

Research Article

Pupils' Academic Performance in the West African Senior School Certificate Examination and Its Relationship With School Leadership in Kono District, Sierra Leone

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Abstract

This study examined the relationship between school leadership and pupils' academic performance in the West African Senior School Certificate Examination (WASSCE) in Kono District, Sierra Leone. A mixed-methods cross-sectional design was adopted, integrating quantitative and qualitative approaches. Quantitative data were collected using structured questionnaires administered to 17 principals and 151 teachers, while qualitative data were obtained through semi-structured interviews with 17 Chairpersons of the Councils of Teachers' Associations (CTAs). Descriptive statistics (frequencies, percentages, means, and standard deviations) summarized respondents' perceptions. Spearman's rank-order correlation, examined relationships among leadership variables and academic performance, while binary logistic regression, identified predictors of high academic performance. Qualitative data were analyzed using thematic analysis. The findings showed that principals generally perceived WASSCE performance as poor (overall performance: $M = 2.47 \pm 1.33$), whereas teachers rated performance as moderate, with the highest rating for WASSCE pass rates ($M = 3.52 \pm 1.08$). Teachers were identified as the major contributors to high academic performance (53.6%), while inadequate parental involvement was considered the leading contributor to poor performance. Leadership motivation of teachers and principals' support for WASSCE preparation received the highest ratings ($M = 4.10$). Spearman correlation analysis revealed weak, non-significant relationships between academic performance and leadership variables, with transformational leadership showing the strongest positive association ($\rho = 0.13$). Logistic regression further indicated that leadership effectiveness ($OR = 0.89$; $p = 0.781$), teaching quality ($OR = 1.13$; $p = 0.463$), and democratic leadership ($OR = 0.84$; $p = 0.215$) did not significantly predict high academic performance. The study concludes that while effective school leadership enhances teacher motivation, instructional supervision, and examination preparation, WASSCE performance is influenced by multiple contextual factors beyond leadership alone. It recommends strengthening instructional leadership capacity, increasing parental engagement, improving teaching and learning resources, expanding boarding facilities where feasible, and implementing comprehensive interventions that address both school- and community-level factors to improve academic performance in Kono District and similar educational settings.

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Keywords

Academic Performance, WASSCE, School Leadership, Instructional Leadership, Transformational Leadership, Secondary Education, Kono District, Sierra Leone

1. Introduction

Academic performance at the secondary school level remains a critical concern across sub-Saharan Africa, where education systems continue to face challenges in improving learning outcomes and ensuring effective teaching and learning environments [1, 32]. The West African Senior School Certificate Examination (WASSCE), administered by the West African Examinations Council (WAEC), serves as a key indicator of students' academic achievement and the effectiveness of secondary education systems across West African countries, including Sierra Leone. However, despite ongoing educational reforms and increased investments, WASSCE performance continues to vary significantly among schools and regions due to factors such as teacher quality, availability of learning resources, school infrastructure, socioeconomic conditions, and management practices [2, 4, 8, 33]. Among these factors, school leadership has emerged as a critical determinant of educational quality and student achievement [24, 34, 48]. Effective principals influence academic outcomes through instructional supervision, teacher motivation, professional development, resource management, and the creation of supportive learning environments [3, 6, 18]. Nevertheless, challenges such as inadequate leadership capacity, limited resources, and administrative constraints often affect principals' ability to perform these roles effectively [5, 36].

In Sierra Leone, education has been recognized as a foundation for human capital development and national transformation. Although government reforms have expanded access, improved teacher capacity, and strengthened school management, disparities in WASSCE performance among secondary schools remain a major concern [21, 43]. Existing studies have primarily focused on student-related factors, teacher characteristics, and the availability of educational resources as determinants of academic achievement, with limited attention given to the role of school leadership in shaping learning outcomes [29, 40]. While previous research, including Lavalie [23], has examined factors influencing WASSCE performance in Sierra Leone, school leadership has received limited consideration as a key explanatory variable. Consequently, empirical evidence on the relationship between principals' leadership practices and students' academic performance, particularly at the district level, remains insufficient. This gap highlights the need to investigate how school leadership contributes to variations in WASSCE outcomes. Therefore, this study examines pupils' academic performance in the West African Senior School Certificate Examination (WASSCE) and

its relationship with school leadership in Kono District, Sierra Leone, with the aim of generating evidence to inform strategies for improving secondary school performance.

