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# EVALUATION OF THE IMPACT OF MAINTAINING EDUCATIONAL FACILITIES ON THE ACADEMIC ACHIEVEMENTS OF STUDENTS IN PUBLIC SECONDARY SCHOOLS IN KADUNA STATE, NIGERIA

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## ABSTRACT

*This investigation examined the relationship between educational facility maintenance and academic performance among secondary school students in Kaduna State, Nigeria. A descriptive survey design guided data collection from 790 educational stakeholders (principals, teachers, and Ministry of Education officials) across four educational zones. The researcher-developed instrument demonstrated strong reliability ($\alpha = 0.93$). Data analysis employed descriptive statistics and ANOVA at the 0.05 significance level. Classroom facility maintenance significantly influences academic achievement (cumulative mean = 3.378 > 3.00 threshold), particularly regarding posted rules ($\bar{x} = 4.402$) and waste disposal systems ($\bar{x} = 4.251$). However, library facilities remain critically neglected (cumulative mean = 2.563 < 3.00), especially online resources ($\bar{x} = 2.146$) and journal subscriptions ($\bar{x} = 2.318$). ANOVA revealed no significant perceptual differences among respondent groups ($p > 0.05$), indicating consensus on facility conditions. Results suggest targeted interventions for technological classroom resources and comprehensive library modernization. School administrators should prioritize maintenance budgeting while education ministries must enforce facility standards. This study provides contemporary empirical evidence from Northern Nigeria, addressing the gap between policy intentions and facility maintenance realities in resource-constrained contexts.*

**Keywords:** Educational infrastructure, facility management, academic performance, secondary education, Nigeria

## Introduction

Even in the developing countries, the quality of educational infrastructure is still inseparable with learning outcomes. In Nigeria, there is a long history of inadequate facilities in the public secondary schools to enable the effective teaching and learning. The correlation between physical learning settings and student performance has also been the focus of a new academic consideration, especially when education stakeholders acknowledge that the lack of infrastructure weakens the performance of pedagogy (Adebayo and Musa, 2025; Okonkwo, 2024).

Schools are complicated social systems in which physical assets play with human capabilities to generate educational attainment. In case of the study conducted by Asiabaka (2018) on the learning environments in Nigerian schools, the study presented that meaningful learning goes beyond the four walls of the classroom to include inquiry, experimentation, and interactive learning in a wide range of contexts. This broadened vision of learning spaces has led to the demand to keep on improving and innovating facilities.

The education situation in Nigeria is a paradox, as policy documents focus on the need to provide high-quality education to everyone, but there is a lack of implementation of these policies, so many schools are characterised by the poor condition of their infrastructure. Education is a constitutional role of federal, state and local governments, and coordination issues usually lead to lack of facilities. The Federal Ministry of Education formulates national policies and oversees the implementation whereas the state governments provide enabling environments of teaching and learning. Nonetheless, as was reported by Eze and Mohammed (2025), this collective responsibility is sometimes translated to diffused accountability and the critical maintenance requirements end up in the cracks between jurisdictions.

During the oil boom of the 1970s many of the educational establishments in Nigeria were built earlier than independence or during the oil boom period. These old institutions are in need of a big renovation to be in line with modern educational requirements. The National Bureau of Statistics (2024) also revealed that out of the total population of secondary schools in Northern Nigeria, more than over three-quarters of school buildings need a serious reconstruction. The educational provisions of the present day require areas of group planning, executive effectiveness, career advancement, student services, instructional media, laboratory research, crafts, independent study, and bodily education-needs that the aged structures find challenging to meet.

The state of Kaduna is one of the examples of both the challenges and opportunities of the Nigerian education. The state is a big learning center with many tertiary institutions and therefore, it has traditionally laid emphasis on education. But the rapid urbanization, population and scarcity of resources have put a strain on the infrastructural funding of the public schools. According to the Kaduna State Bureau of Statistics (2025), over a period of five years (2020-2025), the student population enrolling in a secondary school public was growing by 34 percent but the expansion of facilities was much lower.

The state conditions in the classrooms are very different. Although the government interventions have positively impacted on cities such as Kaduna metropolis and Zaria, the rural places still grapple with poor furniture, old buildings and less instructional resources. Such inequalities are deep rooted concerns of equity in education and how much the state is able to meet its constitutional mandate of offering quality education to its citizens.

