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Influence of Headteachers' Enforcement of Infrastructure Safety on Learners' Academic Achievement in Public Primary Schools in Machakos Sub-county, Machakos County, Kenya

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***Abstract**: Headteachers' enforcement of infrastructure safety is vital in improving learners' academic achievement in schools. However, in Machakos Sub-county, many learners manifested academic achievement levels that are below expectations. This study sought to examine the influence of headteachers' enforcement of infrastructure safety on learners' academic achievement in public primary schools. The study was guided by the infrastructure management theory and academic achievement Theory. The study adopted a mixed-methodology and applied a concurrent triangulation research design. The target population comprised 852 respondents, including 63 headteachers, 786 teachers, and 3 Curriculum Support Officers, from which a sample of 273 respondents was determined using Yamane's Formula. This consisted of 15 headteachers, 255 teachers, and 3 CSOs. Qualitative data were analyzed thematically as per the study objectives and presented in narrative form. Quantitative data were analyzed using descriptive statistics, including frequencies and percentages, and inferential statistics using Pearson's Product-Moment Correlation Analysis with the aid of Statistical Package for Social Sciences (SPSS Version 25) and presented using tables. The study found that learners' academic achievement in public primary schools has been low and on a downward trend over the last four years (2022-2025). This has been partly attributed to the headteachers' enforcement of infrastructure safety. The study found that headteachers rarely enforce safety regulations for school infrastructure. Thus, headteachers should prioritize the strict enforcement of school infrastructure safety regulations through regular safety audits, compliance checks, and capacity-building programs for headteachers.*

***Keywords:** Public, Primary schools, Learners' academic achievement, Headteachers, Enforcement of infrastructure safety*

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1. Introduction

Education constructively impacts pupils' minds, character traits, and physical ability. This is realized when learners are enrolled in schools and register impressive academic achievements in examinations or assessments. In the words of Smith and Johnson (2022), academic achievement is the measure of a learner's success in meeting educational goals. In the same token, Brown, Smith and Clark (2021) posit that academic achievement is the extent to which students attain their learning objectives and perform in various academic tasks, typically assessed through grades, test scores, and standardized assessments. This performance reflects the acquisition of knowledge, skills, and competencies

deemed essential within a school curriculum. In other words, learners' academic achievement extends beyond cognitive abilities to include affective and behavioral dimensions. According to Lee and Kim (2023), academic achievement encompasses mastery of content and the development of critical thinking, problem-solving, and motivation to learn. In sum, learners' academic achievement can be conceptualized as a comprehensive indicator of educational success, encompassing cognitive performance, skill development, and socio-emotional growth.

In Yemeni, Agran (2024) posits that any learner who scores a mean grade of 75% or higher is considered to exhibit excellent academic performance. Despite these postulations, many learners still register low grades in their internal and national examinations. In Austria, for instance, a report by Cotton (2023) shows that learners' academic achievement in national examinations stood at 56.9%, compared with a national aggregate of 85.0% in 2022. Cotton (2023) indicates that many Austrian primary schools sometimes register performance as low as 37.9%. This is the same scenario in Haiti, where Gedro, Hartman, and Suárez (2021) posit that academic achievement in many primary schools ranges between 24.8% to 44.8%. In Chile, Contreras and Gallardo (2022) indicate that learners' academic achievement in internal, joint, and national examinations remains low at 36.1%. These scenarios have been attributed to a multiplicity of dynamics, including strategies adopted by school heads to enforce the safety of school infrastructure. In the words of Collymore and Hawk (2023), the enforcement of safety of school infrastructure by headteachers refers to the systematic leadership responsibility of ensuring that all physical learning environments, classrooms, laboratories, sanitation facilities, transport systems, electrical installations, and emergency structures meet established safety standards and are continuously monitored to prevent harm to learners and staff. According to Collymore and Hawk (2023), in the educational leadership literature, this function is framed within "school-based risk governance, in which headteachers act as operational managers of safety compliance, emergency preparedness, and infrastructural maintenance. The underlying concept assumes that safe learning environments reduce disruption, increase attendance, and improve cognitive focus, thereby indirectly enhancing academic achievement.

In the United States of America, Smith and Johnson (2023) assert that school heads operate within highly regulated safety frameworks supported by government inspection agencies. Smith and Johnson (2023) further note that school leaders are legally required to enforce building codes, fire safety regulations, accessibility standards, and digital safety infrastructure. In the same vein, Brown (2024) conducted research that revealed that well-maintained and secure school environments correlate with improved student performance, driven by reduced absenteeism, lower injury rates, and enhanced classroom stability. Brown (2024) further found that safety audits and preventive maintenance schedules ensure that infrastructure failures rarely interrupt instructional time, allowing sustained curriculum delivery and optimized learning outcomes. In Africa, the role of headteachers in ensuring school infrastructure safety is often more intervention-driven due to resource constraints.

