

Relationship between Implementation of Safety Standards and Guidelines for Physical Infrastructure, and Student Safety in Public Mixed Boarding Secondary Schools in Nakuru County, Kenya

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ABSTRACT:

The study aimed at finding out the relationship between implementation of Safety Standards and Guidelines for Physical Infrastructure in public mixed boarding secondary schools in Nakuru County, Kenya. The study was guided by Invitational Theory by Purkey and Schmidt and Systems Theory by Von Bertalanffy. The target population was 16 principals, 18 deputy principals and 2130 Form 4 students drawn from all 16 public mixed boarding secondary schools in the county. The study adopted a descriptive survey design. The sample size comprised 327 Form 4 students. A census approach was used. The population of the study was clustered into 9 sub counties. Stratified sampling technique was used to categorize the population into three strata namely principals, deputy principals and Form 4 students. The principals and deputy principals were selected using purposive sampling technique, while the students were selected using simple random sampling technique. Data from students was collected by use of questionnaires, while that from principals and deputy principals was collected using interview schedules. The researcher also used observation checklist to determine the level of implementation of the selected Safety Standards Guidelines in the schools. Prior to use, the instruments were subjected to validity checks with the help of university supervisors and reliability tests guided by the 0.7 Cronbach's Alpha Reliability Coefficient level. Data analysis was done using tools in the SPSS version 22. Analysis involved computation of descriptive statistics: frequencies and percentages, and inferential statistics: Pearson Correlation and Regression coefficients. The data was then presented in tables and textually.

Key words: Implementation, safety standards and guidelines, safety standards and guidelines for physical infrastructure, student safety.

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Introduction

Globally, past researchers have demonstrated the fact that heads of schools have a duty to provide children with a safe, secure, and peaceful environment in which learning can occur (Ministry of Education, Guyana, 2017; Wanzala, 2017). One of the responsibilities of head teachers is to ensure that school resources are efficiently used in fostering a safe, secure and caring environment in the school (MOE, 2008). Student safety refers to a state in school where students feel protected from harmful situations such as injuries, contaminated food and substance abuse. A safe school is a place free from violence and represented by an environment in which no perceived fear of the school or its disciplinary procedures exists. The safety of schools is a fundamental and essential component of the learning process. Creation of safe schools where teaching and learning can take place is necessary if the school goals are to be met (Grover, 2015).

The necessity for student safety in schools has been highlighted in many schools, globally. According to Musu-Gillette, et al. (2018), there were cases of violent deaths among students in the United States. School officials in Canada, Mexico, Honduras, Guatemala, Argentina, Israel, the United Kingdom, Vietnam, South Africa, Trinidad – Tobago and Kenya all have safety concerns ranging from poisonous snakes, spiders and centipedes to gang violence, terrorism and devastating natural disasters (Dorn, 2016). Interestingly, all these countries had safety guidelines in place, yet the student safety was not guaranteed. This is a concern because for students to succeed, their educational environment must be safe, secure and orderly. Countries, globally, have enacted laws to ensure that learners are safe in schools. Examples include The Education Act (1996), the School Premises (England) Regulations 2012 (SPRs) Act in the United Kingdom, and in South Africa the Child Care Act,

1983 (Act 74 of 1983); the Domestic Violence Act, 1998 (Act 116 of 1998); the South African Schools Act, 1996 (Act 84 of 1996), and the Occupational Health and Safety Act, 1993 (Act 85 of 1993) help in promoting student safety. These Acts are all to a larger extent, concerned with protecting the physical and psychological integrity of learners. One common concern addressed in these laws is the safety of school infrastructure.

In Kenya, Safety Standards Manual for schools was developed in the year 2008 following experienced unprecedented insecurity, leading to internal displacement of over 300,000 people, and many of them school children (Safety Standards Manual, 2008). The Safety Standards and Guidelines were prepared amidst recurrent cases of child abuse reported across the country. Among the thirteen concerns addressed by the manual is safety of school infrastructure. However student safety remains a concern (Kemunto, et al., 2012). It is clear that students may not be safe in some schools, and this casts doubts on the level of implementation of Safety Standards and Guidelines.

Past studies in Kenya show that Student Safety Standards and Guidelines across the country had not been implemented as expected. Such studies include Makau (2016) in Public Secondary Schools in Machakos County and Migiro (2012) in a study in Borabu Sub County, Kenya found that majority of the schools had not implemented the safety standards and guidelines owing to reasons such as inadequate funds and lack of strict supervision. Nakuru is one area that appears to have received little attention in research yet the figures at the County Education office indicate rising cases of lack of safety in public mixed boarding secondary schools as shown in the Table 1 and

Table 1: Number of Cases of lack of safety in public mixed boarding secondary schools in Nakuru County, Kenya.

