

# ICT Access, Digital Tools, and Academic Performance of Secondary School Students in Jos South LGA, Plateau State, Nigeria

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## ABSTRACT

This study investigated the influence of Information and Communication Technology (ICT) access and utilization on the academic performance of public secondary school students in Jos South Local Government Area of Plateau State, Nigeria. Using a descriptive survey research design, data were collected from 196 students drawn from eight purposively selected public secondary schools. The study examined students' access to personal digital devices, exposure to computer studies, frequency of ICT use for learning activities, and perceived influence of ICT on motivation, assignment completion, and academic performance. Findings revealed that access to smartphones significantly enhanced students' engagement with home assignments, while exposure to computer studies improved motivation and academic aspirations. However, unequal access to ICT resources and inadequate school-based infrastructure constrained optimal learning outcomes. The study concludes that learner-centered ICT access plays a critical role in improving academic performance and recommends equitable digital inclusion strategies, strengthened school ICT infrastructure, and learner-focused digital literacy programs in public secondary education.

**Keywords:** ICT access; student performance; digital learning; public secondary school students; Nigeria

## INTRODUCTION

The integration of Information and Communication Technology (ICT) into secondary education has become a defining feature of contemporary teaching and learning processes globally. ICT tools such as computers, smartphones, internet platforms, and digital instructional software have transformed how learners access information, engage with academic content, and develop problem-solving skills. In developing countries such as Nigeria, ICT is increasingly viewed as a catalyst for improving learning outcomes, enhancing student motivation, and bridging educational inequities.

Despite Nigeria's national ICT-in-education policies, the extent to which students—particularly those in public secondary schools—can access and meaningfully use ICT for learning remains uneven. Much of the existing literature has focused on teacher readiness, infrastructure availability, and institutional capacity, with relatively less emphasis on students as **active participants** in the digital learning ecosystem. However, learners' access to digital tools, frequency of ICT use, and perceptions of ICT relevance significantly shape learning experiences and academic performance.

In Jos South Local Government Area of Plateau State, public secondary schools operate within contexts marked by limited resources, unstable electricity supply, and socio-economic disparities. Nevertheless, the growing penetration of mobile technologies, particularly smartphones, presents new opportunities for learner-centered digital engagement beyond the classroom. This study therefore adopts a **learner-centered perspective**, examining how access to ICT resources influences students' motivation, engagement with assignments, and academic performance.

## Statement of the Problem

Although ICT is recognized as a powerful tool for enhancing teaching and learning, many public secondary school students in Nigeria continue to experience limited and unequal access to digital resources. In Jos South LGA, anecdotal evidence suggests that while some students benefit from personal digital devices such as smartphones and laptops, others rely solely on inadequate school-based ICT facilities.

This disparity raises concerns about equity, learner motivation, and academic performance. Without consistent access to ICT tools and structured opportunities to develop digital skills, students may struggle to compete academically in an increasingly technology-driven educational environment. There is therefore a need to empirically examine how ICT access and utilization affect students' academic performance and learning motivation within this context.

## Purpose of the Study

The purpose of this study was to examine the influence of ICT access and utilization on the academic performance of public secondary school students in Jos South Local Government Area of Plateau State.

Specifically, the study sought to:

Determine the ICT tools accessible to secondary school students.

Examine the frequency and patterns of ICT use for learning activities.

Assess the influence of ICT access on students' motivation, assignment completion, and academic performance.

## Research Questions

The study was guided by the following research questions:

What ICT tools are accessible to secondary school students in Jos South LGA?

How do students utilize ICT tools for learning activities?

How does ICT access influence students' academic performance and learning motivation?

## THEORETICAL FRAMEWORK

### Constructivist Learning Theory

Constructivist Learning Theory posits that learners actively construct knowledge through interaction with their environment rather than passively receiving information. ICT tools support constructivist learning by enabling students to explore digital content, collaborate with peers, and engage in self-directed learning activities. Access to digital devices and internet resources allows learners to personalize their learning experiences, thereby enhancing understanding, motivation, and academic performance.

