

Level of Student Disaster Risk Reduction Awareness in Public Secondary Schools in Kisumu County, Kenya

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ABSTRACT

The recurring, widespread and sudden nature of fire and floods disasters pose high degree of risks frequently in secondary schools. However, the capacity of the affected secondary schools is limited due to paucity of student's disaster risk reduction awareness. The study endeavoured to assess the level of student disaster risk reduction awareness in secondary schools in Kisumu County. The study grounded on Planned Behaviour and Disaster Preparedness theory while adopting a descriptive research design. A sample size of 86 out of 172 public secondary schools was used. All principals from sampled schools were selected. Also, 172 students comprising of 2 student leaders, one Head of Department from each selected schools were sampled totalling to 86, and 4 ministry of education officials from Kenya School of Curriculum Development were purposively sampled. Data was collected using questionnaires and observation schedule. Qualitative data collected was put under themes consistent with the research objective. Quantitative data was coded and entered in the computer for analysis using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics such as percentages, means and frequencies were used to analyse the data. The study revealed that there was no disaster risk reduction and resilience in current curricula in secondary school. Students lacked capacity to respond to disasters in secondary schools in Kisumu County since they lacked disaster management training. The study recommends formulation of effective and practical disaster syllabi, alongside specialized training for teachers who would be delivering DRR education which builds on students' existing knowledge and experience by developing additional competencies needed for effective disaster management. Rehearsal drills in disaster preparedness must be done in secondary schools by students since it re-emphasizes points made in separate training programs and test the systems as a whole and invariably revealing several gaps that otherwise might have been overlooked.

Keywords: Disaster Risk Reduction, Disaster Awareness, Disaster Preparedness

INTRODUCTION

There is an increase need for Disaster Risk Reduction (DRR) education in the school sectors due to massive impacts it has felt over the past years as a result of disasters in the world. Students in schools suffer most in cases of disasters due to lack of disaster reduction awareness. For instance, 38,000 students died in the Haiti disaster (Mulilis and Duval, 1995). The Pakistani earthquake of 2005, which saw the collapse of over 10,000 schools, also recorded over 17,000 student deaths (Bulmer *et al.*, 2007). DRR was minimal in both states and this shows that the absence of DRR in schools made the casualties of disasters more and the recovery a lot harder (Amri *et al.*, 2017).

Though there was implementation of a national disaster safety strategy through schools and communities over the past five years, to help translate disaster awareness educational materials into local languages, and established emergency response teams at national and provincial levels, the target of disaster reduction

awareness through student enlighten globally has not been achieved (Wisner, 2006). There is lack of appreciating the role of students in disaster management in some parts of the world (Save the Children, 2007 & Nicolai, 2003). On school vulnerability list, Bangladesh is among the top fifteen countries most exposed to disaster, as it is threatened by earthquakes, storms, floods, droughts, and rising sea levels (Gaillard, 2010).

McClure *et al.*, (1999) noted that on average, 900 schools suffer damage globally from disasters yearly. In 2015, at least 1,130 schools were closed for a month and 305 were destroyed due to flooding in the northern districts of Bangladesh and little has been done to appreciate the role of students in disaster management (Izadkhah and Hosseini, 2005).

Increased cases of disaster incidences in Africa schools reveal gap in relation to student disaster risk reduction awareness. For instance, in the year 2001 fire gutted a girls' school in Gindiri village, Northern Nigeria where twenty-three students lost their lives as the dormitory they were in was locked and fortified with iron bars, making it difficult for students to access escape routes (Bolanle and Saheed, 2014).

In 2008, fire gutted Budo School in Uganda near Kampala in which 19 girls succumbed. It was later revealed that the hostel doors were locked from outside (Mafaranga, 2009). Though the incident was responded to by the Police fire fighting unit from Mbarara district, unfortunately, their truck could not be driven closer to the dormitory since there was no access road. This further exposed how learning institutions were behind in relation to disaster preparedness. Further, this case shows that governments and institutions have little motivation to address shortfalls in their DRR operations and systems. Although this study agrees with Shida (2013), assertion that disaster education should not be viewed and used as a replacement for the formulation and implementation of institutional initiatives and responsibilities at DRR, it also recognizes that institutional and systems failure, as well as limited capacities of DRR institutions, makes disaster education an inevitable necessity in learning institutions.