According to Shona (2022), headteachers frequently act as both administrative leaders and infrastructure advocates, mobilizing community support, local funding, and non-governmental partnerships to address safety gaps. Despite infrastructural challenges, schools that demonstrate proactive leadership in safety management tend to record better academic outcomes, primarily because learners experience greater psychological security and reduced exposure to environmental hazards such as overcrowded classrooms or unsafe sanitation facilities. For instance, in Nigeria, Nwoye (2024) posits that headteachers often contend with infrastructural deficits such as inadequate classroom structures, unreliable electricity, and limited safety equipment, requiring adaptive leadership strategies to maintain functional learning environments. In South Africa, Zuma (2024) avers that, although many schools are comparatively better resourced, disparities persist between urban and rural institutions, requiring headteachers to enforce safety compliance alongside equity-focused resource management. In both contexts, evidence suggests that schools with strong safety enforcement cultures experience improved learner concentration, reduced dropout rates, and higher examination performance. In Kenya, Mwangi and Kamau (2024) opine that headteachers play a central role in implementing safety standards under the Ministry of Education's guidelines, particularly in public schools, where infrastructure maintenance is shared between the government and school management boards.

The same scenario is replicated in Machakos Sub-county. Wambua (2024) notes that headteachers are often required to enforce safety through routine classroom inspections, reinforcement of structural integrity, and management of overcrowding. According to Wambua (2024), schools that strictly adhere to infrastructure safety protocols, such as secure classroom buildings, safe water access, and proper sanitation facilities, report improved student attendance and better academic performance in national examinations. However, such initiatives have not improved learners' academic achievement. For example, in public primary schools in Machakos Sub-county, learners still register low competencies in national examinations. For instance, a report authored by the NASMLA (2024) also found that only 19.4% of learners in public primary schools in Machakos Sub-county manifest improved literacy and communicative competency, only a paltry 11.9% can undertake basic numeracy and number work activities,

while 16.3% have mastered essential life skills such as team building and leadership competencies. This further lends credence to the findings of a Ministry of Education (2025) report that, in the 2022 Kenya Primary School Education Assessment (KPSEA), only about 33.3% of learners scored over 50.0%. This was replicated in 2023 and 2024, when only 31.9% and 30.7% of learners, respectively, registered academic achievements above expectations in KPSEA. However, few empirical studies had interrogated the extent to which headteachers' enforcement of infrastructure safety has influenced learners' academic achievement in public primary schools; thus, the study.

1.1 Research Objectives

The study sought to address the following objectives:

1. To assess the status of learners' academic achievement in public primary schools in Machakos Sub-county.
2. To examine the influence of headteachers' enforcement of infrastructure safety on learners' academic achievement in public primary schools in Machakos Sub-county.

2. Literature Review

2.1 Empirical Literature

A safe school building is more than a roof and walls. It is an environment where classrooms are structurally sound, fire exits work, water and sanitation are reliable, and hazards are actively managed. According to the World Bank (2025), when governments and school systems enforce safety standards through inspections, compliance monitoring, and corrective works, learners attend more, feel safer, and learn better. International and country-specific reports increasingly link safety enforcement to student outcomes such as attendance, progression, and assessment results. A study carried out in France by Macron (2024) found that regular evaluation of safety and learning conditions is part of overall quality. Macron (2024) further found that national reforms aimed at reducing dropout and improving success also sit alongside facility and safety oversight. National guidance often works with local authorities to audit buildings and plan repairs, so problems are fixed before they grow.

In Germany, a study by Peterson (2023) found that the federal system gives states and municipalities significant roles, which use strict building rules and regular inspections to ensure schools comply. Peterson (2023) further revealed that enforcing safety is not only about compliance; it is a direct investment in fair, sustained learning for every student. In other words, strong oversight today builds resilient schools and better outcomes for future cohorts across generations. In New Zealand, Wilson (2023) undertook a study which revealed that consistent enforcement secures adequate ventilation, lighting, heating, and accessibility, supporting attendance, concentration and inclusive participation. According to Wilson (2023), when classrooms are warm, dry, and well-lit, teachers can plan inquiry-based lessons rather than manage hazards or relocations. In other words, clear accountability among boards, principals, and local authorities accelerates maintenance, preventing small defects from escalating into costly closures. These findings underscore the fact that safe buildings protect instructional time and underpin steady gains in literacy, numeracy, and wellbeing. These conditions nurture confident learners. Teacher morale also rises.

