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Teacher Effectiveness and Pupils' Learning Achievement in Junior Secondary Schools in Sierra Leone

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Abstract: This study examines the relationship between teacher effectiveness and pupil learning achievement in junior secondary schools in Sierra Leone, with a focus on core subjects such as Language Arts and Mathematics. Despite significant investments in education, pupil performance in national examinations, particularly the Basic Education Certificate Examination (BECE), remains suboptimal. Teacher effectiveness, encompassing qualifications, subject matter competence, pedagogical skills, classroom management, teaching experience, and assessment practices, is identified as a critical determinant of academic outcomes. The research adopts a mixed-methods approach, combining quantitative and qualitative data from teachers and pupils across four regions in Sierra Leone: Port Loko City, Makeni City, Bo City, and the Western Rural Area. Data were collected through questionnaires, standardised test results, and teacher assessments, analysed using descriptive and inferential statistics, as well as thematic analysis. Key findings reveal that teacher effectiveness has a significant influence on pupil learning achievement. The study highlights the importance of policy interventions, including ongoing professional development for teachers, more effective resource allocation, and the integration of pupil-centred instructional strategies. Key recommendations include the implementation of regular in-service training programmes, improved teacher recruitment and retention strategies, and strengthened policy oversight to ensure adherence to professional teaching standards. The study contributes to educational policy and practice in Sierra Leone by providing empirical evidence on the critical nexus between teacher quality and pupil academic success.

Keywords: *Teacher Effectiveness; Instructional Practice; Learning Achievement*.

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I. BACKGROUND TO THE STUDY

Education plays a vital role in building human capital, which is pivotal to national development, social stability, and economic growth. In Sierra Leone, education is important as the country continues to recover from years of conflict and hardship. Although efforts have been made to improve access to education, many pupils still struggle with basic subjects, such as Language Arts and Mathematics. One major factor affecting pupil performance is teacher effectiveness, which significantly influences how well pupils learn (Kumar & Azad, 2016).

Teacher effectiveness can be described as encompassing a range of skills, strong subject knowledge, varied teaching methods, classroom management, and the ability to engage pupils in learning. Effective teachers know their subjects well and can use teaching strategies to meet the needs of all pupils. A study shows that teacher effectiveness is closely associated with academic performance, active learning, and improved thinking skills in pupils (Okolocha & Onyeneke, 2013). This highlights the need for well-trained, motivated, and well-supported teachers, especially in junior secondary schools where academic foundations are built.

In Sierra Leone, the rising demand for education, driven by increasing school enrolment rates, has increased the demand for qualified teachers. However, there is a shortage of both the number and quality of teachers. Many teachers work in isolation, without adequate training, and are insufficiently equipped with the necessary materials to teach effectively (Education Commission, 2019). To address this, the Government of Sierra Leone (GoSL) has made quality education and human capital development top priorities. The Sierra Leone Education Sector Plan (2022–2026) stresses the importance of quality learning that equips pupils with academic skills, values, and life skills (GoSL, 2022).

According to Okolocha and Onyeneke (2013), meaningful educational transformation happens when teachers possess strong subject knowledge, manage the classroom effectively, and create an interactive and engaging learning environment. Effective teachers plan their lessons carefully, inspire and motivate pupils, and use proven

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instructional strategies to help all pupils learn. To ensure this, teachers must receive training, continuous professional development, and strong institutional support.

- *Teaching Effectiveness in the Context of the Structure of Education in Sierra Leone*

Until 2018, the Ministry of Education, Science, and Technology supervised all levels of education in Sierra Leone. In 2018, it was restructured to enhance service delivery, resulting in the creation of two separate entities: the Ministry of Basic and Senior Secondary Education (MBSSE) and the Ministry of Technical and Higher Education (MTHE).

The education system in Sierra Leone follows a structured pathway, starting with pre-primary education, which lasts three years and begins at age 3. This is followed by six years of primary education (starting at age 6) and 3 years of junior secondary education (beginning at age twelve). Together, primary and junior secondary education form the basic education cycle, which is compulsory for all children. Beyond this, pupils progress to senior secondary education and higher education. Transitioning between levels is primarily determined by performance in national examinations. At the secondary level, pupils can choose to pursue a general academic curriculum or enrol in Technical and Vocational Education and Training (TVET) programmes (GoSL,2022:8).

At the end of junior secondary education, pupils sit the BECE, administered by the West African Examinations Council (WAEC). They must pass at least five of the eight subjects taken, including either Language Arts and Mathematics, to proceed to senior secondary school (GoSL, 2020:86).

In today's exam-focused education system, academic success is often judged by examination results, which reflect a pupil's understanding, thinking skills, and ability to apply knowledge (Pandey and Thapa, 2018). Effective teaching is fundamental to ensuring that pupils achieve academic success, making well-trained, motivated, and inclusive teachers essential to the learning process (Junaid & Maka, 2015).

As education evolves with technology and new teaching methods, teachers must keep improving their skills. Ongoing professional training helps teachers stay updated and teach more effectively (Allela, Ogange, Junaid, & Brainard, 2020).

Over the years, there has been concern about pupils' performance in the BECE, which is seen as a measure of both learning outcomes and teacher effectiveness. Despite government efforts, many pupils continue to perform poorly, especially in core subjects like Language Arts and mathematics.

Data from MBSSE reveal varying BECE pass rates. In 2018, 71.78% of the 89,996 candidates who sat for the examination met the basic requirement for senior secondary school. This dropped to 56.65% in 2019, improved to 69.08% in 2020, and rose again to 78.60% in 2021. However, performance in Language Arts and Mathematics declined in 2019 and 2020, raising concerns and emphasising the need to examine the role of teacher effectiveness and instructional practices in pupil learning achievement.

Table 1 Pass Rates for the 2016 - 2021 BECE Examinations

YEAR	SUBJECTS	NO. SAT	NO: & % PASS A1-C6
2016	Language Arts	**101,734**	61,894 (60.84)
	Mathematics		59,458 (58.44)
2017	Language Arts	**94,407**	69,683 (73.81)
	Mathematics		81,051 (85.85)
2018	Language Arts	**89,996**	54,488 (60.48)
	Mathematics		77,488 (86.04)
2019	Language Arts	**110,406**	54,414 (49.26)
	Mathematics		34,595 (31.32)
2020	Language Arts	**133,203**	71,145 (53.46)
	Mathematics		79,091 (59.45)
2021	Language Arts	**131,822**	87,969 (66.73)
	Mathematics		102,340 (77.63)

Source: The West African Examinations Council

Table 1 presents key trends in pupils' academic performance across core subjects, with a focus on Language Arts and Mathematics. In 2017, 2018, and 2021, pass rates in these subjects were above 60%. However, in 2019 and 2020, the rates dropped below this level. Mathematics results were good in 2017 (85%), 2018 (86%), and 2021 (77%), but dropped sharply in 2019, with only 31% of pupils passing. Language Arts performance varied in the 60% range in 2016, 2018, and 2021, peaked at 73% in 2017, and dropped to 49% in 2019 and 53% in 2020.

The consistently low performance in Language Arts (English Language and Literature) is somehow worrying because it is key to all learning in Sierra Leone. Government statistics (GoSL, 2020:87) revealed failure rates of 69% in Mathematics and 51% Language Arts. Among those who passed Language Arts, 35% earned only the lowest passing grade (score 6). This underperformance could have long-term effects on pupils, as weak language skills limit their ability to learn across subjects. These results raise concerns about the

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quality of classroom instruction and the effectiveness of teachers in core subjects.