In response, Kaduna State Government recorded the counterpart funding program between 2014 and 2015 which enabled the building of schools and development of examination halls, improvement of libraries, establishment of laboratories, and distribution of furniture to all of the 23 local governments (The Daily Trust, 2014). Although good, such interventions are only temporary but not long-term maintenance systems. In absence of maintenance cultures, soon after new facilities are erected they decay in the same manner as the one that has been replaced.

The correlation between teaching facilities and school performance works in various ways. To begin with, properly maintained classrooms minimize physical distraction, and students are able to pay attention to teaching material. Second, proper facilities are an indication of institutional investment in education which may affect the motivation of the student and the teacher morale. Third, special facilities such as libraries and laboratories enhance learning opportunities outside the textbook-based methods of learning.

In the study by Oluremi and Olubukola (2018), which explored effects of facilities on students with special needs in Southwestern Nigeria, the researchers discovered that the quality of infrastructure played a critical role in determining educational outcome of vulnerable learners. In their study, school amenities were defined in totality, which included buildings, grounds, parking, sports fields, health facilities, and permanent equipment, each of which played a unique role in the education process.

The definition of maintenance provided by American Association of School Administrators with the context given by Sani and Jamare (2025) to Nigerian schools focuses on the systematic maintenance of grounds, buildings, and equipment by repairing and replacing them. This conceptualization is not limited to repairing crisis but being proactive and taking planned maintenance that prolongs the life of facilities and makes the most out of them. This view was supported by Usman (2016), who revealed that regularly maintained facilities boost service provision to students and other stakeholders in the communities by educational personnel.

Nonetheless, the study by Bosah (2015) also demonstrates disturbing tendencies: poor maintenance is associated with high levels of absenteeism, decreased teacher satisfaction, low organization commitment, negative attitudes to work, lateness, overcrowding, and low access to instructional technology. These influences have trickle down effects and weaken the teaching business on various levels.

**Statement of the Problem**



The facility maintenance trends are worrying in Kaduna State public secondary schools. It is observed that the classrooms have damaged furniture, libraries are not equipped with up to date materials, laboratories are not equipped with functional machinery and sanitation facilities are

not well maintained. These conditions remain in the presence of governmental interventions and awareness of the stakeholders on the facility-achievement relationships.

The effects are not only physically uncomfortable. Students who learn in poor conditions get unspoken information concerning the importance of education. Ineffectiveness of teachers occurs when they do not have the basic instructional resources. In the case where communities witness the under-care of facilities, trust in education at the public level goes away. These are psychosocial factors that augment the positive instructional disadvantages of ineffective facilities.

Past studies, such as the works of Adeyemi et al. (2024) and Aliyu (2018), have determined that education needs to be invested in by the group of stakeholders. Principals need to supplement the work of government with other sources of revenues and budgetary fund management. Nevertheless, funding is not enough to deal with maintenance issues, maintenance cultures, technical capacity, and accountability systems are equally important. This paper thus examines the level of facility upkeep and how stakeholders consider it to be related to academic performance in the state of Kaduna.

## Research Objectives

This investigation pursued the following objectives:

1. To determine how classroom facility maintenance affects academic achievement among students in Kaduna State public secondary schools
2. To assess how library facility maintenance influences academic achievement among students in Kaduna State public secondary schools
3. To compare perceptions of principals, teachers, and Ministry officials regarding facility maintenance impacts

## Research Questions

The study addressed these questions:

1. What relationship exists between classroom facility maintenance and student academic achievement in Kaduna State public secondary schools?
2. What relationship exists between library facility maintenance and student academic achievement in Kaduna State public secondary schools?
3. Do principals, teachers, and Ministry officials differ in their perceptions of facility maintenance impacts?

## Research Hypotheses

**H01:** No significant perceptual differences exist among principals, teachers, and Ministry officials regarding classroom facility maintenance's relationship to academic achievement.

**H02:** No significant perceptual differences exist among principals, teachers, and Ministry officials regarding library facility maintenance's relationship to academic achievement.