In Nigeria, Tinubu (2024) notes that, where enforcement capacity and funding vary, infrastructure conditions can be uneven, with risks from overcrowding, heat, flooding, and electrical faults. In keeping with these assertions, Adeniyi (2024) conducted a study that found that strengthening enforcement through transparent compliance checks, ring-fenced maintenance budgets, and community monitoring improves safety and learning continuity. Adeniyi (2024) further revealed that safe water and sanitation reduce disease-related absenteeism; reliable power and ventilation lower heat stress, enabling longer attention spans and effective use of digital tools. The study further revealed that enforcement that mandates safe perimeters, laboratories, and accessible classrooms supports girls, learners with disabilities, and rural students, narrowing equity gaps.

In Rwanda, ensuring school infrastructure safety shapes learners' academic achievement by improving attendance, wellbeing, and instructional quality. For instance, a study by Peters (2024) found that safe classrooms, stable roofs, adequate ventilation, and hazard-free corridors reduce injuries and illnesses, keeping pupils in school and teachers at work. Reliable water, sanitation, and hygiene facilities limit disease outbreaks and menstrual-related absenteeism. Fencing, lighting, and clear evacuation routes lower bullying and disaster risk, creating calm environments where time on task rises, and concentration improves. In Kenya, ensuring school infrastructure safety has a direct, measurable impact on learners' academic achievement. For instance, research conducted by Otieno (2024) revealed that safe, well-maintained classrooms, reliable electricity, clean water, and hygienic sanitation reduce disease, injury, and noise, which protects learning time.

Otieno (2024) noted that, when learners feel secure, they attend more regularly, settle faster at the start of lessons, and engage with tasks for longer. The study further found that teachers can, in turn, plan experiments, work, and assessments without fear of leaks, darkness, or unsafe furniture. These conditions strengthen concentration, support literacy and numeracy practice, and build confidence during exams. In Machakos Sub-county, a study by Musimi (2024) found that safety enforcement

narrows gaps by prioritizing roofs, floors, latrines, and fencing before nonessential upgrades. Musimi (2024) further established that accessible designs, such as ramps, handrails, wider doors, and well-lit paths, enable learners with disabilities to move freely and participate fully. Private, safe sanitation reduces absenteeism among girls, especially during menstruation, which has a strong cumulative effect on achievement. The study also revealed that, when leaders display compliance reports, engage boards of management and parents, and respond quickly to hazards, learners witness accountability. They see that learning spaces are respected, which raises morale and motivation. However, much still needed to be done, since Musimi (2024), as did other reviewed studies, had not exhaustively interrogated the extent to which activities undertaken by headteachers to enforce infrastructure safety influence learners' academic achievement, thus, the study.

2.2 Theoretical Framework

This study was guided by the infrastructure management theory, first proposed by Harold D. Lasswell in 1951, and is centered on the efficient planning, development, maintenance, and operation of infrastructure systems that support organizational goals. In an educational context, these assets include school buildings, classrooms, sanitation facilities, water systems, electrical installations, playgrounds, and emergency safety systems. The theory assumes that infrastructure is not merely a static input but an active determinant of performance outcomes. It emphasizes lifecycle management, risk mitigation, sustainability, and alignment between infrastructure conditions and institutional goals. In studies examining the influence of headteachers' enforcement of infrastructure safety on learners' academic achievement in public primary schools, infrastructure management theory provides a structured lens for understanding how safety governance translates into educational outcomes. A central principle of this theory is lifecycle optimization. This principle holds that infrastructure must be managed across its entire lifecycle: planning, design, construction, operation, maintenance, and eventual replacement. In primary schools, headteachers play a critical role in ensuring that classrooms and facilities remain functional and safe throughout their use. Enforcement of safety standards, such as regular building inspections, timely repair of damaged structures, and monitoring of electrical and sanitation systems, reflects lifecycle thinking. When headteachers actively enforce maintenance schedules, they reduce infrastructure deterioration, thereby minimizing disruptions to learning and enhancing consistent academic engagement.

Another key principle is risk management. Infrastructure systems inherently carry risks, including structural collapse, fire hazards, hygiene-related illnesses, and environmental exposure. Infrastructure management theory requires identifying, assessing, and mitigating these risks to ensure user safety. In the school context, headteachers act as frontline risk managers. Their enforcement of safety protocols, such as ensuring that classrooms are not overcrowded, exits are accessible, and hazardous materials are properly stored, directly reduces the probability of accidents and health-related absenteeism. Reduced risk exposure contributes to improved learner attendance and concentration, both of which are strongly associated with academic achievement. The theory also emphasizes asset condition monitoring and performance evaluation. Effective infrastructure management depends on continuous data collection regarding the state of facilities.

