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Thesis for the Degree of Doctor of Philosophy

Epistemological Access in Flood-Prone Primary Schools of Western Kenya

Gloria Erima

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Education Leadership and Policy Studies
University of the Witwatersrand

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Epistemological Access in Flood-Prone Primary Schools of Western Kenya

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A thesis submitted to the
Wits School of Education
Faculty of Humanities
University of the Witwatersrand
in fulfilment of the requirements for the degree of Doctor of Philosophy

Johannesburg, October 2017

ABSTRACT

This doctoral thesis investigates a fairly under-researched area on Equitable Epistemological Access (EEA) in flood-prone schools in the Budalang'i division of western Kenya. Though the meaning of Epistemological Access (EA) is still lacking in literature, for the purposes of this study it may be conceptualised as the access to quality education, denoting the intention to move beyond the physical or formal access to knowledge attainment. The study investigates how schools in this area promote EA, the challenges they encounter and how the schools commit to delivering a socially-just educational experience and comparable learning outcomes to learners. The research was centrally aimed at exploring the conditions which militate against the achievement of EA in flood-prone areas of Western Kenya, where schools confront serious challenges in delivering access to education to learners. This research objective was driven by three sub-questions, investigating how flood-prone schools promote physical and EA for learners; and in what ways different school communities perceived strategies to be effective in promoting EA.

Theoretically, the thesis offers a critical examination of the impact of recurring floods on knowledge attainment, progression, persistence and the quality of learner outcomes. Based on Bhaskar's critical realism philosophy, and within the premises of Sen's 'capability approach' and Nancy Fraser's social justice theoretical frameworks, the thesis sets out an approach for an understanding of EA and the role education plays in developing individual capacities. The study utilises a convergent mixed methodological approach, based on twenty-three in-depth interviews, a questionnaire and focus group discussions (FGDs). Fifteen of these interviews were with parents and senior school managers at the level of principal and senior teachers from five flood-prone primary schools. Eight other interviews were conducted with representatives of the Sub-county education office, public health, disaster management and the county government departments. The

questionnaire survey was completed by a total of 191 Standard Eight pupils from the five primary schools, in addition to FGDs consisting of ten pupils from each of the five schools.

The study confirmed nine core indicators that provide the essential rationale for EA: time-on-task, resources, teacher motivation, pedagogy, instructional leadership, parental involvement, school communities, the community/environment and culture. Later in the analysis these are categorised into three factors: i) teacher-mediated, ii) school-mediated and iii) community-mediated. Though data seems to strongly indicate that school resources and teacher motivation are necessary variables that influence learner time-on-task to achieve epistemological access, a further analysis portrays schools as implementing EA indicators only at the physical access level. Beyond these direct findings, the study identified two critical contributions to the discussion around EA in flood-prone schools in western Kenya: the First Generation Factors (FGF) model, which situates the physical access kinds of strategies schools seem to be engaged with already; and the Second Generation Factors (SGF) model, which seems to point to moving towards increasing EA. These two models may be useful when developing policy around (equitable) EA, based on bringing synergies between teachers, the schools and the communities.

Keywords: Education access, Epistemological access, Equity, Equality, Capabilities approach, Social justice.

DECLARATION

I declare that **Epistemological Access in Flood-Prone Schools of Western Kenya** is my original work. It is being submitted for the degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg, South Africa. It has not, in its entirety, or in part, been submitted before for any degree or examination at any other University.



Gloria Erima 13 October 2017

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Above all, I thank the almighty God for giving me the strength to undertake this research. I would not have come this far without your guidance and blessings.

DEDICATION

I dedicate this work to my dear mum Selfa Awiti Erima, whose remembrance remains my inspiration. Thank you, Mum for always instilling in me the importance of education and hard work. You moulded me into who I am today. Mum, your legacy lingers on.