Year	Number of incidences	Incidences
2014	11	Rape, coupling, fights among students, lack of school title deeds, unsafe beds, un even play ground and inadequate storage facilities, fires in schools, accidents, food poisoning, drugs and substance abuse, congestion, injuries in the field, pregnancies, strangers in school compound, attacks by outsiders, electric shocks, poor sanitation, poorly cooked meals, theft, unsafe disposal of sanitary wear, poorly cooked meals, contaminated food, and lack of privacy in girls' sanitation.
2015	15	
2016	22	
2017	28	
2018	39	

Source: Inspection Reports, Nakuru County Education Office (2019).

Table 1 shows that some of the cases among others include accidents in schools, injuries in the field, congestions in dormitories and classrooms, together with electric shocks among others. These incidences depict concerns with state of school infrastructure. In fact, the figures show that an increasing trend since the year 2014. Figure 1 is an illustration of the trend of cases of lack of student safety in the County in the period between 2014 and 2018. The figure shows an increasing trend in the number of incidences reported in public mixed boarding secondary schools in Nakuru County and this is a worrisome trend. This is because safety is not only a learner's right but it is also prerequisite for the achievement of educational goals. The safety of learners in schools is thus a fundamental and essential component of the learning process.

The problem this study investigated was the relationship between implementation of Safety Standards and Guidelines for physical infrastructure and student safety in public mixed boarding secondary schools in Nakuru

County, Kenya. This stems from the complexity associated with managing of student safety in mixed boarding secondary schools in the light of School Safety and Standards Guidelines. Mixed schools by their composition present a complex mix of safety needs that could make implementation of the guidelines problematic. According to Table 1 and Figure 1, the incidences of lack of safety have been reported increasingly from 2014 to 2018. Muasya (2017) argues that educators in Kenya cannot take for granted the safety of the students' environment. Such incidences include rape, accidents injuries, congestion, and fires among others. Despite a decade of school Safety and Standards Manual, the UWEZO (2015) report shows that Kenyan schools, Nakuru included are far from achieving recommended safety standards (Kang'ethe, & Cierra, 2017). This therefore indicates that the safety of the learners in schools in Nakuru County may not be guaranteed. Yet, lack of safety in school can cause injuries, emotional and psychological stress. In fact, accidents can lead to disability or death while emotional and psychological trauma can result in lack of self-esteem and ultimately lead to poor

performance of tasks and responsibilities and even dropping out of school.

LITERATURE REVIEW

Globally, student safety is one of the goals behind efforts to bring about school safety. Student safety is prerequisite in the acquisition of quality education and learners' attainment of educational goals. Physical infrastructure is one the factors that have been mentioned in past studies which affect or determine student safety. In some of the developed nations such as USA and Britain as well as developing nations such as Kenya, there have been cases that affect student safety in high schools and secondary schools (Caroll, 2018). The Safety Standards Manual (2008) was also expected to provide a benchmark for monitoring and appraising the safety status of schools; empower members of the school community to handle disasters and thus minimize risks. It also sought to provide first line emergency services to learners and staff who become victims of injury or are taken ill. Additionally, the guidelines anticipated an outcome of counseling, guiding and advising learners and staff on issues relating to school safety. It empowers the school to liaise with parents, members of the community and other partners in order to increase awareness about issues related to school safety; and helps forge alliances and networks that enhance school and child safety. Prior to the development of the Safety Standards Manual the problem of student safety in secondary schools was very serious in Kenya (Ministry of Education, 2008).

Physical Infrastructure includes facilities such as classrooms, offices, toilets, dormitories, libraries, laboratories, kitchens, water tanks, playground equipment, among others. Such physical structures should be appropriate, adequate and properly located, devoid of any risks to users or to those around them. They should also comply with the Safety Standards and Guidelines of a given country. The School Safety Standard No.2 in the Safety

Standards Manual in Kenya addresses safety in the physical infrastructure. According to the Safety Standard Manual, the school should ensure classrooms, dormitories, offices, kitchens, toilets and other physical structures are clean, well maintained, safe and properly utilized. The Safety Manual further gives guidelines with regard to the various types of buildings such as classrooms, dormitories, sanitation infrastructure, libraries and the administration block. In the dormitories, the guidelines address various aspects such as the windows being without grills and opening outwards. Furthermore, the dormitory doors should have a door at each end and an additional exit at the middle which should be clearly labelled "Emergency exit". And in the classrooms, the doorways should be adequate for emergency purposes, open outwards and should not be locked from outside at any time when the students are in.