In schools, this can include routine inspections, safety audits, and reporting systems for damaged infrastructure. Headteachers who implement structured monitoring systems ensure that infrastructure defects are identified early and corrected before they escalate. This proactive approach reduces downtime and prevents learning interruptions caused by facility failures such as collapsed roofs or broken sanitation systems. Stable learning environments provide the physical and psychological conditions necessary for improved student performance. Sustainability is another foundational principle of infrastructure management theory. Sustainability involves ensuring that infrastructure remains functional, cost-effective, and environmentally responsible over time. In public primary schools, headteachers who enforce efficient resource use, such as water conservation, energy management, and proper waste disposal, contribute to a healthier school environment. A clean and well-maintained environment reduces disease prevalence among learners, thereby improving school attendance rates and cognitive performance.

Sustainable infrastructure practices also free up financial resources that can be redirected toward instructional materials and academic support services. In this study, this theory is applicable since it provides a comprehensive framework for analyzing how headteachers' enforcement of safety measures in school infrastructure influences learners' academic achievement. Through principles of lifecycle management, risk mitigation, performance monitoring, and sustainability, the theory explains how effective infrastructure governance creates stable, safe, and productive learning environments. In public primary schools, strong enforcement of infrastructure safety is not only a matter of compliance but a strategic educational intervention that directly supports improved academic outcomes. In other words, well-maintained infrastructure enhances learner motivation, reduces absenteeism, and improves teacher morale. Teachers are more likely to deliver effective instruction in safe, functional environments, while learners are better able to concentrate without fear of physical harm or disruption. Headteachers' enforcement of infrastructure safety policies, therefore, serves as a mediating factor between

physical school conditions and academic performance indicators, such as test scores and completion rates.

The study was also anchored in the academic achievement theory, proposed by Herbert J. Walberg in 2012 as a framework for explaining the factors that contribute to learners' academic performance, integrating cognitive, psychological, and environmental aspects. At its core, this theory emphasizes the impact of internal and external factors on students' academic success. The internal factors primarily include intelligence, motivation, and self-regulation, while external factors involve the support systems, resources, and the learning environment. When exploring the role of headteachers' management of school infrastructure, the application of academic achievement theory becomes crucial for understanding how the physical and operational environments affect learners' academic outcomes. The principle of academic achievement theory asserts that the quality of the educational environment directly influences students' performance. This is particularly relevant when examining the role of school infrastructure, which includes classrooms, libraries, laboratories, and recreational facilities. Headteachers play a central role in managing these resources, ensuring they are well-maintained, accessible, and conducive to effective learning. For instance, a well-managed school infrastructure, including properly equipped classrooms, can foster a positive learning environment where students can focus on their studies, thereby boosting academic achievement. On the other hand, poorly managed infrastructure, such as overcrowded classrooms or inadequate teaching materials, can create barriers to learning, potentially hindering students' ability to reach their academic potential. Furthermore, academic achievement theory underscores the importance of school climate, which is shaped significantly by the headteacher's leadership in managing infrastructure. A positive school climate, created through well-maintained facilities and effective resource allocation, fosters a sense of safety and support for students. This environment not only supports academic performance but also fosters the development of social and emotional competencies, which are critical to academic success. For example, a school with well-maintained sports facilities may encourage student engagement in extracurricular activities, helping them develop essential skills such as teamwork and leadership, which influence academic performance. Applying this theory to the management of school infrastructure reveals that the headteacher's role is multifaceted. Their responsibility extends beyond just administrative tasks to include creating a learning-friendly environment that optimizes the use of space, technology, and resources. By leveraging academic achievement theory, the researcher may gain insights into the importance of school infrastructure in fostering an environment that supports student learning and, ultimately, academic success. In other words, by emphasizing the interplay between cognitive and environmental factors, this theory can guide studies that explore how headteachers can effectively manage school facilities to enhance students' educational experiences and outcomes.