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LIST OF ABBREVIATIONS

ABEK	Alternative Basic Education for Karamoja
ACE	Adult & Continual Education
ANPPCAN	African Network for the Prevention and Protection against Child Abuse and Neglect
ASALs	Arid and Semi-Arid lands
BCC	Behaviour Change Communication
BoM	Board of Management
CATs	Continuous Assessment Tests
CDF	Constituency Development Fund
CR	Critical Realism
DO	District Officer
DRR	Disaster Risk Reduction
EA	Epistemological access
ECDC	Early Childhood Development Courses
EEA	Equitable Epistemological Access
EFA	Education for All
EIF	Education Improving Fund
FGDs	Focus Group Discussions
FGF	First Generation Factors
FPE	Free Primary Education
GoK	Government of Kenya
HCT	Human Capital Theory
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IEBC	Independent Electoral and Boundaries Commission
ID	Intransitive Dimension
INSET	In-Service Education and Training

KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KES	Kenya Shilling
M&E	Monitoring and Evaluation
MIS	Management Information Systems
MoEST	Ministry of Education, Science and Technology
NGOs	Non-Governmental Organisations
SSMASE	Strengthening of Science and Mathematics in Secondary Education
QASO	Quality Assurance and Standards Officer
SGF	Second Generation Factors
SSA	Sub-Saharan Africa
STs	Senior Teachers
STDs	Sexually transmitted Diseases
SMT	School Management Committee
DEO	Sub-county District Education Officer
TAC	Teachers Advisory Centre
ThCR	Tradition of Christian Theology
TD	Transitive Dimension
TSC	Teachers Service Commission
TVET	Technical and Vocational Education
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Education Fund
USAID	United States Agency for International Development
WEF	World Education Forum

Chapter 1: Introduction

*It is one thing to access school and totally another to gain quality knowledge if learning has to remain meaningful (*Jansen, 2008/9)

1.1 Introduction and Background

Muller (2014) proposes that primary school pupils need a certain level of preparation in order to progress to the next level of the education cycle. In many national education systems, this next level would admit only those who fulfil the required criteria. These would, among other factors, include proper access to education, which refers to the physical/formal access and epistemological access (EA). In this research, I aim to explore factors that promote EA in flood-prone primary schools of western Kenya. Pupils in these schools tend to perform less well in public examinations, show reduced tendencies to progress beyond compulsory education cycles and contribute more to wastage indicators, such as dropping out of school. This is a fairly under-researched area in Kenya, where many research studies have gone out to explain challenges of the physical (formal or institutional) access to education in disaster-prone areas, but explore little about how these children learn, how much they know or how their learning needs are supported. In line with Pendlebury (2008/9), educational achievement is termed meaningful only if children achieve the appropriate learning outcomes at a level appropriate for their grade.

Having explored existing literature, and in line with a study by Du Plooy and Zilindile (2014), it appears that EA is a fairly under-researched concept that still lacks a precise definition. According to Muller (2012), it denotes the intent to move beyond the physical or formal access to meaningful access to education. Du Plooy and Zilindile (2014)

conceptualise EA as providing educational access through quality education. For the purposes of this study, I tentatively define EA as,

> access to knowledge, skills and attitudes that enable learners to be successful in national examinations, promote their progression to higher levels of learning and their persistence in any given cycle, without contributing to different forms of education wastage.

Within the Kenyan education context, access to education is termed meaningful in primary schools if children attain knowledge and are able to progress through school to attain at least Standard Eight certification[1]. I am well aware that the education pipeline does not stop at primary school level and that it may not be possible to discuss primary education in isolation from the entire education system. Rather, I would like to argue that education progression begins at the elementary level, without which no future progression would be made. I have adequately justified the choice of my target population in sections 1.10.2 and 5.6.

My interest in this doctoral research lies in equitable educational attainment and the extent to which it fosters key capabilities in pupils prone to floods; and how these disadvantaged pupils are affected by social injustices arising from this relationship. In line with Sen's capability approach, I start off with the assumption that the relationship between capabilities and the quality of education experienced by disadvantaged pupils in flood-prone environments, is confronted by a serious challenge negatively impacting on education as a space for social transformation (Walker, 2008). Secondly, that social and institutional arrangements (Terzi, 2007) should enact the value of 'equal' concern by aiming at equalising people's 'capability to function', if they have to live good lives. Based on these assumptions, and in line with Rawls (1971), I believe that pupils need equal chances to succeed in life with a balance between social equality and individual freedom (notion of agency), because each person is a 'source of agency' and worth in their own right, with their

