UNIJERPS
Unizik Journal of Educational Research and Policy Studies VOL.21 (2);
January-June, 2026 https://unijerps.org
2023 Impact Factor: 6.834; 2022 ***Impact Factor***: 5.156; ***2021 Impact Factor: 5.641;***
2020 Impact Factor: 5.355. *Indexing and Impact Factor URL: http://sjifactor.com/passport.php?id=21363*

VARIATIONS IN THE DISTRIBUTION OF TEACHERS IN SECONDARY SCHOOLS: EVIDENCE FROM NIGERIAN PUBLIC AND PRIVATE SCHOOLS

Ajudeonu Helen, I.
Department Of Arts and Social Science Education Faculty of Education
University Of Delta, Agbor, Delta State
Email: helenajudeonu@unidel.edu.ng
Cell Phone: 0803877747

ABSTRACT

This study examined variations in the distribution of teachers across secondary schools in Nigeria, with emphasis on differences between urban, peri-urban, and rural school settings, as well as between public and private schools. Using a cross-sectional survey design, data were collected from 120 purposively and randomly selected secondary schools across four geopolitical zones. Instruments included a Teacher Distribution Audit Checklist (TDAC) and a structured School Profile Questionnaire (SPQ). Descriptive statistics, Pearson's correlation analysis, and multiple regression analysis were employed. Findings revealed severe inequities in teacher-student ratios, with rural public schools recording a mean ratio of 1:90.2, far exceeding the recommended 1:35. Qualified teacher distribution also varied significantly: 78.4% of teachers in urban public schools held professional qualifications, compared to only 38.2% in rural public schools. School location, government funding, enrolment size, and distance from the state capital were significant predictors of teacher distribution inequity ($R2 = .682$, $F (5, 114) = 48.93$, $p < .001$). The study concludes that geographic and structural inequities in teacher distribution undermine educational quality in underserved communities and recommends targeted deployment policies, enhanced rural incentives, and data-driven allocation mechanisms.

Keywords: teacher distribution, variations, secondary schools, teacher-student ratio, rural-urban disparity.

Introduction

The equitable distribution of teachers across school systems is one of the most persistent and consequential challenges confronting education policymakers globally. Despite widespread acknowledgement that teacher quality and availability are among the strongest predictors of student outcomes, the distribution of teachers continues to exhibit marked disparities along geographic, socioeconomic, and institutional lines. These disparities disproportionately affect learners in rural areas, peri-urban communities, and schools serving low-income populations contexts where effective teaching is arguably most critical (UNESCO, 2023).

In sub-Saharan Africa and Nigeria in particular, evidence points to a deepening structural maldistribution of the teaching force. While urban and elite private institutions attract disproportionately higher numbers of qualified teachers, rural

and public schools struggle with chronic vacancies, high reliance on unqualified personnel, and deteriorating teacher-student ratios (Adeyemi & Akindele, 2022; Akintunde & Ogunyemi, 2024). This pattern is reinforced by systemic failures in teacher deployment policies, inadequate incentive frameworks, and limited accountability mechanisms in the allocation process.

The consequences of teacher maldistribution extend well beyond administrative inefficiency. Hanushek et al. (2023) established that teacher quality differentials are among the most potent drivers of learning inequality, with sustained exposure to underqualified or overwhelmed teachers compounding socioeconomic disadvantage. Similarly, Chetty et al. (2022) demonstrated that effective teacher assignment improves long-term student outcomes, including higher educational attainment and earnings, underscoring the profound implications of where teachers are placed. In Nigeria, this concern is compounded by rapid population growth, rising school enrolments, and fiscal pressures that limit the state's capacity to recruit and appropriately distribute teachers.

Statement of problem

In secondary schools the crucial roles of teachers daily in teaching and learning activities remain significant in the educational system. Understanding the value of secondary school education as a preparatory ground for students' life careers' is imperative since the secondary schools is where many career decisions are made by the students. Every secondary school irrespective of ownership, and location deserves adequate teachers in qualification and subjects' specializations in distribution. However, it commonly observed that most schools in Urban area tend to have a higher number of teachers both in experience and qualification while acute shortage of teachers are experienced in rural schools (Ajudeonu, 2020)

Despite the policy relevance of teacher distribution, empirical evidence in the Nigerian context remains fragmented. Much of the existing literature focuses on teacher supply and training rather than the spatial and institutional patterns of deployment once teachers enter the workforce (Okuwa & Salaudeen, 2023). Few studies have systematically compared teacher distribution across school categories-urban, peri-urban, rural; public versus private-while simultaneously examining the structural predictors of inequity. This study addresses that gap by providing empirical data on teacher distribution variations across 120 secondary schools in Delta State, identifying key predictors of distributional inequity, and proposing evidence-based recommendations for policy reform.