The 2008 West African Examinations Council (WAEC) Report highlighted several reasons for pupils' poor performance in the Basic Education Certificate Examination (BECE), as indicated in the Sierra Leone Government Commission of Inquiry (GoSL,2010). These included poor reading skills, misunderstanding questions, failure to follow instructions, and weak English language abilities. Pupils were often unprepared and did not understand what the exam questions required (GoSL, 2010, p.100).

Chief Examiner from Ghana recommended that teachers fully cover the syllabus, use word drills and practice exercises to improve pupils' reading and exam skills, and take part in regular training to strengthen their subject knowledge and teaching methods (WAEC-Ghana, 2021, p.3). The 2010 Commission of Inquiry also reported that overcrowded classrooms, sometimes with more than 80 pupils, made teaching difficult. In such conditions, teachers often used dictation, which was not effective due to the pupils' poor writing and spelling.

Both the Chief Examiners and the Commission noted additional challenges, such as low pupil engagement, poor reading habits, unclear and abstract teaching, incomplete syllabus coverage, inappropriate textbooks, lack of teaching materials, lack of understanding of basic concepts, inadequate exam preparation, and weak study skills (GoSL, 2010).

The Sierra Leone Education Sector Plan (2018–2020) stated that many teachers are not properly qualified for the levels they teach. Effective teaching requires strong subject knowledge, good pedagogical skills, understanding of child development, clear communication, professionalism, and a willingness to keep learning (GoSL, 2018). Research shows that effective teachers can improve pupils' learning by up to 40% compared to less effective ones (Ko, Sammons, & Bakkum, 2013).

Despite government and stakeholder efforts, pupils' performance in junior secondary school is still poor. Also, there is a notable lack of research on how teacher effectiveness affects pupils' learning achievement in Sierra Leone. It is therefore relevant to investigate this relationship to support policies and practices that can improve pupils' learning outcomes in junior secondary schools.

II. STATEMENT OF THE PROBLEM

It is against the above background that this study seeks to examine the relationship between teacher effectiveness and pupils' learning achievement in Sierra Leone. Despite efforts by the government and education partners to improve learning, many pupils continue to perform poorly in national examinations. For example, in 2019, only 46% of pupils passed the BECE, and many failed core subjects such as Language Arts and Mathematics. Although there are many reasons why pupils may perform poorly, not much attention has been given to the role of teacher effectiveness. Research shows that good teaching is very important for pupil success, but past studies in Sierra Leone have not focused on this area. This study will explore the relationship between teacher effectiveness and pupils' learning achievement and provide useful recommendations to help improve education in the country. The results will help guide decision-making by school heads, policy makers, and other stakeholders working to raise educational standards.

III. RESEARCH OBJECTIVES

This study aims to investigate whether a relationship exists between teacher effectiveness and pupils' learning achievement in junior secondary schools in Sierra Leone. It focuses on key subjects such as Language Arts and Mathematics. The study examines teachers' instructional methods or practices to determine how they influence pupils' academic performance. The goal is to utilise the findings to enhance teaching, guide education policies, and help pupils achieve better learning outcomes. The specific objectives of this study are to:

➢ *Determine What Constitutes 'Teacher Effectiveness':*
Clarify the concept of teacher effectiveness within the context of junior secondary education in Sierra Leone, identifying the attributes, skills, and practices that characterise effective teaching.

➢ *Assess Pupils' Academic Performance:*
Analyse their learning achievements as reflected in their Language Arts and Mathematics performance.

➢ *Research Questions*

- What constitutes teacher effectiveness within the context of junior secondary education in Sierra Leone?
- How is pupils' learning achievement reflected in their performance in Language Arts and Mathematics?

➢ *Hypotheses*

- *Hypothesis One*

✓ *Null Hypothesis (H0):*
There is no statistically significant relationship between teacher effectiveness and pupils' academic achievement in junior secondary schools in Sierra Leone, particularly in Language Arts and Mathematics.

✓ *Alternative Hypothesis (H1):*
There is a statistically significant positive relationship between teacher effectiveness and pupils' academic achievement in junior secondary schools in Sierra Leone, particularly in Language Arts and Mathematics.

- *Hypothesis Two*

✓ *Null Hypothesis (H0):*
Teachers' instructional practices, as a component of teacher effectiveness, do not significantly affect pupils' learning achievement in junior secondary school core subjects.

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✓ *Alternative Hypothesis (H1):*

Teachers' instructional methods, as a component of teacher effectiveness, significantly affect pupils' learning achievements in core subjects at junior secondary school.

IV. SIGNIFICANCE OF THE STUDY

This study is significant as it examines how teacher effectiveness impacts pupils' learning achievement in junior secondary schools in Sierra Leone, particularly in light of the recent decline in the Basic Education Certificate Examination pass rates in Language Arts and Mathematics.

For Policy Makers, it provides useful information to help improve education policies, especially those related to teacher training, professional development, and resource allocation. ***For School Administrators***, the findings of the study can offer practical guidance on supporting teachers through improved recruitment, mentorship, and performance evaluation, thereby enhancing teaching quality and pupils' learning achievement. *For Teachers*, it helps teachers understand how their instructional methods and classroom practices influence pupils' achievement. The study encourages self-reflection and the use of proven strategies to improve teaching and learning in schools. ***For Educational Researchers***, it adds to the existing knowledge about teacher effectiveness, especially in low-resource settings. It also opens the door for further research and comparisons with other educational contexts.

In general, the study aims to support educational improvement in Sierra Leone by providing clear evidence that can guide reforms in teaching, school management, and policy, contributing to pupils' learning achievement and national development.

V. REVIEW OF LITERATURE

➢ *What Constitutes Teacher Effectiveness*

Teacher effectiveness is a critical factor in shaping pupils' learning achievement. It encompasses a teacher's ability to facilitate meaningful learning experiences, manage the classroom efficiently, and employ pedagogical strategies that enhance pupils' learning outcomes. Researchers have defined teacher effectiveness through various dimensions, including qualifications, subject-matter knowledge, pedagogical skills, teaching experience, classroom management abilities, and the capacity to foster pupil engagement and motivation. In a study, Sumer and Syiem (2021) defined teacher effectiveness as the combination of important skills and qualities such as subject knowledge, teaching experience, and instructional methods. Effective teachers are confident, trustworthy, and dedicated. These qualities help improve pupils' understanding, engagement, and academic performance, especially in junior secondary schools.

In another study, Clement and Rencewigg (2020) described effective teachers as approachable, fair, enthusiastic, patient, and professional. They also emphasised the importance of lesson planning, classroom management, and communication. Teachers who simplify complex topics, show empathy, and build positive relationships help improve pupils' motivation, attendance, and academic performance. Burgess (2019) stated that teacher effectiveness is the most powerful influence on pupils' learning achievement. He found that pupils taught by highly effective teachers perform significantly better, by as much as 10-20%, for every standard improvement in teacher effectiveness.