[1] Qualification required to progress to secondary school.

own plans and their own lives to live,' (Nussbaum, 2000). In addition, Sen's capability approach takes seriously the development of each and every person as an end in themselves and not as the means to some other end, such as economic development (Walker, 2008, p. 151). This, then, translates into the options from which the person has had the opportunity to choose to be what they are (Sen, 1985). The argument of my study is that a lack of equitable EA (i.e. equal access to knowledge) might generate lifelong failure, if this social difference is converted into educational disadvantage (Walker, 2008), as is the case in flood-prone schools. It brings forth a foundational argument to suggest that EA for these pupils is an issue that requires investigation. Before I engage with this debate further, I find it important to highlight the role education plays towards individual development.

1.2 The role of Education in Development

The UN sponsored Universal Declaration of Human Rights in 1948 was the first landmark effort declaring education as a basic human right for all people (Alubisia, 2005). The importance and relevance of education is assessed by its ability to produce manpower which is relevant and can fit into the economy adequately (Eshiwani, 1990). In fact, education is the development tool of any country (Garcia, 2009; Muricho & Chang'ach, 2013) whose development would lead to accelerated economic growth, more wealth and income distribution. Education also plays a significant role in greater quality of opportunity, availability of skilled manpower, decline in population growth, long life, better health outcomes, low crime rates, national unity and political stability. Education, therefore, has the potential to play an important role in any country's socio-economic development, besides defining and guiding cultural, social, economic and political dynamics (Amutabi, 2003, p. 127). It should therefore be treated sensitively, because it defines the generational developmental imperative of societies (ibid).

In many countries, Kenya included, education falls within the larger domain of political control, where it is usually expected that politics do not interfere with the development of education, but direct it appropriately when called upon to do so (Amutabi, 2003). It should be noted, however, that education and politics can hardly be separated as is the case of Kenya, where politics plays a major role in education reform implementation (Garcia, 2009). That said, Kenya and many other countries have immensely invested in education to foster economic growth and productivity to reduce social inequality (Muricho & Chang'ach, 2013). It is based on this backdrop that the Government of Kenya (GoK) has prioritised education reform, since its independence in 1963, which is a discussion I now turn to.

1.3 The Kenya Education Context

Formal Education was introduced to the people of Kenya by missionaries as a strategy for evangelical success (Eshiwani, 1990). It was determined by a variety of factors, the main ones being: the principle of self-sufficiency, the racial composition of the territory and for colonies to develop their own resources, (Eshiwani, 1990, p. 1). According to Eshiwani (1990), colonial education was inadequate in quantity and scope with objectives that were narrow and restrictive. Upon independence in 1963, a different socialisation process was needed, leading to tremendous expansion in education to date. As a result, Kenya has made some impressive strides since independence in its efforts to educate its children, with the expansion of learning institutions being one of the greatest achievements in its education sector (ANPPCAN, 2005). It is an open fact that the development of basic education in Kenya has undergone numerous changes in the overall structure of its provision of education to children (ibid). Despite the strides made, Kenya still grapples with some challenges facing the provision of basic education (Standards One to Eight) leaving about 1.8 million children still out of school (Munyi & Orodho, 2015). Some of the key challenges are a high

population growth rate, lack of facilities, high wastage rates, high poverty levels, the school environment, lack of proper planning for the Free Primary Education (FPE), negative cultural factors and child labour among others (ANPPCAN, 2005; Abagi & Odipo, 1997; Munyi & Orodho, 2015).

Primary education in Kenya would refer to education starting from Standard One to Standard Eight; for children from six to fourteen years old on average, where they sit for the Kenya Certificate of Primary Education (KCPE) under the 8-4-4 education system (ANPPCAN, 2005). The goal of primary education is to provide access to quality education for all children of primary school going age on an equitable basis to accomplish Education for All (EFA) at this level (ANPPCAN, p. 19).