Steinberg, Allensworth and Johnson (2018) in their study in Chicago Public Schools, United States of America observed that windows in the classrooms and dormitories are often utilized for the purposes of allowing air and light to make them conducive for students to engage in diverse activities in these spaces. However, the design and location of those windows can pose security hazard if not well utilized. Chu (2014) notes that amongst the aspects of windows that could pose safety issues include mechanical injury from the window in respect to diverse operations of the window. It is important to establish if schools in Nakuru County adhere to this important requirement as per the Safety Standards manual.

Grover (2015) in the United States of America reported that a classroom is one of the central places that the students spend in school in their quest for education. The classroom must pass diverse safety measures and standards to ensure that they are safe for both learners and teachers. Amongst the issues that are important for the classroom include

classroom design to ensure that the classroom is adequate in size for the number of students in the classroom (Jaarsveld, 2011). In this context, the classroom should have adequate space for the students to freely move about from one side of the classroom to another. The desks and any other materials in the classroom should be arranged in an orderly manner to avoid injuries and facilitate movements (Carlton, 2017). The classroom should be fitted with adequate number of windows for ventilation and light purposes (Steinberg et al., 2018). Other key characteristics of classroom design include ensuring that there is no loose electrical wires, no spillage on the classroom floors and the tiles should not be too smooth in a manner that the students can fall and injure themselves (Niyagawa, 2017).

The use of supportive infrastructure such as Closed-circuit television (CCTV) camera was found to help enhance student safety in schools. Gray and Lewis (2015) in the USA study on public school safety and discipline stress the need for use of CCTV cameras. Unfortunately, this is not a common gadget in most boarding secondary schools in Kenya (Ndonga, 2018) and more specifically in the current study area. Environments fitted with surveillance gadgets provide children with both physical and psychological security since they will always be aware that their safety in school is taken care of. On the same note, Ndonga (2018) argues that there is need for boarding schools to have mandatory security features which include the installation of CCTV cameras in a bid to stamp out sexual molestation of students. However, research needs to be done to assess the need of these important gadgets, considering the fact that cases of insecurity are still reported in schools across the country and specifically in public mixed boarding secondary schools in Nakuru County, Kenya.

Bevans, et al. (2011) in Philadelphia studied physical education resources, class management, and student physical activity levels. The researchers noted that access

to an adequate number of physical educators per student as well-maintained, safe, and appropriate facilities and sport and exercise equipment will enhance students' opportunities for adequate physical activity. Otherwise, limited and unsafe facilities in schools compromised the safety of the learners. However, the focus of their study was in developed countries with much more advanced physical infrastructure and thus a study in a third world country like Kenya is vital, given that the country has limited resources to match standards of schools in developed countries.

Ismail, et al. (2016) in a study on the prospect of implementing safety education in Malaysian Primary Schools found out that the holistic state of the dormitories have an influence on the student safety. The dormitories should be free from leaking roofs to ensure that the students are not exposed to elements of weather such as rain. Presence of lockable doors and windows is important in ensuring safety of the students' items as well protecting students from physical harm from intruders (Krezmien, et al., 2010). The arrangement of the items within the dormitory is important in ensuring that the dormitory is not congested. The students should also have placed any wet items of clothing outside to dry so as to prevent humidity and stuffiness of the dormitory (Muindi, 2014). The dormitory should not also have loose electrical connections and any hazardous materials. There is however, limited research in Nakuru County on how the state of dormitories influences student safety in public mixed boarding secondary schools. This study was to thus to examine the influence of implementation of Safety Standards and Guidelines for Physical Infrastructure including dormitories on student safety in public mixed boarding secondary schools in the county.

In Iran, Shaghaghian, et al. (2016) in a study on the safety standards in schools in Shiraz noted that half the schools in

Tehran did not have windows in standard position. This had the effect on the windows not being accessible to students. Other aspects that are important to the safety of the students is the window design that are important include the ability of the windows to open on the outwards as opposed to the inward levels (Ali & Fatima, 2016). However, in Kenya a study needed to be done to establish the state of windows especially in Public Boarding secondary schools in Nakuru County, which according to the Safety Standards and Guidelines should be easy to open, open outwards and be without grills. Jaarsveld, (2011) in Tshwane, South Africa noted that the pathways at the end of the classroom block must therefore be sufficient for the number of the students to pass through without congestion. The congestion poses risk to student safety due to possibility of students stepping on other students, theft aspects, risk of suffocation for the younger students and students' physical injuries (Yusuf & Ahmed, 2016). The classroom block should have reasonable number of classrooms such that it is not too lengthy to inconvenience students going to diverse sections of the school (Siocha, et al., 2016). Such information was lacking in the case of Nakuru County, Kenya given that there was limited research on the issue in the county.