### Digital Divide Theory

Digital Divide Theory explains disparities in access to ICT resources between individuals and groups based on socio-economic, geographic, and infrastructural factors. In the context of this study, the theory highlights how unequal access to devices, internet connectivity, and digital skills may contribute to differences in learning opportunities and academic outcomes among students in public secondary schools.

Together, these theories provide a framework for understanding how ICT access can enhance learning while also reinforcing inequalities when access is uneven.

## METHODOLOGY

### Research Design

The study adopted a **descriptive survey research design**, which enabled the collection of quantitative data on students' access to ICT resources, utilization patterns, and perceived academic impact.

### Population and Sample

The population comprised all public secondary school students in Jos South Local Government Area of Plateau State. A sample of **196 students** drawn from SS1 to SS3 classes was selected from **eight public secondary schools** using purposive and stratified sampling techniques to ensure representation.

### Instrumentation

Data were collected using the **Availability, Accessibility, and Utilization of ICT Resources Questionnaire (AAUICTRQ)**, specifically the student-focused sections. The instrument contained structured items measuring:

Access to ICT tools

Frequency of ICT use

Perceived influence of ICT on motivation and academic performance

The instrument was validated by experts in educational technology and demonstrated acceptable reliability.

### Method of Data Analysis

Data collected were analyzed using **descriptive statistics**, specifically frequencies and percentages, to summarize respondents' demographic characteristics, levels of ICT availability, and patterns of ICT utilization. In addition, **chi-square ( $\chi^2$ ) analysis** was employed to examine the relationships between ICT access, frequency of ICT use, and students' academic performance. The level of significance was set at **0.05**, and results were interpreted to determine whether observed associations were statistically significant.

### Results

#### Access to ICT Tools

The findings revealed varying levels of access to ICT tools among students:

**71.3%** of students reported that access to smartphones improved their ability to complete home assignments.

**51.2%** indicated that access to laptops at home supported their learning activities.

Access to school-based ICT facilities such as computer laboratories and smart boards was reported as limited and inconsistent.

#### Utilization of ICT for Learning

Students reported frequent use of:

Internet resources for research and assignments Microsoft Word and Excel for academic tasks Smart boards during selected classroom lessons However, structured and guided use of ICT for learning remained limited due to infrastructure constraints.

## **Influence of ICT on Motivation and Academic Performance**

**77.5%** of students reported increased motivation as a result of studying computer-related subjects.

**59.6%** indicated a sense of prestige and confidence associated with ICT learning.

Students with regular access to digital devices demonstrated higher engagement with assignments and learning activities.

## **DISCUSSION**

The findings of this study corroborate earlier studies by Oye et al. (2012) and Udo (2015), which reported that ICT enhances students' motivation, independent learning, and academic performance. The high impact of smartphones on assignment completion suggests that mobile technologies offer practical opportunities for learner-centered digital engagement, particularly in resource-constrained environments.

However, the persistence of unequal access underscores the relevance of Digital Divide Theory. Students without personal devices or reliable internet access remain disadvantaged, limiting the overall effectiveness of ICT integration efforts. This inequality threatens educational equity and reinforces achievement gaps within public secondary schools.

## **CONCLUSION**

The study concludes that ICT access and utilization positively influence the academic performance and motivation of secondary school students in Jos South LGA when learning opportunities are learner-centered and consistent. While personal digital devices, particularly smartphones, have enhanced students' engagement with academic tasks, unequal access and inadequate school infrastructure continue to hinder optimal learning outcomes.

## **RECOMMENDATIONS**

Based on the findings, the study recommends that:

Government and school authorities invest in improving ICT infrastructure in public secondary schools.

Policies supporting equitable access to digital devices and affordable internet services for students be strengthened.

Curriculum developers integrate mobile-friendly and learner-centered digital learning strategies.

Schools establish community-based digital learning hubs to support students without personal ICT devices.

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