Goe, Bell and Little (2008***)*** in their study identified five key areas of teacher effectiveness. They include setting goals, supporting academic and personal growth, adjusting instruction based on assessment, creating an inclusive classroom, and collaborating with others. These practices directly improve both learning outcomes and pupil development. Similarly, Ko, Sammons, and Bakkum (2013), in their description of teacher effectiveness, discuss practices such as setting clear goals, using appropriate instructional materials, adapting to diverse learning needs, and developing critical thinking skills. Effective teachers also provide timely feedback, ask questions, and take responsibility for the success of pupils.

In a study, Habib (2017*)* defined teacher effectiveness through three areas: instructional skills, subject knowledge, and personal qualities. He emphasised teachers' understanding of individual learning needs, dedication, and building strong relationships. These qualities help create a supportive environment that improves learning. In another study, Hepsibha and Catherine (2022) described teacher effectiveness as those who use creative instructional methods, practical tools, and interactive techniques. These teachers encourage classroom discussions, update their subject knowledge, and build good relationships. Their methods help pupils understand complex topics and remain engaged. McKnight, Graybeal, Yarbro, and Graybeal (2016) listed five traits of effective teachers. These include building positive relationships, demonstrating patience and kindness, maintaining professionalism, possessing strong subject knowledge, and understanding pupils' learning needs. They emphasised the importance of a safe and caring classroom for motivation and academic performance.

In general, studies highlight various but connected aspects of teacher effectiveness. Collectively, they demonstrate that a combination of knowledge, skills, personal qualities, and relationships with pupils is essential for enhancing pupils' learning outcomes, particularly in junior secondary schools.

The Professional Standards for Teachers and School Leaders in Sierra Leone (GoSL-TSC, 2017) align with these findings, which aim to improve instructional quality and restore trust in the profession. These standards focus on:

- *Professional Knowledge*:

teachers must understand their subject, know how pupils learn, and respect differences in background, gender, and culture.

- *Professional Practice*:

Teachers should plan inclusive, engaging lessons using a variety of teaching and assessment methods.

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- *Professional Engagement*:

Teachers are expected to act ethically, dress appropriately, and treat all pupils with respect.

These standards are supported by Sierra's Education Sector Plan (2018-2020), which highlights the shortage of qualified teachers. Effective teachers are described as those possessing subject knowledge, instructional skills, good communication, integrity, and a commitment to continuous learning.

The reviewed literature agrees that teacher effectiveness greatly influences pupils' learning achievement, particularly in junior secondary schools. While definitions vary slightly, key traits of effective teachers include:

- Strong subject knowledge and clear instructional Skills:
- Creative and interactive instructional Methods:
- Good classroom management:
- Positive Teacher-Pupil Relationships:
- Use of assessment and feedback to guide instruction
- Professional behaviour and Commitment:
- Adaptability and inclusive practices

The national standards support these qualities, demonstrating that effective instruction is essential for better learning outcomes. In short, teacher effectiveness is a combination of knowledge, skills, behaviour, and attitude, and it plays a significant role in helping pupils learn and succeed.

➢ *Pupils' Performance in Language Arts (English language) and Mathematics*

English Language skills play an important role in pupils' academic performance, especially in subjects such as Mathematics. Poor English proficiency often leads to poor performance in this area. A study in Nigeria by Gegeleso and Ayodele (2023) investigated the impact of self-esteem and school environment on students' academic performance. They surveyed 411 pupils using questionnaires and examination results in English and Mathematics. The results showed that over half of the pupils (50.5%) failed their exams. The study concluded that improving the school environment and encouraging strong parent-teacher cooperation can help boost pupils' motivation and learning achievement.

Several studies have investigated the reasons behind poor Mathematics performance among pupils in different countries. In Fiji, Chand, Chaudhary, Prasad, and Chand. (2021) found that pupils often saw Mathematics as difficult and preferred other subjects. Teachers believed this was due to fear of the subject and poor foundational knowledge from primary school. The study recommended improving the quality of primary school teachers. When the primary education foundation is weak, pupils struggle in later years; thus, improving teacher quality at the primary level can help build stronger foundations and improve learning achievement. In Ghana, Fokuo, Lassong and Kwasi (2022) related poor performance to pupils' lack of interest, incomplete syllabus coverage, and the belief that Mathematics is difficult. They suggested making the curriculum more practical and focused on real-life problems. Similarly, Amoah (2024) found that junior high pupils in Ghana struggled due to a lack of motivation, poor teaching methods, few assignments, and little parental support. The study advised using hands-on activities and providing more resources.

In Sierra Leone, Sundai and Sheriff (2015) and Thullah and Koroma (2024) found that weak foundational skills, poor teaching, overloaded syllabi, and negative pupil attitudes led to poor Mathematics performance. They highlighted the need for better teaching strategies and teacher commitment. Pupils achieve more when lessons are well-planned, understandable, and supported by good and engaging teaching methods. Also, if teachers are dedicated and pupils have a positive mindset, learning outcomes will improve.

Mosha (2014) studied English performance in Zanzibar and found that unqualified teachers, large class sizes, poor English usage, and lack of support at home affected pupils' learning achievement. The recommendation was to train teachers properly and improve classroom environments. In another study, Abdullahi et al. (2022) in Nigeria identified factors such as poor teaching methods, low pupil engagement, lack of materials, and unsupportive school environments as causes of poor performance in Mathematics. They recommended creating classrooms where pupils feel free to ask questions and participate. Thus, encouraging pupils' participation boosts confidence and enhances learning outcomes.

The Gambia Basic Education Certificate Examination (GABECE) Chief Examiners' Reports from 2018 and 2022 show that many pupils in The Gambia continue to perform poorly in English and Mathematics. In 2022, although Mathematics results slightly improved, many pupils still failed English, even with simple exam questions. The reports blame these poor results on issues such as unqualified teachers, incomplete syllabus coverage, poor exam preparation, and pupils' difficulty in understanding questions. They recommend using qualified teachers and making Mathematics lessons more engaging.

These studies agree that failure rates in English and Mathematics remain high, with regional differences caused by factors such as teacher quality, teaching methods, pupil participation, and learning resources. Addressing these areas can lead to improved learning achievement in the subjects.

VI. METHODS

This study adopts a convergent mixed-methods research design, which combines both quantitative and qualitative data collection and analysis to comprehensively explore the relationship between teacher effectiveness and pupils' learning achievement in junior secondary schools in Sierra Leone. The convergent design is particularly suitable for this study as it enables the researcher to gather distinct yet complementary data concurrently, analyse them separately, and then merge the findings to gain a fuller and more nuanced understanding of the research problem.

➢ *Instruments*

To collect reliable data, the study employed a mixed methods approach, combining both quantitative and qualitative instruments. The main instruments were questionnaires,

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interview guides, and standardised achievement tests to examine the relationship between teacher effectiveness and pupils' learning achievement in junior secondary schools.

➢ *Data Analysis*

Headings, Descriptive and inferential statistics were used to analyse the collected data. For qualitative data, the researcher employed thematic analysis, while inferential statistics tested the study's hypotheses. The Pearson Correlation Coefficient assessed the relationship between teacher effectiveness and pupils' academic performance in Language Arts and Mathematics, and a linear regression analysis was used to test the hypothesis that teachers' instructional practices significantly impact pupils' learning achievement

➢ *Population*

According to the 2021 School Census Statistics published by the Ministry of Basic and Senior Secondary Education (MBSSE), the total study population comprises 141,682 individuals across four districts. This includes 5,218 junior secondary school teachers, consisting of 4,147 males and 1,071 females, as well as 136,464 pupils, with 65,035 boys and 71,429 girls enrolled in junior secondary schools. The population distribution is presented in detail in Table 2 below. This comprehensive characterisation ensures that the study's findings are both representative and applicable to the real-world educational dynamics in the selected study areas and beyond in Sierra Leone.

