience poor or unstable internet connectivity. Rural schools are the most affected, as many rely on limited mobile network coverage. High cost of data subscription, slow browsing speeds, and frequent network interruptions hinder online learning activities, digital research, and access to cloud-based educational platforms. Without a stable internet connection, teachers and students cannot effectively use online content or digital tools needed to implement the e-curriculum. Many schools struggle with slow or unreliable internet, which disrupts access to online content, assessments, and digital resources. Some communities lack internet coverage entirely.

-6. Lack of Relevant Local Digital Content

Another issue is the shortage of locally developed digital learning content aligned with the Nigerian curriculum. Many available digital materials are foreign-based and do not adequately reflect local realities, cultural context, or national education standards. Schools often struggle to find appropriate online textbooks, simulations, videos, and interactive resources that match the Nigerian syllabus. The absence of localized content reduces the relevance, engagement, and effectiveness of digital learning. It also forces teachers to rely on traditional textbooks or unsuitable foreign materials. Some e-curriculum materials are foreign-based and do not align with local culture, curriculum standards, or students' learning needs. This reduces relevance and effectiveness.

4.1 Conclusion and Recommendations

The study critically looked at E-curriculum implementation in schools in Nigeria and its importance to sustainable educational development. The paper concluded that the implementation of e-curriculum in Nigerian schools is essential for modernizing the education system and promoting sustainable educational development. It enhances access to quality resources, encourages interactive and personalized learning, improves teacher effectiveness, and equips students with the digital skills necessary for the 21st century. The study also identified inadequate ICT infrastructure, poor digital literacy among teachers and students, high cost of implementation, resistance to change, unstable or limited internet connectivity and lack of relevant local digital content as challenges militating against E-curriculum implementation in schools in Nigeria. Based on these findings, the study recommends the followings:

1. Improvement of ICT Infrastructure

The government and school management should prioritize the provision of modern ICT infrastructure in schools, including computers, projectors, smartboards, and reliable electricity supply. Establishing functional ICT laboratories in both urban and rural schools will ensure that digital learning resources are accessible to all students, thereby promoting equitable education development.

2. Capacity Building for Teachers and Students

Regular training programs and workshops should be organized to enhance digital literacy among teachers and students. Teachers must be trained on using Learning Management Systems (LMS), educational software, and other e-learning tools, while students should be equipped with basic ICT skills to navigate the digital learning environment effectively.

3. Provision of Affordable Internet Access

Stakeholders, including government, telecommunication companies, and private organizations, should work together to ensure stable and affordable internet connectivity in all schools. Subsidized internet packages and investment in broadband infrastructure will allow continuous access to digital resources and enhance e-learning delivery.

4. Development of Localized Digital Content

Efforts should be made to create and promote digital learning materials aligned with the Nigerian curriculum. Collaboration between educational institutions, content developers, and curriculum experts can produce culturally relevant multimedia resources, interactive modules, and digital textbooks, which will enhance student engagement and learning outcomes.

5. Financial Support and Incentives

The government, corporate organizations, and development partners should provide adequate funding for e-curriculum deployment. Grants, donations, and public-private partnerships can help schools acquire ICT tools and software, train staff, and maintain digital infrastructure. Incentives for schools that effectively implement e-curriculum can further encourage adoption.

6. Policy Formulation and Support

Clear national policies on e-curriculum implementation should be developed and enforced. These policies should outline standards for digital content, ICT infrastructure, teacher training, and monitoring of e-learning programs. Strong regulatory frameworks will ensure that all schools adhere to best practices and contribute to sustainable education development.

7. Promotion of a Culture of Innovation and Acceptance

School administrators, teachers, and stakeholders should encourage a positive attitude towards digital learning. Awareness campaigns, seminars, and demonstration projects can reduce resistance to change and foster enthusiasm for technology-enhanced education.

8. Regular Monitoring and Evaluation

Establish a robust monitoring and evaluation system to track the progress of e-curriculum implementation. Regular assessment of infrastructure usage, teacher competency, student performance, and digital content relevance will ensure continuous improvement and sustainability of the program.

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