In Kenya, 67 boys perished in a night inferno while twenty one injured at Kyanguli School in Machakos County in 2001. The dormitory doors had been locked causing a stampede at the door-step. The parents of the Kyanguli fire victims were later in 2016 compensated by the court for the deaths of their children for what the court ruled as negligence (Mwangangi, 2019).

After Bombolulu girls secondary school dormitory deadly inferno in 1998 in which 26 girls lost their lives, several fire disasters have taken place in Kenyan secondary schools leading to destruction of life and property; Bungoma and St Stephenes Kisilu; Kerugoya and Kolanya boys High schools; Waa Girls High school in Kwale and Purpose driven school in Kitale; Emusire High school; Malindi High school; Twiga High school in Kitale and Nakuru high school have tested the brunt of fire (Otieno, 2010). Mamogale (2011) acknowledged that some of these disasters could have been prevented if only students had knowledge on disaster management.

Ocholla *et al.*, (2010) observed that limited existence of disaster risk reduction awareness in schools among students is perceived to be among effects of disasters in Kisumu County. According to Odegi (2014), about 40.0% of the schools in Nyando are affected by floods every year, classes submerge, toilets get destroyed and floating waste thereby exposing students to a high health risk (Odegi, 2014). He further noted that learners are hardly hit and in most cases, teacher's plight to promote student disaster risk awareness in some schools is not addressed.

Statement of the problem

Increase in disaster risk poses significant implications for the well-being of school students (UNESCO,

2011). Their high level of vulnerability is due to their physical fragility, their developing mental and emotional capacity, and their dependency on adults for care. This aspect makes them assume a disproportionate share of the burden created by disasters in schools, thereby not being included in disaster risk reduction initiatives.

Several initiatives emerged to highlight the importance of school safety and address risks in the education sector (UNISDR, 2007). The United Nations Children's Fund (UNICEF) launched several efforts, including the Safe Schools Initiative to address armed conflict in Nigeria and the Child-Friendly Schools framework for increasing education quality for all children. Separately, the Interagency Network for Education in Emergencies (INEE) developed minimum standards to ensure safe learning environments for children and adults in crisis situations. Many of these issues were further addressed in the Worldwide Initiative for Safe Schools (WISS), an initiative involving 50 countries launched by the United Nations Office for Disaster Risk Reduction in 2014 but existence of these initiatives on school safety has not stopped the incidences of injury, death and loss of property in secondary schools in Kenya (Achoka and Maiyo, 2008).

Subsequently, existence of Sendai Framework for Disaster Risk Reduction 2015-2030 outlining seven clear targets and four priorities for action to prevent new and reduce existing disaster risks: Understanding disaster risk; Strengthening disaster risk governance to manage disaster risk; Investing in disaster reduction for resilience and; enhancing disaster preparedness for effective response, and to build back better in recovery, rehabilitation and reconstruction. It aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods and health now in this aspect learning sphere, but the impact through resilience promotion as well as save lives has not been achieved. As Nderitu (2009) notes, despite the stringent safety measures put in place by schools, disasters still occur. However it is the degree of preparedness of the schools, system that makes the critical difference.

Various studies have been done in relation to fire disasters in schools, for instance, Makhanu and China, (2010) on disaster preparedness as a remedy to fire disasters in learning institutions of Kenya. A study by Wanjala and Onyango (2017), on administrative strategies towards disaster awareness and preparedness in secondary schools in Homa Bay County. Shibusse *et al.*, (2014) on frequency and severity of fire disasters in secondary schools in Kenya and the study conducted by Kimathi (2011), on disaster preparedness in public secondary schools in Githunguri District, Kiambu County. Their work contributed immensely in effective disaster awareness and preparedness in secondary schools but they did not acknowledge the role that students play in relation to disaster management in secondary school since the current understanding of disaster risk reduction concurs that has potential to reduce their own vulnerability (Apronti *et al.*, 2015). Therefore, this paper tried to seal the gap by going a notch higher to assess the level of student disaster risk reduction awareness in public secondary schools.