Xaba (2014) in South Africa found that the state of beds was critical in the function of the student safety. The state of the beds indicates that beds are structurally sound in a manner that the students cannot harm themselves during movements from one section to another. Structural soundness of the bed indicates that the students are not at the risk of falling off the bed while asleep (Brevard Public Schools, 2014). There is also need for the beds to be well painted to ensure that they are not rusting hence compromising on their structural integrity. The beds need to be arranged within the dormitory to enable the students to have free spaces for movements during the day and at night. Given that there was limited research on the state of

beds in Nakuru County, especially in public mixed boarding secondary schools, it was not possible to state with precision how the state of beds affected students' safety, and there was need for this study as it would examine this association.

In Uganda, Sekiwu and Milly (2014) indicate that in contexts where dormitories have flush doors then the students should be trained on how to use them. There should be clear pathways of the doors and as such the doors should not be obstructed by any materials or beds. This ensures that in case of any need to exit the dormitory then the students are not in any way obstructed from free movements. Koskey (2018) states that the doors also need to open outwards to avoid students being stuck at the doorway in case of a rush. Furthermore, the doors should be locked from the inside and not outside. This is to prevent intruders from getting into the dormitories while students are asleep. This is critical to ensure students can exit with ease in the event of disasters such as fire. The windows should also not have grills to aid in ease of exit in case of disasters (Kemunto, Role, & Balyage, 2015). However, a study needed to be carried out to determine whether public mixed boarding secondary schools in Nakuru County had emergency exits on buildings that could be used in case of fire outbreak and this study strives to fill this gap of knowledge.

Insecure infrastructure in schools would include those with poorly constructed classrooms and playing grounds, insufficient and broken-down toilet facilities, gender insensitive location of toilet and bathroom facilities, and inadequate and inappropriate desks and other furniture (Muendo, 2016). A study by Mwangi (2014) in public secondary schools in Kahuro District, Murang'a County, Kenya established that hygiene standards in dormitories is critical for the purposes of student safety. The hygiene concerns relate to diverse aspects including the floors of

the dormitory, windows and doors, toilets and bathrooms. Good hygiene removes breeding grounds of disease-causing organisms and other insects. It also ensures that there is fresh air and a conducive environment for the students to stay in the dormitory (Jemima, Mwangeli, & Barmao, 2015). Mwangi (2015), focused only on the state of the dormitories and this is only one area in school physical infrastructure. Moreover, the study focused on all public secondary schools and not public mixed secondary schools which is the focus of this study. A study that would cover other aspects of infrastructure was necessary especially with regard to its influence on student safety.

Kemunto (2015) while examining a safety policy implementation framework for secondary schools in Kenya asserted that the unsatisfactory implementation of safety policies was attributable to a variety of factors including inadequate time, inadequate funds, low technical capacity and a lack of proper coordination and supervision from the Ministry of Education. The researcher's conclusion was that if this was the case it meant that schools were not safe for the students. This proposition was likely to be worse in public mixed boarding secondary schools but this conclusion could not have been made without a research. Makau (2016) in a study in Yatta Sub County in Kenya affirmed that Safety Standards and Guidelines have not been fully implemented in schools in the sub county due to inadequate financial resources, insufficient training for teachers and students on safety standards and a lack of principals' personal initiative to adhere to safety standards. However, Makau did not find out how non implementation of the Infrastructural Safety Standards and Guidelines affected student safety in schools, and this study sought to fill this gap.

Chemeli (2014) in a study in Public Boarding Secondary Schools in Nandi North District, Kenya argues that a well-planned and maintained school promotes an environment

that allows for effective teaching and learning. It also promotes safety and reduces the probability of accidental injury. The location of a school directly affects the safety, well-being and educational experience of the student. If a school site is selected in a haphazard manner, the educational experience for both the teacher and the student is likely to be less optimal. To enhance school safety, new buildings should be designed and the remodeling of older ones should be supervised by an architect. The architect should be assisted by a school building planning committee. Chemeli's arguments have however not been taken in the context of public mixed secondary schools.