3. Methodology

The study employed a mixed-methods approach and used a concurrent triangulation research design, in which quantitative and qualitative methods were implemented simultaneously with equal priority. The target population comprised 852 respondents: 63 headteachers, 786 teachers, and 3 Curriculum Support Officers. A sample size of 273 respondents was derived using Yamane's Formula. Stratified sampling was applied to establish three strata corresponding to the zones within Machakos Sub-County. Within each zone, five headteachers were selected purposively, and all Curriculum Support Officers were included in the study. In addition, 85 teachers were selected from each zone using simple random sampling. This approach produced a sample of 15 headteachers, 255 teachers, and 3 Curriculum Support Officers. Data collection for quantitative analysis was conducted using questionnaires administered to teachers, while qualitative data were obtained from headteachers and Curriculum Support Officers through interview guides. Qualitative data were analyzed thematically in accordance with the study objectives and presented in narrative form. Quantitative data were analyzed using descriptive statistics such as frequencies and percentages, as well as inferential statistics using Pearson's Product-Moment Correlation analysis, with the assistance of the Statistical Package for Social Sciences (SPSS Version 25), and results were presented in tabular form. Ethical approval was obtained from the Mount Kenya Ethical Review Committee (MKU ERC) prior to data collection. The researcher ensured confidentiality by safeguarding all personal information provided by respondents and guaranteeing that no private data would be shared with third parties. The purpose and nature of the study were clearly explained to all participants, along with the procedures involved in data collection, to ensure voluntary participation. All raw data were systematically filed for ease of reference. After analysis, printed outputs were securely stored, while electronic copies were saved on digital storage devices such as CDs and flash drives.

4. Results and Discussion

This section outlines the study findings according to the research objectives and provides an overview of how the results are organized and interpreted.

4.1 Response Rates

In this study, 255 questionnaires were administered to teachers and, in return, 230 questionnaires were filled and returned. The researcher also interviewed 13

headteachers and the 3 Curriculum Support Officers and held focus group discussions with 333 student leaders. This yielded response rates shown in Table 1;

Table 1: Response Rates

Respondents	Sampled Respondents	Those Who Participated	Achieved Return Rate (%)
Headteachers	15	13	86.7
Teachers	255	230	90.2
Curriculum Support Officers	3	3	100.0
Total	**273**	**246**	**90.1**

Source: Field Data (2026)

Table 1 shows that headteachers had a response rate of 86.7%, teachers 90.2%, and Curriculum Support Officers 100.0%. This yielded an average response rate of 90.1%, consistent with Creswell's (2018) assertion that a response rate above 75.0% is adequate. This information was important because it enabled the researcher to generalize the study's outcomes to the target population. This high response rate was particularly significant because it provided confidence in the reliability and validity of the data collected. By securing such a high level of participation, the researcher ensured the findings could be appropriately generalized to the broader target population. In other words, the results are more likely to reflect the characteristics and perspectives of the entire population under study, enhancing the study's overall credibility and applicability.

4.2 Learners' Academic Achievement in Public Primary Schools

The study sought to assess learners' academic achievement in public primary schools in Machakos Sub-county. This was done by taking stock of learners' competencies in the Kenya Primary School Education Assessment (KPSEA) over the last 4 years (2022-2025). Results are shown in Table 2.

Table 2: Learners' Academic Achievement in Kenya Primary School Education Assessment between 2022 and 2025

Academic Year	EE	ME	AE	BE
2022	43.5	29.5	11.9	15.1
2023	41.3	27.1	20.4	11.2
2024	40.6	30.7	19.3	9.4
2025	37.5	28.3	29.1	5.1
Average	**40.7%**	**28.9%**	**20.2%**	**10.2%**

Source: Field Data (2026)

Table 2 shows that, for the last four years (2022-2025), there has been a progressive decline in learners' academic achievement. That is, many learners manifest competencies that have progressively declined from meeting expectations to below expectations. This trend indicates a gradual deterioration in students' knowledge acquisition, skill mastery, and overall learning outcomes.

4.3 Headteachers' Enforcement of Infrastructure Safety and Learners' Academic Achievement in Public Primary Schools

The study examined the influence of headteachers' enforcement of infrastructure safety on learners' academic achievement in public primary schools. Results are presented in Table 3.

Table 3: Teachers' Views on the Influence of Headteachers' Enforcement of Infrastructure Safety on Learners' Academic Achievement in Public Primary Schools

Test Items	Ratings				
	SA %	A %	U %	D %	SD %
In public primary schools, the headteachers rarely conduct regular safety audits as a way of improving learners' academic achievement	49.6	5.0	4.3	33.8	7.2
Headteachers rarely enforce adherence to health and safety standards, which has improved learners' academic achievement	52.5	12.2	2.9	26.6	5.8
In public primary schools, the headteachers often provide safety equipment as a way of improving learners' academic achievement	44.6	15.8	4.3	28.8	6.5
Headteachers ensure that school infrastructure is prepared safely, so as not to injure learners	59.7	7.9	5.8	21.6	5.0
In public primary schools, activities undertaken to ensure infrastructure safety have not improved learners' academic achievement	54.7	8.6	3.6	26.6	6.5

Source: Field Data (2026)

