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Influence of Electronic Learning and Information on Teachers' and Students' Performance in Rural Communities in Edo State, Nigeria

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Abstract

This study explores the opportunities, benefits, and effects of electronic learning (e-learning) and information access for teachers and students in rural communities of Edo State, Nigeria. With the global shift toward digital education, rural areas face unique challenges and opportunities in leveraging technology for academic advancement. The research investigates how e-learning platforms and digital information resources influence teaching effectiveness, learning outcomes, and overall educational engagement in underserved communities. Data was collected through surveys and interviews with teachers and students across selected rural schools (One secondary school and one college of Technology). Findings reveal that while e-learning offers significant benefits—such as improved access to instructional materials, enhanced teacher-student communication, and increased learning flexibility—its implementation is hindered by infrastructural deficits, digital illiteracy, and limited internet connectivity. Nonetheless, the study highlights the in transformative potential of digital technologies bridging educational gaps and recommends targeted investments in ICT infrastructures.

Keywords: E-learning, education, teachers, rural communities and ICT infrastructure

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Introduction

The advent of electronic learning (e-learning) and digital information technologies has revolutionized the global education landscape, offering new pathways for knowledge acquisition, collaboration, and instructional deliver (Jegede, 2009). In Nigeria, particularly within urban centers, the adoption of e-learning tools has gained momentum due to increasing access to internet connectivity and digital devices (Afolabi et al, 2012). However, rural communities—such as those in Edo State—often remain on the margins of this digital transformation due to infrastructural, economic, and policy-related challenge (Oyedemi, 2012).

Education in rural Nigeria continues to face critical issues, including poor access to qualified teachers, outdated instructional materials, and limited exposure to global educational standards (Nwagwu, 2020). In this context, e-learning holds significant promise. It has the potential to bridge educational disparities by providing teachers and students with access to a vast array of online resources, virtual classrooms, and collaborative platforms. For teachers, it can enhance instructional methods and professional development; for students, it offers flexible, personalized, and engaging learning experiences.

Despite these opportunities, the integration of electronic learning in rural Edo State is hindered by numerous factors such as inadequate ICT infrastructure, lack of digital literacy, erratic power supply, and insufficient governmental support (Oye et al, 2011) understanding how these factors interact and influence educational outcomes is essential for developing effective strategies that promote inclusive digital education.

This study, therefore, seeks to examine the opportunities, benefits, and effects of e-learning and digital information access on teachers and students in rural communities of Edo State. It aims to identify both the transformative potential and the existing barriers to digital learning, providing evidence-based recommendations for stakeholders to foster equitable and sustainable educational development in rural Nigeria (Adedokun et al, 2015)

Research on electronic learning (e-learning) in Nigeria highlights both its transformative potential and the significant challenges faced, especially in rural communities. Studies have shown that e-learning offers increased access to educational resources, flexible learning opportunities, and improved teaching methods (Afolabi & Loto, 2012; Oye et al., 2011). It empowers both teachers and students by providing access to up-to-date information and global learning platforms.

However, scholars such as Jegede (2009) and Lawal & Oseni (2021) point out that infrastructural deficiencies—such as poor internet access, erratic electricity, and lack of digital devices—remain major barriers in rural areas like those in Edo State. Additionally, limited digital literacy among educators and students further constrains the effective use of e-learning tools (Nwagwu, 2020).

Despite these setbacks, the literature agrees that with proper investment in ICT infrastructure and capacity building, e-learning can play a critical role in reducing educational inequality in rural Nigeria (UNESCO, 2018).

Methodology

The research uses a descriptive survey design with a case study approach, focusing on rural community in Edo State. The study was conducted in two Tertiary schools. A total of 120 students and 20 teachers participated in the study.