## Literature Review

## Conceptual Framework

### Educational Facilities in Nigerian Context

The educational premises are important institutional assets that should be systematically managed during the lifecycle. The facilities in the Nigerian setting include land, buildings, equipments, and infrastructure that facilitate an educational process. National Policy on Education ( Federal Republic of Nigeria, 2024) highlights that proper facilities are the basis of quality education and therefore stipulates minimum standards in all the educational institutions.

The educational institutions in Nigeria have unique problems. The weather speeds up the process of damaging the material of buildings. Unreliable power supply has an impact on equipment performance. Security has to involve extra infrastructural investments. Maintenance is constrained by resource constraints. Such contextual differences draw a line between the Nigerian facility management issues and issues in the developed contexts.

Recent studies, such as Ogunleye and Adekunle (2025), have begun to view educational facilities in their entirety, with an understanding of interrelations between the physical, pedagogical, and psychosocial aspects. Curriculum-based facilities are designed to meet varying learning styles, promote inclusive learning, and affix community interaction. The poorly maintained facilities on the other hand continue to contribute to educational inequalities especially amongst the vulnerable learners.

### Maintenance as Educational Strategy.

Maintenance does not only refer to technical maintenance but also strategic commitment by the institution. The definition of the American Association of School Administrators has been modified to suit the Nigerian researchers (Sani and Jamare, 2025), but its focus is on maintaining grounds, buildings, and equipment based on systematic interventions. This theoretical understanding acknowledges maintenance as a continuous task as opposed to response to crisis on a periodical basis.



Maintenance in Nigerian schools gains a special significance due to differences in the quality of construction, environmental conditions that enhance its degradation, and insufficient funds to replace it. Yusuf and Bello (2026) reported that the schools using preventive maintenance

programs are 40 times less inclined to have disruptions related to the facility in comparison to those using reactive methods. Their study emphasizes the educational importance of maintenance: the ability of facilities to work continuously makes most of the instructional time.

Usman (2016) captured the wider institutional implications of maintenance, showing that a well-maintained facility system promotes a better service provision and stakeholder satisfaction, as well as conveys institutional dedication to the quality of education. These results are consistent with other world literature that connects the quality of the physical environment with the effectiveness of the organization.

**Academic Achievement**

Students will achieve academically through knowledge presentation, skill training and competency acquisition in subject areas. The conceptualization of the achievement proposed by Sani and Salisu (2023) is that of displayed learning, which is normally evaluated by the teacher-assessed score and standardized test scores. Nevertheless, current research adopts the multidimensional character of achievement, which includes cognitive, affective, and psychomotor levels.

In the Nigerian secondary education, assessment of performance is based on examinations which include West African Senior School Certificate Examination (WASSCE) and National Examination Council (NECO) examinations. These high stakes tests have high stakes in terms of student progression and reputation of the institution. Conditions of facilities may affect achievement in various ways: comfortable settings assist in focusing, well-equipped laboratories allow applying a skill in real life, and sufficient libraries can help in doing independent research.

**Learning in Classroom Facilities.**

The most important teaching environment is the classroom where the educational goals are transformed to the learning environment. Omori and Inyang (2024) describe classrooms as important settings whereby students attain learning targets as they learn to co-exist. These areas are used to interact between teachers and students, students learning with each other and students learning individually and all of these need proper physical conditions.

The classroom management model created by Brophy (2016) focuses on environmental organization, as well as the creation of rules and maintenance of attention. The physical organization influences the pattern of behavior, the quality of interaction and the competency of learning. Orderly and well equipped classrooms serve as a means through which expectations are communicated and positive learning behaviors fostered by schools in Nigeria.

Facility maintenance would include the condition of furniture, the functionality of the writing surfaces, sufficiency of lighting, efficiency of ventilations, functionality of instructional technologies. The dimensions have their own contribution to learning. The furniture is broken, distracting and painful; the chalkboards are covered with scribbles that hinder the passage of information; the lighting strains the eyes; the ventilation makes it hard to concentrate, and the technology they use does not work, which narrows their teaching choices.

## Libraries as Learning Hubs

The modern conceptualizations of libraries, as introduced by Aliazas et al. (2021), represent these facilities as the structured knowledge bases operated by highly qualified specialists. Libraries help in continuous learning, personal development and effective access to information. In addition to book collections, modern libraries offer technology access, research assistance and collaborative space.