2. Research Methodology

2.1. Research Design

This study adopted a mixed-methods research design, combining a quantitative correlational approach with a qualitative interpretive approach. The mixed-methods design was selected because it provides greater explanatory power than using quantitative or qualitative methods independently. Specifically, the quantitative component enabled the statistical examination of the relationships between principals' leadership behaviours and students' WASSCE performance, while the qualitative component provided in-depth insights, contextual understanding, and richer explanations of the observed statistical relationships [12, 13]. Within this mixed-methods framework, the study employed a concurrent triangulation design, whereby quantitative and qualitative data were collected simultaneously during the same field visits, analysed independently, and integrated during the interpretation of findings [13]. This design enhanced the validity of the study by allowing findings from one method to corroborate and complement those from the other. The quantitative component adopted a correlational research design because the study sought to determine the strength and direction of the relationships between leadership behaviours and WASSCE performance without manipulating the study variables (Cohen et al., 2018). The correlational approach is appropriate for examining naturally occurring relationships and has been widely applied in studies investigating school leadership and student academic outcomes in sub-Saharan Africa [28, 46].

2.2. Description of Study Area

Kono District is one of the sixteen districts of Sierra Leone and one of the three districts that make up the Eastern Province. It shares boundaries with Koinadugu District to the northeast, Kenema District to the southwest, Kailahun District to the southeast, and the Republic of Guinea to the east. The district covers an area of approximately 5,641 km² and is located between 8°45' North latitude and 11°00' West longitude.

Administratively, Kono District is divided into fourteen chiefdoms, with Koidu City (Sefadu) serving as the district headquarters and the largest urban centre. Located about 344 km east of Freetown, Koidu City is among the five most populous cities in Sierra Leone. According to Statistics Sierra Leone [42], Kono District has an estimated population of approximately 620,000, with about one-third residing in urban areas and two-thirds living in rural communities. Although geographically located within the Eastern Province, the district is more easily accessed from the Northern Province due to relatively better road connectivity compared with routes linking it to Kenema and Kailahun districts. Historically, Kono District has been an important agricultural area, with the cultivation of crops such as rice, cocoa, and coffee contributing to local livelihoods. However, the discovery of diamonds in 1930 transformed the district's economic landscape, making mining the dominant economic activity. Today, Kono is recognized as Sierra Leone's leading diamond-producing district, with limited gold mining activities also occurring in some chiefdoms. This mineral wealth has contributed to the growth of Koidu City as a major commercial and economic centre, reflecting the district's cultural diversity and economic importance.

The district is predominantly inhabited by the Kono ethnic group, although it is also home to other ethnic communities, including the Fula, Mandingo, Mende, and Temne. Despite its significant contribution to Sierra Leone's economy through mineral production, Kono District continues to experience developmental challenges, including inadequate road infrastructure, environmental degradation associated with mining activities, and limited access to essential services. Stakeholders and local authorities have continued to advocate for increased government and development partner support to improve healthcare services, education quality, access to safe drinking water, electricity supply, and transportation infrastructure. Within the education sector, Kono District provides an important context for examining the relationship between school leadership and academic achievement due to its persistent

challenges in secondary school performance. The district recorded some of the lowest average WASSCE performance outcomes between 2020 and 2024 nationally, raising concerns about the factors influencing pupils' academic achievement. Therefore, Kono District offers a relevant setting for investigating how principals' leadership practices relate to pupils' academic performance and identifying strategies for improving secondary education outcomes in Sierra Leone.