Objective of the study

Assess the level of student disaster reduction awareness in public secondary schools in Kisumu County.

Scope of the Study

The study focused on assessing the level of student disaster risk reduction awareness in secondary schools in Kisumu County only. The sample size of the study was 86 public secondary schools.

The choice of the area of study

Kisumu has long been praised for its pivotal work on disaster risk reduction through making cities resilient campaign since 2010, and to an extent of offering a training ground for other cities in Kenya and neighbouring countries. Existence of this impressive role raises attention on reason fire and flood disasters

still occur in Kisumu County.

METHODOLOGY

Descriptive research design was used in the study. According to Creswell (2015), the design gives information concerning the current status of the phenomena and describes what exists with respect to variables. Questionnaires and observation schedule were used in data collection. Purposive sampling method was used to select subjects of the study. Data collected qualitatively was placed under themes consistent with the research objective. Quantitative data was coded and entered in the computer for analysis using the Statistical Package for Social Sciences (SPSS) version 27. Descriptive statistics such as percentages, means and frequencies were used to analyse the data.

THEORETICAL FRAMEWORK

Wasike and Odhiambo (2016), discuss the role of theories in guiding the thrust of academic studies. They emphasise the importance of theories in offering compelling and incisive causal explanations with calculated precision. They buttress their argument by quoting Smith (1986), who asserts that theories play the role of predicting, prescribing and evaluating socio-political phenomena hence they cannot be ignored.

Planned Behaviour and Disaster Preparedness Theory

Disaster and emergency preparedness as a component of DRR, the theory focuses predominantly on human behaviors. That the behaviour derived from diverse factors that range from people's risk perception to lessons from direct and indirect past experiences of disaster events and emergencies through interaction between individuals and environment (Najafi *et al.*, 2017).

The theory further postulates that preparedness aspect identifies the steps necessary to increase the likelihood of minimizing hazard effect consequences. Therefore, according to Najafi *et al* (2017), preparedness strategies are developed through a hazard identification and mapping, vulnerability analysis and risk assessment, with behavior change strategies being used to inform how the outcome of this process can translate into protective actions. People in a given area, who generally face comparable levels of risk, differ with regard to the nature and level of their preparedness and how people make choices about how to manage that risk and this applies to secondary schools mostly prone to disasters.

Measure of student disaster risk reduction awareness in secondary schools

The Hyogo Framework for Action enabled systematic evaluation of DRR efforts (UNISDR, 2005). Identified areas for action are: ensuring that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation; identify, assess and monitor disaster risks and enhance early warning; use knowledge, innovation and education to build a culture of safety and resilience at all levels; reduce the underlying risk factors; and strengthen disaster preparedness for effective response at all levels" (UNISDR, 2009). Within these areas for action, there are a set of core indicators on which states are expected to self-report their performance on each indicator (UNISDR, 2010a). Therefore, use of knowledge innovation and education to build a culture of safety and resilience in schools was used to capture the measure of student's disaster risk reduction awareness in secondary schools through use of the following indicators;

Disaster Risk Reduction and resilience in School Curricula

Disaster Risk Reduction is mostly integrated into a narrow band of subjects, typically the physical and natural sciences, although there are examples of its appearance across a wider range of subjects. There are a

limited number of examples of DRR appearing as the primary focus or key strand within a special new subject area. Moreover, there is little evidence of cross-curricular linkages being forged nor of an interdisciplinary approach being adopted (Victoria *et al.*, 2018).

Lack of DRR integration in school curriculum makes learning and teaching approaches used in addressing DRR curriculum to be limited in application, making an assessment of student DRR understanding to be thin on the ground. The assessment that takes place tends to be summative and written rather than formative, multi-modality, and designed to inform and improve the learning process. Exciting ideas for DRR appropriate student assessment such as self-assessment, peer assessment and portfolio assessment tend to remain for the most part aspirational with relatively few examples of their concrete implementation. Assessment tends to signal curriculum status, while shortfalls and shortcomings in assessment of student DRR learning leave the integration project incomplete (UNGA, 2010a).