Table 3 shows that 114(49.6%) of the teachers strongly agreed that, in public primary schools, the headteachers rarely conduct regular safety audits to improve learners' academic achievement, while 17(7.2%) strongly disagreed. These findings indicate that the safety of school infrastructure is vital to learners' academic success. According to the study's findings, headteachers rarely conduct regular safety audits to improve learners' academic achievement. Safety audits are important because they help identify hazards, assess risks, and ensure that learning environments remain safe and conducive to teaching and learning. However, the findings suggest that many headteachers do not consistently undertake such evaluations. This may be attributed to inadequate resources, limited training in school safety management, or competing administrative responsibilities. This lends credence to the findings of Mwangi and Ndirangu (2023), who revealed that regular school safety audits help identify infrastructural weaknesses and environmental risks that may interfere with learners' concentration and academic performance. Similarly, UNESCO (2023) notes that proactive safety inspections help create secure learning environments, thereby supporting learner attendance and engagement. Despite these benefits, the present findings indicate that safety audits are not commonly practiced in many public primary schools. More than half of the teachers, 121(52.5%), strongly agreed that headteachers rarely enforce adherence to health and safety standards, which has improved learners' academic achievement, while 13(5.8%) strongly disagreed. This indicates that while formal enforcement mechanisms are limited, schools may still benefit from general awareness of safety practices among teachers and learners. This corroborates the findings of Oduro and Mensah (2024), who found that schools that consistently adhered to safety guidelines experienced lower rates of accidents and absenteeism, thereby positively influencing academic outcomes. Likewise, the United Nations Children's Fund (2023) reported that safe and healthy learning environments enhance learners' well-being, motivation, and educational attainment. Therefore, although the study found a positive association, the rare enforcement of standards may expose schools to future risks that could eventually undermine academic success. The study found that 103 teachers (44.6%) strongly agreed that, in public primary schools, headteachers often provide safety equipment to improve learners' academic achievement, while 15 (6.5%) strongly disagreed. This implies that safety equipment such as fire extinguishers, first-aid kits, protective gear, and emergency response materials contributes to a secure school environment. The availability of such resources helps schools respond effectively to emergencies, minimizing disruptions to learning. These findings align with recent research by Karanja and Waweru (2023), who established that schools equipped with adequate safety facilities reported improved learner confidence, reduced anxiety, and better classroom participation. Similarly, a World Bank report (2024) highlighted that investment in school safety infrastructure improves educational outcomes by ensuring the continuity of learning during emergencies. The provision of safety equipment, therefore, reflects a practical commitment by headteachers to safeguard learners and support academic achievement.

More than half of the teachers, 137(59.7%), strongly agreed that headteachers ensure that school infrastructure is prepared safely to prevent injuries to learners, while 12 (5.0%) strongly disagreed. These findings are consistent with the assertions of Adeyemi and Bello (2023) that safe school facilities enhance learners' comfort, concentration, and attendance, thereby positively influencing academic performance. Additionally,

UNESCO (2024) observed that schools with secure infrastructure provide a stronger foundation for effective teaching and learning processes. The study further found that 126(54.7%) of the teachers strongly agreed that, in public primary schools, activities undertaken to ensure infrastructure safety have not improved learners' academic achievement, whereas 15(6.5%) strongly disagreed. This indicates that, while infrastructure safety is necessary, it may not directly translate into improved academic outcomes unless accompanied by other educational inputs such as quality teaching, adequate learning resources, and effective school leadership. Research by Njoroge and Kimani (2024) supports this observation, indicating that safe infrastructure alone does not guarantee improved academic performance but rather serves as an enabling factor.

These findings indicate that although headteachers in public primary schools have not fully implemented infrastructure safety measures, these measures remain a critical factor in promoting learners' academic success. Safe school infrastructure provides a conducive learning environment by reducing accidents, minimizing disruptions to teaching and learning, and enhancing learners' concentration and attendance. Schools where safety measures are effectively implemented tend to achieve better academic outcomes because learners feel secure and can focus on their studies. Therefore, greater commitment by headteachers to enforcing infrastructure safety standards is essential for improving educational quality and academic achievement in public primary schools.

4.3.1 Inferential Analysis

To verify the influence of headteachers' enforcement of infrastructure safety on learners' academic achievement in public primary schools, data were collected from 13 headteachers of the sampled public primary schools on how often (Very Often = 5, Often = 4, Sometimes = 3, Rarely = 2 and Never = 1) they enforce regulations for safety of infrastructure and learners' academic achievement in KPSEA from 2022 to 2025. Results are shown in Table 4.

