GREAT JOURNS

Journal of Education

Vol.1 No.2, July 2026

Staffing Status and Learners' Achievement in Public Comprehensive Schools in Navakholo Sub-County, Kakamega County, Kenya

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Great Journs
ISSN: 2328-4870
Vol.1 No.2, July, 2026

Journal homepage: www.greatjourns.com

ABSTRACT

Staffing conditions, the adequacy, distribution, and stability of teaching personnel are widely regarded as a foundational input into the quality of curriculum delivery. This study examined the influence of staffing status on learners' achievement in public comprehensive schools in Navakholo Sub-County, Kakamega County, Kenya, within the context of Kenya's Competency-Based Education (CBE) reform and the Kenya Primary School Education Assessment (KPSEA). The study was guided by the null hypothesis that staffing status has no statistically significant influence on learners' achievement. A mixed-methods design was adopted, combining a descriptive survey of 210 teachers drawn from 54 public comprehensive schools through stratified and systematic sampling, with a qualitative interview of the Teachers Service Commission (TSC) Sub-County Director of Education. Quantitative data were analysed using descriptive statistics, Pearson correlation, and multiple regression, while qualitative data were analysed thematically. The findings revealed a positive and statistically significant relationship between staffing status and learners' achievement ($r = 0.305$, $p < 0.01$), and staffing status was confirmed as a significant predictor of achievement in the regression model ($\beta = 0.240$, $p < 0.001$), ranking among the two strongest predictors alongside leadership behaviour. Qualitative findings corroborated the quantitative results, with the Sub-County Director identifying teacher shortages, workload pressure, deployment gaps, and subject mismatch as major constraints on effective CBE implementation. The null hypothesis was therefore rejected. The study concludes that adequate, equitable, and promptly replenished staffing is a critical determinant of learners' achievement and recommends that the Teachers Service Commission strengthen teacher recruitment, ensure equitable deployment, and prioritise subject-specialisation matching in public comprehensive schools.

Keywords: *Staffing status, Learners' achievement, Competency-Based Education, KPSEA, Public comprehensive schools, Kakamega County*

Great Journs
ISSN: 2328-4870
Vol.1 No.2, July, 2026

1. INTRODUCTION

Kenya's transition from the examination-driven 8-4-4 system to Competency-Based Education (CBE) represented a deliberate shift toward learner-centred pedagogy and the cultivation of practical, demonstrable skills. Unlike its predecessor, the CBE model relies on continuous, formative assessment culminating in the Kenya Primary School Education Assessment (KPSEA) at Grade Six. The success of this model, however, is heavily contingent on the presence of adequate and well-deployed teaching staff, since the individualized attention, project-based instruction, and continuous assessment that CBE demands are labor-intensive by design.

Nationally, Kenya continues to grapple with a substantial teacher shortage. A national workforce audit indicates that only 18,378 teachers have been posted against an established need of 83,899, leaving a deficit exceeding 100,000 teachers, with barely a fifth of serving teachers trained in STEM subjects and over a third of schools lacking a STEM specialist altogether (Magwaga & Kikechi, 2024). Independent assessments corroborate the resulting learning deficits: national audits and independent reviews confirm that more than half of primary school learners fail to reach standard baseline benchmarks in foundational literacy and numeracy, with only about one-fifth of learners performing at grade-level competency.

At the devolved level, Kakamega County exhibits persistent internal variance in foundational skill acquisition. While neighbouring sub-counties demonstrate comparatively stable performance under identical capitation funding arrangements, Navakholo Sub-County has recorded a continuing downward trajectory across consecutive KPSEA assessment cycles. This localized underachievement, occurring despite uniform macro-level resource allocation, strongly suggests that internal institutional dynamics chief among them staffing shortages, uneven teacher distribution, and subject-specialization mismatches are mediating how national policy translates into classroom outcomes.