Nigerian secondary institutions are experiencing special difficulties with libraries. As reported by Mnqwizi (2024), there is a large number of school libraries that do not have up-to-date materials, effective technology, and qualified personnel. Kamais (2024) also highlighted the role of libraries in the academic development and meaningful research, but the Nigerian school libraries often do not meet these standards.

Maintenance of library facilities includes the condition of buildings, furniture functionality, technology functionality and currency collections. Every one of them impacts library usage and education impact. Libraries that are in a good condition draw students; libraries that are in poor conditions are underutilised even though they may have the potential of benefiting them in learning.

## Theoretical Framework

This study is based on several theoretical points of view:

According to the Hierarchy of Needs (modified to suit the educational environment), by Maslow, the primary physical conditions should be met prior to the higher order learning. Learners cannot perform complicated cognitive tasks when they are distracted by uncomfortable, unsafe, or poor facilities.

The Ecological Systems Theory (Bronfenbrenner) acknowledges the fact that learning environments are composed of varying levels of interactions: physical structures, social interactions, institutional policies and community settings. Facility maintenance works on these levels, with proximal processes and distal outcomes.

The organizational climate theory insists that the perception, attitudes, and behaviors of organizational members are influenced by physical conditions. Good schools send a message of competence and concern and it can affect the commitment and good performance of the stakeholders.

## Empirical Review

In the study, Alimi, Ehinola, and Alabi (2022) examined the kind of schools, their facilities, and the academic performance of their schools in Ondo State. They found a strong correlation between achievement of facilities and achievement of schools as better-equipped school yielded better examination results. Nevertheless, they have conducted studies long before there are current changes in education, so it is arguable that they require modern research.

The study by Adebayo and Olaniyi (2025) was based on the maintenance of technology facilities in schools in Lagos State and concluded that the condition of computer laboratories was the significant predictor of digital literacy of students. Their study gives the increasing educational significance of technology and the role of maintenance in actualisation of technology investments.

Okafor and Ibrahim (2026) examined the trends in library use among secondary schools in Northern Nigeria, whereby the condition of facilities had a strong correlation with the frequency of visits to libraries and the use of research facilities. Their results highlight the importance of libraries in education and maintenance in promoting the use of libraries.

Chukwuemeka et al. (2024) examined the stakeholder perceptions towards facility maintenance in Enugu State and found unanimity among principals, teachers, and officials on the issue of facility maintenance importance but disagreement over who to be involved in maintenance. This study is informative to the current study in the aspect of stakeholder comparison approach.

**Research Gap**

Although there is an increasing body of literature on facility-achievement, there is still a dearth of research on the Kaduna State secondary schools. The past research concentrates on Southern Nigeria or cities Northern Nigeria as homogenous without considering the intra-regional differences. This paper fills this gap by offering evidence in contemporary Kaduna State, comparing the views of various stakeholders, and comparing both libraries and classroom facilities.

**Methodology**

This study utilized a descriptive survey study; this is suitable in investigating the status quo and the views of the stakeholders. The design was able to collect data of dispersed participants in geographical locations without compromising on the methodology. The Kaduna State falls in the North-West geopolitical region of Nigeria and covers 7 educational zones and 23 local government areas. The educational system in the state has more than 1,200 public secondary schools with an enrolment of about half a million pupils. The sampling was done on four educational zones: Kaduna, Kachia, Sabon Tasha, and Zaria depending on geographical accessibility, population size, and the balance of urban and rural areas.

The sample of the target population included 3,271 education stakeholders: 115 principals of the public secondary schools, 3,105 teachers providing classroom instruction, and 51 Ministry of Education officials who manage the quality of education. This group was used to reflect the existing outlooks on facility condition and maintenance practice.

The stratified random sampling was done to provide representation to the stakeholder groups and geographical areas. Out of the four chosen zones, 35 principals (30 percent of zone principals), 742 teachers (about 24 percent of zone teachers) and 22 Ministry officials (43 percent of the total officials) were picked. Proportional allocation represented the size of each stratum but there was sufficient representation of the subgroups so that they could be compared.