Table 2 Study Population

Study Area	Study Population					
	Teachers	**Male**	**Female**	**Pupils**	**Boys**	**Girls**
Port Loko City	207	155	52	5704	2955	2749
Makeni City	1334	1137	197	32184	15692	16492
Bo City	1012	770	242	25946	11515	14431
Western Rural Area	2665	2085	580	72630	34873	37757
Total	**5218**	**4147**	**1071**	**136464**	**65035**	**71429**

Source: MBSSE Annual School Census, 2021

➢ *Sampling Method*

This study employed a stratified random sampling method to ensure fair and accurate representation of junior secondary schools across four selected areas, accounting for urban and rural settings. Schools were first grouped by location and type, then randomly selected within each group to eliminate bias. From each chosen school, Language Arts and Mathematics teachers were purposefully selected, as these core subjects are essential for assessing academic performance. A random sample of pupils taught by these teachers was then chosen to directly examine the relationship between teacher effectiveness and pupils' learning achievement. This approach ensured that the data collected accurately reflected the diverse educational realities of the study areas.

➢ *Sample Size*

The sample size for this study was calculated using Taro Yamane's formula, which the researcher employed to determine the appropriate number of participants from a known population. A 5% margin of error was applied, indicating that the results would be 95% accurate. This ensures that the sample properly reflects the larger population. After calculating the total sample size, the researcher used proportionate stratified sampling. This method involves dividing the population into strata, such as by region, and selecting participants from each group according to its size. This approach guarantees that all groups are fairly represented in the study, leading to more reliable and generalisable findings.

➢ *Sample of Schools*

The study used a total of 412 junior secondary schools listed in the 2021 annual school census by the Ministry of Basic and Senior Secondary Education. To make data collection manageable and still reliable, 30% of schools (124 schools) were selected as the sample. This percentage is commonly used in educational research for large groups. To ensure all regions were fairly represented, the researcher used proportionate stratified sampling. This means he divided the schools by region: Port Loko City (North-western Region), Makeni City (Northern Region), Bo City (Southern Region), and the Western Rural Area (Western Area Region), and selected schools from each region based on the number of schools were there. This method helped ensure that the study results would apply well to all areas. This is indicated in Table 3.

Table 3 Sample of Schools

Study Area	Distribution of Sample of Schools			
	Total Number of Schools	**Total sample (30%)**	**Selected Sample**	**Formula Applied**
Port Loko City	18		5	(18/412) *124
Makeni City	32		10	(32/412) *124
Bo City	62		19	(62/412) *124
Western Rural Area	300		90	(300/412) *124
Total	**412**	**124**	**124**	

Source: MBSSE Annual School Census, 2021

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➢ *Sample of Teachers*

According to Kindy, Shah, and Jusoh (2016), a sample is a smaller group selected from a larger population to represent its key characteristics. Sampling is a method used to choose this group. In this study, the total number of teachers in the selected areas was 5,218 (based on the 2021 Annual School Census). To choose a manageable and reliable number of teachers for the study, the Taro Yamane formula was used. With a 5% margin of error, the formula gave a sample size of approximately 371 teachers. To ensure the sample fairly represented all groups within the population, the researcher used proportionate stratified random sampling. This means the 371 teachers were selected in proportion to the number of teachers in each area. The formula used for this distribution.

was:

$n_h = (Nh / N) * n$

Where;

n_h= Sample size for the h^{th} stratum

N_h= Population size of the h^{th} stratum

N = Total population size (5,218)

n = Total sample size (371)

Source: QuestionPro

https://www.questionpro.com/blog/stratified-random-sampling/

(accessed October 10, 2023)

This method, recommended by Taherdoost (2016), helped improve the accuracy and general usefulness of the study results by ensuring all groups were fairly included. The distribution is indicated in Table 4.

Table 4 Sample of Teachers

Study Area	Distribution of the Sample of Teachers			
	Total Number of Teachers	**Total sample at a confidence level of 95%**	**Allocated Sample of Teachers**	**Calculation of Proportionate Stratified Sampling [$n_h = (N_h / N) * n$]**
Port Loko City	207		15	(207/5218) *371
Makeni City	1334		95	(1334/5218) *371
Bo City	1012		72	(1012/5218) *371
Western Rural Area	2665		189	(2665/5218) *371
Total	**5218**	**371**	**371**	

Source: GoSL-MBSSE Annual School Census, 2021

Table 4 indicates the distribution of 371 junior secondary school teachers selected from four regions: Port Loko City, Makeni City, Bo City, and the Western Rural Area. These teachers were chosen from a total population of 5,218 using a method called proportionate stratified random sampling. This means each region was represented in the sample according to its actual size in the total population. Specifically, 15 teachers were chosen from Port Loko City, 95 from Makeni City, 72 from Bo City, and 189 from the Western Rural Area. This method ensured that no region was overrepresented or underrepresented, making the sample more accurate and fairer. Using this sampling method helped the researcher to generalise the findings to all the areas involved in the study.

➢ *Sample of Pupils*

The number of pupils in the study area, according to the 2021 Annual School Census, was 136,464. To select a manageable and statistically valid sample from this large population, the researcher used Taro Yamane's formula, which helps determine the appropriate sample size when the total population is known. With a 5% margin of error, the formula yielded a sample size of 399 pupils. To ensure the sample fairly represented all groups within the population, the researcher used proportionate stratified random sampling. The distribution is shown in Table 5.

Table 5Sample of Pupils

Study Area	Distribution of Sample of Pupils			
	Total Number of Pupils	**Total sample at a confidence level of 95%**	**Allocated Sample of Teachers**	**Calculation of Proportionate Stratified Sampling [$n_h = (N_h / N) * n$]**
Port Loko City	5,704		17	(5,704/136,464) * 399
Makeni City	32,184		94	(32,184/136,464) * 399
Bo City	25,946		76	(25,946/136,464) * 399
Western Rural Area	72,630		212	(72,630/136,464) * 399
Total	**136,464**	**399**	**399**	

Source: GoSL- MBSSE Annual School Census, 2021

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Table 5 presents the distribution of 399 junior secondary school pupils selected from the study areas: Port Loko City, Makeni City, Bo City, and the Western Rural Area.

The selection was based on the proportion of pupils in each stratum out of a total of 136,464, using a method called Proportionate Stratified Random Sampling. As a result, 17 pupils were selected from Port Loko City, 94 from Makeni City, 76 from Bo City, and 212 from the Western Rural Area. This ensured that the sample fairly represented the population of each area.