In Kenya, education systems have less motivation to address shortfalls in their DRR operations and systems (Nicolai, 2003). Nicolai stresses that disaster education should not be viewed and used as a replacement for the formulation and implementation of institutional initiatives and responsibilities at DRR, that institutional and systems failure, as well as limited capacities of DRR institutions, makes disaster education an inevitable necessity (Nicolai, 2003).

Training and capacity development of students in secondary schools

The multifaceted aspects of disaster management, especially risk assessment, prevention, mitigation, preparedness and response require an inter-disciplinary cross-sectoral and multi-level action strategy involving all school stakeholders including students (Kelman, 2011). The success of the implemented strategy depends on training and capacity building of all stakeholders to make them act in an integrated manner towards a convergent holistic approach for mainstreaming disaster risk reduction and disaster management (Gaillard, 2010).

Training needs analysis of different stakeholders dealing with disasters led to the view that there is dearth of adequately trained human resources as well as infra-structure / resources to tackle the various issues related to risk reduction, emergency response and recovery in secondary schools set up (Education Safe from Disasters, 2015). A scrutiny of existing disaster management practices in secondary schools highlighted that only ad-hoc reactive piece-meal measures have been taken in a discontinuous mode without sound scientific, systematic means which proved to be a costly affair. Thus, a revision of the existing training and capacity building programmes for students became necessary to strengthen the nation-wide organized vibrant pro-active, systematic and scientific institutional mechanism that would replace the less recognized and poorly appreciated existing system (Bastidas, 2011).

The recurring, widespread and sudden nature of fire and floods disasters poses high degree of risks frequently in secondary schools. However, the capacity of the affected secondary schools is limited due to paucity of adequate attitudes, skills, resources, institutional mechanisms, operational procedures, regulatory measures and enabling environment. This is linked with lack of sensitivity, information, awareness and preparedness among the vulnerable schools against the potential impending risks (Save the Children, 2015). The effectiveness of the response to these disasters is also related to the coping capacities of the students. It is perceived that an aware, informed and prepared community is better able to cope and respond to disaster situations than otherwise (UNISDR, 2007).

Teacher professional development in DRR also needs advancing. In a number of cases, teachers are given a manual for teaching DRR but provided with no training. In other cases, the manual is linked to training (Paci – Green *et al.*, 2018). Most training described in the case studies is content-focused. In some cases, practice in DRR facilitation in the classroom through interactive processes is given equal weight in the

training alongside the introduction of new content. Across the case studies, however, the training remains of short duration, usually a one-off event, with no evident follow-up, aftercare or learning reinforcement. Therefore, a clear need for more systematized, reinforced and sustained professional development. According to GADRRRES and UNISDR (2006), no examples of DRR initial teacher training programmes have been made.

FINDINGS

Disaster Risk Reduction and resilience in secondary schools curricula

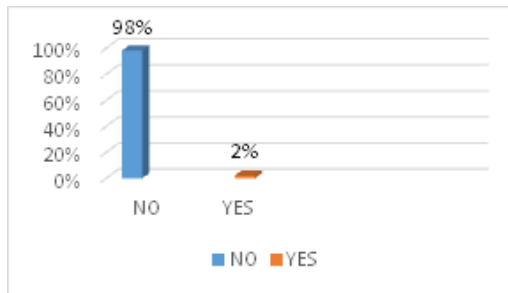


Figure 1. Disaster Risk Reduction and resilience in secondary schools curricula

Source: Research data, 2020

The study findings indicated that, 98% of the respondents showed that there was no disaster risk reduction and resilience in current curricula in secondary school. Contrary to this, 2% of the respondents indicated that there was disaster risk reduction and resilience in current curricula in secondary school. From the results, it is indicative that there is no disaster risk reduction and resilience in current curricula in secondary school, implying that the level of Student disaster risk reduction awareness in public secondary schools in Kisumu County is low.