1.3.1 Basic Policies Guiding Education Access in Kenya

The expansion of educational opportunities has been the primary objective of the GoK since the attainment of independence. The government is committed to the realisation of universal access to basic education, as prescribed in the EFA initiatives and the UN Millennium Development Goals. It also recognises education as key to the development and protection of democratic institutions and human rights (MoEST, 2003). However, the obligation of providing basic education to all children requires large amounts of public funds to be expended towards a commitment to achieve 100 percent transition from primary to secondary; and having in place a cost-effective system of sustainable financing (ibid).

The GoK has endeavoured to promote access, equity and transition in education and training through the introduction of Free Primary Education (2003) and Free Day Secondary (2008) through various programmes to support the most vulnerable children, girls, and women to

enhance EFA (GoK, 1997). This has been achieved with varying degrees of success because the primary level of education is still characterised by high enrolment (FPE) and high wastage, resulting from repetition and dropouts. Upon completion of primary school, children proceed to a level higher, the secondary school, where they sit for the Kenya Certificate of Secondary Education (KCSE). KCSE marks the end of secondary education. What is important to note is that KCSE is used for selecting students into university and training in tertiary colleges (ANPPCAN, 2005; Stone, 2005). In Kenya therefore, KCPE and KCSE examinations determine the outcomes and the life chances of a child. What follows is a brief discussion on how these outcomes are determined and measured.

1.3.2 How are Education Outcomes Measured in Kenya?

As I have detailed in Chapter 4, assessment and learner outcomes become the best proxy to measure progress in any education system. While reforms have taken, and continue to take place, Kenya's education system remains traditional and examination-orientated (Eshiwani, 1990). In my discussion in Chapter 3, it is evident that education outcomes in Kenya are measured by the performance of students[2] in external examinations (KCPE and KCSE) and their completion rates (Stone, 2005, p. 10; Abagi & Odipo, 1997). Examinations are used to measure the level of candidates' achievements and clarify their level of education, training and employment (Yara & Wanjohi 2011, p. 107). Therefore, advancement is purely based on performance in high-stakes examinations, which largely specifies educational attainment where only the high performers in examinations proceed to the next level of education. Through this competitive examination-based and rigid education system, Kenya has excelled in the East Africa region[3]. However, to maintain the status quo, the country has had to

[2]In Kenya, the term pupils is used for children from Standards One to Eight while the term students applies to those in secondary school. In cases where I refer to both, I will use the term students.

[3] The easterly part of the African continent traditionally consisting of Kenya, Uganda and Tanzania which I refer to in this thesis. The region now has 11 countries.

endure tremendous pressure on the education system through high repetition rates and overcrowded classrooms (Alubisia, 2005) to ensure that only the 'suitable' proceed to the next level. In some cases, the weaker and vulnerable have failed to progress to the world of employment. The follies of having a rigid education system that only embraces good grades is that those who fail to post impressive results are condemned as failures (ANPPCAN, 2005).

On the other hand, Kenya embraces a national curriculum and a comprehensive national examination. The national content is laid out so that all students have access to the same knowledge and have equal exposure to educational attainment and achievement (Stone, 2005). The curriculum content includes continuous assessment tests (CATs) and other practical learning activities (e.g. food science, woodwork etc.), plus the extra curriculum category that are all not rated as part of the final grade in both KCPE and KCSE (ibid). Kenya also practises an open enrolment plan, where the choice of schools (Stone, 2005) is based on the admission criteria and not where pupils live, as would be the case in countries like South Africa. It may be argued that a common curriculum may level the playfield, but may not necessarily guarantee an equal education (Branyon, 2013, p. 40). Following Abagi and Odipo (1997), national examinations are only an index for efficiency and effectiveness of an education system. The efficiency of Kenya's perspective should be analysed from a process perspective, working together with inputs to determine outputs (ibid). Some of these processes would include the education policy, school administration, contact hours, school and classroom dynamics. Having reflected on learner outcomes and assessment within the Kenyan context, I now link the concepts based on the backdrop of school efficiency and EA.