1.1 Statement of the Problem

Public comprehensive schools in Navakholo Sub-County continue to experience acute teacher shortages, uneven staff distribution, and sub-optimal deployment relative to subject specialization, even as the CBE curriculum imposes heavier instructional demands than the system it replaced. While the theoretical value of adequate staffing to learning outcomes is well established in the broader scholastic literature, there remains a distinct empirical gap concerning how staffing status specifically influences learners' achievement under the unique pressures of rural CBE delivery in Navakholo Sub-County. Without localised, evidence-based analysis, policy responses risk being generic and poorly targeted to the specific staffing dynamics of the sub-county. This study addressed this gap by empirically examining the influence of staffing status on learners' achievement in public comprehensive schools in Navakholo Sub-County, Kakamega County.

1.2 Objective and Hypothesis of the Study

The study was guided by the following objective: to examine the influence of staffing status on learners' achievement in public comprehensive schools in Navakholo Sub-County, Kakamega County, Kenya.

H0: There is no statistically significant influence of staffing status on learners' achievement in public comprehensive schools in Navakholo Sub-County, Kakamega County.

The findings are expected to inform the Teachers Service Commission (TSC), County and Sub-County education officers, and school leaders on how recruitment, deployment, and subject-specialization decisions can be optimized to strengthen CBE implementation and improve KPSEA outcomes.

1.3 Justification of the Study

Standardized curriculum reforms under CBE have not eliminated wide disparities in learners' achievement across public comprehensive schools in Kenya. School-related variables particularly staffing conditions have a direct bearing on the quality of the teaching process and, by extension, on student achievement (Harinarayanan & Pazhanivelu, 2018). The low literacy and numeracy competencies recorded in Kakamega County can plausibly be attributed, at least in part, to persistent teacher shortages, underscoring the need for empirically grounded, context-specific evidence. This study sought to generate such evidence by isolating and testing the specific contribution of staffing status to learners' achievement, thereby providing education officers, school leaders, and policymakers with data-driven insight into whether, and to what extent, staffing interventions can be expected to move the needle on CBE outcomes.

2. LITERATURE REVIEW

The literature on institutional determinants of learners' achievement consistently identifies staffing as a foundational, if not sufficient, condition for effective curriculum delivery. This section reviews empirical studies on staffing status and its relationship with learners' achievement, situating the present study within this wider body of evidence and identifying the specific gap it addresses.

Staffing status encompassing teacher supply, deployment, subject specialization, and the teacher-to-student ratio is a well-documented determinant of learners' achievement. Understaffing poses a direct threat to curriculum implementation under CBE in Kenya. A national report shows a substantial deficit of teachers in public schools, with only 18,378 teachers posted against a requirement of 83,899, leaving more than 100,000 vacancies; only 21 percent of serving teachers are trained in STEM subjects, and 35 percent of schools have no STEM teacher at all (Magwaga & Kikechi, 2024). These imbalances undermine the learner-centred aspirations of CBE by limiting the individualized instructional attention the model requires.

Otieno (2024) examined teacher deployment challenges in public secondary schools in Nandi County using a descriptive survey of 64 teachers, 32 principals, and one county director. The study found unequal distribution of teachers and a tendency for teachers to be assigned subjects

outside their specialization, resulting in work overload, reduced motivation, and diminished teaching quality. These deployment problems were attributed to weak policy mechanisms and political interference, pointing to the need for more strategic human resource planning — a gap the present study addressed by examining staffing status, deployment, and subject specialization in the specific context of Navakholo Sub-County.

In Murang'a County, Kaloki, Mwaniki, and Kanga (2024) used a correlational design with 360 teachers and principals, sampled through stratified and purposive techniques, to examine the relationship between staffing and educational quality. They found that an unfavourable student-teacher ratio was strongly and negatively correlated with academic performance, while schools with optimal staffing recorded higher engagement in co-curricular activities and stronger completion rates. Their conclusion that sufficient staffing is imperative for holistic student success provided a direct empirical foundation for the present study's focus on teacher deployment and subject specialization.

Esther, Maurice, and Michael (2025) investigated teacher preparedness in junior secondary schools in Kirinyaga County using a descriptive design combining questionnaires and interviews with 374 participants. They found a moderate positive relationship between the quality of education and teacher preparedness encompassing education, experience, and in-service training ($r = .324$, $p < .001$). Notably, most teachers surveyed were required to teach outside their area of specialisation, undermining effective CBE pedagogy. This finding motivated the present study's exploration of teacher deployment and staffing sufficiency in relation to KPSEA achievement in Navakholo Sub-County.

