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SPATIAL-TEMPORAL UTILISATION OF SCHOOL FACILITIES AND TEACHERS' PERFORMANCE IN KWARA STATE, NIGERIA

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Abstract

The persistent mismatch between their availability and utilisation of educational facilities continues to undermine teaching and learning outcomes in Nigeria. This study examined the relationship between spatial-temporal utilisation of school facilities and teachers job performance in public senior secondary schools in Kwara State, Nigeria. A descriptive survey research design was employed targeting 133 schools in Kwara Central from which 98 were randomly selected. Data were collected using the Physical Resource Checklist (PRC) and the Teachers Job Performance Evaluation Questionnaire (TJPEQ; reliability = .72) and analysed with descriptive statistics and Pearson Product-Moment Correlation (PPMC). Findings revealed that while classrooms (101%) and libraries (135%) were generally adequate, laboratories (70%) remained insufficient. Classrooms were over-utilized with Time Utilization Rate of (106.7%) while laboratories (72%) and libraries (79.8%) were only moderately used. Space Utilisation Rate analysis showed near-capacity (98.97%), underused laboratories (72%) and severely overstretched libraries (200.6%). A weak but significant positive relationship was found between spatial-temporal utilisation and teachers' performance ($r = .211, < .05$). The study concluded that the challenge in Kwara State is not the availability of resources but their uneven distribution and insufficient use which constrains teacher effectiveness. It was therefore recommended that policymakers prioritise needs-based allocation, spatial-temporal planning should be strengthened, government should invest in critical infrastructure expansion and capacity for effective resource use should be built.

Keywords: Spatial-temporal utilisation, school facilities, teacher performance, educational planning, public secondary schools

1. Introduction

Education is a fundamental pillar of national development, and its success largely depends on how well teachers execute their roles. Teachers serve as the primary facilitators of knowledge, skills, and values among learners. Therefore, teacher job performance is the extent to which teachers fulfill their professional duties and responsibilities within the school environment. Their performance is typically assessed through measurable indicators that capture core teaching functions of teachers which includes; lesson delivery, classroom management and time management. Beyond these indicators their effectiveness is also influenced by the physical resource and temporal conditions under which they operate. However, teachers' ability to deliver quality instruction, manage the classroom environment, and engage students meaningfully is often constrained or enhanced by the condition, availability, and accessibility of educational facilities. Similarly, when instructional time is mismanaged or encroached upon by systemic inefficiencies, teachers' performance is negatively affected. Thus, the spatial-temporal utilisation of physical resources such as classrooms, laboratories, libraries, does not only reflect the efficiency of school management but also serve as a critical determinant of teachers' job performance.

The spatial-temporal utilization of educational facilities refers to the extent to which physical school resources such as classrooms, laboratories, libraries, staff rooms, and other instructional spaces are accessed, distributed, and effectively engaged across both physical space and instructional time. This concept emerges from the recognition that infrastructure alone does not deliver educational outcomes; rather, it is the optimized use of these spaces in alignment with teaching schedules and pedagogical needs that drives improvement in teaching and learning (UNESCO, 2022). This approach moves beyond the binary assessment of availability or inadequacy of infrastructure to consider how well existing resources are used across space and time to support teaching and learning (UNESCO, 2022; Organization for Economic Co-operation and Development [OECD], 2023). This perspective emphasizes that educational outcomes are shaped not only by the quantity of physical inputs but also by the patterns of their use.

From a spatial perspective, utilization involves the physical distribution and accessibility of educational resources within the school setting. This includes the layout of learning spaces, the positioning of subject-specific rooms such as science laboratories or vocational workshops, and the extent to which room capacity aligns with student enrollment. In many school systems, Spatial inefficiencies remain evident in public senior secondary schools in Kwara State despite increased government investment in the education sector. Over the past

six years, education's share of the state budget has risen significantly from 10% in 2018 to 26% in 2024, alongside an 8% increase in the number of senior secondary schools, which grew from 377 in 2018 to 412 in 2024. This expansion aims to accommodate the rising number of junior secondary school graduates transitioning to senior secondary education. However, as Omidiji (2025) reports, while many public senior secondary schools in Kwara State now possess an excess of classrooms, adequate laboratories, and functional library spaces, there remains a critical disparity in their distribution across schools and local governments. These imbalances have led to a situation where some schools experience underutilization of facilities while others face over-utilization, resulting in overcrowded general-purpose classrooms and idle specialized spaces such as laboratories and libraries. This uneven pattern is symptomatic of spatial inefficiencies, often rooted in poor infrastructural planning and a lack of alignment between facility provision and pedagogical needs. Such inefficiencies hinder effective curriculum delivery and diminish teacher performance, particularly in science and technology subjects that depend heavily on practical engagement (Udu & Eze, 2022).