➢ *Questionnaires Administered and Collected*

The sample size for this study comprised 770 participants (371 teachers and 399 pupils) from 124 junior secondary schools in Port Loko City (North-Western Region), Makeni City (Northern Region), Bo City (Southern Region), and Western Rural Area (Western Area). However, out of the seven hundred and seventy (770) questionnaires that were distributed to the 124 selected junior secondary schools, seven hundred and sixty (760) were filled out, contributing 98.7%, while ten (10), representing 1.3%, were not returned. The 1.3% of unreturned questionnaires were questionnaires for teachers (5 not returned from Makeni City, and 5 not returned from Western Rural Area), as indicated in Table 6:

Table 6 Administration of the Study Questionnaires

Study Area	Administered Questionnaire	Returned	Percentage (%) Returned	Unreturned	Percentage (%) Unreturned
Port Loko City	32	32	4.2	0	0.0
Makeni City	189	184	23.9	5	0.6
Bo City	148	148	19.2	0	0.0
Western Rural Area	401	396	51.4	5	0.6
Total	770	760	98.7	10	1.3

Source: Researcher's Field Survey (2024)

➢ *Study Area*

The study was conducted in four selected locations in Sierra Leone: Port Loko City, Makeni City, Bo City, and the Western Rural Area. These areas reflect the country's regional diversity, which includes urban and rural schools. The selection also considered practical factors such as time, cost, and the availability of only one researcher. The approach ensures the study findings are relevant and manageable.

According to the 2021 Mid-Term Population and Housing Census conducted by Statistics Sierra Leone (Stat.SL, 2021), Sierra Leone has a population of 7,548,702, with a slightly higher number of females (3,820,955, accounting for 50.6%) than males (3,727,747, representing 49.4%). The education system comprises 1,984 pre-primary, 7,429 primary, 1,931 junior secondary, and 824 senior secondary schools, with an enrolment of 3,131,440 pupils and 80,744 teachers. Girls (51%) slightly outnumber boys in school enrolment, but most teachers (70.96%) are male during the 2020/2021 academic year.

Port Loko City, the capital and main administrative and commercial centre of the North-Western Region, has a population of 40,804, with more females (21,399) than males. In 2021, the city had 83 schools, including 18 junior secondary schools that enrolled 5,704 pupils (2,955 boys and 2,749 girls), taught by 207 teachers, most of whom were male (155). The major sources of income in the area are mining and farming, particularly rice, cassava, and sweet potatoes.

Makeni City, the main urban centre of the Northern Region, has a population of 85,116 (44,179 females and 40,937 males), with 160 schools, including 32 junior secondary schools that enrolled 32,184 pupils, with more girls (51.24%) than boys. It had 1,334 junior secondary teachers, predominantly male (85.23%). The economic activities of the people are farming and traditional crafts, such as Gara tie-dyeing.

Bo City, the second-largest city in Sierra Leone with 233,075 residents, had 391 schools, including 62 junior secondary schools with 25,946 pupils, again with more girls (55.62%) than boys. The city employed 1,012 junior secondary school teachers, mostly male (76.09%), and the local economy is driven by farming, diamond and gold mining, and commercial trade.

The Western Rural Area, located around the Freetown Peninsula, had the largest population at 662,156. It had 1,410 schools, including 300 junior secondary schools with 72,630 pupils, of which girls made up 51.99% of the total. These schools were served by 2,665 junior secondary teachers, most of whom were male (2,085 or 78.24%). The area's economy is primarily agricultural, comprising fishing, livestock, gardening, and lumbering.

VII. RESULTS

➢ *RQ1: What Constitutes Teacher Effectiveness Within the Context of Junior Secondary Education in Sierra Leone?*

The results showed that participants from various regions (Port Loko City, Makeni City, Bo City, and Western Rural Area) shared a broad and consistent understanding of what constitutes teacher effectiveness and how it contributes to pupils' learning achievement.

- *Strong Subject Knowledge and Teaching Skills:*

Many participants (teachers) emphasised that being effective means understanding the subject deeply and being able to teach it. They believed confident delivery and content mastery improve pupils' understanding, which can lead to

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better learning outcomes. In Makeni City, a participant explained:

"Effective teachers are well-trained in their subject and skilled at teaching it (Female Teacher, Makeni city)."

This indicates that a teacher who understands the subject and knows how to teach it well helps pupils grasp concepts more easily. Being skilled at teaching enables the teacher to deliver content in ways that engage pupils, match their level of understanding, and support different learning styles.

- *Use of Varied Teaching Methods:*

Participants (teachers) highlighted the importance of using pupil-centred strategies such as group work, differentiated instruction, continuous assessment, and practical examples. These methods enhance pupils' engagement, participation and improve learning achievement.

- *Adaptability and Flexibility:*

Participants (teachers) opined that effective teachers adjust their teaching to meet the different needs and learning styles of pupils. This ensures that every pupil, regardless of ability, has an equal opportunity to learn and succeed. In Bo City, a participant pointed out the importance of adapting teaching methods:

"Effective teachers adjust their teaching to meet the different needs of pupils, making sure everyone has a fair chance to learn." (Male Teacher, Bo City)

This definition of teacher effectiveness emphasises the ability of teachers to adapt their teaching methods and strategies to suit their pupils' learning needs, abilities, and backgrounds. By doing so, the teacher ensures that all pupils, regardless of their strengths or challenges, have equal opportunities to understand and engage with the teaching and learning materials. This approach promotes inclusivity, encourages active participation, and helps prevent some pupils from being left behind. Its relevance lies in the fact that when teaching is tailored to meet diverse needs, it enhances understanding, boosts confidence, and leads to improved learning achievement for all pupils.

- *Good Classroom Management:*

Participants identified clear rules, structured lessons, and understanding of individual pupils' abilities as key components of effective classroom control, which supports better learning outcomes.

- *In Makeni City, a Participant Said:*

"Teacher effectiveness means keeping order in class, understanding different learning styles, and adjusting teaching accordingly." (Male Teacher, Makeni City)

Maintaining order in the classroom creates a safe and focused teaching and learning environment where pupils can concentrate and learn without any distraction.

- *Planning, Time Management, and Professionalism:*

Participants agreed that being punctual, preparing lessons, covering the syllabus, and maintaining professional conduct are all signs of effectiveness. These practices maximise teaching time and enhance pupils' learning. A participant from Bo City explained:

"An effective teacher is punctual, manages time well, plans lessons properly, and is passionate about teaching." (Male Teacher, Bo City)

These traits help make the most of class time and improve learning quality.

- *Teacher-Pupil Relationships:*

Building positive, respectful, and open relationships with pupils, and sometimes with parents, was seen as crucial. Such connections foster trust, engagement, and academic resilience. A participant from the Western Rural Area described an effective teacher as:

"Someone who builds positive and professional relationships with both pupils and parents, creating a supportive learning environment." (Female Teacher, Western Rural)

- *Another Participant Added:*

"Effective teachers talk with pupils, encourage them to think critically, and help them with both academic and personal issues." (Male Teacher, Western Rural)

These qualities are important for pupils' learning achievement because they build confidence and resilience in pupils.

- *A Participant from Port Loko City Stated:*

"Teacher effectiveness means being able to inspire and motivate pupils, and adjusting teaching methods to meet their different needs." (Male Teacher, Port Loko)

- *Intrinsic Motivation and Commitment:*

Despite challenges such as low pay, participants believed that effective teachers remain committed to their roles, attend training, and go beyond their basic duties to ensure quality education. Western Rural Area said:

"Effective teachers are always present, complete their lessons, and give continuous feedback." (Female Teacher, Western Rural)

This highlights the role of consistency and academic focus in helping pupils to learn and succeed. These practices directly contribute to pupils' performance by reinforcing concepts, identifying learning gaps, and providing timely interventions.