Research conducted by Paci-Green *et al.*, (2018) on Comprehensive school safety policy, indicated that globally, most progress has been made in incorporating risk reduction and disaster management plans within the education sector. Most countries (75%) indicated that their education authority has a national risk reduction or disaster management plan. According to their research, respondents indicated that the plans most frequently included risk reduction (69%), risk preparedness (65%), and risk assessment (62%). Less frequently covered was the topic of education continuity (54%) and guidance on active student participation (25%). The paucity of children and youth as active participants in either national or sub-national risk reduction or disaster management plans is likely due to the their believes that students were passive victims with no role to play in communicating risks, participating in DRR-related decision making, or preventing and responding to hazards in schools. Findings suggested that engaging with students is an area that needs further effort, which the study tried to address.

Paci-Green *et al.*, (2018) further explains that most surveyed countries have included risk reduction and resilience modules in their national curriculum to some degree, teachers training in these subjects is offered at a lower rate. That globally, over half of responding countries (65%) indicated that they included disaster risk reduction, climate change, or risk reduction resilience in their national education curriculums. In contrast, less than half of responding countries (35%) include the same subjects within their national teacher training programs. Further, they acknowledged that their qualitative survey responses indicated that teacher training in disaster risk reduction is often ad-hoc. That teacher training is often a one-time event conducted by non-governmental organizations. While teacher training is strongly emphasized as an objective in the Hyogo Framework for Action, less frequently has it been meaningfully implemented in the national

education system thus making it hard to reciprocate the same to students (UNISDR, 2008).

However, effective DRR education can only take place if critical attention is given to the scope and content of disaster themes and topics, as well as the teaching, learning, and evaluation techniques used in the classroom. This would require the formulation of effective and practical disaster syllabi, alongside specialized training for those teachers who would be delivering DRR education which builds on students' existing knowledge and experience by developing additional competencies needed for effective disaster prevention, management, and response (Odegi, 2014).

The study findings corroborates the findings obtained by Victoria *et al.*, (2018) study on School emergency drills. Out of the 15 teachers interviewed, 12 (73.3%) said they have not received any form of training on DRR either before or during their careers as teachers. The remaining three (26.7%) said they had received some form of DRR training during their tertiary education, prior to their teaching career. Results from his interview with the officer from Ghana Education Service, and the focus group discussion with teachers, further revealed that in rare instances when in-service DRR training programs were organized, the majority of teachers are unable to participate due to limited financial, human, and technical resources (Petal and Isadkha, 2008). Thus, the beneficiaries of such training who are mostly principals, their assistants, and other key stakeholders, are expected to train teachers in the schools. This, however, rarely happens due to time and resource constraints.

Among the schools that had infused DRR education in their curriculum indicated that they experienced inconsistencies in the syllabi and what goes on in the classroom. Almost all teachers (93.3%) identified inadequate DRR teaching and learning material as a major hindrance to the delivery of disaster knowledge (Levac *et al.*, 2010). They also indicated that the scope and content of disaster education within the syllabi is too narrow, negatively affecting the development of competencies.

Students capacity to respond to disasters through training

Table 1. Ratings on student's capacity to respond to disasters through training

Students capacity to respond to disasters through training		
	Frequency	Percent
Yes	10	2.8
No	338	97.2
Total	348	100.0

Source: Research data, 2020

Based on the results as shown in Table 1, 2.8% of the respondents indicated that students had capacity to respond to disasters basing on the training that they had. However, 97.2% of the respondents felt that students lacked capacity to respond to disasters since they lacked training. From the results, it's clear that the students lacked capacity to respond to disasters in secondary schools in Kisumu County since they lacked training related to disaster management.

Victoria *et al.*, (2018) asserted that rehearsal drills in disaster preparedness must be done since it re-emphasises points made in separate training programs and test the systems as a whole and invariably revealing several gaps that otherwise might have been overlooked. That it optimizes the effectiveness and efficiency of response. The more frequent the rehearsals, the more internalized the process and by extension the better the performance.

Nderitu (2009), while investigating the implementation of safety standards Guidelines in Secondary schools, found out that head teachers were not trained on disaster management nor was the school community. Therefore, a concerted effort was to be made to educate and train staff and students in emergency procedures, otherwise in the event of a disaster, a period of panic and uncertainty may crop up before any action can be taken (Hagelsteen and Burke, 2016).