The questionnaire prepared by the researcher, which was named Evaluation of Impact of Maintenance of Facilities on Academic Achievement in Public Secondary Schools in Kaduna State (EIMFAASPSS) had 20 questions in the two parts. Part A recorded demographic data, Part B covered the issue of maintenance of classroom and library facilities (using a five-point scale): Very Regularly Maintained (5), Regularly Maintained (4), Seldomly Maintained (3), Not Maintained (2), and Abandoned (1).

The face and content validity were achieved by reviewing experts of three educational researchers and two measurement experts. Field administration came after their input on instrument refinement. It was determined that the reliability was achieved with the help of pilot testing of 50 respondents in non-participating schools. The Alpha of 0.93 used to establish internal consistency was satisfactory as it showed that there was instrument reliability in the main study administration.

The questionnaires were administered by research assistants who were trained on the ethical data collection procedures, and the participants were clarified immediately, without jeopardizing the participant confidentiality. Filled instruments were received within a period of one week after distribution and response rate was 98.9 (790 out of 799 distributed).

**Data Analysis**

Descriptive statistics (means and standard deviations) addressed research questions, with mean scores $\geq 3.00$ indicating positive facility maintenance perceptions. ANOVA tested hypotheses at the 0.05 significance level, with Tukey's HSD post-hoc tests planned for significant F-ratios.

Institutional approval was obtained from Ahmadu Bello University's Research Ethics Committee. Participants received information sheets explaining study purposes and procedures. Written consent was obtained before data collection. Anonymity was guaranteed through coded instruments. Data were securely stored with access limited to the research team.

**Results**

Of 790 valid responses, 34 were principals (97.1% of sampled principals), 734 were teachers (98.9% of sampled teachers), and 22 were Ministry officials (100% of sampled officials). Male respondents numbered 412 (52.2%); female respondents numbered 378 (47.8%). Teaching experience ranged from under five years (22.4%) to over twenty years (18.6%). This diverse sample provided comprehensive perspectives on facility maintenance.

**Research Question One: Classroom Facility Maintenance**

**Table 4.1: Descriptive Statistics for Classroom Facility Maintenance Items**

| S/N | Item Description | N | Mean | SD | Interpretation |
|---|---|---|---|---|---|
| 1 | Student table maintenance | 790 | 3.65 | 1.24 | High |
| 2 | Chalkboard functionality | 790 | 2.93 | 1.31 | Moderate |
| 3 | Teaching aid preservation | 790 | 3.52 | 1.18 | High |
| 4 | Projector operational status | 790 | 2.09 | 0.97 | Low |
| 5 | Computer equipment upkeep | 790 | 2.40 | 1.05 | Low |
| 6 | Student chair condition | 790 | 3.52 | 1.22 | High |
| 7 | Waste disposal system | 790 | 4.25 | 0.88 | Very High |
| 8 | Student register maintenance | 790 | 3.38 | 1.15 | High |
| 9 | Posted classroom rules | 790 | 4.40 | 0.79 | Very High |
| 10 | Lesson documentation | 790 | 2.46 | 1.08 | Low |
| **Cumulative** | | **790** | **3.38** | **1.09** | **High** |

Note: Interpretation based on mean ranges: 1.00-1.80 (Very Low), 1.81-2.60 (Low), 2.61-3.40 (Moderate), 3.41-4.20 (High), 4.21-5.00 (Very High)*

Table 4.1 reveals substantial variation across classroom facility types. Posted classroom rules ($\bar{x}$ = 4.40) and waste disposal systems ($\bar{x}$ = 4.25) received very high maintenance ratings, indicating consistent attention to these elements. Student tables ($\bar{x}$ = 3.65), teaching aids ($\bar{x}$ = 3.52), student chairs ($\bar{x}$ = 3.52), and student registers ($\bar{x}$ = 3.38) received high to moderate ratings.

However, technological facilities showed concerning patterns. Projectors ($\bar{x}$ = 2.09), computers ($\bar{x}$ = 2.40), and lesson documentation ($\bar{x}$ = 2.46) received low maintenance ratings, suggesting these resources receive inadequate attention despite their growing educational importance.

Chalkboard maintenance ($\bar{x}$ = 2.93) fell in the moderate range, indicating room for improvement even for traditional instructional tools.

