Influence of Educational Facilities on the Academic Performance of Senior Secondary School Students in Oyo East Local Government Area, Oyo State, Nigeria

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Abstract

This study investigated the influence of key educational facilities: libraries, laboratories, and Information and Communication Technology (ICT) facilities or resource centres on the academic performance of senior secondary school students in Oyo East Local Government Area, Oyo State, Nigeria. The research was premised on the critical role that physical and material resources play in creating a conducive learning environment and facilitating the achievement of educational objectives. A descriptive survey research design was adopted. Data were collected using a structured questionnaire titled "Educational Facilities on Students' Performance Questionnaire (EFSPQ)," complemented by an academic performance test administered within the study area. The instrument demonstrated high reliability with a Cronbach's Alpha coefficient of 0.87. Data analysis employed both descriptive statistics (frequencies, percentages, mean, standard deviation) and inferential statistics (Pearson Product Moment Correlation). The findings revealed a significant positive relationship between the availability of libraries and students' learning outcomes ($r = 0.302$, $p < 0.05$). A strong and significant relationship was also found between the availability of laboratories and students' learning outcomes ($r = 0.617$, $p < 0.05$). Furthermore, a significant positive relationship existed between the availability of ICT facilities and students' learning outcomes ($r = 0.481$, $p < 0.05$). The study concluded that adequate educational facilities are indispensable catalysts for enhancing academic performance. It was recommended that government bodies, school administrators, and community stakeholders prioritize the sustained provision, regular systematic maintenance, and effective utilization of libraries, laboratories, and ICT facilities, accompanied by ongoing professional development tailored specifically to improve instructional and support services relevant to these resources.

Keywords: Academic Performance, Educational Facilities, School Libraries, Science Laboratories, Information and Communication Technology (ICT).

Word Count: 254

Introduction

The pursuit of qualitative education is a fundamental objective for national development globally, and its attainment is heavily dependent on the quality of inputs into the educational system. Among these inputs, educational facilities represent a critical, though often neglected, component. In the Nigerian context, secondary education is designed to equip students with the knowledge and skills necessary for personal fulfilment and societal contribution. However, the effective operation of these schools, irrespective of ownership, is contingent upon the availability of educational facilities of the prescribed quality and quantity (National Policy on Education, 2004).

Educational facilities encompass all physical and material resources deployed by an institution to support its instructional mission. This includes, but is not limited to, classrooms, laboratories, libraries, administrative buildings, furniture, books, computers, and other ICT tools (Emetarom, 2004). These facilities are not merely passive structures but are active agents that shape the teaching and learning environment. As noted by Earthman (2002), the school environment has a profound impact on pupils' academic performance. The assumption is that the system is more effective the better the students perform (Philias & Wanjobi, 2011). Studies by Cynthia and Megan (2008) and Owoeye and Yara (2011) have consistently shown a positive correlation between the quality of school facilities and student academic achievement.

Despite this established link, a stark reality persists in many Nigerian secondary schools. General observation and empirical reports indicate a systemic inadequacy of essential facilities. In Oyo East Local Government Area, scenarios where students sit on floors, schools lack potable water and functional sanitation facilities, and libraries and laboratories are either non-existent, ill-equipped, or dilapidated are not uncommon (Okwori & Ede, 2012). This deficit has been implicated in the persistent trend of poor academic performance, particularly in subjects requiring practical engagement, such as the sciences (WAEC Chief Examiners' Reports, 2020; 2021; 2022). Max (2018) attributes the current low interest in science courses like Physics, Chemistry, and Biology directly to these laboratory shortages.

Therefore, this study is motivated by the need to provide localized, empirical evidence on this

critical issue. It seeks to investigate the specific influence of three core educational facilities, libraries, laboratories, and ICT facilities on the academic performance of senior secondary school students within Oyo East Local Government, Oyo State, thereby filling a significant knowledge gap in this geographical context.

The term "educational facilities" refers to the totality of non-human resources provided in a school to facilitate the attainment of its educational goals. Akinyemi, Lawal, and Owosoro (2021) define facilities as the classrooms, audio-visual equipment, and other material resources used in educational institutions to achieve successful teaching and learning. These resources serve as the bedrock upon which effective instructional delivery is built. Their strategic role in organizational effectiveness is underscored by Joseph (2010) and Oni (1992), who argue that their availability, suitability, and applicability directly impact institutional efficiency and high productivity.