Data collection

Questionnaires: Administered to students and teachers to measure their access to e-learning, perceived benefits, and challenges

Data Analysis

Demographics of Respondents

Table 1: Demographics of Students and Teachers

Variable	Students (n=120)	Teachers (n=20)
Male	85 (70.8%)	13(65%)
Female	35(29.2%)	7(35%)
Age (18-25 years - Tertiary)	70 (58.3%)	-
Age (26-35 years - Tertiary)	50 (41.7%)	20 (100%)
Educational Level (Tertiary)	70 (58.3%)	-
Educational Level (Tertiary)	50 (41.7%)	20 (100%)

Access to E-Learning

Table 2: Summarizes the access to e-learning platforms and digital devices by students and teachers in rural communities

Indicator	Students (%)	Teachers (%)
Access to e-learning platforms	45%	55%
Use of digital devices (phones, tablets, PCs)	50%	80%
Access to internet for learning	40%	65%
Digital literacy skills	35%	80%
Use of online educational resources	50%	85%

Perceived Benefits of E-Learning

Table 3: Summarizes the perceived benefits of e-learning as reported by students and teachers in rural communities in Edo State

Benefit	Students (%) Agreeing	Teachers (%) Agreeing
Improved learning flexibility (learning anytime, anywhere)	72%	85%
Access to more educational resources (e-books, videos, journals)	65%	92%
Increased interaction with teachers	60%	75%
Ability to learn at one's own pace	68%	70%
Tracking academic progress with digital tools	64%	78%

Challenges of E-Learning in Rural Communities

Table 4: Outlines the key challenges faced by students and teachers when utilizing e-learning resources in rural areas

Challenge	Students (%)	Teachers (%)
Poor internet connectivity	78%	70%
High cost of internet/data access	80%	72%
Lack of electricity and power cuts	75%	65%
Inadequate ICT infrastructure (labs, devices)	72%	60%

Low digital literacy skills	68%	55%

Charts illustrating the data analysis are attached below.

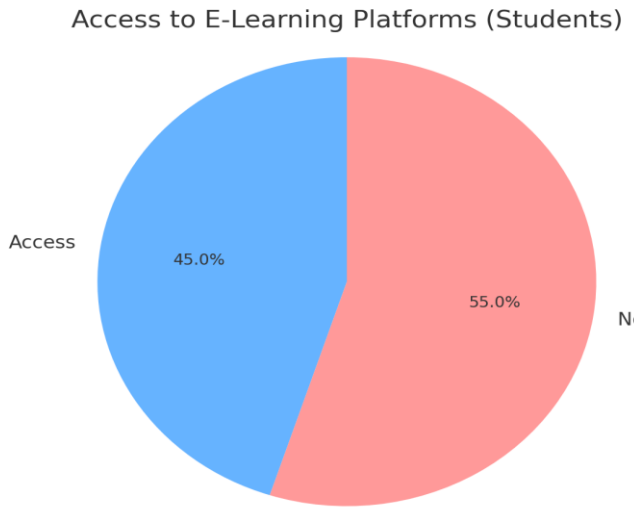

Fig 1: Access to E-learning platforms (students)

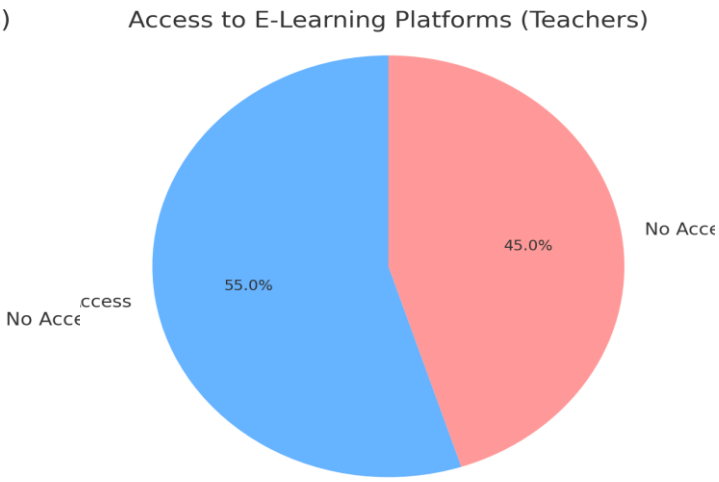

Fig 2: Access to E-learning platforms (Teacher)