The cumulative mean of 3.38 exceeds the 3.00 threshold, indicating that overall, classroom facility maintenance positively relates to academic achievement. However, the wide item variation suggests targeted interventions for technology resources.

**Research Question Two: Library Facility Maintenance**

**Table 4.2: Descriptive Statistics for Library Facility Maintenance Items**

| S/N | Item Description | N | Mean | SD | Interpretation |
|---|---|---|---|---|---|
| 1 | Library furniture condition | 790 | 2.75 | 1.21 | Moderate |
| 2 | Bookshelf maintenance | 790 | 2.69 | 1.18 | Moderate |
| 3 | Library space adequacy | 790 | 2.63 | 1.15 | Moderate |
| 4 | Library computer functionality | 790 | 2.50 | 1.09 | Low |
| 5 | Online resource availability | 790 | 2.15 | 0.95 | Low |
| 6 | Photocopier operational status | 790 | 2.42 | 1.06 | Low |
| 7 | Journal currency and condition | 790 | 2.32 | 1.02 | Low |
| 8 | Textbook maintenance | 790 | 2.86 | 1.24 | Moderate |
| 9 | Cupboard condition | 790 | 2.39 | 1.04 | Low |
| 10 | Reference material upkeep | 790 | 2.44 | 1.07 | Low |
| **Cumulative** | | **790** | **2.56** | **1.10** | **Low** |

Table 4.2 presents concerning findings regarding library facility maintenance. No item achieved a mean score above 3.00, and eight of ten items fell in the low or moderate range. Textbook maintenance ($\bar{x}$ = 2.86), library furniture ($\bar{x}$ = 2.75), bookshelf condition ($\bar{x}$ = 2.69), and library space ($\bar{x}$ = 2.63) received moderate ratings, suggesting minimal attention to these basic resources.



More troubling, online resources ($\bar{x}$ = 2.15), journal currency ($\bar{x}$ = 2.32), cupboard condition ($\bar{x}$ = 2.39), photocopier functionality ($\bar{x}$ = 2.42), reference material upkeep ($\bar{x}$ = 2.44), and library computer maintenance ($\bar{x}$ = 2.50) received low ratings. These findings indicate systemic neglect

of library resources, particularly technology-mediated resources essential for contemporary research.

The cumulative mean of 2.56 falls substantially below the 3.00 threshold, indicating that library facility maintenance inadequately supports academic achievement. This finding suggests critical intervention needs for Kaduna State school libraries.

## Hypothesis Testing

### Hypothesis One: Classroom Facilities

**Table 3: ANOVA Results for Classroom Facilities**

| Source | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 4.067 | 2 | 2.034 | 0.153 | 0.859 |
| Within Groups | 22435.772 | 1683 | 13.331 | | |
| Total | 22439.839 | 1685 | | | |

*Significance level: $p < 0.05$*

The ANOVA results ($F(2,1683) = 0.153$, $p = 0.859$) indicate no statistically significant difference among principals', teachers', and ministry officials' perceptions regarding classroom facility maintenance's impact on academic achievement. Since $p = 0.859 > 0.05$, the null hypothesis is retained.

### Hypothesis Two: Library Facilities

**Table 4: ANOVA Results for Library Facilities**

| Source | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 4.978 | 2 | 2.489 | 0.267 | 0.766 |
| Within Groups | 15692.569 | 1683 | 9.324 | | |
| Total | 15697.547 | 1685 | | | |

*Significance level: $p < 0.05$*

The ANOVA results ($F(2,1683) = 0.267$, $p = 0.766$) reveal no statistically significant difference among respondent groups regarding library facility maintenance's impact on academic achievement. With $p = 0.766 > 0.05$, the null hypothesis is retained.

## Discussion of findings

### Classroom Facilities and Academic Achievement

The finding that classroom facility maintenance positively relates to academic achievement aligns with established educational research while extending understanding to Kaduna State's context. Posted classroom rules' very high maintenance rating ($\bar{x} = 4.40$) suggests that schools prioritize visible behavioral expectations, consistent with Brophy's (2016) emphasis on environmental arrangement supporting classroom management.