The theoretical underpinning for this study can be traced to the System Theory. A school is viewed as a social system that processes inputs (students, teachers, facilities) through a transformation process (teaching and learning) to produce outputs (educated graduates) (Osuji, 2016). Within this framework, educational facilities are critical input variables whose quality directly influences the quality of the output. Furthermore, the Constructivist Learning Theory, which emphasizes active, experiential learning, aligns perfectly with the use of laboratories and ICT. This theory suggests that students learn more effectively by doing and discovering (Ildephonse, 2015), a process for which libraries, labs, and ICT are ideally suited.

A school library is far more than a collection of books; it is a dynamic learning laboratory. It is a repository for a wide array of documents, books, recordings, and research papers designed for reading, study, and lending (Read, 2015). Hansen (2012) posits that libraries remain one of the most crucial components of the educational system, playing an indispensable role in instruction and knowledge acquisition.

The empirical evidence supporting the impact of libraries on academic performance is substantial. Lance (2004) asserts that the impact of school libraries on academic achievement is scientifically documented and cannot be negated by other socio-economic factors. International studies, including a synthesis of over 60 studies in the United States and Canada by Gretes (2013), consistently show that students with access to well-supported school libraries with certified librarians score higher on standardized reading tests, regardless of their socioeconomic background. The library fosters independent learning, critical thinking, and a culture of reading, which are transferable skills that benefit performance across all subjects (Haycock, 1995 in Leo, 2016).

The laboratory is universally recognised as a distinctive and essential feature of effective science education (Hofstein & Lunetta, 2004). It is a space specifically designed for practical or experimental research, where theories are applied and illustrated (Ali, 2013). Omiko, (2015) describes the laboratory as the core of an effective scientific curriculum, enabling students to gain experiences aligned with the objectives of scientific literacy. Students typically perform better than they would have if they were not taught in a school with suitable amenities Osei-Poku, P. et al., 2020).

Laboratory work provides students with the opportunity to develop and practice scientific processes such as observation, communication, hypothesis formation, and experimentation (Igwe, 2003). This hands-on experience bridges the gap between abstract concepts and tangible reality, thereby enhancing comprehension and retention. Students typically perform better than they would have if they were not taught in a school with suitable amenities (Osei-Poku, P. et al., 2020). Students typically perform better than they would have if they were not taught in a school with suitable amenities (Osei-Poku, P. et al., 2020). Students typically perform better than they would have if they were not taught in a school with suitable amenities (Osei-Poku, P. et al., 2020). Studies, such as those by Mersha, Bishaw and Tegegne (2013), have found that schools with fully stocked and functional laboratories significantly outperform those without in final science certificate examinations. The lack of practical exposure is a key factor blamed for the poor performance of Nigerian students in science subjects at the senior school level. According to Farrant (2000 in Abubakar, 2016), having access to instructional resources

makes science lessons more engaging and stimulating for secondary school pupils. A laboratory has long been thought of as a setting for doing scientific research. He continued by saying that scientists explore nature and the environment primarily through numerous experiments rather than just talking about it conceptually or abstractly. Generally speaking, experimentation calls for the employment of specific methods, equipment, and supplies. These can happen within or outside of a lab, but for science and technology to advance, appropriate lab space must be made available. Similar to how they should be taught, these topics stress the active participation of the students in practice and experimentation activities.

ICT is a broad term encompassing the diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information (Tolorunleke et al., 2022). In the educational landscape, ICT includes computers, the Internet, broadcasting technologies (radio and television), and telephony.

The integration of ICT in education has the potential to revolutionize learning by transforming teacher-centered classrooms into student-centered, interactive learning environments (Tinio, 2002). It provides access to a vast repository of global knowledge, facilitates collaborative learning, and helps develop crucial digital literacy skills. When used appropriately, ICT can enhance student engagement, motivation, and academic performance (Afolabi, 2015). Tools like Google Classroom, as highlighted in the literature, streamline the learning process, foster collaboration, and provide platforms for timely feedback, all of which contribute to improved learning outcomes (Gupta & Pathania, 2021).

Statement of the Problem

This study addresses a critical systemic deficiency within the secondary education sector of the Oyo East Local Government Area: the pervasive insufficiency and suboptimal utilization of educational infrastructure, which is posited as a principal determinant of chronically low academic performance. Empirical evidence and observational data indicate a profound deficit in essential physical and instructional resources, encompassing basic amenities, libraries, scientific laboratories, and information and communication technology (ICT). This scarcity is compounded by pedagogical practices that frequently fail to leverage available facilities effectively, thereby constraining instructional methodologies and limiting experiential learning opportunities.