Temporal utilization, on the other hand, refers to how frequently and effectively these educational facilities are used within an academic cycle, whether daily, weekly, or termly. A facility may be structurally sound and strategically located, yet contribute minimally to instructional quality if left idle due to poor scheduling, inadequate planning, or administrative restrictions. For example, in several schools across Kwara State, laboratories are only scheduled for use once a week, and in some instances, remain locked for extended periods. Similarly, libraries are frequently excluded from academic timetables, thus limiting access for both teachers and students (World Bank, 2020; Ekundayo & Alonge, 2023). These issues highlight the importance of aligning both spatial and temporal dimensions of facility use to improve teaching performance and educational delivery across the state.

2. Statement of the Problem

Considering the increased investments in educational facilities in Kwara State, there remains the persistent mismatch between their availability and utilisation of these resources. Classrooms in many senior secondary schools are filled far beyond capacity making it difficult for teachers to manage lessons effectively, while laboratories and libraries often remain idle. This imbalance in spatial and temporal use of facilities undermines teachers' ability to deliver quality instruction, manage classrooms efficiently and adopt innovative

teaching strategies., thereby weakening the overall job performance of teachers. However, the challenge is not the provision of resources but their optimal distribution and utilisation across space and time as ineffective planning continues to distort the teaching-learning process. Without addressing these inefficiencies the heavy investment in infrastructure will fail to translate into meaningful improvements in instructional quality, teacher effectiveness and students' learning outcomes. Hence, the examined the relationship between spatial-temporal utilisation of school facilities and teachers' performance in Kwara State, Nigeria.

3. Purpose of the Study

The purpose of this study was to examine the relationship between spatial-temporal utilisation of school facilities and teachers' performance in Kwara State, Nigeria. Specifically, the study examined the:

- i. level of available physical resources in public senior secondary schools in Kwara State, Nigeria.
- ii. level of Time Utilisation Rate (TUR) in public senior secondary schools in Kwara State, Nigeria.
- iii. level of Space Utilisation Rate (SUR) in public senior secondary schools in Kwara State, Nigeria.

4. Research Questions

- i. What is the level of available physical resources in public senior secondary schools in Kwara State, Nigeria?
- ii. What is the level of Time Utilisation Rate (TUR) in public senior secondary schools in Kwara State, Nigeria?
- iii. What is the level of Space Utilisation Rate (SUR) in public senior secondary schools in Kwara State, Nigeria?

5. Hypothesis

Ho: There is no significant relationship between spatial-temporal utilisation of school facilities and teachers' performance in Kwara State, Nigeria.

6. Review of Related Literatures

The relationship between educational resources and teachers' job performance has received considerable attention in Nigeria, but most studies have approached the issue from the angle

of availability rather than utilization. For example, Uwaleke et al. (2024) investigated availability and utilization of educational resources in public secondary schools in the Federal Capital Territory, Abuja. Using descriptive survey design, they established that while resources were generally scarce, even the available ones were poorly utilized, producing only low and insignificant relationships with teachers' job performance. Their study underscored the persistent problem of underutilisation but was limited by its emphasis on broad resource categories (material, human, financial) without disaggregating how space and time utilization specifically affect teachers' daily classroom practice.

Oyewole and Salami (2023) examined space and facility utilization in Kwara State secondary schools. Their findings revealed that many classrooms and laboratories remained underutilized, largely due to poor scheduling, inadequate maintenance, and lack of teacher involvement in planning. This suggests that the bottleneck in resource use is not merely structural scarcity but also organizational inefficiency. Similarly, Ibrahim and Olayemi (2022), in a study spanning Kwara and Kogi States, showed that inadequate infrastructure and high teacher–student ratios undermined teacher productivity, reinforcing the view that teacher performance is shaped not only by individual competence but also by systemic provision and management of resources.

Omosidi et al (2021) compared public and private secondary schools in Kwara State, revealing that while private schools faced higher teacher overutilization, public schools suffered from severe shortages of physical resources. This imbalance highlighted how structural inadequacies in public schools exacerbate inefficiencies in resource use, leaving teachers unable to manage classrooms effectively or sustain high-quality lesson delivery. Further precision was added by Ibrahim and Jimoh (2021), who applied quantitative measures such as Space Utilization Rate (SUR) and Time Utilization Rate (TUR) in Kwara Central. Their results indicated underuse of classrooms (SUR as low as 40%) and laboratories (TUR averaging 45%), demonstrating that facilities often exist but are not engaged optimally in instructional processes.