2.3. Sampling and Sampling Techniques

The study employed purposive sampling to select participants who met specific eligibility criteria relevant to the research objectives. Owing to field limitations, only 17 of the 44 eligible senior secondary schools (39%) in Kono District were included. The reduced sample resulted from missing WASSCE master sheets (10 schools), prolonged absence of principals (6 schools), lack of eligible pin coded teachers (7 schools), and inaccessibility due to poor road conditions (4 schools). Eligible schools had to be in continuous operation from 2020–2024, with principals serving at least five consecutive years, being available during data collection, providing access to WASSCE master sheets, and having at least one government-employed (pin coded) teacher. CTA chairpersons were included only if these criteria were met. The study ensured content and face validity by aligning questionnaire items with the research objectives, adapting validated instruments from previous studies, and obtaining expert reviews from educational researchers and senior secondary school principals. The reliability of WASSCE performance data was enhanced through verification of original school master sheets against district records from the MBSSE Change Unit, with MBSSE data serving as the authoritative source where discrepancies occurred. Internal consistency of the Likert-scale questionnaires was assessed using Cronbach's alpha, with a minimum acceptable reliability threshold of 0.70.

Table 1. Total Population and Actual Sample by Participant Category.

Designation	Population (N)	Actual Sample	Proportion
Principals	44	17	39%
Pincoded Teachers	337	151	45%
CTA Chairpersons	44	17	39%
Total	425	185	44%

Source: Developed by the researcher based on MBSSE Annual School Census (2022) and field data.

2.4. Data Collection Methods

Both primary and secondary data were used in this study.

Primary data were collected directly by the researcher to address the study objectives, providing current, relevant, and context-specific information despite the time and cost involved in collection. The primary data were obtained using

two structured questionnaires administered to principals and teachers to collect quantitative information on pupils' academic performance, leadership effectiveness, instructional supervision, teacher motivation, teaching quality, and leadership behaviours. In addition, semi-structured interview guides were used to collect qualitative data from Chairpersons of the Councils of Teachers' Associations (CTAs), focusing on school leadership practices, WASSCE performance, challenges affecting academic achievement, and strategies for improving examination outcomes. The combination of questionnaires and interviews enabled the collection of both measurable data and in-depth insights into participants' experiences and perspectives. Secondary data were obtained from relevant documentary sources, including academic journals, books, government publications, institutional records, World Bank Open Data, and other publicly available databases. These sources provided background information, theoretical support, and empirical evidence that complemented the primary data and strengthened the overall analysis of the study.

2.5. Data Analysis

The quantitative data were entered into SPSS version 26 and Microsoft Excel for analysis. Data cleaning procedures were applied before analysis to identify and appropriately handle missing values, outliers, and inconsistencies. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were computed for all questionnaire items and for the WASSCE performance data across the study period. Inferential statistics specifically Pearson's product-moment correlation coefficient and Spearman's rank-order correlation coefficient were used to test the strength and direction of relationships between principal leadership style variables and WASSCE performance data. One-way ANOVA and chi-square tests were used to examine differences in performance across school type and leadership style categories. Binary logistic regression was used to predict the probability of high or low academic performance from leadership style variables. The statistical significance threshold was set at $p < 0.05$. The qualitative data from the open-ended questionnaire items were analysed thematically, following the six-phase process described by Seidman [41].

2.6. Ethical Consideration

The study adhered to established ethical principles for research involving human participants. Ethical approval was obtained from the relevant institutional research ethics committee before data collection, and permission to conduct the study in senior secondary schools in Kono District was sought and obtained from the Ministry of Basic and Senior Secondary Education (MBSSE), Kono. Participants provided voluntary informed consent after being informed about the purpose of the study, their right to withdraw at any stage, and the measures taken to protect their privacy. Confidentiality and anonymity were maintained by avoiding the collection of personal identifiers and reporting findings using codes or general descriptions. The study ensured that participation posed no harm to respondents and that data were analysed and presented objectively in accordance with research integrity principles.