The resultant environment severely compromises pedagogical efficacy and student engagement. The absence of functional laboratories and libraries directly impedes the mastery of practical and theoretical concepts, particularly in the sciences, leading to diminished student motivation and attenuated academic outcomes. Consequently, the sector produces graduates with substandard skills, perpetuating a cycle of underachievement. While governmental interventions have been attempted to ameliorate poor academic performance, the fundamental issue of inadequate and underutilized educational facilities remains a largely unaddressed and pivotal bottleneck. This study, therefore, emerges from the necessity to empirically investigate the specific correlation between the provision of key educational facilities and academic achievement, thereby informing targeted policy and resource allocation.

Aims and Objectives the Study

The study aims to investigate the influence of educational facilities on the academic performance of senior secondary school students in Oyo East Local Government Area.

The specific objectives are to:

1. examine how the availability of a library affects academic performance.
2. determine how the availability of laboratories affects academic performance.
3. examine the relationship between Information and Communication Technology (ICT) facilities and academic performance.

The research seeks to empirically link the observed deficits in specific facilities (libraries, labs, ICT) to student academic outcomes in the specified region.

Hypotheses

The following null hypotheses were formulated and tested at a 0.05 level of significance:

1. There is no significant relationship between the availability of a library and the academic performance of senior secondary school students in Oyo East Local Government Area.

2. There is no significant relationship between the availability of laboratories and the academic performance of senior secondary school students in Oyo East Local Government Area.

3. There is no significant relationship between the availability of Information and Communication Technology and the academic performance of senior secondary school students in Oyo East Local Government Area.

Methodology

This study employed a descriptive survey research design. This design was deemed most appropriate as it allows for the collection of data from a sample of a population to describe the existing relationships between variables, in this case, educational facilities and academic performance, without manipulating any variables. The correlation type of survey design was specifically adopted to determine the strength and significance of the relationships between the independent variables (library, laboratory, ICT) and the dependent variable (academic performance).

The study population comprised all 7,034 senior secondary school students (SSS1-SSS3) in the sixteen (16) senior secondary schools within Oyo East Local Government Area, Oyo State. To ensure representativeness and manageability, a simple random sampling technique was employed. This technique gave every student in the population an equal chance of being selected. Ultimately, a total of 200 students from nine (9) randomly selected schools were used as the sample for the study. The primary instrument for data collection was a self-developed structured questionnaire titled "Educational Facilities on Students' Performances Questionnaire (EFSPQ)." The questionnaire was divided into five sections:

The research instrument was structured into five distinct sections to comprehensively collect the requisite data. Section A gathered respondents' demographic profile, including gender, age, and class. Section B comprised ten items designed to evaluate both the availability and perceived influence of the school library on learning. Section C contained ten items assessing the availability and impact of science laboratory facilities. Section D included ten items focused on the availability and utilization of Information and Communication Technology (ICT) facilities. Finally, Section E consisted of a validated, ten-item academic performance test, providing an objective measure of student knowledge in relevant subject areas. All items in Sections B through D employed a four-point Likert scale, with response options ranging from Strongly Agree (SA) to Strongly Disagree (SD).

To ensure content and face validity, the questionnaire was scrutinized by the experts in Educational Administration and Measurement & Evaluation. Their feedback was used to refine the clarity, relevance, and comprehensiveness of the items. A pilot study was conducted on 40 students who were not part of the main sample. The data from the pilot test were analyzed using Cronbach's Alpha to determine the internal consistency of the instrument. A reliability coefficient of 0.87 was obtained, which is well above the acceptable threshold of 0.70, indicating that the instrument was highly reliable for the study. Data collection was undertaken over a period of two weeks after obtaining the necessary permission from the school authorities and the National Open University of Nigeria. The questionnaires were administered directly to the selected students during their regular class periods. The collected data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS version 23). Descriptive statistics (frequency counts, percentages, mean, and standard deviation) were used to summarize the demographic data and answer the research questions. Inferential statistics (Pearson Product Moment Correlation) were used to test the three null hypotheses at a 0.05 significance level.

Results

Hypothesis 1: There is no significant relationship between the availability of a library and the academic performance of senior secondary school students.

Table 1: Correlation between Library Availability and Academic Performance

Variable	N	Mean	Std. Dev.	R	p-value	Remark
Availability of Library	200	23.58	3.38	0.302	0.000	Significant
Academic Performance	200	4.86	1.77	-	-	-

As shown in Table 1, the Pearson Product Moment Correlation analysis yielded a correlation coefficient of r = 0.302 with a significance value of p = 0.000. Since the p-value is less than 0.05, the null hypothesis is rejected. This indicates a statistically significant, though moderately positive, relationship between library availability and students' academic performance.

Hypothesis 2: There is no significant relationship between the availability of laboratories and the academic performance of senior secondary school students.