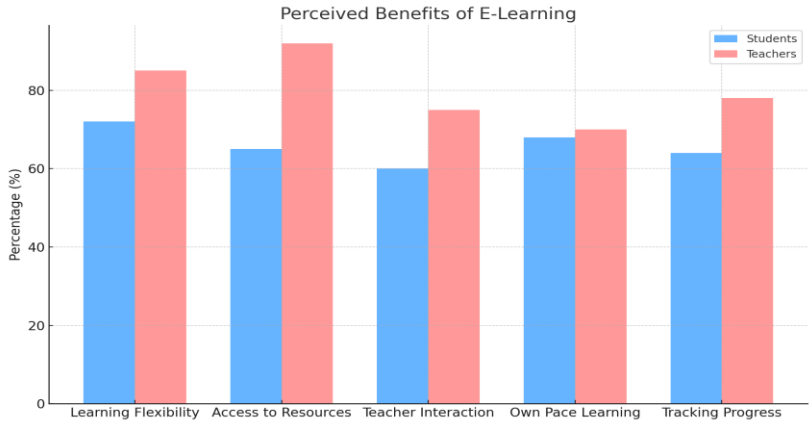

Fig 3: Perceived benefit of E-learning platforms

Result and Interpretation

Opportunities

Access to Global Resources: Rural students in Tertiary Schools and teachers can access a broader range of educational content through e-learning platforms, helping overcome the physical limitations of traditional classroom-based learning.

Improved Teacher Effectiveness: Teachers can enhance their teaching methods by integrating online resources, thus improving engagement and comprehension.

Increased Flexibility: Students in rural communities benefit from the flexibility to learn at their own pace, which is especially useful for those with limited access to regular classroom schedules

Benefits

For Students:

E-learning provides rural students with access to educational materials that were previously unavailable, especially in isolated communities.

It encourages independent learning and allows students to study at their own convenience.

For Teachers:

Teachers report that e-learning tools enable them to reach more students through online lectures and collaborative platforms, making learning more interactive.

Teachers also benefit from the ability to assess students' progress through digital means.

Effects

On Student Performance:

Improved access to online learning resources correlates with better academic outcomes. Students in rural communities who had access to e-learning reported improvements in their performance, especially in subjects where digital resources (e.g., videos and e-books) were used.

On Teaching:

Teachers in rural areas have found e-learning tools useful for providing feedback and conducting online assessments, leading to a more comprehensive understanding of student progress.

Challenges and Limitations

Infrastructure Issues: The lack of reliable electricity and internet connectivity remains the biggest barrier to the effective use of e-learning in rural communities.

Cost Barriers: High data costs and limited access to affordable devices remain significant challenges, preventing many students from fully benefiting from e-learning opportunities.

Low Digital Literacy: A lack of digital skills among both teachers and students limits the full potential of e-learning tools and platforms

Conclusion and Recommendations

The study reveals that while electronic learning presents numerous opportunities for improving education in rural communities in Edo State, there are significant challenges that must be addressed. Increased investment in ICT infrastructure, affordable internet services, and comprehensive training for both students and teachers are essential to ensuring the successful integration of e-learning in rural areas.

The integration of electronic learning in rural Edo State presents transformative opportunities for education. However, its success depends heavily on addressing infrastructural and educational inequalities. Investments in ICT infrastructure, teacher training, and inclusive policy frameworks are necessary to ensure that the benefits of digital education reach the most disadvantaged groups. When effectively implemented, e-learning can become a powerful tool to foster inclusive, equitable, and quality education in rural Nigeria.

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