- *Similarly, a Participant from Bo City Added:*

"An effective teacher is passionate and works to meet the needs of every pupil." (Male Teacher, Bo City)

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This indicates the importance of inclusive teaching and sensitivity to individual differences.

In conclusion, the participants viewed teacher effectiveness as a combination of strong knowledge, good teaching strategies, emotional support, professional conduct, and strong interpersonal relationships. These qualities contribute significantly to pupils' engagement, understanding, motivation, and academic success in junior secondary schools.

- *How is Pupils' Learning Achievement Reflected in their Performance in Language Arts and Mathematics?*

Table 7 Rating Pupils' Performance in Mathematics Test

Grading Scale		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	90 -100 (1 = Excellent)	10	2.5	2.5	2.5
	80 - 89 (2 = Very Good)	36	9.0	9.0	11.5
	70 – 79 (3 = Good)	42	10.5	10.5	22.1
	60 - 69 (4 = Credit)	45	11.3	11.3	33.3
	50 - 59 (5 = Credit)	61	15.3	15.3	48.6
	40 - 49 (6 = Average)	80	20.1	20.1	68.7
	0 - 39 (7 = Fail)	125	31.3	31.3	100.0
	Total	**399**	**100.0**	**100.0**	

Source: Researcher's Field Survey (2024)

The results in Table 7 show that many JSS III pupils performed poorly in a mathematics test. About 125 (31.3%) failed the test by scoring below 40 points, and another 80 (20.1%) scored between 40 and 49 points, which is still poor. In general, only 194 (48.6%) of the pupils scored 50 points or more, which is considered a credit or better. These results suggest that more than half of the pupils are not performing well, raising concerns about the effectiveness of teaching.

Weak teaching methods, poor classroom management, and a lack of subject mastery may be affecting pupils' learning outcomes. The small number of high achievers highlights the need for urgent action. Solutions may include effective teaching strategies, remedial support for struggling pupils, and continuous professional development training for teachers, especially in Mathematics, to improve pupils' performance.

Table 8 Pupils' Performance in Language Arts Test

Grading Scale		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	90 -100 (1 = Excellent)	15	3.8	3.8	3.8
	80 - 89 (2 = Very Good)	40	10.0	10.0	13.8
	70 - 79 (3 = Good)	57	14.3	14.3	28.1
	60 - 69 (4 = Credit)	54	13.5	13.5	41.6
	50 - 59 (5 = Credit)	70	17.5	17.5	59.1
	40 - 49 (6 = Average)	61	15.3	15.3	74.4
	0 - 39 (7 = Fail)	102	25.6	25.6	100.0
	Total	**399**	**100.0**	**100.0**	

Source: Researcher's Field Survey (2024)

The table above shows how JSS III pupils performed in a Language Arts test. About 41% of the pupils scored below the expected level, with 102 (25.6%) failing and 61 (15.3%) performing poorly. On the other hand, 59.1% of the pupils did fairly well, scoring in the credit to excellent range. This mix of results shows that while many pupils are doing well, some are still struggling. These differences in performance are likely related to how effectively teachers can teach. Good teaching, such as clear expectations, interesting lessons, providing helpful feedback, and support for diverse learning needs, can help pupils achieve better. To improve pupils' performance, schools should focus on helping teachers become more effective. This can be done through training and support. Better teaching can lead to better learning, not only in Language Arts but in other subjects.

- *Hypothesis One*

The null hypothesis (H_0) states that there is no statistically significant relationship between teacher effectiveness and pupils' academic achievement in junior secondary schools in Sierra Leone, particularly in Language Arts and Mathematics. Conversely, the alternative hypothesis (H_1) asserts that there is a statistically significant positive relationship between teacher effectiveness and pupils' academic achievement in junior secondary schools in Sierra Leone, particularly in Language Arts and Mathematics.

- *Pearson Correlation Analysis on Teacher Effectiveness and Pupil Academic Achievement*

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Table 9 Pearson Correlations

		Teachers' Effectiveness	Pupils' Language Arts Score	Pupils' Mathematics Score
Teachers' Effectiveness	Pearson Correlation	1	.903**	.896**
	Sig. (2-tailed)		.000	.000
	N	399	399	399
Pupils' Language Arts Score	Pearson Correlation	.903**	1	.821**
	Sig. (2-tailed)	.000		.000
	N	399	399	399
Pupils' Mathematics Score	Pearson Correlation	.896**	.821**	1
	Sig. (2-tailed)	.000	.000	
	N	399	399	399

**. Correlation is Significant at the 0.01 level (2-Tailed).

Table 9 presents the results of a Pearson product-moment correlation analysis conducted to test the hypothesis that there is a relationship between teacher effectiveness and pupils' academic achievement. The results revealed a **strong and statistically significant positive relationship** between **Teacher Effectiveness and Pupils' Language Arts Scores** ($r = \mathbf{0.903}$, $p < \mathbf{0.001}$) as well as a **strong positive relationship** between **Teacher Effectiveness and Pupils' Mathematics Scores** ($r = \mathbf{0.896}$, $p < \mathbf{0.001}$).

These findings indicate that as teacher effectiveness increases, pupil academic performance in both Language Arts and Mathematics also increases. Moreover, a strong positive correlation ($r = \mathbf{0.821}$, $p < \mathbf{0.001}$) was observed between pupils' Language Arts and Mathematics scores, suggesting that students who perform well in one subject also tend to perform well in the other.

The results of the analysis provide compelling evidence to **reject the null hypothesis (H_0)** and accept the alternative hypothesis (H_1), as all tested relationships yielded **$p < 0.01$**, confirming that teacher effectiveness has a statistically significant positive relationship with pupil academic achievement in both Language Arts and Mathematics. The analysis is further strengthened by a substantial **sample size of 399** for each correlation, enhancing the reliability, validity, and statistical power of the findings.

These findings reinforce the view that teacher effectiveness is a pivotal determinant of pupils' learning achievement. The strong correlations observed in both core subject areas highlight the transformative impact that skilled, knowledgeable, and pedagogically competent teachers can have on pupils' academic performance. In the context of junior secondary schools, particularly in developing settings like Sierra Leone, where educational resources may be limited, investing in enhancing teacher effectiveness through training, continuous professional development can yield significant gains in pupils' learning achievement. This underscores the urgent need for policy makers and school administrators to prioritise teacher effectiveness as a strategic focus in educational reform initiatives.

- *Hypothesis Two*

The null hypothesis (H_0) posits that teachers' instructional practices, as a component of teacher effectiveness, do not significantly affect pupils' learning achievement in junior secondary school core subjects. In contrast, the alternative hypothesis (H_1) asserts that teachers' instructional practices, as a component of teacher effectiveness, significantly affect pupils' learning achievement in junior secondary school core subjects.

➢ *Linear Regression Analysis on Teachers' Instructional Practices and Pupil Learning Achievement*

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.871[a]	.758	.758	4.08346

a. Constant: Teachers' Instructional Practices

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20748.536	1	20748.536	1244.317	.000[b]
	Residual	6619.830	397	16.675		
	Total	27368.367	398			

a. Dependent Variable: Pupils' Core Subject Average

b. Constant: Teachers' Instructional Practices

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	53.797	.888		60.585	.000	52.051	55.543
	Teachers'	.438	.012	.871	35.275	.000	.414	.462

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	Instructional Practices							
a. Dependent Variable: Pupils' Core Subject Average								

To test the hypothesis that teachers' instructional practices significantly impact pupils' learning achievement, a linear regression analysis was employed. The analysis, as detailed in the Model Summary, ANOVA, and Coefficients tables, demonstrated that the **Instructional Practices Score** is a significant factor of **Pupils' average scores in Core Subjects**, with a regression coefficient of **B = 0.438** ($p < 0.001$). Furthermore, the regression model was statistically significant, $F(1, 397) = 1244.317$, $p < 0.001$, with an R-squared of **0.758**, indicating that approximately **75.8% of the variance** in pupils' learning achievement in core subjects can be explained by teachers' instructional practices.