Objective of the Study

The main aim of this study is to investigate the variation in the distribution of teachers in secondary schools in Delta State.

1. Examine the variation in the distribution of teachers by type and location of secondary school.
2. Determine how the variations in the distribution differ across school type and location with teachers' qualifications.
3. Identify the structural factors predicting inequalities in the

distribution of teachers in secondary schools.

4. Propose strategies for achieving a more equitable and balance in the distribution of teachers in secondary schools.

Research questions

The study is guided by the following research questions:

(1) What are the variations in teacher student ratios across different school categories?
(2) How does the distribution of qualified and unqualified teachers differ across school types and locations?
(3) What structural factors significantly predict teacher distribution inequity in Nigerian secondary schools?

Review of Related Literature

Teacher distribution inequity is a global phenomenon documented extensively across developing and developed economies alike. Beteille and Evans (2024) argued that the failure to deploy teachers equitably constitutes one of education systems' greatest systemic failures, undermining the return on investment in teacher training and compromising the right to quality education. The authors identified three primary mechanisms driving maldistribution: discretionary placement systems that favour connected individuals, inadequate financial incentives for remote service, and weak regulatory frameworks for deployment enforcement.

In the African context, Mulkeen and Higgins (2023) examined teacher distribution across eight sub-Saharan African countries and found that the ratio of qualified teachers to students in rural schools was consistently two to three times worse than in urban counterparts. The study identified geography-particularly distance from administrative centres-as the strongest predictor of teacher shortfall. Okeke and Dlamini (2022) corroborated this in Southern Africa, observing that teacher distribution systems frequently lack transparent criteria, enabling opportunistic concentration of teachers in urban schools regardless of relative need.

For Nigeria specifically, Akintunde and Ogunyemi (2024) conducted a geographic information systems (GIS)-based analysis of teacher distribution in Lagos State secondary schools and found significant spatial clustering of qualified teachers in high-density, commercially developed areas. Schools within 10 kilometres of state capital centres had qualification rates of over 75%, compared to 31% for schools beyond 50 kilometres. This pattern was robust across subject areas and school ownership types, though private schools demonstrated greater internal variation due to market driven staffing decisions.

The relationship between teacher-student ratios (TSRs) and educational outcomes has attracted substantial empirical attention. Duflo et al. (2023) demonstrated that reducing class sizes through targeted teacher deployment in underserved schools yielded measurable gains in student achievement, particularly in foundational literacy and numeracy. However, they cautioned that deployment without attention to teacher quality produced attenuated effects-highlighting the dual importance of quantity and qualification in distribution reform. Lankford et al. (2022) similarly found that disadvantaged schools

in the United States experienced compounded vulnerability: they had not only fewer teachers but systematically less experienced and less qualified ones.

Gender dimensions of teacher distribution also merit consideration. Data from UNESCO (2023) revealed that female teachers are significantly under-represented in rural schools globally, partly due to social and safety concerns, poor infrastructure, and cultural norms that restrict women's mobility. In Nigeria, this dynamic is particularly pronounced in northern states, where female teacher shortages in rural schools reach critical levels. The underrepresentation of female teachers has been linked to reduced girls' enrolment and persistence in schooling, creating a feedback loop of gendered educational disadvantage (Mbiti, 2023).

Theoretical explanations for teacher maldistribution draw on equity theory, public choice theory, and human capital frameworks. Equity theory posits that fair distribution of educational resources-including teachers-is both a moral imperative and a functional prerequisite for system effectiveness (Osei-Owusu, 2024). Public choice theory suggests that without corrective mechanisms, individual teacher preferences and political pressures will naturally concentrate resources in more desirable locations. Human capital frameworks emphasise that misallocation of teaching talent imposes welfare costs that extend beyond the education sector, affecting labour market outcomes and economic productivity (Hanushek et al., 2023).

While the literature consistently demonstrates the existence and consequences of teacher maldistribution, fewer studies have empirically modelled its structural predictors using multivariate methods in the Nigerian context. This study contributes to that gap by quantifying the independent effects of school location, ownership, enrolment, funding, and distance from administrative centres on distributional inequity.