3. Results and Discussion

3.1. Demographic Characteristics of the Respondents

The findings show that both principals and teachers were predominantly male, with males accounting for 82.4% of principals and 79.5% of teachers (Table 2), while females represented the minority. Principals were generally more academically qualified, with Bachelor's degrees (52.9%) being the most common qualification, whereas the largest proportion of teachers held Higher Teachers Certificates (41.1%), and only 9.3% possessed Post Graduate Diplomas. In terms of experience, most principals (82.4%) had 6–10 years of leadership experience, while nearly half of the teachers (49.2%) had more than 10 years of teaching experience, indicating a relatively experienced teaching workforce. The majority of respondents were drawn from government-assisted schools (76.2%) and co-educational schools (82.4% of principals and 79.5% of teachers), while private and single-sex schools had the lowest representation. Overall, the sample was dominated by male respondents from government-assisted, co-educational schools with substantial professional experience.

Table 2. Demographic Characteristics of Principals and Teachers.

Characteristic	Category	Principals (n=17)	Teachers (n=151)
Gender	Male	14 (82.4%)	120 (79.5%)
	Female	3 (17.6%)	31 (20.5%)
Qualification	HTC	0 (0.0%)	62 (41.1%)
	Bachelor's degree	9 (52.9%)	52 (34.4%)
	Master's degree	8 (47.1%)	23 (15.2%)

Characteristic	Category	Principals (n=17)	Teachers (n=151)
Experience	PGD	0 (0.0%)	14 (9.3%)
	Less than 5 years	0 (0.0%)	36 (23.8%)
	6-10 years	14 (82.4%)	41 (27.2%)
	More than 10 years	3 (17.6%)	74 (49.2%)
School Type	Government	1 (%)	25 (16.6%)
	Government-Assisted	15 (%)	115 (76.2%)
	Private	1 (%)	11 (7.3%)
School Category	Co-educational	14 (82.4%)	120 (79.5%)
	Single-sex male	1 (5.9%)	19 (12.6%)
	Single-sex female	2 (11.8%)	12 (7.9%)

Note: Values are frequencies with column percentages in parentheses. A dash (—) indicates the item was not applicable to that group.

3.2. Principals' Assessment of Pupils' Academic Performance at WASSCE 2020-2024

Table 3. Principals' Assessment of Pupils' Academic Performance.

Measure and Response Category	Frequency % (%)	Mean $\pm$ SD (n)
Overall WASSCE performance (2020–2024)		
Very poor	6 (35.3)	2.47 $\pm$ 1.33
Poor	2 (11.8)	
Fair	5 (29.4)	
Good	3 (17.6)	
Very good	1 (5.9)	
Pupils obtaining five credits incl. English & Mathematics		
Below 30%	10 (58.8)	3.41 $\pm$ 1.00
30–49%	4 (23.5)	
50–69%	2 (11.8)	
70–79%	0 (0.0)	
80% & above	1 (5.9)	
There has been noticeable improvement in results		
Strongly disagree	0 (0.0)	3.41 $\pm$ 1.00
Disagree	4 (23.5)	
Neutral	4 (23.5)	
Agree	7 (41.2)	

Measure and Response Category	Frequency % (%)	Mean $\pm$ SD (n)
Strongly agree	2 (11.8)	2.76 $\pm$ 0.75
Academic outcomes meet stakeholders' expectations		
Strongly disagree	0 (0.0)	
Disagree	7 (41.2)	
Neutral	7 (41.2)	
Agree	3 (17.6)	2.76 $\pm$ 0.75
Strongly agree	0 (0.0)	
Main contributor to high performance		
Pupils	3 (17.6)	
Parents	0 (0.0)	
Teachers	13 (76.5)	2.76 $\pm$ 0.75
Principals	1 (5.9)	
Government	0 (0.0)	
Main contributor to low performance		
Pupils	3 (17.6)	2.76 $\pm$ 0.75
Parents	10 (58.8)	
Teachers	3 (17.6)	
Principals	0 (0.0)	
Government	1 (5.9)	

Note. Frequencies and percentages are based on valid responses (n = 17); the mean (M) and standard deviation (SD), where shown, are computed on a 1–5 scale. Percentages may not total 100 owing to rounding.

