

# The Impact of E-Learning on Academic Achievement among Tertiary Institution Students in Enugu State, Nigeria

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**Abstract:** This study investigates the impact of e-learning on academic achievement among tertiary institution students in Enugu State, Nigeria. As e-learning becomes an integral component of modern education, understanding its influence on student performance in developing countries is essential. A mixed-methods approach was utilized, combining quantitative surveys (n=350) with qualitative focus group discussions (n=18) across three tertiary institutions. Data were analyzed using SPSS, applying descriptive statistics, correlation, and regression analyses. The study found a significant positive correlation ( $r = 0.47$ ,  $p < 0.01$ ) between regular engagement with e-learning platforms and improved academic performance. However, barriers such as poor internet connectivity, limited digital literacy, and inconsistent faculty preparedness were noted as limiting factors.

The findings highlight the need for infrastructural improvements, enhanced digital literacy programs, and faculty training to optimize e-learning outcomes in Nigerian tertiary institutions. This study contributes to the growing body of research on e-learning in developing countries, providing context-specific insights into the Nigerian higher education system.

**Keywords:** E-Learning, Academic Achievement, Tertiary Education, Nigeria, ICT in Education.

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## I. INTRODUCTION

The integration of Information and Communication Technologies (ICT) in education has redefined pedagogical approaches worldwide. E-learning, which refers to educational processes facilitated by electronic technologies, has gained traction, particularly in the wake of the COVID-19 pandemic (Dhawan, 2020). In developing countries like Nigeria, where challenges in infrastructure and resource allocation persist, e-learning presents both opportunities and obstacles.

This study focuses on tertiary institutions in Enugu State, Nigeria, assessing how e-learning influences students' academic achievement.

### ➤ Research Questions

The research addresses the following questions:

- To what extent has e-learning been adopted in tertiary institutions in Enugu State?
- What is the impact of e-learning on students' academic achievement?
- What challenges hinder the effective use of e-learning platforms?

### ➤ Significance of the Study:

Understanding the dynamics of e-learning adoption and its effect on academic performance can inform institutional policies and contribute to the global discourse on technology-enhanced learning in higher education.

## II. LITERATURE REVIEW

### ➤ *E-Learning and Academic Achievement*

Studies globally have established a positive relationship between e-learning adoption and academic achievement (Algahtani, 2011). Flexibility, self-paced learning, and access to diverse resources are some of the advantages cited. However, the effectiveness of e-learning is contingent on several factors, including student motivation, digital literacy, and the quality of content delivery (Means et al., 2013).

### ➤ *E-Learning in Developing Countries*

In Nigeria, the adoption of e-learning has been met with infrastructural challenges, such as unreliable internet connectivity and frequent power outages (Adedoyin & Soykan, 2020). Furthermore, limited technical skills among both students and faculty have hampered the effective implementation of e-learning initiatives.

### ➤ *Theoretical Framework*

This study is anchored in the Constructivist Learning Theory, which posits that learners construct knowledge actively rather than passively absorbing information. E-learning platforms, when effectively utilized, support constructivist approaches by providing interactive and student-centered learning environments (Vygotsky, 1978).

## III. METHODOLOGY

### ➤ *Research Design*

A mixed-methods approach was employed to capture both quantitative and qualitative insights.

### ➤ *Population and Sampling*

The study targeted students from three major tertiary institutions in Enugu State:

- University of Nigeria, Enugu Campus (UNEC)
- Enugu State University of Science and Technology (ESUT)
- Federal University of Allied Health Sciences, Enugu

Using stratified random sampling, 350 students were selected, ensuring representation across faculties and academic levels.

### ➤ *Data Collection Instruments*

A structured questionnaire was administered to collect quantitative data on e-learning usage, academic performance, and perceived challenges.

Focus Group Discussions (FGDs) with 18 students provided qualitative insights into personal experiences with e-learning platforms.

### ➤ *Data Analysis*

Quantitative data were analyzed using SPSS, applying descriptive statistics, Pearson correlation, and linear regression analyses. Qualitative data from FGDs were subjected to thematic analysis.

## IV. PRESENTATION OF RESULTS

### ➤ *Demographic Profile*

Table 1 Presentation of Results (Gender)

Gender	
Male	53%
Female	47%
TOTAL	100%

Table 2 Presentation of Results 9 (Age)

Range	
18–24 years	75%
25–30 years	25%
TOTAL	100%

Table 3 Presentation of Results (Fields of Study)

Fields of Study	
Sciences	32%
Arts	28%
Engineering	25%
Health Sciences	15%
TOTAL	100%

### ➤ *E-Learning Adoption and Usage*

Table 4 Presentation of Results (E-Learning Adoption and Usage)

Fields of Study	
Regular Users (daily or weekly)	58%
Occasional Users (monthly or less)	29%
Non-Users	13%
TOTAL	100%

### ➤ *Impact on Academic Achievement*

A statistically significant positive correlation ( $r = 0.47$ ,  $p < 0.01$ ) was observed between regular e-learning engagement and higher academic performance. Students using e-learning platforms consistently achieved higher GPAs compared to non-users.

### ➤ *Challenges Identified*

- Internet Connectivity Issues: 68% of respondents highlighted poor internet access as a significant barrier.
- Limited Digital Literacy: 45% reported difficulties navigating Learning Management Systems (LMS).
- Lack of Motivation: 40% struggled with maintaining motivation in online learning environments.

- Instructor Preparedness: 37% indicated that some lecturers lacked the skills to effectively deliver online content.

## V. DISCUSSION

The study corroborates global findings that e-learning, when effectively adopted, positively impacts academic achievement (Dhawan, 2020). The flexibility and accessibility offered by e-learning platforms enhance student engagement and understanding of course materials.

However, infrastructural challenges in Enugu State such as unreliable internet and power supply limit the full potential of e-learning. The lack of technical proficiency among both students and faculty also hampers effective utilization of e-learning tools.

Students from science and engineering faculties exhibited higher engagement with e-learning platforms, possibly due to greater exposure to technology in their curricula. This suggests that curriculum design plays a role in shaping students' e-learning experiences.

## VI. CONCLUSION

E-learning has a significant positive impact on academic achievement among tertiary institution students in Enugu State, Nigeria. However, infrastructural challenges, limited digital literacy, and inadequate faculty training continue to hinder its full potential.

## RECOMMENDATIONS

In view of the findings, the following recommendation were made:

- Improve Internet Infrastructure: Institutions should invest in stable internet services and provide data subsidies for students.
- Digital Literacy Programs: Regular workshops should be organized to train both students and faculty on e-learning tools.
- Blended Learning Models: Combining online and face-to-face learning can mitigate issues related to motivation and engagement.
- Faculty Development: Continuous training programs for lecturers on e-learning pedagogy and technology usage should be implemented.

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