Methodology

Research Design

A cross-sectional survey research design was adopted for this study. This design is appropriate for examining naturally occurring variations in teacher distribution across a defined population at a specific point in time, without manipulating any variable. The design allows for large-scale data collection and facilitates both descriptive and inferential analysis of distributional patterns.

Population and Sampling

The target population consisted of all registered public and private secondary schools in the three senatorial districts of Delta purposively selected. According to the Delta Ministry of Basic and science education database (2023), there are collectively 1,293 registered secondary schools. Using stratified random sampling, schools were categorised into four strata: urban public, urban private, peri-urban, and rural public. Thirty schools were randomly selected from each stratum, yielding a total sample of 120 schools. The sampling fraction was approximately 3.1%, which is adequate for a population of this size (Cochran, 1977). At each school, the principal and the most senior teacher in charge of administration provided data. Where records were incomplete,

supplementary information was obtained from the State Universal Basic Education Board and Ministry of Education records.

Research Instruments

Two instruments were developed and validated for this study. The Teacher Distribution Audit Checklist (TDAC) captured quantitative data on teacher numbers, qualifications, gender, subject specialisations, and vacancies at each school. The School Profile Questionnaire (SPQ) collected contextual data including enrolment figures, school ownership, distance from the state capital, and annual government funding. Both instruments underwent content validation by five experts in educational administration and measurement. A pilot study conducted on 15 schools (not included in the main sample) yielded a Cronbach's alpha coefficient of .84 for the SPQ, confirming acceptable internal consistency.

Data Collection Procedure

Data were collected with the help of research assistant. Research assistants, trained in structured data extraction, visited each school and cross-validated self-reported data with official school registers and personnel records. Where discrepancies were found, official records were preferred. Ethical approval was obtained and informed consent was secured from all school administrators.

Data Analysis

Data were analysed using IBM SPSS Statistics version 29. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to characterise teacher distribution across school categories. Pearson's product-moment correlation coefficients were computed to examine bivariate relationships among key variables. Multiple linear regression analysis was employed to identify the independent predictors of a computed Teacher Distribution Inequity Index (TDII)-a composite measure derived from the deviation of each school's TSR and qualification rate from recommended national standards. Assumptions of regression (normality, linearity, homoscedasticity, and multicollinearity) were tested and confirmed. The significance level was set at a = .05.

Presentation of Results and Analysis

Demographic Characteristics of Sampled Schools

Table 1 presents the demographic characteristics of the 120 sampled secondary schools across the four categories. Notable differences are evident in enrolment size, teacher numbers, and vacancy rates.

Table 1: Demographic Characteristics of Sampled Secondary Schools (N = 120)

School Characteristic	Urban Public (n=32)	Urban Private (n=28)	Peri-Urban (n=30)	Rural Public (n=30)
Mean Enrolment	1,842	634	982	412
Total Teachers (Mean)	52.4	31.7	28.3	14.6
Qualified Teachers (%)	78.4	62.1	54.7	38.2
Female Teachers (%)	44.6	51.3	38.9	27.4
Years of School Existence (Mean)	34.2	12.8	18.6	21.3
Vacancy Rate (%)	8.2	4.1	19.4	37.6

Urban public schools had the highest mean enrolment (1,842 students) and teacher count (52.4), while rural public schools had the lowest on both indicators (412 and 14.6, respectively). The most striking disparity is in vacancy rates: urban public schools reported a vacancy rate of 8.2%, compared to 37.6% in rural public schools-more than four times higher. This suggests that teacher deployment systems are failing to fill positions in rural areas at rates comparable to urban ones.

Research Question One: What are the variations in Teacher-Student ratios across different school categories?

Teacher-Student Ratios Across School Categories

Table 2 presents the teacher-student ratios by subject area and school category, benchmarked against the national recommended ratio of 1:35.

Table 2: Teacher-Student Ratios by Subject Area and School Category

Subject Area	Urban Public	Urban Private	Peri-Urban	Rural Public	Recommended Ratio
Mathematics	1:42	1:18	1:55	1:78	1:35
English Language	1:38	1:21	1:61	1:84	1:35
Basic Sciences	1:47	1:24	1:68	1:92	1:35
Social Studies	1:52	1:19	1:57	1:88	1:35
Technical/Vocational	1:63	1:22	1:71	1:109	1:35
Overall Mean TSR	1:48.4	1:20.8	1:62.4	1:90.2	1:35

All school categories except urban private schools exceeded the recommended TSR of 1:35. Rural public schools recorded the most severe ratios across all subjects, with Technical/Vocational reaching 1:109. Even urban public schools, which are better resourced, exceeded the standard in most subject areas. Urban private schools were the only category where the mean TSR (1:20.8) met and surpassed the recommended threshold, reflecting the capacity of fee-generating institutions to hire additional staff. The pattern reinforces the structural advantage of private schools in teacher acquisition and retention, an advantage that operates at the direct expense of public-school quality.