Table 3 shows that principals generally perceived pupils’ WASSCE performance between 2020 and 2024 as low, although some improvements were observed. The highest mean score was recorded for “There has been noticeable improvement in results” ($M = 3.41$, $SD = 1.00$), indicating that some principals recognized gradual progress in examination outcomes. However, the lowest mean score was recorded for “Overall WASSCE performance (2020–2024)” ($M = 2.47$, $SD = 1.33$), reflecting widespread concerns about poor academic achievement and considerable differences in performance among schools [10, 16, 44].

Most principals reported that fewer than 30% of pupils achieved five credits, including English and Mathematics, highlighting persistent challenges in meeting WASSCE requirements. The lowest variability was observed for “Academic outcomes meet stakeholders’ expectations” ($SD = 0.75$), showing strong agreement that current performance levels remained below expectations. Principals identified teachers as the main contributors to high performance (76.5%) and parental factors as a major contributor to low performance (58.8%) [20]. The findings suggest that while some improvement has occurred, WASSCE performance in Kono District remains a concern, requiring stronger instructional support, parental engagement, and school-level interventions.

3.3. Teachers' Assessment of Pupils' Academic Performance

Table 4. Teachers' Assessment of Pupils' Academic Performance.

Measure and Response Category	Frequency (%)	Mean ± SD (n)
Overall performance of pupils		
Very low	10 (6.6)	3.29 ±1.07
Low	23 (15.2)	
Moderate	48 (31.8)	
High	53 (35.1)	
Very high	17 (11.3)	
Pass rate at WASSCE		
Very low	7 (4.6)	3.52 ±1.08
Low	19 (12.6)	
Moderate	42 (27.8)	
High	54 (35.8)	
Very high	29 (19.2)	
Performance in core subjects		
Very low	11 (7.3)	3.31 ±1.13
Low	25 (16.6)	

Measure and Response Category	Frequency (%)	Mean ± SD (n)
Moderate	43 (28.5)	
High	50 (33.1)	
Very high	22 (14.6)	
Main contributor to high performance		
Pupils	28 (18.5)	
Parents	12 (7.9)	
Teachers	81 (53.6)	
Principals	16 (10.6)	
Government	14 (9.3)	
Main contributor to low performance		
Pupils	43 (28.5)	
Parents	65 (43.0)	
Teachers	13 (8.6)	
Principals	16 (10.6)	
Government	14 (9.3)	

Note. Frequencies and percentages are based on valid responses; the mean (M) and standard deviation (SD), where shown, are computed on a 1–5 scale. Percentages may not total 100 owing to rounding.

Table 4 indicates that teachers perceived pupils’ academic performance as moderate, with the highest mean score recorded for “Pass rate at WASSCE” ($M = 3.52$, $SD = 1.08$), suggesting a relatively positive perception of examination outcomes. More than half of the teachers (55.0%) rated WASSCE pass rates as high or very high, although variations existed among schools. The lowest mean score was observed for “Overall performance of pupils” ($M = 3.29$, $SD = 1.07$), indicating that general academic achievement remained a concern despite improvements in pass rates [37]. Performance in core subjects was also rated moderately ($M = 3.31$, $SD = 1.13$), with differences likely influenced by variations in teaching conditions, student commitment, and learning resources [39]. Teachers were identified as the main contributors to high performance (53.6%), highlighting the importance of instructional quality and teacher commitment, while parents (43.0%) and pupils (28.5%) were viewed as major contributors to low performance [27]. Thus, the findings suggest that although WASSCE outcomes show some improvement, enhancing overall academic achievement requires stronger teacher support, parental involvement, and improved learning conditions.