Musyoki (2024), studying Taveta Sub-County using a mixed-methods approach, found that understaffing and the absence of subject specialization compromised schools' readiness to implement CBE, with teachers frequently compelled to teach subjects about which they had little knowledge a mismatch that adversely affected learner engagement with competency-based concepts. This body of evidence collectively points to staffing sufficiency and appropriate deployment as central, though under-examined, determinants of learners' achievement in the rural Kenyan CBE context the empirical gap this study sought to close.

2.1 Theoretical Framework

This study was anchored on the Education Production Function (EPF) theory, which conceptualises learning outcomes as the output of a functional relationship between educational inputs and physical or human resource factors (Hanushek, 1979; Pritchett & Filmer, 1997). Within this framework, staffing status is treated as a critical input variable: the quantity, distribution, and specialisation-fit of teachers directly shape the instructional capacity of a school and, by extension, the achievement levels of its learners.

Great Journs
ISSN: 2328-4870
Vol.1 No.2, July, 2026

3. METHODOLOGY

3.1 Research Design

The study adopted a mixed-methods design, combining a quantitative descriptive survey with a qualitative exploratory strand. Mixed-methods designs add breadth and depth to findings by combining the analytical utility of numerical data with the descriptive richness of qualitative accounts (Mackey & Bryfonski, 2018). The quantitative component gathered data from teachers on staffing status and learners' achievement, enabling the researcher to identify patterns and statistical relationships across a large sample (Palinkas et al., 2011). The qualitative strand involved an in-depth interview with the TSC Sub-County Director of Education, enabling triangulation and strengthening the validity of the findings (Alavi & Hąbek, 2016).

3.2 Study Area and Population

The study was conducted in public comprehensive schools in Navakholo Sub-County, Kakamega County an area of approximately 258 km² comprising five wards, located on undulating terrain at an elevation of roughly 1,240–2,000 metres. The sub-county is part of Kenya's nationwide transition to CBE, supported by teacher training programmes and county education initiatives, though rural infrastructure challenges continue to constrain consistent implementation. The target population comprised 482 teachers drawn from 54 public comprehensive schools and the TSC Sub-County Director of Education.

3.3 Sampling Procedure and Sample Size

The study applied stratified sampling of teachers by locality (urban/rural) and staffing level (small: ≤4 teachers; medium: 5–7; large: ≥8), yielding a 2×3 stratification matrix that captured both institutional and geographic heterogeneity (Orodho, 2012; Kothari, 2004). Within each stratum, teachers were selected through systematic random sampling proportionate to stratum population. The TSC Sub-County Director of Education was purposively selected as a key informant given their central supervisory role (Maxwell, 2012).

The teacher sample size was computed using Yamane's (1967) formula for a finite population at the 95 percent confidence level (margin of error, e = 0.05):

$$n = N / (1 + N e^2) = 482 / (1 + 482(0.05)^2) \approx 219$$

A 10 percent allowance was added to guard against non-response (Israel, 1992), yielding a final sample of 241 teachers. Of these, 210 fully completed and usable questionnaires were returned, giving a response rate of 87.1 percent, which is considered adequate for statistical generalisation.

3.4 Instrumentation, Reliability and Validity

Data were collected using a structured, closed-ended questionnaire administered to teachers, and a semi-structured interview schedule administered to the TSC Sub-County Director. Closed-ended items minimise response bias and facilitate systematic statistical analysis (Babbie & Mouton, 2001; Kipkebut, 2010). The staffing-status subscale of the questionnaire achieved a

Great Journs
ISSN: 2328-4870
Vol.1 No.2, July, 2026

Cronbach's alpha reliability coefficient consistent with acceptable internal consistency thresholds, following a pilot test in a comparable adjacent sub-county. Content validity was established through expert review by educational research specialists and university supervisors, while construct validity was achieved by mapping items directly onto the study's theoretical framework (Clark & Watson, 2019).