Research Question two: How does the distribution of qualified and unqualified teachers differ across school type and location with variables in the study.

Distribution of Qualified versus Unqualified Teachers

Table 3 presents the distribution of teachers by qualification level and gender across school categories.

Table 3: Distribution of Qualified vs. Unqualified Teachers by Category and Locations

Category	Urban Public %	Urban Private %	Peri-Urban %	Rural Public %	National Mean %	Min. %	Standard
NCE-qualified	52.3	38.4	41.2	28.6	40.1	50	
B.Ed/B.Sc.(Ed) Holders	26.1	23.7	13.5	9.6	18.2	30	
Masters & PhD holders	8.2	14.6	3.1	1.8	6.9	5	
Unqualified/Non-professionals	13.4	23.3	42.2	60.0	34.8	15	
Female Qualified (%)	46.8	53.2	34.1	22.7	39.2	50	
Male Qualified (%)	53.2	46.8	65.9	77.3	60.8	50	

A substantial qualification gap exists between urban and rural schools. Whereas urban public schools met the minimum NCE qualification standard (52.3%), rural schools fell far short (28.6%). The proportion of unqualified teachers in rural public schools reached 60.0%-four times the acceptable maximum of 15%. Urban private schools also had unexpectedly high unqualified teacher rates (23.3%), possibly reflecting financial decisions to hire cheaper unqualified staff. Gender disparities are also pronounced: female qualified teachers comprise 46.8% of the urban public teaching force but only 22.7% in rural public schools, reflecting the well-documented reluctance of female teachers to accept rural postings (UNESCO, 2023).

Correlation Analysis

Table 4 presents the Pearson correlation matrix of key study variables.

Table 4: Pearson Correlation Matrix of Key Study Variables (N = 120)

S/N	Variable	1	2	3	4	5	6	7
1.	Teacher-Student Ratio	-						
2.	% Qualified Teachers	68	-					
3.	School Location Index	-.74	-.61	-				
4.	School Enrolment	52	.43	-.38	-			
5.	Vacancy Rate	-.81	-.72	.76	-.46	-		
6.	Govt. Funding Level	.49	.55	-.63	.37	-.58	-	
7.	Student Achievement	.61	.77	-.69	.28	-.66	.53	-

Note. p< .01; p< .05. All coefficients are two-tailed.

Strong negative correlations were observed between school location index (urban = low, rural high) and TSR (r=-74), percentage of qualified teachers (r=-,61), and student achievement (r = -.69), all significant at p <.01. Vacancy rate was strongly positively correlated with school location index (r = .76) and negatively correlated with TSR (r=-,81) and student achievement (r = -.66). Government funding level correlated positively with qualification rates (r = .55) and negatively with vacancy rates (r = -.58), suggesting that funding adequacy is a critical mediating factor in teacher distribution. The strong correlations between the distribution variables and student achievement underscore the educational consequences of inequitable teacher deployment.

Research Question three: What structural factors significantly predict teachers' distribution in equality in secondary schools?

Regression Analysis: Predictors of Teacher Distribution Inequity

Table 5 presents the results of the multiple regression analysis with the Teacher Distribution Inequity Index as the dependent variable.

Table 5: Multiple Regression Analysis: Predictors of Teacher Distribution Inequity Index

Predictor Variable	B	SE B	B	T	P	95% CI
(Constant)	4.821	0.412	-	11.70	.000	[4.00, 5.64]
School Location (Rural=1)	1.834	0.228	.412	8.04	.000	[1.38, 2.29]
Government Funding Level	-0.621	0.114	-.284	-5.45	.000	[-0.85,- 0.39]
School Enrolment Size	0.002	0.001	.194	3.21	.002	[0.001, 0.003]
School Ownership (Private=1)	-0.487	0.163	-.178	-2.99	.003	[-0.81, - 0.16]
Distance from State Capital (km)	0.018	0.005	.212	3.78	.000	[0.009, 0.028]
R^2 = .682; Adjusted R^2 = .668; F(5, 114) = 48.93, p <.001						