Given that the p**-value is less than the significance level of 0.05**, the null hypothesis (H_0), which posits no significant relationship, is rejected in favour of the alternative hypothesis (H_1). These results affirm that effective instructional practices by teachers play a crucial role in enhancing pupils' learning achievement in junior secondary schools.

The findings support the argument that teacher effectiveness, particularly in the area of instructional practices, is a key determinant of pupils' learning outcomes. In the context of junior secondary schools, especially in developing countries like Sierra Leone, this underscores the urgent need for teacher training and professional development programmes. Improving instructional strategies not only empowers teachers but also directly contributes to better pupils' learning outcomes.

VIII. DISCUSSION

- *RQ1: What Constitute Teacher Effectiveness within the Context of Junior Secondary Education in Sierra Leone?*

The study's findings revealed that teachers from Port Loko City, Makeni City, Bo City, and the Western Rural Area shared a common view of what constitutes teacher effectiveness in the context of Sierra Leone. They agree that effective teachers possess subject matter knowledge and the ability to teach it. They believe that a teacher who understands the subject well and can convey it effectively is crucial for pupils' learning achievement. This finding aligns with Sumer and Syiem (2021), who described teacher effectiveness as the combination of important skills and qualities such as subject knowledge, teaching experience, and instructional methods. When teachers master the content and pedagogical knowledge, they can clearly explain complex ideas, which helps pupils learn and achieve learning outcomes. The findings also indicated that effective teachers employ diverse, pupil-centred teaching methods, such as group work, continuous assessment, and practical activities, to improve pupils' learning outcomes. This supports Hepsibha and Catherine (2022), who stated that effective teachers utilise creative instructional methods, practical activities, and interactive techniques during teaching and learning. Teachers who adopt pupil-centred methods encourage pupils to engage and participate actively in class. They make lessons engaging and maintain pupils' focus. Furthermore, the findings showed that effective teachers are flexible and capable of adapting their teaching to suit pupils' different learning needs and abilities. A male teacher in Bo City explained, "Effective teachers adjust their teaching to meet the different needs of pupils, making sure everyone has a fair chance to learn." Ko et al. (2017) and Goe et al. (2008) highlighted that effective teachers are 'approachable', 'fair', 'enthusiastic', 'patient', and 'professional'. These teachers modify lessons to meet the diverse learning needs of pupils. Thus, when teachers adapt or adjust their lessons, they create an inclusive classroom where all pupils can learn and achieve their goals. Additionally, effective teachers manage their classrooms effectively by creating a supportive learning environment that fosters pupils' educational growth. They also build positive relationships with their pupils. McKnight et al. (2016) and Habib (2017) emphasised the importance of teachers establishing a safe and caring classroom, building respectful and supportive relationships that motivate pupils and encourage them to learn and reach their potential. Positive relationships boost pupils' confidence, motivation, and academic performance. In summary, the findings demonstrated that teacher effectiveness encompasses subject knowledge, diverse teaching methods, adaptability, classroom management, and positive relationships. These qualities help create an inclusive, supportive classroom environment that enhances pupils' learning outcomes.

- *RQ2: How are Pupils' Learning Achievements Reflected in their Performance in Language Arts and Mathematics?*

The study revealed that most pupils failed the mathematics test, with only 48.6% passing. Similarly, the findings indicated that most pupils barely passed the Language Arts test, while 40.9% failed. These results align with the conclusions of Gegeleso and Ayodele (2023), who found that failure rates in English and Mathematics are generally high, with over half of the pupils (50.5%) failing their exams. The study highlighted that differences in performance are likely related to how effectively teachers can teach. Good teaching, such as clear expectations, interesting lessons, providing helpful feedback, and support for diverse learning needs, can help pupils achieve better results. Conversely, weak teaching methods, poor classroom management, and a lack of subject mastery may be affecting pupils' learning outcomes. Additionally, the study corroborates the Gambia Basic Education Certificate Examination (GABECE) Chief Examiner's Report (2018), which identified factors such as incomplete syllabus coverage, pupils' lack of exam preparedness, question misinterpretations, poor sentence construction, and weak solution presentation as reasons for low performance. The 2022 GABECE Chief Examiner's Report recommended that only qualified teachers handle specialised subjects, that mathematics lessons should be interactive and related to daily life, and that pupils should be encouraged to overcome their fear of mathematics. Furthermore, the findings align with Chand, Chaudhary, Prasad, and Chand (2021), who

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found that pupils often perceive mathematics as difficult and prefer other subjects they consider easier. Many primary school teachers lack the necessary skills and competence to teach mathematics effectively, which diminishes pupils' interest and contributes to poor performance at the secondary level. The study's findings also concur with Abdullahi, Idris, Isah, Dahiru, Lawan, and Sabo (2022), who attributed poor mathematics performance to weak foundational knowledge, lack of interest, insufficient effort, and inadequate preparation. They recommended that teachers create a supportive learning environment where pupils feel comfortable asking questions. Additionally, Sundai and Sheriff (2015) linked poor mathematics performance to understaffed schools, inadequate teaching materials, low motivation, and negative attitudes from teachers and pupils. Amoah (2024) identified several factors responsible for pupils' poor mathematics performance, including a lack of teacher motivation, insufficient homework assignments, failure to use teaching aids, ineffective instructional methods, and teacher indifference. Amoah recommended collaborative teaching methods and interactive activities to enhance learning. Moreover, the study supports Mosha's (2014) findings that untrained, underqualified, or incompetent teachers often skip difficult topics, leading to gaps in pupil learning. Other contributing factors include pupils' limited use of English, poor learning environments, and lack of home support. The shortage of qualified teachers and the omission of challenging topics in the syllabus suggest that pupils were not adequately taught, contributing to low performance in Language Arts and Mathematics. Since the syllabus dictates the topics to be covered and exams are set, incomplete or ineffective teaching hinders pupils' ability to succeed. Consequently, these factors significantly impact overall academic performance.

- *Hypothesis One*

The quantitative analysis conducted through the Pearson correlation revealed a statistically significant and strong positive relationship between teacher effectiveness and pupils' academic achievement in the core subjects of Language Arts and Mathematics. Specifically, the correlation coefficient for Language Arts was $r=0.903$ ($p<0.001$), while for Mathematics it was $r=0.896$ ($p<0.001$). These Coefficients suggest that as the level of teacher effectiveness increases, there is a corresponding and substantial improvement in pupils' academic performance in both subjects. The near-perfect positive correlations underscore the vital role of effective teaching practices in shaping learning outcomes among junior secondary school pupils.

