



RESEARCH ARTICLE

LEVERAGING TECHNOLOGY TO IMPROVE STUDENTS' ATTENDANCE AND REDUCE DROPOUT RATES IN NIGERIAN SCHOOLS

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ABSTRACT

This study investigated how technology affects student attendance and dropout rates in schools in Nigeria. The Researchers collected data from teachers, school administrators, and parents in both rural and urban areas. Descriptive statistics and statistical tests including t-test and chi-square were implored. The findings in the study show that schools using technology have much higher attendance (84.2 percent) and lower dropout rates (11.7 percent) compared to schools without technology (68.4 percent attendance, 21.3 percent dropout). Parents are more involved when technology is used (71.4 percent engagement) than when it is not (33.8 percent). Challenges encountered include poor internet and computer facilities, lack of teacher technical know-how and differences between rural and urban areas. The study recommends amongst others but not limited that government invest in technology, train teachers better, and involve parents more. The study concluded that using digital technologies helps to improve student attendance rates, decreases dropouts rates and increases responsibility, but this needs continued support from the public and private sectors for sustainability.

Keywords: Technology, attendance, school dropout reduction, parental engagement, ICT.

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INTRODUCTION

Education is very important for the development of a country, but low attendance and high dropouts in basic schools in Nigeria are challenging and have devastating effects. Orthodox systems are not very efficient and easily make mistakes. With modern technological tools such as biometric machines, SMS alerts and mobile apps technology has new ways to register student attendance and keep them in school. However the integration of these technologies are not same in all areas due to poor infrastructure and economic challenges. This study therefore investigated how integrating technologies can help improve attendance and reduce dropout in Nigerian schools.

Despite the free and compulsory education policies, Nigerian schools still face the challenges of students not attending regularly and dropping out rate increasing. Previous ways of checking students' attendance and dropout Rates doesn't keep accurate data which frustrates administrators from taking action on time. However, non-integration of these technologies may affect Nigeria's dream of providing education for all.

Purpose of the Study

The specific purposes of this study are to:

- Find out what causes low attendance and high dropouts.
- Check the weaknesses of the old attendance systems.
- Procure relevant technological tools that will encourage school attendance.
- Discover how technology may affects attendance and dropouts rates.
- Suggest ways the use of these technologies in schools can be sustained.

Research Hypotheses

H1: Schools that use technology will have greater attendance of students than those that don't.

H2: Schools that use technology will have fewer student dropouts than those that don't.

H3: Parents will be more involved in schools that use technology than those that don't.

H4: Good internet and teacher skills make technology more effective.

METHODOLOGY

Design: We used a mixed method which combined both numbers and qualitative data.



Population: Teachers, parents, and school leaders in basic schools across Nigeria.

Sample: We selected 240 people from both rural and urban schools.

We also interviewed 15 key people through interviews and group meetings.

Instruments: We used structured questionnaires, open-ended interviews, and looked at documents.

Analysis: We used numbers like averages and percentages, t-test and chi-square stats for quantitative data, and coded themes for the qualitative data.

PRESENTATION AND DISCUSSION OF RESULTS

Presentation of Results

The results obtain from the quantitative analysis of data are chronologically presented in Tables 1 to 5 accordingly.

Table 1: Effect of Technology on Student Attendance

Group	Frequency (N)	% of Mean Attendance	S.D	t-Calc.	t-Critical 0.05	Decision
Manual	120	68.4	7.21		1.96	Significance
Technology-S	120	84.2	5.89		1.96	Significance
Interpretation	Technology significantly improves attendance ($t = 12.47$, $p < 0.05$).					

Source: Authors' Analysis (2025).

Table 2: Impact of Technology on Dropout Rates

Group	Frequency (N)	Mean Dropout (%)	S.D	χ^2 -Calcu.	χ^2 --Critical 0.05	Decision
Manual	240	21.3	4.56		3.84	Significance
Technology-	240	11.7	3.48	28.64	3.84	Significance
Interpretation	Technology significantly reduced dropout ($\chi^2 = 28.64$, $p < 0.05$).					

Source: Authors' Analysis (2025).

Table 3: Effect of Technology on Parental Engagement

Group	Frequency (N)	Mean Response Rate	S.D	t-Calculated	t-Critical 0.05	Decision
Manual	100	33.8	6.13			
Technology	100	71.4	8.42	15.72	1.98	Significance
Interpretation	Parental engagement is much higher when using real-time technology					

Source: Authors' Analysis (2025).

**Table 4: Challenges to Technology Use**

Challenge	Frequency (N)	Mean (\bar{x})	S.D	Decision
Poor ICT infrastructure	240	4.56	0.77	Major challenge
Unequal rural-urban access	240	4.43	0.81	Major challenge
Limited teacher ICT skills	240	4.32	0.85	Major challenge
High cost of devices/maintenance	240	4.21	0.94	Major challenge
Resistance to change	240	3.87	0.89	Moderate

Source: Authors' Analysis (2025).

Table 5: Strategies for Enhancing Effectiveness

Challenge	Frequency (N)	Mean (\bar{x})	S.D	Decision
Government ICT investment	240	4.71	0.63	Highly effective
Policy support for rural schools	240	4.60	0.68	Highly effective
Teacher training and retraining	240	4.58	0.74	Highly effective
Subsidized devices for schools	240	4.36	0.82	Effective
Stronger parental involvement via SMS/app	240	4.42	0.79	Effective

Source: Authors' Analysis (2025).

Discussion of Findings

The results show that using technology improves student attendance, reduces dropout rates, and increases how involved parents are in their child's education. These findings are in tandem with the findings of UNESCO (2022) and Tinto (1993) said about technology helping in students' attendance in schools. Furthermore, the challenge of availability of ICT infrastructure and it's unequal access in urban and rural areas was highlighted by Okebukola (2020). For these technologies to be used properly and durable, there needs to be strong funding support from the Government, teachers must be ready to use it, and resources distributed evenly.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Using technology in attendance systems like biometrics, SMS alerts, and mobile apps is effective in reducing absenteeism and dropout rates in Nigerian primary schools.

However, the benefits are limited by poor infrastructure, lack of training, and the gap between urban and rural areas. To harness these technologies, there need to gain support from policies, better infrastructure, and training for teachers.



Recommendations

This study recommends that:

- Government should invest in better ICT infrastructure, give schools cheaper digital devices, and focus on rural schools.
- Schools Administrators should replace orthodox attendance systems with relevant digital technologies ones for efficiency and sustainability.
- Teachers should get ongoing training on using technology and get rewards for using it.
- Parents/Communities should work together through SMS updates and parent-teacher associations.
- Future Research should Study the long-term impact of technology on student grades.

Competing Interest

The authors had declared that no conflicting interest exist in this manuscript.

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