Table 2: Correlation between Laboratory Availability and Academic Performance

Variable	N	Mean	Std. Dev.	r	p-value	Remark
Availability of Significant Laboratory	200	22.83	5.68	0.617	0.000	
Academic Performance	200	4.86	1.77	-	-	-

The result in Table 2 shows a strong positive correlation coefficient of r = 0.617 with a p-value of 0.000. Given that $p < 0.05$, the null hypothesis is rejected. This reveals a strong and statistically significant relationship between the availability of laboratories and students' academic performance.

Hypothesis 3: There is no significant relationship between the availability of Information and Communication Technology and the academic performance of senior secondary school students.

Table 3 presents a correlation coefficient of r = 0.481 with a p-value of 0.000. As the p-value is less than 0.05, the null hypothesis is rejected. This indicates a statistically significant and positive relationship between the availability of ICT facilities and students' academic performance.

Table 3: Correlation between ICT Availability and Academic Performance

Variable	N	Mean	Std. Dev.	r	p-value	Remark
Availability of ICT	200	23.79	5.02	0.481	0.000	Significant
Academic Performance	200	4.86	1.77	-	-	-

Discussion of Findings

The findings of this study provide robust empirical support for the critical role that educational facilities play in shaping the academic trajectories of secondary school students in Oyo East Local

Government. The significant relationship between library availability and academic performance. ($r=0.302$, $p<0.05$) reaffirms the library's status as an indispensable academic

sanctuary. This finding is consistent with a vast body of international literature. For instance, it corroborates the work of Gretes (2013), whose meta-analysis demonstrated that access to well-supported libraries boosts reading scores across diverse socioeconomic groups. It also aligns with Haycock (1995), who found that effective library services significantly improve reading comprehension and the ability to articulate ideas. The library's function in promoting independent learning, critical inquiry, and providing access to supplementary materials directly contributes to a deeper and more nuanced understanding of subject matter, which is reflected in improved academic outcomes.

The strongest relationship observed in this study was between laboratory availability and academic performance ($r=0.617$, $p<0.05$). This powerful correlation underscores the quintessential nature of practical experience in science education. This result resonates strongly with the findings of Pratiwi, R. I., et al. (2025), who argued that learning is significantly enhanced when students are taught in environments with adequate practical facilities. It also supports the assertion of Farrant (2000) that laboratory facilities make science lessons concrete, stimulating, and ultimately more comprehensible. The hands-on experimentation, observation, and problem-solving that laboratories facilitate are irreplaceable for mastering scientific concepts, a fact clearly reflected in the superior performance of students with access to these facilities.

The significant relationship between ICT availability and academic performance ($r=0.481$, $p<0.05$) highlights the growing importance of digital tools in modern pedagogy. This finding is in tandem with studies by Adebayo and Olagunju (2024), which established a positive link between the quality of educational facilities like ICT and student achievement. It also corroborates Afolabi (2015), who found a significant relationship between educational resources (including ICT) and academic performance. ICT resources provide dynamic, multimedia content, facilitate access to global information, and enable interactive and collaborative learning methods that cater to diverse learning styles, thereby enhancing overall academic engagement and performance.

Conclusion

The research definitively establishes that educational facilities serve as a foundational pillar rather than a supplementary element, significantly shaping academic outcomes for senior secondary students. The significant positive relationships established between libraries, laboratories, ICT, and learning outcomes in Oyo East Local Government Area provide compelling evidence that investment in these facilities is an investment in educational quality. The inadequacy of these resources, as also highlighted in the descriptive findings, poses a serious threat to the achievement of national educational goals and limits the potential of students, particularly in science and technology-driven disciplines. Therefore, a concerted and strategic effort is required to bridge this facility gap.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

i. The Oyo State Government, in collaboration with the Local Government Education Authority, should prioritize and increase budgetary allocations specifically for the provision,

upgrading, and maintenance of libraries, laboratories, and ICT infrastructure in public secondary schools. This should be a continuous process rather than a one-off project.

ii School administrators should actively cultivate partnerships with private sector organizations and mobilize alumni associations to supplement government efforts through donations of books, laboratory equipment, computers, and funds for facility renovation.

iii. The government and school boards should organize regular training and workshops for teacher-librarians, laboratory technicians, and ICT coordinators. This will enhance their capacity to manage the facilities effectively, guide students in their use, and integrate these resources seamlessly into the teaching and learning process.

iv. School principals should institute a robust and proactive maintenance culture. This includes routine servicing of equipment, minor repairs, and ensuring that facilities are kept secure and in good working order to prolong their lifespan and utility.

v. Schools should develop a clear ICT integration policy that goes beyond having computer sets. This should include providing reliable internet connectivity, acquiring relevant educational software, and training teachers on how to effectively use these tools to deliver curriculum content.

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