1.3.3 Relating EA, EEA, Learner Outcomes and Assessment in Kenya

It is reasonable to assume that the difference in outcome is the level of effort put into the process whose performance is being assessed, (Duignan, 2012). However, in cases where pupils are markedly disadvantaged with regards to EEA, then Duignan's principle of equality of input, equality of outcome and the 'level playing field' may not apply, as it makes no sense to rank performance only on the basis of final outcomes. Based on the indicators of EA this study uses, it makes sense to relate EA to learning outcomes and assessment based on specific school conditions. EA would therefore denote attaining knowledge, while EEA applies to how equitable the knowledge attained can be compared from one school to another based on existing conditions.

An appropriate school environment should embrace efficiency and effectiveness in the learning process. The effective school, according to the University of Oklahoma Centre for Effective Schools (2013), has a positive, purposeful business-like environment free from physical and emotional harm. Therefore, the rightful inputs (adequate staff, learning materials) and other facilities need to be in place to ensure EA. EA can be achieved when all teachers are properly trained, supported and well-paid; when every classroom has enough textbooks, desks and learning materials; when schools provide a safe and welcoming environment; and communities/parents have a say in decision-making. Above all, EA and EEA can be achieved when governments, donors and civil society build a strong political commitment to the ideal of good public education for everyone, while taking specific steps to improve school conditions in the poorest communities and for disadvantaged children (ANPPCAN, 2005). What follows is a brief background to this study.

1.4 Background to the Study

Budalang'i division is located in Bunyala Sub-county of Busia County in western Kenya. Bunyala Sub-county was carved out of the larger Busia County in 2007 and has its headquarters at Budalang'i. The Sub-county borders Samia Sub-county to the east and Ugenya to the North. Bunyala Sub-county covers approximately 185Km^2 and has one division, called Budalang'i that comprises two education zones: Bunyala North and Bunyala South. The southern half of Budalang'i division is a flood-prone lowland, while the northern part has a few higher grounds (Omondi, Oluchiri & Musambayi, 2006). The Budalang'i division has six locations, with three sub-locations in each location, totaling eighteen sub-locations. Bunyala Sub-county has over thirty-five primary schools with about seventeen schools in the flood-prone lowland. Fourteen out of the seventeen schools are in the flood-prone Bunyala South zone, which makes pupils vulnerable to floods. Per MoEST's results analysis, out of the thirty-six primary schools that sat the 2014 KCPE examination in Bunyala Sub-county, only three schools in the flood-prone lowland made it to the top ten, while seven were among the bottom ten.[4] It should be noted that performance is generally poor due to several other challenges - the major ones being: seasonal floods, poor infrastructure, child labour, high poverty levels, HIV/AIDS and school dropouts[5]. In 2014, the best KCPE mean score in the sub-county was 348.74 from a private school, while the best mean score from the flood-prone lowland was 306.66 out of a possible 500 marks[6].

Budalang'i division has, for a long time, been affected by both flooding from River Nzoia and the expansion of the Yala Swamp. A lot of viable land and villages have been lost to these factors and to Lake Victoria, which washed or extended about ten kilometres inland as

[4] Bunyala Sub County Education Office 2014 KCPE analysis
[5] Bunyala Sub County 2014 Quality Assurance and Standards Assessment Executive Summary Report
[6] Bunyala Sub County Education Office 2014 KCPE analysis

a result of the floods of 1961. Due to frequent floods, people live in clustered homesteads with no proper home boundaries and other health and social amenities (e.g. education) (Omondi *et al.*, 2006, p. 251). So far, the major mitigation strategy adopted seems to be that of 'Living with Floods' (Oketch, 2006), as the rising scale of floods continues to cause large scale devastation of physical infrastructure and developmental activities, among them education. Besides Oketch (2006) and Omondi *et al.* (2006), several other research studies have confirmed the negative effects of flooding in western Kenya. A study by Okuom, Simatwa, Olel & Wichenje (2012, p. 200) reveals that many flood-related factors were reasons for great loss of valuable learning hours, amounting to educational wastage in one flood-prone area in western Kenya.

Arguably, the education sector in Kenya consumes about 30 per cent of public expenditure but still 1.8 million children are out of school (Okuom *et al.* 2012, p. 191; Munyi & Orodho, 2015) owing to weather factors. The level of disaster destruction in Kenya is worrying, as its effects become more severe, exposing the battle for social rights and social justice in the education sector. While the Kenyan government continues to invest in quality education through proper education access, it is not very clear what budget is allocated to ensure quality education in disaster-prone schools. As the government strives to ensure equal access to resources for high-quality education, the truth remains that some pupils still need more resources to attain quality education.