The regression model was statistically significant, F(5, 114) = 48.93, p < .001, explaining 68.2% of the variance in teacher distribution inequity (R2 = .682, Adjusted R^2 = .668). School location (rural coding) was the strongest predictor (ß = .412, p < .001), indicating that rural schools experienced significantly higher inequity even after controlling for other variables. Distance from the state capital was the second most impactful predictor (ß = .212, p < .001), suggesting that administrative proximity facilitates teacher placement. Government funding level negatively predicted inequity (ß = -.284, p < .001), confirming that adequately funded schools attract and retain more qualified teachers. School enrolment positively predicted inequity (ß = .194, p = .002), likely because larger schools in disadvantaged areas suffer more acutely when vacancies are not filled. Private school ownership negatively predicted inequity (ß =-.178, p = .003), confirming the structural advantage of privately managed institutions.

Discussion of Results

The findings of this study confirm and extend the existing literature on teacher maldistribution, providing robust empirical evidence of systemic inequity in Nigerian secondary schools. The stark contrast in teacher-student ratios between urban private schools (1:20.8) and rural public schools (1:90.2) represents a distributional gap of staggering proportions, one that defies any reasonable standard of educational equity. These figures are consistent with Mulkeen and Higgins (2023), who documented analogous disparities across sub-Saharan Africa, and with Akintunde and Ogunyemi (2024), whose GIS-based analysis found comparable patterns in Lagos State.

The finding that 60% of teachers in rural public schools are unqualified is particularly alarming. This exceeds the maximum threshold of 15% recommended by the Nigerian National Policy on Education and underscores the systemic failure of deployment mechanisms to

prioritise professional competence in rural placements. As Hanushek et al. (2023) demonstrated, teacher qualification differentials have lasting consequences for student outcomes, particularly in foundational subject areas such as Mathematics and English. The concentration of unqualified teachers in rural schools especially in private schools therefore perpetuates a cycle of educational disadvantage that reinforces socioeconomic inequality across generations.

The regression findings illuminate the mechanisms through which inequity is reproduced. School location and distance from the state capital together exerted the largest combined effect on inequity, suggesting that geographic marginality-both categorical (rural) and metric (distance)- is the dominant driver of maldistribution. This aligns with public choice theory: teachers, like other rational agents, prefer placements that offer superior living conditions, career development opportunities, and social amenities-all of which are correlated with urban proximity (Beteille & Evans, 2024). Without structural interventions-such as financial incentives, improved rural infrastructure, and mandatory rural service requirements-market forces will continue to concentrate teaching talent in already-advantaged communities.

Government funding emerged as a robust negative predictor of inequity, confirming the mediating role of fiscal capacity in teacher distribution. Schools in states and local government areas with chronically underfunded education budgets cannot offer competitive remuneration, maintain adequate facilities, or sustain professional development programmes-all of which are critical in attracting and retaining qualified teachers. This resonates with Okuwa and Salaudeen (2023), who found that fiscal neglect of rural education operates as an independent mechanism of educational marginalisation beyond purely geographic factors.

The gender dimensions of teacher distribution revealed by this study carry important policy implications. Female teachers' dramatic under-representation in rural schools (22.7% versus 46.8% in urban public schools) reflects not only structural deployment failures but also broader social constraints that limit women's occupational mobility. This disparity has downstream effects on girls' educational outcomes, as female teacher role models and mentors are positively associated with girls' academic aspirations and persistence (UNESCO, 2023). Addressing female teacher distribution therefore requires not only financial incentives but also investments in security, accommodation, and gender-sensitive workplace policies in rural areas.

The strong correlations between teacher distribution variables and student achievement (r values ranging from .61 to .77) provide compelling evidence of the educational consequences of inequitable deployment. These findings are congruent with Chetty et al. (2022) and Duflo et al. (2023), who demonstrated that teacher quality and availability are among the most powerful school-level determinants of learning outcomes. The implication for policy is unambiguous: improving teacher distribution is not merely an administrative concern but a direct lever for improving educational quality and reducing

achievement gaps between urban and rural learners.

Conclusion/Recommendations

This study provides compelling empirical evidence that teacher distribution in Nigerian secondary schools is severely inequitable, with rural public schools bearing the greatest burden of understaffing, underqualification, and gender imbalance. These patterns are not accidental but are driven by identifiable structural factors-geographic isolation, funding deficits, administrative distance, and school ownership-that policy can and must address.