Table 4: How Often Headteachers Enforce Infrastructure Safety and Learners' Academic Achievement in Public Primary Schools

How Often Headteachers Enforce	Learners' Academic Achievement (KPSEA Results)			
Infrastructure Safety	**2022**	**2023**	**2024**	**2025**
1	41.6	40.1	37.8	35.9
1	34.9	55.5	50.4	44.3
2	43.3	59.1	49.4	40.5
2	33.2	30.6	30.3	29.5
3	27.4	33.7	30.9	30.1
3	36.9	43.5	34.7	34.1
5	48.9	37.1	32	31.4
2	57.8	54.5	48.1	43.3
4	70.1	63.5	61.3	56.9
5	66.7	59.4	53.8	50.7
4	59.4	53.9	50.3	49.3
4	60.3	55.9	57.8	48.4
5	47.6	44.4	40.6	39.9

Source: Filed Data (2026)

Table 4 shows that in public primary schools where headteachers regularly ensure the safety of infrastructure, learners achieve higher competencies in national assessments. This implies that safe infrastructure creates a conducive learning environment by minimizing accidents, injuries, and disruptions that may interfere with teaching and learning processes. When classrooms, playgrounds, sanitation facilities, and other school structures are regularly inspected and maintained, learners can concentrate on academic activities without fear of harm or discomfort. The enforcement of infrastructure safety also promotes regular school attendance among learners. Parents are more willing to send their children to schools that provide secure and healthy learning environments. Consistent attendance enables learners to participate fully in classroom activities, complete assignments, and benefit from continuous instruction, all of which contribute to improved academic performance. Furthermore, teachers working in safe environments are more motivated and effective in delivering quality instruction. The findings indicate that headteachers play a critical role in ensuring that school facilities meet required safety standards. Through regular monitoring, maintenance, and implementation of safety policies, they foster environments that support effective learning. Consequently, schools with strong infrastructure safety practices are more likely to achieve better learner competencies and improved outcomes in national assessments. Data in Table 4 were subjected to Pearson's Product-Moment Correlation Analysis. Results are shown in Table 5:

Table 5: Relationship between Headteachers' Enforcement of Infrastructure Safety and Learners' Academic Achievement in Public Primary Schools

		X	B	C	D	E
X	Pearson Correlation	1	.599*	.574*	.570*	.511**
	Sig. (2-tailed)		.030	.040	.042	.019
	N	13	13	13	13	13
B	Pearson Correlation	.599*	1	.962**	.945**	.828**
	Sig. (2-tailed)	.030		.000	.000	.000
	N	13	13	13	13	13
C	Pearson Correlation	.574*	.962**	1	.966**	.989**
	Sig. (2-tailed)	.040	.000		.000	.000
	N	13	13	13	13	13
D	Pearson Correlation	.570*	.945**	.966**	1	.991**
	Sig. (2-tailed)	.042	.000	.000		.000
	N	13	13	13	13	13
E	Pearson Correlation	.511**	.828**	.989**	.991**	1
	Sig. (2-tailed)	.019	.000	.000	.000	
	N	13	13	13	13	13

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Key: **X**- How Often Headteachers Enforce Infrastructure Safety; **B, C, D** and **E**-Learners' Academic Achievement.

Table 5 presents the results of a Pearson Product-Moment Correlation Test, which showed a statistically significant correlation between headteachers' enforcement of infrastructure safety and learners' academic achievement in public primary schools. The analysis yielded correlation coefficients r1 = 0.599, r2 = 0.574, r3 = 0.570, and r4 = 0.511, with corresponding p-values of 0.030, 0.04, 0.042, and 0.019, all of which were below the predetermined significance level of 0.05. This implies that schools where headteachers actively ensure the safety of physical facilities tend to record better academic outcomes among learners. Infrastructure safety enforcement includes conducting regular inspections of school buildings, ensuring classrooms are structurally sound, maintaining safe playgrounds, repairing damaged facilities, and implementing measures to prevent accidents and injuries. When school infrastructure is safe, learners can study in an environment that promotes concentration, comfort, and regular attendance. Safe classrooms reduce disruptions caused by accidents, while well-maintained facilities enhance learners' confidence and motivation to engage in academic activities. Furthermore, effective safety measures minimize health and security risks that could otherwise disrupt teaching and learning. The findings imply that headteachers play a critical role in creating secure learning environments that support educational achievement. By prioritizing infrastructure safety, school leaders contribute to improved learner welfare and academic performance.