We recognise that formal schooling is an important determinant of the skills of an individual and plays a decisive role in determining his/her standard of living as adults (Glewwe, 2002). Basic literacy and numeracy skills enable individuals to become more engaged in their society (Achoka & Maiyo, 2008; Terzi, 2007; Sen 2002). Therefore, the destruction of

schools is one very direct way in which floods can inhibit life chances for primary school children in flood-prone areas. While other factors including parents, culture, individual abilities among other factors may also contribute, schools have a special role, since they are the ones most directly affected by public policies. Besides, children's prospects for EA to basic education depend largely on who has access to what kind of schooling and on what basis (Pendlebury, 2008/9). In contrast, the subsequent lack of basic numeracy and literacy skills would expose these pupils to vulnerability and marginalisation. These effects may as well permanently jeopardize a country's overall economic development (Masese, Opiyo, Okayo & Ombui, 2012). In the next section I explain the reasoning behind the need for equitable EA in these schools.

1.5 Why Equitable Epistemological Access?

EA denotes the intent to move beyond the physical or formal access to meaningful access to education (Muller, 2012); and for children to achieve the appropriate learning outcomes at a level that is suited to their grade (Pendlebury, 2008/9). Given that some pupils are disadvantaged from the onset, proper access to education requires that EA for these children is not only achieved, but is also equitable. In this thesis, I refer to the attainment of meaningful learning as EA; and to EEA to denote equity in EA (i.e. fairness in distribution of resources, in access to resources and in distribution of opportunities), which enables young children to benefit if education has to provide a space for social transformation, (Walker, 2008) for disadvantaged pupils.

According to Levin (2003, p.5), EEA is important to learners for three reasons: Firstly, and in line with Sen's capability theory, there is surely a human rights imperative for all people to have a reasonable opportunity to develop their capacities and to participate fully in

society. Secondly, insofar as opportunities to learn are not distributed fairly, there will be an under-utilisation of talent, as some people will not develop their skills and abilities with consequent loss, not only to them, but to the society generally. Lastly, higher levels of education are associated with almost every positive life outcome – not only with improved employment and earnings, but also with health, longevity, successful parenting, civic participation and so on.

The central question of this research is about (equitable) EA in flood-prone schools. The idea of equity in this research invites us to attend to questions of social justice for pupils in these schools. In practice, what seems to happen is that the MoEST tends to deal with equality in learning resources. As long as all of these are made available to learners, then both the school and government are seen to be doing their best. Taking a cue from Mann (2014), it is not just the equal distribution of learning material across the population, but the issue of equity (i.e. more for pupils who appear to be adversely affected by floods). What else needs to be done to ensure these pupils have the same EA to learning with their peers in other schools? The fundamental issue lies in the fairness in providing these schools with the same resources as schools where there are no floods; and with the provision of education as a public good towards making a normative case that education should be available for everybody (Williams, 2016, p. 131). A brief justification as to why education should be both a public and quality service follows.

1.5.1 Education as a Public Good

'A public good', as defined by economists, is a term used to signify a good or service that cannot be easily restricted to any particular individual or group (Williams, 2016, p. 137). The arguments of social justice consider education as a human right, which must be

provided. In contrast, it is not just about providing a public service, but rather making sure that the quality of distribution is equitable, so that people can have the same kind of opportunities to succeed and to progress; and so the same kind of opportunities can be retained in the education system without dropping out. As a private good, and in line with Fraser (1999), education opportunities are never equitably distributed for the simple reason that some people do better than others and can access better education facilities. Given the uneven distribution of resources resulting in large-scale inequalities in the society, many advocate for greater emphasis on public schooling, which contributes to higher enrolment, attendance, gender parity and proportions of students progressing to the next level of education (Smith and Joshi, 2016). If education should open up possibilities for societies and for individuals, then the system should not be allowed to operate as a 'market'.