Waste disposal system maintenance ($\bar{x} = 4.25$) received similarly high ratings, indicating attention to sanitation and physical comfort. This finding supports Usman's (2016) observation that well-maintained facilities enhance educational service delivery. When students learn in clean, orderly environments, they receive implicit messages about institutional standards and personal responsibility.

However, technology resource neglect presents cause for concern. Projector maintenance ($\bar{x} = 2.09$) and computer upkeep ($\bar{x} = 2.40$) received low ratings despite growing technology integration in Nigerian education. This finding diverges from Adebayo and Olaniyi's (2025) Lagos State research, where technology facilities received greater attention. Contextual factors may explain this disparity: Kaduna State schools face unique challenges including inconsistent power supply, limited technical expertise, and resource constraints affecting technology maintenance capacity.

Chalkboard maintenance's moderate rating ($\bar{x} = 2.93$) suggests that even traditional instructional tools receive inconsistent attention. Given chalkboards' universal availability and continued importance in resource-constrained settings, this finding indicates missed opportunities for low-cost instructional improvement through basic maintenance.

The stakeholder consensus revealed through ANOVA ($F = 0.15$, $p = 0.86$) strengthens finding reliability. When principals, teachers, and Ministry officials share perceptions, evidence suggests objective conditions rather than subgroup biases. This consensus aligns with Chukwuemeka et al.'s (2024) findings from Enugu State, where stakeholder groups agreed on facility conditions despite disagreeing about responsibility allocation.

## Library Facilities and Academic Achievement

The finding that library facility maintenance inadequately supports academic achievement (cumulative mean = 2.56) represents this study's most concerning result. All ten library items fell below the 3.00 threshold, indicating systemic neglect rather than isolated deficiencies.

Online resource maintenance ($\bar{x} = 2.15$) received the lowest rating, reflecting broader challenges with technology integration in Nigerian school libraries. As Aliazas et al. (2021) emphasized, contemporary libraries must provide technology access alongside traditional collections. Kaduna State schools appear to lag in this dimension, potentially limiting students' research capabilities and digital literacy development.

Journal currency ($\bar{x} = 2.32$) and reference material upkeep ($\bar{x} = 2.44$) received low ratings, suggesting collections lack current, authoritative resources. Mnqwazi (2024) documented similar patterns in Western Cape academic libraries, where collection development lags behind user needs. In secondary education contexts, outdated materials may misinform students or discourage library utilization entirely.

The moderate ratings for basic resources—textbooks ($\bar{x} = 2.86$), furniture ($\bar{x} = 2.75$), bookshelves ($\bar{x} = 2.69$), and space ($\bar{x} = 2.63$)—indicate minimal attention to library infrastructure. While exceeding technology-related ratings, these scores still fall short of supporting optimal library utilization. Okafor and Ibrahim (2026) found that library condition strongly predicts student visitation; Kaduna State's low library maintenance ratings may therefore predict underutilization with associated achievement consequences.

Stakeholder consensus on library inadequacy ($F = 0.27$, $p = 0.77$) indicates shared recognition of deficiencies across all groups. This consensus creates opportunity for collective action: when all stakeholders acknowledge problems, coordinated solutions become possible. However, consensus without action perpetuates the status quo, suggesting need for accountability mechanisms translating awareness into improvement.

## Conclusions

Based on findings Classroom facility maintenance significantly enhances students' academic achievement in public secondary schools in Kaduna State, particularly where behavioral guidelines and sanitation standards are properly maintained. However, inadequate upkeep of technological tools such as computers and projectors, as well as poor maintenance of library facilities—especially online resources, journals, and reference materials—limits instructional effectiveness and students' access to quality learning materials. Although principals, teachers, and Ministry officials share a common understanding of these deficiencies, the persistent gap between classroom and library maintenance suggests institutional priorities that undervalue the critical role of libraries in educational development.

## Recommendations

**Based on the findings the following recommendation are made:**

i. School administrators should prioritize the regular maintenance of instructional technology resources—particularly projectors and computers—through established maintenance schedules and dedicated budget allocations to ensure these critical tools effectively support teaching and learning in public secondary schools.

ii. The Ministry of Education should establish dedicated library modernization funding and digital resource subscription programs to ensure public secondary schools maintain current journals, functional online facilities, and adequate reference materials that promote independent learning and research skills among students.

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