The qualitative findings revealed mixed perceptions among CTA chairpersons regarding pupils’ academic performance. While seven out of seventeen chairpersons rated overall performance as low or very low, another seven considered it high

or very high, and three viewed it as moderate. However, WASSCE pass rates were generally perceived more positively. Teachers were identified as the main contributors to high performance (8 of 17), with respondents emphasizing their commitment and dedication, whereas low performance was largely attributed to inadequate parental involvement (10 of 17). Other challenges included limited parental support (6 of 17), weak teacher motivation (4), inadequate teaching and learning materials (3), and financial constraints (3).

Principals identified increased boarding facilities as a potential intervention for improving WASSCE outcomes, with 10 of 17 suggesting that boarding schools could enhance academic focus by reducing distractions and addressing limited parental supervision. Additionally, 12 of 17 principals reported that strict measures against examination malpractice during 2020–2024 reduced examination irregularities in Kono District. However, CTA chairpersons argued that the strict enforcement may have disadvantaged Kono candidates compared with students in districts where malpractice was more prevalent, possibly contributing to the district’s relatively low WASSCE performance. Overall, the findings emphasize the importance of teacher commitment, parental involvement, supportive learning environments, and balanced examination management strategies in improving academic outcomes.

3.4. Relationship Between Leadership and Academic Performance

3.4.1. Principals' Agreement with Statements on Leadership and Performance

The findings show that principals strongly perceived leadership as a key factor influencing teaching quality and students’ academic performance. The highest mean scores were recorded for “My decisions influence teaching and learning outcomes” and “Regular supervision of teachers improves performance” (both $M = 4.29$) (Table 5), indicating strong agreement that decision-making and instructional supervision are essential for improving school outcomes [30, 47]. The lowest variability was observed for leadership decisions ($SD = 0.59$), reflecting high consensus among principals regarding their role in shaping educational success. Although “Effective leadership contributes significantly to success” ($M = 4.00$) and “Motivating teachers leads to better results” ($M = 3.88$) (Table 4) showed slightly more variation, principals generally acknowledged the importance of leadership effectiveness and teacher motivation. The results demonstrate a strong belief among principals that effective leadership practices contribute significantly to improved teaching, learning, and school performance [15, 35].

Table 5. Principals' Agreement with Statements on Leadership and Performance (N=17).

Measure and Response Category	Frequency (%)	Mean ±SD (n)
Effective leadership contributes significantly to success		
Strongly disagree	1 (5.9)	4.00 ±1.06
Disagree	1 (5.9)	
Neutral	0 (0.0)	
Agree	10 (58.8)	
Strongly agree	5 (29.4)	
My decisions influence teaching and learning outcomes		
Strongly disagree	0 (0.0)	4.29 ±0.59
Disagree	0 (0.0)	
Neutral	1 (5.9)	
Agree	10 (58.8)	
Strongly agree	6 (35.3)	
Regular supervision of teachers improves performance		
Strongly disagree	1 (5.9)	4.29 ±1.05
Disagree	0 (0.0)	
Neutral	1 (5.9)	

Measure and Response Category	Frequency	Mean $\pm$ SD
	(%)	(n)
Agree	6 (35.3)	3.88 $\pm$ 1.05
Strongly agree	9 (52.9)	
Motivating teachers leads to better results		
Strongly disagree	1 (5.9)	
Disagree	1 (5.9)	
Neutral	1 (5.9)	
Agree	10 (58.8)	
Strongly agree	4 (23.5)	

Note. Frequencies and percentages are based on valid responses ($n = 17$); the mean (M) and standard deviation (SD), where shown, are computed on a 1–5 scale. Percentages may not total 100 owing to rounding.

3.4.2. Teachers' Views on Leadership and Academic Performance

Table 6 indicates that teachers generally perceived school leadership as an important factor influencing teaching quality and WASSCE performance. The highest mean scores were recorded for “Leadership motivates teachers to improve teaching” and “The principal supports WASSCE preparation” (both $M = 4.10$), showing strong recognition of principals’ roles in teacher motivation, instructional improvement, and examination readiness [14, 38]. The high agreement levels and low variability suggest a shared perception among teachers that leadership support contributes positively to academic outcomes.