4.3.2 Thematic Analysis

During the interviews, headteachers and Curriculum Support Officers also indicated that safety audits of school infrastructure are infrequent. Headteacher, H1, noted;

> *At my school, we do not conduct safety audits regularly due to limited time and resources. Most inspections are done when there is a specific concern or when education officers are expected to visit the school*

On their part, the Curriculum Support Officers had this to say;

> *In my zone, many schools lack a structured schedule for safety audits. As a result, some hazards remain unnoticed until they affect learners or school operations*

These qualitative findings further indicate that infrequent safety audits reduce opportunities to identify and address risks that may disrupt learning. Regular audits contribute to safer learning environments, improved attendance, and reduced accidents. Failure to institutionalize routine inspections may therefore hinder efforts to enhance learners' academic achievement. Regarding the enforcement of health and safety standards, the interviewees stated that headteachers rarely enforce them consistently. While schools have guidelines on sanitation, classroom safety, and emergency preparedness, enforcement remains weak due to inadequate resources, overcrowding, and competing administrative responsibilities. Headteacher, H2, stated;

> *In my school, we try to enforce safety standards, but financial constraints make it difficult to meet all the requirements consistently*

Similar views were expressed by the CSOs, who stated that financial constraints hamper the enforcement of health standards in schools. CSO1 noted;

> *In my zone, some schools understand the standards, but enforcement is often irregular, especially where infrastructure and resources are inadequate*

These views further indicate that weak enforcement of health and safety standards can negatively affect learners' well-being and concentration. Safe and healthy school environments support regular attendance, motivation, and effective learning. Therefore, inadequate implementation of safety standards may undermine the potential academic benefits of secure, healthy learning conditions. However, the interviewees stated that headteachers often provide safety equipment such as first-aid kits, fire extinguishers, and protective gear. Participants viewed the availability of safety equipment as an important measure for preventing injuries and ensuring continuity of learning activities. Headteacher, H3, noted;

> *In my school, we ensure that first-aid kits and fire extinguishers are available because they help us respond quickly to emergencies and keep learners safe*

On their part, the Curriculum Support Officers had this to say;

> *In my zone, schools that provide adequate safety equipment are generally better prepared to handle emergencies without disrupting learning activities*

This further indicates that providing safety equipment contributes to a secure learning environment by reducing the severity of accidents and emergencies. Learners feel protected, while teachers can conduct lessons with confidence. Such preparedness minimizes interruptions to instruction and supports conditions favorable to improved academic performance. During the interviews, the headteachers and CSOs stated that headteachers make efforts to ensure school infrastructure is safely prepared and maintained to prevent injuries. Maintenance of classrooms, pathways, playgrounds, and sanitation facilities was identified as a critical responsibility to protect learners from avoidable accidents. Headteacher, H4, noted;

> *In my school, before learners use any facility, we check whether it is safe and make repairs where necessary to avoid accidents*

Similarly, the Curriculum Support Officer, CSO2, stated;

> *In my zone, most headteachers understand the importance of maintaining safe infrastructure because unsafe facilities can expose learners to injuries and disrupt learning*

These views further affirm the fact that safe infrastructure promotes a conducive learning environment by reducing accidents and fostering learner confidence. Well-maintained facilities support uninterrupted teaching and learning activities. However, the interviewees also noted that, although schools undertake various infrastructure safety activities, participants perceived limited direct influence on learners' academic achievement. Headteacher, H5, noted;

> *In my school, safety activities are important, but academic performance depends on many other factors beyond infrastructure safety alone*

On their part, the Curriculum Support Officer, CSO3, stated;

> *In my zone, improving infrastructure safety creates a better environment, but it does not automatically translate into higher examination scores*

These qualitative insights further indicate that infrastructure safety serves as an enabling factor rather than a direct determinant of academic achievement. While safe facilities support effective learning, academic outcomes are influenced by multiple interconnected variables.

5. Conclusion and Recommendations

5.1 Conclusion

Learners' academic achievement in public primary schools has been low and on a downward trend over the last four years (2022-2025). This has been partly attributed to the enforcement of infrastructure safety by headteachers. From the study findings, one critical factor identified is the inconsistent enforcement of safety regulations concerning school infrastructure. While schools may have upgraded classrooms, furniture, and other physical facilities, neglecting safety standards exposes learners to hazards such as unstable structures, unsafe electrical installations, and poorly maintained playgrounds. These unsafe conditions have been found to negatively affect learners' concentration, attendance, and overall academic performance. Consequently, the research emphasizes that improving academic outcomes

requires more than infrastructure enhancement; it necessitates rigorous enforcement of safety protocols and regular monitoring to ensure a secure learning environment. Headteachers' failure to prioritize safety regulations undermines the potential benefits of infrastructure investments, highlighting a gap between resource mobilization and tangible educational outcomes.

5.2 Recommendations

From the findings, the following recommendations were posited:

1. As a practice, headteachers should prioritize the strict enforcement of school infrastructure safety regulations through regular safety audits, compliance checks, and capacity-building programs for school administrators.
2. As a policy, the Ministry should develop a clear policy to ensure enforcement and mandatory compliance, as improving infrastructure safety is likely to enhance learner attendance, concentration, and overall academic achievement.

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