3.5 Data Analysis

Quantitative data were coded and analysed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive statistics (means and standard deviations) summarised teacher perceptions of staffing status, while Pearson correlation and multiple regression analysis tested the relationship and predictive influence of staffing status on learners' achievement, alongside two other institutional predictors included in the wider study (Wickham, 2016). Qualitative data from the Sub-County Director's interview were transcribed verbatim and analysed thematically, following iterative coding to identify recurring patterns related to staffing (Stuckey, 2015). Quantitative and qualitative results were subsequently triangulated to strengthen the credibility of the conclusions (Saunders et al., 2012).

4. RESULTS AND FINDINGS

4.1 Descriptive Findings on Staffing Status

Descriptive analysis revealed a moderately positive perception of staffing status among teachers in public comprehensive schools in Navakholo Sub-County, with mean scores on all items slightly above the midpoint of the five-point scale, indicating general though not strong agreement that staffing conditions were satisfactory. The highest-rated item concerned the speed of teacher replacement by the TSC (M = 3.305, SD = 1.077), reflecting relatively high confidence in this process, albeit with considerable variation in opinion. The use of Board of Management (BOM)-employed teachers to fill staffing gaps was also viewed positively (M = 3.252, SD = 0.800). Ratings for the adequacy of subject-specific staffing (M = 3.133, SD = 0.887) and fairness of workload distribution (M = 3.110, SD = 0.814) were more moderate, leaning toward neutral and suggesting persistent concerns about balance in teacher allocation across subjects and duties.

Statement	Mean	Std. Deviation
All subjects have enough teachers	3.1333	.88655
The workload is fairly distributed	3.1095	.81400
The school has employed most teachers on BOM terms	3.2524	.79959
TSC does teacher replacement swiftly	3.3048	1.07716

Table 1: Descriptive Statistics — Staffing Status and Learners' Achievement

Great Journs
ISSN: 2328-4870
Vol.1 No.2, July, 2026

4.2 Correlation Between Staffing Status and Learners' Achievement

Pearson correlation analysis revealed a positive and statistically significant relationship between staffing status and learners' achievement ($r = 0.305$, $p < 0.01$), indicating a fairly strong association in which better staffing arrangements sufficient teacher numbers, fair distribution, and prompt replacement were linked to higher achievement. This relationship was independent of chance, confirming staffing status as an important correlate of learner outcomes. Staffing status was also weakly but significantly correlated with instructional supervision ($r = 0.214$, $p < 0.01$), and weakly and non-significantly correlated with head of institution (HOI) leadership ($r = 0.123$, $p > 0.05$), suggesting that staffing conditions in this context operate largely independently of leadership quality.

4.3 Regression Analysis: Predictive Influence of Staffing Status

A multiple regression model including staffing status, instructional supervision, and HOI leadership as predictors of learners' achievement was statistically significant overall ($F(3, 206) = 16.837$, $p < 0.001$), explaining 19.7 percent of the variance in learners' achievement ($R^2 = 0.197$; Adjusted $R^2 = 0.185$). Within this model, staffing status emerged as a significant, positive predictor of learners' achievement ($B = 0.294$, $\beta = 0.240$, $t = 3.750$, $p < 0.001$), ranking as one of the two strongest predictors alongside HOI leadership ($\beta = 0.242$), ahead of instructional supervision ($\beta = 0.162$). This indicates that improvements in teacher supply, fair distribution, and timely replacement translate into measurable gains in learners' achievement, holding other institutional factors constant.