7. Methodology

This study adopted a descriptive survey research design to examine the spatial-temporal utilisation of school facilities and teachers' performance in Kwara State, Nigeria. The population of the study comprised all 412 public senior secondary schools in Kwara State. A sample of 98 public senior secondary schools were randomly selected from Kwara Central

Senatorial District through simple random sampling technique using the Research Advisor (2006) sample size table at 95% confidence level and 5% margin of error. Two instruments were used for data collection: firstly, the Physical Resource Checklist (PRC), adapted from Omosidi et al. (2021) which was used to assess the availability, distribution, and adequacy of classroom, laboratories, and libraries. Secondly, the Teachers' Job Performance Evaluation Questionnaire (TJPEQ) designed to measure teachers' effectiveness in lesson delivery, classroom management, and time management with a reliability coefficient of 0.72. Resource adequacy was rated as; grossly inadequate (0-33%), moderately adequate (34-66%), highly adequate (67-100%), or excess (>100%), while utilization was classified as underutilized (<50%), fairly utilized (50-69%), moderately utilized (70-99%), optimally utilized (100%), or over-utilized (>100%). Data were analysed using descriptive statistics (bar chart) and Pearson Product-Moment Correlation (PPMC), with SPSS employed to ensure accuracy and robust interpretation.

8. Result of Findings

Research Question 1: What is the level of available physical resources in public senior secondary schools in Kwara State, Nigeria?

Figure 1: Availability of Physical Resources in Public Senior Secondary Schools in Kwara State, Nigeria

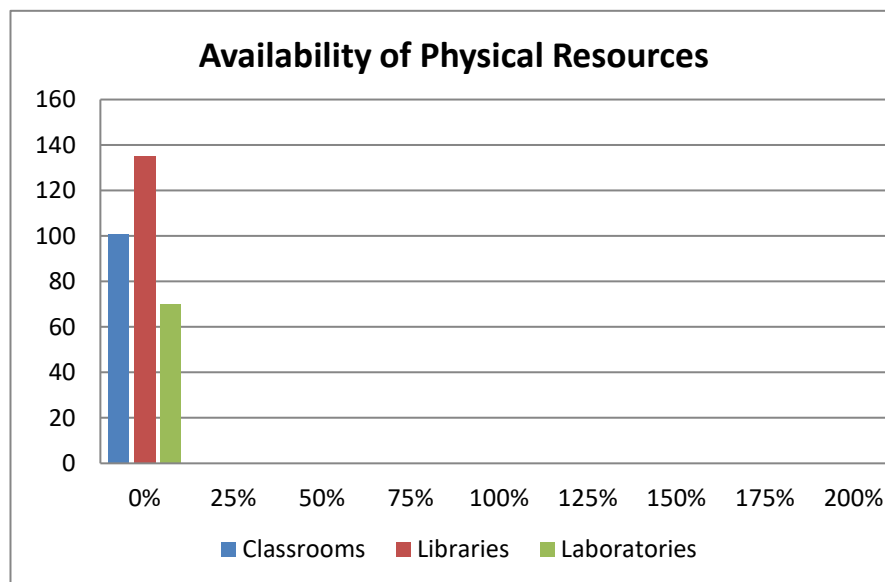


Figure 1 revealed the level of available physical resources in public senior secondary schools in Kwara State, Nigeria. Physical facilities were unevenly distributed with classrooms representing (101%), libraries (135%) and laboratories (70%). It implies that classrooms and libraries were available in excess, while laboratories were the least but highly adequate.

Research Question 2: What is the level of Time Utilisation Rate (TUR) in public senior secondary schools in Kwara State?

Table 1: Time Utilisation Rate (TUR) in Public Senior Secondary Schools in Kwara State

LG A	N S	CLASSROOM				LABORATORY				LIBRARY			
		NC L	AT	ATU	TU R (%)	NLA B	A T	AT U	TU R (%)	NLI B	A T	AT U	TU R (%)
Asa	18	114	3306	3504	106	8	54	48	88.9	17	102	77	75.5
Ilori n East	26	253	7337	7750	105.6	23	207	113	54.6	39	234	184	78.6
Ilori n Sout h	20	212	6148	6758	109.5	11	99	86	86.9	23	138	117	84.8
Ilori n Nort h	34	345	10005	10571	105.6	27	243	187	77	54	324	259	79.9
Tota l	98	924	26796	28583	106.7	69	603	434	72	133	798	637	79.8