Student familiarization to disaster safety measures put in place in their schools

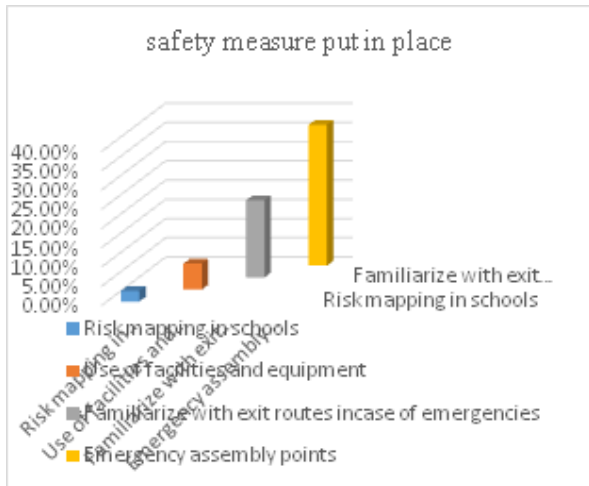


Figure 2. Student familiarization to disaster safety measures put in place in their schools

Source: Research data 2020

Respondents were asked if student were familiarized with disaster safety measures put in place in their schools. While highlighting some of the specific measures that a school is expected to have in relation to disaster preparedness, 2.8% of respondents indicated that students were familiarized to risk mapping in schools. On use of facilities and equipment, 6.7% of the respondents indicated that students were effective in use the equipment that their schools had acquired in response to disaster incidences. 20% of the respondents indicated that students were familiar with the exit routes that the schools had incase of emergency, while 36.5% of the respondents indicated that the students were familiarized with emergency assembly points in the selected schools. To some extent, some of the students were not aware if their schools had put in place measures in response to disasters. Interview with the Head teachers revealed that they had not put in place mechanisms to deal with disaster in their schools;

My school dependents massively on

Government budgets which are some-

times inadequate, and it does not budget

for DRR.(Interview with Headteacher in

one of secondary school in Kisumu County

on Nov, 2020).

The response from the above interview further corroborates Paci-Green *et al.*, (2018) findings on principals when asked to state whether they had put in place disaster response teams in their schools. That 75% of

them responded that they had not; an indication that the school administration in most schools in the county had not put in place mechanisms to deal with disaster. Their research further sought to establish whether they have put in place a school safety sub-committee as required by the Ministry of Education. The findings showed that none of the principals had put in place a school safety sub-committee. Further, when asked to explain if they had provided emergency safety procedures that are accessible to all in their schools, 81.4% of principals admitted that they had not put in place emergency response procedures in their schools. This further pointed out the failure by the school administration in ensuring disaster awareness and preparedness to students.

The fact that the schools had not put in place disaster response mechanisms revealed that even students were not familiar with disaster safety measures, they relied greatly on the government to initiate DRR mechanisms, and this affected their preparedness.

SUMMARY AND CONCLUSION

Findings indicated that there was no disaster risk reduction and resilience in current curricula in secondary school, implying that the level of Student disaster risk reduction awareness in public secondary schools in Kisumu County is low. On the other hand, secondary schools that had infused DRR education in their curriculum indicated that they experienced inconsistencies in the syllabi and what goes on in the classroom. That the scope and content of disaster education within the syllabi is too narrow, negatively affecting the development of competencies

Students lacked capacity to respond to disasters in secondary schools in Kisumu County since they lacked training related to disaster management.

Students were not familiar with disaster safety measures put in place in their schools. These further points to a failure by the school administration in ensuring disaster awareness and preparedness.

RECOMMENDATION

Disaster risk reduction education is of real importance if the survival of current and future generations is to be ensured in secondary schools. This can be achieved through;

Giving attention to the content of disaster themes and topics, as well as the teaching, learning, and evaluation techniques used in the classroom. There is need for formulation of effective and practical disaster syllabi, alongside specialized training for those teachers who would be delivering DRR education which builds on students' existing knowledge and experience by developing additional competencies needed for effective disaster prevention, management, and response.

Rehearsal drills in disaster preparedness must be done in secondary schools by students since it re-emphasizes points made in separate training programs and test the systems as a whole and invariably revealing several gaps that otherwise might have been overlooked. The more frequent the rehearsals by students, the more internalized the process and by extension the better the performance.

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