The lowest mean score was recorded for “Perceived quality

of teaching (2020–2024)” ($M = 3.58$), indicating that although teachers generally viewed teaching quality positively, improvements were less consistent compared with leadership-related practices. This variation may be linked to differences in resources, teacher capacity, workload, and school conditions [11, 45]. Other indicators, including academic supervision, leadership influence on performance, and the relationship between leadership and WASSCE results, also received high ratings, reinforcing the view that effective leadership practices contribute to improved school performance. Overall, the findings suggest that strong leadership, teacher motivation, and examination support are essential for enhancing academic achievement, but these efforts require adequate resources and continuous teacher development to achieve sustained improvements in learning outcomes.

Table 6. Teachers' Views on Leadership and Teaching Quality ($N=151$).

Measure and Response Category	Frequency	Mean $\pm$ SD
	(%)	(n)
Leadership plays a significant role in performance		3.92 $\pm$ 1.06
Strongly disagree	5 (3.3)	
Disagree	14 (9.3)	
Neutral	18 (11.9)	
Agree	65 (43.0)	
Strongly agree	49 (32.5)	3.95 $\pm$ 1.04
The principal provides effective academic supervision		
Strongly disagree	5 (3.3)	
Disagree	14 (9.3)	

Measure and Response Category	Frequency	Mean $\pm$ SD
	(%)	(n)
Neutral	13 (8.6)	
Agree	71 (47.0)	
Strongly agree	48 (31.8)	
Leadership motivates teachers to improve teaching		
Strongly disagree	2 (1.3)	
Disagree	9 (6.0)	4.10 $\pm$ 0.92
Neutral	18 (11.9)	
Agree	65 (43.0)	
Strongly agree	57 (37.7)	
Positive relationship between leadership and WASSCE results		
Strongly disagree	6 (4.0)	
Disagree	15 (9.9)	3.91 $\pm$ 1.07
Neutral	12 (7.9)	
Agree	71 (47.0)	
Strongly agree	47 (31.1)	
The principal supports WASSCE preparation		
Strongly disagree	4 (2.6)	
Disagree	6 (4.0)	4.10 $\pm$ 0.91
Neutral	13 (8.6)	
Agree	76 (50.3)	
Strongly agree	52 (34.4)	
Perceived quality of teaching (2020–2024)		
Very low	5 (3.3)	
Low	21 (13.9)	
Moderate	31 (20.5)	3.58 $\pm$ 1.02
High	70 (46.4)	
Very high	24 (15.9)	

Note. Frequencies and percentages are based on valid responses ($n = 151$); the mean (M) and standard deviation (SD), where shown, are computed on a 1–5 scale. Percentages may not total 100 owing to rounding.

3.4.3. Spearman Correlations Among Performance, Leadership and Teaching Variables

Table 7 indicates that the relationships among academic performance, leadership effectiveness, teaching quality, and leadership behaviours were generally weak and statistically insignificant. The strongest positive association was between academic performance and transformational behaviour ($\rho =$

0.13), followed by instructional behaviour ($\rho = 0.08$), suggesting that these leadership approaches may contribute slightly to improved academic outcomes [22]. Leadership effectiveness also showed weak positive relationships with academic performance ($\rho = 0.06$) and teaching quality ($\rho = 0.11$), indicating that leadership may support school improvement but has limited direct influence on examination results [25].

The relationship between teaching quality and academic

performance was negligible ($\rho = 0.01$), implying that teaching quality alone may not determine WASSCE outcomes without supportive factors such as resources, student engagement, and effective school management [8, 19]. Democratic behaviour showed weak negative relationships with academic performance ($\rho = -0.08$) and leadership effectiveness ($\rho =$

-0.12), though these were not significant. Overall, the findings suggest that academic performance is influenced by multiple interacting factors, while transformational and instructional leadership may have indirect effects through teacher motivation, school climate, and instructional practices [7, 9].

Table 7. Spearman Correlations Among Performance, Leadership and Teaching Variables.