RESULTS

State of dormitory windows

The results show that in 4 schools (28.6 per cent) dormitory windows are without grills whereas in 10 mixed boarding secondary schools (71.4 per cent) dormitory windows are with grills. This means that majority of the schools visited had not complied with this requirement; given that the School Safety Standards Manual (2008) recommends that the dormitory windows must be without grills and should be easy to open outwards. When the dormitory windows are fitted with grills, they are safe from intruders. However, it makes it impossible for the students to escape in case of an emergency. When the dormitory windows are with grills, though safe due to intruders, it makes it impossible for the students to escape in case of an emergency. These findings contradict with a study by Mutua (2016) who established that most of the schools had removed grills from the windows.

Table 2: Dormitory Windows are without Grills

Aspect	Response	Frequency	Percentage
Dormitory	Yes	4	28.6%

windows are without grills	No	10	71.4%
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Wide Enough Corridors

The findings in Table 8 show that 45 per cent of the students in sub county schools, 67.9 per cent of those in county schools, and 68.2 per cent of those in extra county schools indicated that their school had corridors wide enough for the learners to walk along without bumping into each other. In case of an emergency and the case where corridors are narrow students are likely to bump

into each other and injure one other. Also bumping into each other may result in fights among them. It is important to note however, most of the sub county schools did not have wide enough corridors for the learners to walk along without bumping into each other, thus showing that there was still a problem in this county. The findings concur with those in a study by Wanjala and Onyango (2017), where it was established that in most of the schools, the corridors were not both well ventilated and properly lit, and were narrow such that learners could not walk along without bumping into each other.

Table 3: Wide Enough Corridors

		Category of the School					
		Extra County		County		Sub County	
		F	%	F	%	F	%
The corridors are wide enough for the learners to walk along without bumping into each other.	Strongly disagree	17	25.8%	16	20.5%	4	3.1%
	Disagree	4	6.1%	9	11.5%	68	51.9%
	Agree	26	39.4%	33	42.3%	32	24.4%
	Strongly agree	19	28.8%	20	25.6%	27	20.6%

Appropriateness of Furniture in the Classrooms

Table 9's findings show that 44.6 per cent of the students in sub county schools, 97.4 per cent of those in county schools, and 71.3 per cent of those in extra county schools indicated that the furniture in the classroom especially the desks are appropriate for use, while the rest in the three categories of schools disagreed. The fact that there were many students disagreeing to this statement, especially in sub county schools is a source of worry; this is because inappropriate desks can subject the students to accidents. The Safety Standards Manual provides that the furniture in classrooms, especially the desks, should be appropriate for use by both male and female learners. Poorly constructed

or inappropriate desks can lead to physical deformities such as curvature of spine, contraction of chest, roundness of shoulders or a confirmed stoop. They can also create tension and fatigue among learners. The situation in sub county schools is similar to that established in a study by Nair (2019), where it was found that learners spend as long as 9 hours at their desks every day and that majority of them sit at desks and chairs that are not suitable for their body height. Nair observed that the school management failed to pay much attention to the seating arrangement, desks and chairs in the classroom which are one of the most crucial elements of a learning environment.

Table 9: Appropriateness of Furniture in the Classrooms

		Category of the School					
		Extra County		County		Sub County	
		F	%	F	%	F	%
The furniture in the classroom especially the desks are appropriate for use	Strongly disagree	12	18.2%	0	0.0%	13	10.0%
	Disagree	7	10.6%	2	2.6%	59	45.4%
	Agree	30	45.5%	42	53.8%	33	25.4%
	Strongly agree	17	25.8%	34	43.6%	25	19.2%

Conclusion and recommendation

Conclusion: The study concludes that implementation of Safety Standards and Guidelines for Physical Infrastructure does not have statistically significant relationship on student safety in public mixed boarding secondary schools in Nakuru County, Kenya. This situation is brought about the fact that in some of the schools, the corridors were not wide enough for the learners to walk along without bumping into each other, and making students prone to accidents in the walkway. Another challenge was that the issue of unsafe furniture was experienced in some of the schools. In most of the schools, regular spot checks are not done at the dormitory before students retire to bed. The influence was also inhibited by the fact that the school management failed to regularly disinfect pit latrines.

Recommendations: The study recommends that: The school management should consider mobilizing resources for enhancing the safety of school infrastructure in compliance with the safety standards and guidelines. Such resources can be used to buy safe furniture and construct corridors wide enough for the learners to walk along without bumping into each other. The resources can also be used to buy enough beds in some schools where students are sharing beds. The school management should consider taking inspection and supervision of school infrastructure seriously, as this was not done regularly in many schools. There should be serious compliance to the Safety Standards and Guidelines for School Grounds.

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