At whatever level, a prerequisite of providing access to public education is funding (Omwami & Keller, 2010; Williams, 2016). Privatisation of basic education has raised gross equity-related concerns, due to inadequacy of funding by governments (Wangenge-Ouma, 2012). Kenya, as a nation, has made significant progress toward EFA and EEA (common curriculum and national examinations) with little success. While it is positive to say that Kenya has a relatively high expenditure of more than six percent of their GDP on education (MoEST, 2003, p. 23); countries like Uganda, Sudan and Gabon that spend less than 3 percent do post relatively high indices in education. This suggests that higher spending on education does not necessarily lead to high education outcomes, or vice versa (ibid).

EA in this study is defined through nine common indicators: time-on-task, resources, teaching methodology, instructional leadership, teacher motivation, parental involvement, school communities, the community/environment and culture as an essential rationale for

EA (see Chapter 4). Through the lenses of these indicators, educational opportunities and outcomes of many pupils in flood-prone schools remain separate and unequal as a result of inequitable EA. Therefore, decision-makers must examine what has been done, what is being done and, most importantly, what must be done to increase both EFA and EEA (Clark, Lappin & Jacobs, 2007) in flood-prone schools if education is to benefit these learners.

1.6 The Problem

As mentioned in my introductory chapter, it is one thing to access school and totally another to gain quality knowledge if learning has to remain meaningful (Jansen, 2008/9). Schools that exist in areas of recurring natural disasters, such as floods, confront serious challenges in delivering access to education for learners. As a result, learners in these areas tend to perform less well in public examinations, show reduced tendencies to progress beyond compulsory education cycles and contribute more to wastage indicators, such as dropping out of school. Furthermore, lower-qualified learners tend to be excluded from, or accommodated to a lesser degree in the Kenyan labour markets, which poses both uneconomical and cultural risks.

Presently, EA in Kenya has been significantly hampered by many other factors, despite the fact that the country embraces a common curriculum and a national examination. All other factors remaining equal, some children have still not been able to attain quality knowledge.

There is no question that physical access to schools is not as easy in flood-prone areas as it would be in secure areas of Kenya. It is a fact that the occurrence of floods has been accompanied by barriers to learning, preventing pupils' optimal learning in these areas. In Masese *et.al*.'s (2012, p. 24) study, findings reveal that weather extremes interfere with learning in most schools, resulting in the loss of learning hours, inadequate syllabus

coverage within the stipulated period, poor learner achievement and, consequently, high repetition, loss of motivation and strive for academic excellence, culminating in education wastage. Evidence suggests that there are barely structures to support pupils' learning needs in flood-prone schools of western Kenya (Achoka & Maiyo, 2008). A lot of research including that of Masese *et al.,* (2012), Okuom *et al.,* (2012), Achoka and Maiyo (2008) has been undertaken on what support is/should be given to pupils in flood-prone areas to enrol in schools. Unfortunately, there is little information on the acquisition of learning skills by these pupils.

Access to quality knowledge, which I refer to as EA, remains unequal - even when these children have gained physical access to schools. I believe that, other than the physical access, there are other factors like resources, pedagogy, a pupil's interests and ability, cultural beliefs, motivation, attitude and the perception of educational progression among others that would influence access to knowledge after enrolment. This not only affects learning, but compromises their opportunities to choose to be, and do, what they desire. The purpose of this research is in line with McLean and Walker (2008), that the capability approach conceptualises people living in any form of marginalisation as being deprived of opportunities to make choices for capabilities and functionings that comprise a healthy and dignified life (McLean and Walker, 2012, p. 585; Walker, 2008). What should not be ignored is that the more the wide range of barriers to learning is not overcome or reduced, children in schools prone to floods may not benefit from education, which might generate lifelong failure in line with their capabilities and functionings that I have elaborated upon in Chapter 2. The research focuses only on EEA in terms of floods and will not explore other variables that may affect learning or individual pupil ability, attitude or interest.

1.7 Research Question

Based on the stated problem, my broad research question is:

How might equitable epistemological access (EEA) be achieved in flood-prone schools in Kenya?

1.7.1 Sub-questions

a) How do schools in flood-prone areas promote physical access?

b) How do schools in flood-prone areas promote epistemological access?

c) In what ways do different school communities perceive strategies to be effective in promoting epistemological access?