This finding carries profound implications for educational policy and classroom practice, as it quantitatively affirms the centrality of teacher effectiveness in driving pupils' learning achievement. Effective teachers are likely to possess strong pedagogical skills, content knowledge, classroom management abilities, and the capacity to engage and motivate pupils. These competencies directly influence how well pupils grasp subject matter, develop critical thinking skills, and perform in assessments.

The results of this study are aligned with and reinforce existing literature. For instance, Goe et al. (2008) emphasised that teacher effectiveness remains one of the most critical determinants of pupils' learning achievement. Their work advocates for teacher evaluation frameworks that emphasise instructional quality and teacher-pupil interactions, factors that this study also finds strongly correlated with pupils' learning achievement. Similarly, Habib (2017) found a significant association between teacher competence and pupils' academic performance, particularly in foundational subjects such as Language Arts and Mathematics. This alignment across studies adds credibility and generalisability to the current findings, suggesting that regardless of educational context, effective teaching remains a cornerstone of pupils' learning achievement.

Therefore, the strong statistical association observed in this study not only validates prior research but also highlights the urgent need for investment in teacher professional development and effective recruitment practices. Improving teacher effectiveness should be a strategic priority for education stakeholders aiming to enhance pupils' learning achievement at the junior secondary school level.

- *Hypothesis Two*

A linear regression analysis was conducted to assess the impact of teachers' instructional practices on pupils' learning achievement, specifically measured by their core subject average. The analysis yielded a statistically significant result, demonstrating that instructional practices employed by teachers have a substantial and positive impact on pupils' learning outcomes. The regression coefficient $B=0.438$ ($p<0.001$) indicates that for every one unit increase in the quality of instructional practices, there is a corresponding increase of 0.438 units in the pupils' core subject average. This suggests that effective instructional practices play a critical role in enhancing pupils' academic performance.

Furthermore, the model's R-squared value was 0.758, meaning that approximately 75.8% of the variance in pupils' core subject averages can be explained by teachers' instructional practices. The overall model was highly significant, as shown by the F- F-statistic value of 1244.317 with 1 and 397 degrees of freedom, and a significance level of $p<0.001$. This reinforces the conclusion that teachers' instructional practices are a primary determinant of pupils' academic performance.

These findings have direct implications for understanding teacher effectiveness. instructional practices such as lesson planning, use of teaching aids, clarity of instruction, formative assessment, classroom questioning techniques, and provision of timely feedback are central components of effective teaching. When these practices are executed consistently and skilfully, they create an

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environment conducive to active learning, deeper comprehension, and improved learning achievement.

The results align with existing literature, such as the study by McKnight et al. (2016), who observed that high-quality instructional practices positively impact pupils' academic performance. Moreover, the findings are theoretically grounded in Bandura's Social Learning Theory, which advocates for interactive, engaging, and pupil-centred methodologies that promote cognitive development and knowledge construction. By effectively engaging pupils through well-structured instructional strategies, teachers not only facilitate learning but also foster motivation, critical thinking, and long-term retention.

In summary, this analysis underscores the vital role of instructional practices in determining pupils' learning achievement. Enhancing teacher effectiveness through professional development focused on instructional strategies can thus serve as a powerful lever for improving pupils' learning achievement in junior secondary schools.

IX. CONCLUSION

The study has unequivocally demonstrated that teacher effectiveness is a critical determinant of educational outcomes, particularly in subjects such as Language Arts and Mathematics. Effective teachers, defined by their deep subject matter knowledge, strong pedagogical skills, and ability to manage classrooms effectively, have a profound impact on pupils' academic achievement.

The evidence from this study reinforces the widely held belief that teacher quality directly influences pupil performance. Teachers who employ engaging, pupil-centred teaching strategies and create a supportive, well-structured learning environment significantly enhance pupil learning experiences, leading to improved academic outcomes. Conversely, teachers who lack sufficient preparation, fail to engage pupils, or struggle with classroom management contribute to lower academic performance among pupils.

This conclusion supports the view that improving teacher effectiveness is not merely an educational priority but a necessary condition for the improvement of educational standards in Sierra Leone. By focusing on enhancing teacher quality through professional development and resource support, the educational system can begin to address the challenges posed by declining pupil academic performance, particularly in foundational subjects.

The study makes a significant contribution to the understanding of how teacher effectiveness affects pupils' learning achievement in Sierra Leone, a context that has been under-explored in the existing literature. The findings highlight several key dimensions of teacher effectiveness, such as subject knowledge, pedagogical strategies, classroom management, and teacher motivation, that play a pivotal role in determining academic success in junior secondary schools.

One of the key contributions of this study is the identification of specific teacher attributes that most strongly correlate with pupils' learning achievement. These include the teacher's ability to create an interactive classroom, to adapt lessons to the needs of pupils, and to manage the classroom effectively. In the Sierra Leonean context, where educational resources are often limited, the ability of teachers to maximise available resources and engage pupils creatively emerges as a crucial factor in enhancing learning outcomes.

Furthermore, this study provides valuable insights into the challenges faced by teachers in Sierra Leone's educational system. These include overcrowded classrooms, insufficient training, and limited access to teaching materials. By examining these factors in the context of teacher effectiveness, the study offers a nuanced understanding of the barriers to educational improvement in Sierra Leone. It emphasises that addressing these challenges requires not only improving teacher quality but also making systemic changes that provide teachers with the resources and support they need to succeed.

This research also offers a broader understanding of the complex relationship between teaching and learning in developing countries. By examining teacher effectiveness in Sierra Leone, the study contributes to a larger body of literature on educational quality, particularly in contexts where resources are constrained and educational systems face significant socio-economic challenges.

In conclusion, the study reinforces the importance of teacher effectiveness in driving pupil success and provides a framework for understanding the key factors that contribute to better teaching and learning outcomes in Sierra Leone. By emphasising the role of teacher training, classroom management, and the teacher-pupil relationship, this research offers actionable insights for policy makers, educators, and stakeholders' investment in improving education in Sierra Leone.

RECOMMENDATIONS

Given the clear relationship between teacher effectiveness and pupils' learning achievement, a primary recommendation is for the Government of Sierra Leone to prioritise investment in teacher professional development programmes. Continuous training is essential to equip teachers with the necessary pedagogical skills and subject knowledge to meet the evolving needs of pupils.

Teachers should be provided with regular workshops and courses that focus on modern teaching strategies, such as differentiated instruction, formative assessment techniques, and technology integration in the classroom. These professional development opportunities would help teachers create more engaging and interactive learning environments, ultimately benefiting pupil learning achievement.

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Teachers, particularly in core subjects such as Language Arts and Mathematics, should have a deep understanding of the content they teach. The government should offer specialised training programmes that focus on strengthening subject matter knowledge, especially for teachers who may not have received formal qualifications in their specific fields.

New or less experienced teachers should be paired with seasoned educators through mentorship programs. This would not only help new teachers adapt more quickly to the teaching environment but also provide them with a model for best practices in pedagogy, classroom management, and pupil engagement.

Teachers should embrace diverse teaching methods to address the varying learning needs of pupils. This includes incorporating active learning techniques, collaborative learning, project-based learning, and the use of technology to facilitate learning. By using different instructional methods, teachers can cater to the diverse needs of their pupils, fostering better academic engagement and achievement.

Teachers should be encouraged to attend regular workshops, seminars, and training sessions focused on developing specific skills, such as classroom management, digital literacy, and inclusive education practices. These workshops could be delivered by educational institutions, NGOs, or professional teaching associations.

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