Variable	1	2	3	4	5	6
Academic performance	1.00					
Leadership effectiveness	0.06	1.00				
Teaching quality	0.01	0.11	1.00			
Democratic behaviour	-0.08	-0.12	-0.02	1.00		
Instructional behaviour	0.08	0.07	-0.06	0.00	1.00	
Transformational behaviour	0.13	0.01	-0.03	0.03	0.02	1.00

Note. $n = 151$. * $p < .05$; ** $p < .01$. Coefficients are Spearman's ρ .

3.4.4. Binary Logistic Regression Predicting High Performance Ratings

Table 8 presents the binary logistic regression analysis examining factors associated with high performance ratings among schools. The results show that none of the predictors were statistically significant in predicting whether performance was rated high or very high. Teaching quality had a positive but insignificant effect ($B = 0.120$, $p = 0.463$), indicating that higher perceived teaching quality slightly increased the likelihood of high performance ratings ($OR = 1.13$)

[17]. Leadership effectiveness showed a negative and insignificant relationship ($B = -0.113$, $p = 0.781$), suggesting no meaningful predictive influence on high performance ratings ($OR = 0.89$). Similarly, democratic behaviour had a negative but non-significant effect ($B = -0.170$, $p = 0.215$; $OR = 0.84$).

The model indicates that leadership effectiveness, teaching quality, and democratic leadership behaviour did not significantly predict high academic performance ratings within the sampled schools [26, 31]. This suggests that WASSCE performance is likely influenced by a broader range of factors, including student characteristics, learning resources, teacher capacity, school environment, and other contextual conditions beyond the examined leadership and teaching variables.

Table 8. Binary Logistic Regression Predicting High Performance Ratings ($N=151$).

Predictor	B	SE	Wald	p	OR	95% CI
(Constant)	0.514	1.814	0.08	0.777	—	—
Leadership effectiveness	-0.113	0.406	0.08	0.781	0.89	[0.40, 1.98]
Teaching quality	0.120	0.164	0.54	0.463	1.13	[0.82, 1.55]
Democratic behaviour	-0.170	0.137	1.54	0.215	0.84	[0.65, 1.10]

Note. Outcome: performance rated high or very high (1) versus moderate or below (0), CI=Confidence Interval.

The chairpersons strongly associated effective school leadership with improved academic performance. Almost all respondents (16 out of 17) believed that principals provided ef-

fective academic supervision, while an equal number identified a positive relationship between leadership and WASSCE outcomes. Most chairpersons (14 out of 17) also agreed that leadership played an important role in motivating teachers.

They emphasized that effective principals are proactive, plan strategically, support teachers, monitor instruction, and ensure the availability of teaching and learning resources. Conversely, weak supervision, inadequate examination support, and low teacher motivation were linked to poor academic results. Overall, the findings highlight the perceived importance of strong leadership in promoting teacher effectiveness and improving WASSCE performance.

4. Conclusion and Recommendations

This study found that although WASSCE performance in Kono District improved slightly between 2020 and 2024, overall academic achievement remained below expectations. Teachers were identified as the primary contributors to improved performance, while inadequate parental involvement was the leading factor associated with poor academic outcomes. Although school leadership was widely perceived as important for enhancing teaching and learning, statistical analyses showed only weak and non-significant relationships between leadership and academic performance. The findings indicate that improving WASSCE outcomes requires a comprehensive approach that combines effective instructional leadership, motivated teachers, stronger parental involvement, adequate teaching and learning resources, and supportive educational policies. Accordingly, the study recommends strengthening principals' leadership capacity through continuous professional development, enhancing teacher motivation and instructional support, improving school–parent partnerships, investing in teaching resources and WASSCE preparation programmes, ensuring consistent enforcement of examination regulations, and undertaking further multi-district research to identify additional factors influencing academic performance in Sierra Leone.

Abbreviations

WASSCE West African Senior School Certificate Examination

Author Contributions

Augustine Edwin Berewa: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualization, Writing – original draft, Writing – review & editing

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Conflicts of Interest

The authors declare no conflicts of interest.

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