N.B: LGA = Local Government Area, AT = Available Time for Use, NS = Number of Sampled Public Senior Secondary Schools, ATU = Actual Time used, NCL = Number of Available Classrooms, TUR = Time Utilisation Rate, NLIB = Number of Available Libraries, NLAB = Number of Available Laboratories

The analysis of Time Utilisation Rate (TUR) in public senior secondary schools in Kwara State, Nigeria revealed variations in the temporal use of classrooms, laboratories, and libraries. Classrooms were generally over-utilised, with an average TUR of 106.7%, meaning they were used beyond the standard instructional time. This reflects challenges such as over-enrolment, timetable congestion, and insufficient classroom space, which may compromise instructional quality and teacher effectiveness. Similarly, laboratories were moderately

utilised, with an TUR of 72%. Consequently, libraries were moderately utilised, with an average TUR of 79.8%.

Research Question 3: What is the level of Space Utilisation Rate (SUR) in public senior secondary schools in Kwara State, Nigeria?

Table 2: Space Utilisation Rate (SUR) in Public Senior Secondary Schools in Kwara State, Nigeria

L G A	N S	CLASSROOM				LABORATORY				LIBRARY				
		N C L	AN S	CL C	SUR (%)	NL IB	AV NS	CL IB	SUR (%)	NL AB	AN SS	AV NSS	CL AB	SUR (%)
As a	1 8	11 4	2,8 96	456 0	63.5	17	580	69 5	83.5	17	970	323	320	100. 9
Ilo rin Ea st	2 6	25 3	7,9 53	101 20	78.5 9	39	312 5	33 15	94.3	39	272 1	907	920	98.6 %
Ilo rin So uth	2 0	21 2	9,3 90	848 0	110. 71	23	904	12 65	71.5	23	307 1	102 3	440	232. 5
Ilo rin No rth	3 4	34 5	16, 342	138 00	118. 42	54	376 4	43 20	87.1	54	985 2	328 4	108 0	304 %
To tal	9 8	92 4	36, 581	369 60	98.9 7	13 3	837 1	95 96	87.3	69	16, 614	553 7	276 0	200. 6

N.B: NS = Number of Sampled Schools, NCL = Number of Available Classrooms, ANS = Actual Number of Students, CLC = Capacity of Available Classrooms, NLIB = Number of Available Libraries, AVNS = Average Number of Student that uses the Library, CLIB = Capacity of Available Libraries, NLAB = Number of Available Laboratories, ANSS = Actual Number of Science Students, AVNSS = Average Number of Science Students using Available Laboratories per time, CLAB = Capacity of Available Laboratories, SUR = Space Utilisation Rate .

The analysis of Space Utilisation Rate (SUR) in public senior secondary schools in Kwara State, Nigeria revealed variations in space utilisation of classrooms, laboratories, and libraries. Classrooms recorded a very high utilisation rate of 98.97%, indicating that they are moderately engaged. Similarly, libraries revealed an utilisation rate of 87.3%, though moderate as regards utilisation but still show under-engagement. Laboratories revealed the sharpest imbalance with an utilisation rate of 200.6%, reflecting severe overstretching. This implies that while classrooms and libraries are moderately used while laboratories are grossly overstretched beyond their available capacity, posing significant challenges to effective teaching and learning processes.

Ho: There is no significant relationship between spatial-temporal utilisation and teachers' performance in Kwara State, Nigeria.

Table 3: Relationship between Spatial-Temporal Utilisation and Teachers Job Performance

Variables	N	df	r	Sig(p)	Decision
Spatial-Temporal Utilisation	98	96	.211	.037	Significant
Teachers' job Performance	98	96			
N.B: p< .05 = Significant, p> .05 = Not Significant					

Table 3 revealed a weak but significant positive relationship between spatial-temporal utilisation and teachers' job performance ($r = .211$, $p = .037$) in public senior secondary schools in Kwara State, Nigeria. Given that the P-value is less than 0.05 level of significance, the null hypothesis is rejected. This implies that improvement in how facilities are allocated and utilised even if modest are associated with teachers' job performance.

9. Discussion of Findings

The result of research question one revealed a stark disparity among schools. The implication of this is that over-allocation in some schools may lead to under-utilization and eventual deterioration, while under-resourced schools risk compromising the quality of teaching and learning. This indicates that the mere presence of resources does not guarantee improved efficiency. The excess resources and disparities across schools emphasize systemic issues such as inequitable distribution of resources, lack of dynamic needs assessment, and the absence of data-driven planning. The result of these findings contradicts the study of Wordu and Botimi-Slaboh (2023), which revealed that physical facilities are highly insufficient in Nigerian schools, as well as the findings of Omosidi et al. (2021), who concluded that public schools in Kwara State face severe shortages of physical resources.