Predictor	B	Std. Error	Beta (β)	t	Sig.
(Constant)	1.234	.318	—	3.877	.000
Staffing status	.294	.078	.240	3.750	.000
Instructional supervision	.146	.060	.162	2.431	.016
HOI leadership	.261	.071	.242	3.694	.000

Table 2: Regression Coefficients — Predictors of Learners' Achievement (Dependent Variable: Learners' Achievement)

4.4 Qualitative Findings on Staffing

Thematic analysis of the interview with the TSC Sub-County Director produced a dominant theme labelled Human Resource Constraints, encompassing teacher shortage, workload pressure, deployment gaps, and subject mismatch. The Director observed that understaffing and overworked teachers undermine schools' capacity to implement the learner-centred approach that CBE requires, and that assigning non-specialist teachers to subjects outside their training diminishes both teaching quality and competency attainment. This qualitative account closely mirrors the quantitative finding that staffing status is a significant, positive predictor of learners'

achievement, reinforcing the conclusion that staffing is not merely a matter of headcount but of functional fit between teacher expertise and subject assignment.

5. DISCUSSION

The results demonstrate a positive and statistically significant relationship between staffing status and learners' achievement in public comprehensive schools in Navakholo Sub-County ($r = 0.305$, $p < 0.01$), confirmed in the regression model as a significant predictor ($\beta = 0.240$, $p < 0.001$). This indicates that stronger teacher supply, fairer deployment, and timelier workload distribution are systematically associated with higher levels of learners' achievement, thereby rejecting the null hypothesis that staffing status has no statistically significant influence on learners' achievement.

These findings align closely with Magwaga and Kikechi (2024), who documented severe national teacher shortages and unequal STEM staffing distribution, and extend their concern by empirically demonstrating that staffing conditions also shape achievement at the primary school level. Similarly, Otieno (2024) found that unequal teacher distribution and out-of-specialisation teaching produced work overload and reduced teaching quality in Nandi County a pattern consistent with the deployment inefficiencies suggested by the present study's results in Kakamega County.

The findings are further corroborated by Kaloki et al. (2024), who established that poor student-teacher ratios are negatively associated with academic performance, and that optimal staffing yields achievement gains. The present study extends this by showing that staffing conditions are not merely correlated with, but statistically predictive of, variation in KPSEA outcomes. Likewise, Esther et al. (2025) found a positive association between teacher preparedness and achievement, with specialisation gaps negatively affecting pedagogy a pattern consistent with the present study's confirmation that staffing status, incorporating deployment and specialisation, is a meaningful determinant of performance. Musyoki (2024) similarly found that failure to assign teachers according to specialisation undermines competency-based learning, a conclusion the present results directly support.

Taken together, the evidence indicates that staffing status is among the most influential institutional factors shaping learners' achievement in this context. Schools with more effective teacher distribution and adequate staffing levels are more likely to perform well in KPSEA. However, the moderate size of the standardised coefficient also suggests that staffing operates alongside rather than independently of other institutional factors such as leadership and instructional supervision, and that a holistic approach to school improvement is required.

6. CONCLUSION

This study concludes that staffing status exerts a positive and statistically significant influence on learners' achievement in public comprehensive schools in Navakholo Sub-County, Kakamega County. Adequate teacher numbers, equitable workload distribution, appropriate subject-specialisation matching, and prompt replacement of departing teachers are consistently associated with improved KPSEA outcomes. Staffing status ranks among the strongest predictors

of achievement in the study's regression model, underscoring its centrality to effective CBE implementation. Nevertheless, staffing alone does not fully account for variation in learners' achievement; it operates in conjunction with instructional supervision and leadership practices, and a comprehensive improvement strategy must therefore address staffing alongside these complementary institutional dimensions.

7. RECOMMENDATIONS

Based on the findings, the study makes the following recommendations:

1. The Teachers Service Commission (TSC) should prioritise the recruitment of additional teachers for public comprehensive schools in Navakholo Sub-County, with particular attention to schools currently experiencing the most acute shortages.
2. Teacher deployment decisions should place greater emphasis on subject specialisation, ensuring that teachers are assigned to subjects that match their training and expertise to strengthen CBE delivery.
3. The TSC and Sub-County education office should streamline teacher replacement procedures to minimise the disruption caused by teacher transfers, resignations, or absences.
4. School leadership should implement more equitable workload distribution mechanisms among existing staff to reduce burnout and sustain instructional quality.
5. Future research should examine staffing status using longitudinal designs and larger, cross-county samples to establish causal relationships and assess the generalisability of these findings beyond Navakholo Sub-County.

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