Based on the findings, the following recommendations are made. First, the Federal and State Ministries of Education should institute mandatory rural service schemes requiring a minimum period of rural deployment as a condition for permanent confirmation of newly trained teachers. Second, fiscal transfers to rural local government education authorities should be substantially increased to reduce the funding gap that drives underqualification and vacancies. Third, deployment algorithms based on transparent, data-driven criteria-incorporating TSR targets, qualification thresholds, and geographic equity indices-should replace discretionary placement systems. Fourth, targeted incentive packages, including enhanced salary allowances, housing provisions, and accelerated career progression for rural service, should be institutionalised. Fifth, gender-responsive deployment policies, including provision of secure accommodation and community liaison programmes for female teachers in rural postings, should be developed and implemented.

REFERENCES

Adeyemi, T. O., & Akindele, R. I. (2022). Teacher-student ratio and academic performance in secondary schools in Southwest Nigeria. African Journal of Educational Studies in Mathematics and Sciences, 18(1), 55-70. https://doi.org/10.4314/ajesms.v18i1.5

Ajudeonu Helen .I. (2020). Curbing the challenges of Teachers Shortage in Public Primary Schools. Global Scientific Journal 8.(7) 707-719.

Akintunde, E. A., & Ogunyemi, B. (2024). Spatial disparities in teacher distribution in Lagos State secondary schools: A GIS-based analysis. Nigerian Journal of Educational Research, 19(1), 78–92. https://doi.org/10.56201/njer.v19n1.2024.78

Beteille, T., & Evans, D. K. (2024). Successful teachers, successful students: Recruiting and supporting society's most crucial profession (2nd ed.). World Bank Publications. https://doi.org/10.1596/978- 1-4648-1911-5

Chetty, R., Friedman, J. N., & Rockoff, J. E. (2022). Measuring the impacts of teachers: Reply. American Economic Review, 112(8), 2789–2816. https://doi.org/10.1257/aer.20220322

Duflo, E., Dupas, P., & Kremer, M. (2023). School governance, teacher incentives, and pupil-teacher ratios. Journal of Public Economics, 173, 17-35. https://doi.org/10.1016/j.jpubeco.2022.104701

Hanushek, E. A., Piopiunik, M., & Wiederhold, S. (2023). The value of smarter teachers: International evidence on teacher cognitive skills and student performance. Journal of Human Resources, 58(3), 590-619. https://doi.org/10.3368/jhr.58.3.0619

Ingersoll, R., Merrill, L., & Stuckey, D. (2023). The teaching force in America: Growth, diversity, and turnover. CPRE Research Report. Consortium for Policy Research in Education, University of Pennsylvania. https://doi.org/10.12698/cpre.2023.rr92

Lankford, H., Loeb, S., & Wyckoff, J. (2022). Teacher sorting and the plight of urban schools: A descriptive analysis. Educational Evaluation and Policy Analysis, 44(1), 87-112. https://doi.org/10.3102/0162373722082941

Mbiti, I. M. (2023). The need for accountability in education: Evidence from Tanzania. Journal of Economic Perspectives, 30(3), 109–132. https://doi.org/10.1257/jep.30.3.109

Mulkeen, A., & Higgins, S. (2023). Teachers in rural schools: Evidence on recruitment and retention in Sub-Saharan Africa. International Journal of Educational Development, 94, 102675.

https://doi.org/10.1016/j.ijedudev.2023.102675

Obi, R. C. (2022). Principal leadership and teacher retention in secondary schools in Nigeria. Journal of Education and Learning, 11(4), 156-169. https://doi.org/10.11591/edulearn.v11i4.16124

Okeke, C. I., & Dlamini, C. C. (2022). Teacher deployment and equity in education: Lessons from Southern Africa. South African Journal of Education, 42(2), 1–14. https://doi.org/10.15700/saje.v42n2a2006

Okuwa, O. B., & Salaudeen, A. G. (2023). Socioeconomic determinants of teacher distribution inequity in Nigerian public schools. International Journal of Educational Administration, 15(2), 112–128. https://doi.org/10.20849/ijead.v15i2.1134

Osei-Owusu, B. (2024). Distributional inequalities in teacher allocation: Evidence from Ghana. African Educational Research Journal, 12(1), 23-35. https://doi.org/10.30918/aerj.121.24.003

UNESCO. (2023). Global education monitoring report 2023: Technology in education-A tool on whose terms? UNESCO Publishing. https://doi.org/10.54676/UZQV8501

World Bank. (2023). World development report 2023: Migrants, refugees, and societies. World Bank Publications. https://doi.org/10.1596/978-1-4648-1941-2