The analysis of the Time Utilisation Rate (TUR) in public senior secondary schools in Kwara State revealed an overall temporal imbalance, as classroom spaces were overstretched while laboratories and libraries were not maximally engaged. This situation implies that while teachers are overburdened with large class sizes and limited opportunities for innovative pedagogy, students are deprived of the practical learning, independent study, and critical thinking skills that laboratories and libraries are meant to foster. The under-utilisation observed in these facilities affirms the conclusion of Ibrahim and Jimoh (2021), who noted that facilities often exist in schools but are not optimally engaged in instructional processes. Similarly, Gbenu, Akinyemi, and Lawal (2020) found in Lagos State tertiary institutions that classrooms were overcrowded whereas other facilities remained under-utilised, suggesting that this imbalance is systemic across education levels.

The result of research question three revealed clear imbalances across facilities, as classrooms are used close to full capacity with some schools experiencing overcrowding, libraries are only moderately utilised but remain under-engaged, while laboratories are severely overstretched beyond their available capacity. This imbalance undermines effective teaching and learning by overburdening teachers, constraining instructional quality, and denying students adequate opportunities for practical and independent learning. It also reflects inefficiencies in planning and resource management that directly compromise educational outcomes across the state. These findings corroborate Ngware et al. (2021), who observed that uneven and inefficient use of educational spaces contributes significantly to weak instructional quality and student outcomes in sub-Saharan Africa. Similarly, UNESCO (2022) highlighted that ineffective planning, coupled with uneven utilisation of classrooms, laboratories, and libraries, undermines the capacity of schools to deliver holistic education, particularly in resource-constrained settings. Together, these studies affirm that the imbalances identified in Kwara State are part of a wider structural challenge where poor planning and resource mismanagement translate into compromised learning experiences for students.

The hypothesis tested on the relationship between spatial-temporal utilisation and teachers' job performance revealed a statistically significant relationship between the two variables, with the correlation analysis showing a weak but positive association ($r = .211$, $p = .037$). This finding implies that the effective utilisation of physical resources is a decisive factor in enhancing teachers' job performance, as the way classrooms, laboratories, and libraries are managed directly determines the efficiency, motivation, and instructional quality of teachers. In other words, resource utilisation is not a peripheral issue but a core determinant of teacher

effectiveness and educational quality. The analysis of spatial utilisation further indicates a dual challenge, characterised by over-reliance on general-purpose classrooms and the under-utilisation of specialised facilities such as laboratories and libraries. These inefficiencies reflect a broader problem of spatial-temporal utilisation and highlight the importance of aligning infrastructural availability with instructional needs. The findings are consistent with the conclusions of Ibrahim and Olayemi (2022) and Bello and Yusuf (2021), who emphasised that teacher performance is not solely dependent on individual effort but is significantly shaped by the adequacy and proper use of institutional facilities. They further established that when school resources are poorly utilised or insufficient, teachers often experience demotivation, increased workload, and stress, which ultimately impair their performance.

10. Conclusion

The study highlighted that while public senior secondary schools in Kwara State possess a substantial stock in physical resources, inefficiencies in their spatial and temporal utilization continue to undermine teachers' job performance. However, investment in infrastructure though commendable can not on its own guarantee improvement in instructional quality unless matched with policies and practices that optimise resource utilisation. To improve teacher effectiveness and educational outcomes, attention must therefore shift from quantity to quality of utilisation with emphasis on equitable distribution, effective planning and integration of specialised facilities into daily instructional delivery. Hence, strengthening spatial-temporal planning in resource management will lead to reducing overcrowding, support teacher performance and improve the efficiency of the educational system in Nigeria.

11. Recommendations

Based on the findings of this study, the following recommendation were made:

- i. Policymakers should address the imbalance in facility distribution by reallocating surplus classrooms and libraries to schools with shortages while expanding laboratories to support science instruction.
- ii. School administrators should integrate classrooms, laboratories and libraries more effectively into teaching schedule to reduce overuse of some facilities and underuse of others.

- iii. Educational authorities should prioritize the optimization of classroom, laboratory, and library spaces through balanced planning, equitable allocation, and effective integration into teaching and learning processes.
- iv. Teachers and administrators should receive training on efficient facility utilisation and innovative instructional practices to maximise the benefits of available resources.

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