In line with the research questions, it is important to know what I intend to achieve in this study. What follows is a brief discussion about the aims and objectives of the study.

1.7.2 Research Aim and Objectives

The study aims to investigate ways in which EA, and eventually EEA, in flood-prone schools can be achieved. I am starting from the assumption that learners in these schools are confronted with serious challenges in terms of learning, which eventually affects their chances in life. Based on the research problem that I have stated and the research questions I have posed, I hope to:

1. explore how schools in flood-prone areas promote physical access to schools.
2. determine how these schools promote EA.
3. investigate ways in which different school communities perceive strategies to be effective in promoting EA.
4. determine what needs to be done to increase both the physical access and EA in these schools.

In the next section, I briefly highlight the theoretical and conceptual contexts for this study, before exploring them in more detail in Chapters 2 and 4. Though some researchers discuss the theoretical and conceptual frameworks as one, I will present them separately in this study.

1.8 Theoretical Framework

The theoretical framework that informs this study is embedded in Bhaskar's Critical Realism philosophy (see section 1.10), premised on Sen's Capability approach and Nancy Fraser's Social justice framework, to examine the extent in which schools in flood-prone areas can generate both EA and equity in EA. EA is about ensuring the development of individual capabilities, but also ensuring that, in doing so, one embarks on a socially-just approach. The capability and social justice arguments are therefore at the centre of the debate around EA in flood-prone schools, where schools endeavour to develop capabilities amidst the perpetual subjection to deprivation issues and the strategies applied to promote EA and EEA. I have engaged with this discussion in detail in Chapter 2, where I also demonstrate that EA is a very complex issue, whose ideas may not be fully unravelled using a multi-theoretical approach.

1.9 Conceptual Framework

I have developed the conceptual framework of this study from the nine common indicators of EA: time-on-task, resources, teaching methodology, instructional leadership, teacher motivation, parental involvement, school communities, the community/environment and culture (in Chapter 4), that I identified as the essential rationale for EA in line with literature. I will use these EA indicators to problematise the concept of EA and also to address both the

interview and research questions of the thesis. I will develop the conceptual framework further into a conceptual model as the key contribution to this research.

1.10 The Research Methodology

In this section, I only outline the introductory overview of the research methodology that I adopted in this study, as I have provided a detailed discussion in Chapter 5. This being a mixed-methods study, embedded in Bhaskar's critical realist theory, I investigated the very nature of reality of a phenomenon (ontology) (i.e. flooding within its real-life context), I turned the gap between the phenomenon and reality into meaningful knowledge, through specifying what was 'valid' to be known and ways of knowing it (epistemology) through both quantitative (positivism) and qualitative (non-positivism) approaches, implying a mixed-methods approach to research. I employed the convergent parallel design, which allowed me to collect both quantitative and quantitative data at the same time; and analysed data before I made an overall interpretation of results. This was with the view that the strengths of one method would offset the weakness of the other (McMillan & Schumacher 2006).

1.10.1 Research Sites

The research site for this study is limited to public primary schools in Budalang'i division, Bunyala Sub-county, Busia County in western Kenya. My choice of the site was influenced firstly by the recurrent flooding in this region and its impact on education progression and life chances of pupils. Secondly, it is an area with which I am familiar, which should make the research process easier in terms of language and logistics. I intend to select five flood-prone schools from both Bunyala North and South zones, (see Chapter 5, section 5.6.2) for details of sample size and sampling strategy.

1.10.2 Study Population

In this study, the unit of analysis is the school and the total population of the study is all schools in flood-prone areas confronted with EA, as well as EEA challenges. The target groups from this population will be parents and senior school managers, at the level of principal and senior teachers, from five flood-prone primary schools. I will also target representatives at the Sub-county education office, public health, disaster management and the local government departments (refer to section 5.6.1). In addition, I will administer a questionnaire survey and conduct FGDs with standard eight pupils from each of the five primary schools. I will select principals, teachers and parents through purposeful sampling, as they are best placed to address, and report on indicators that affect attainment of quality knowledge in their schools. Parents will provide information from the perspective of both family and school partnership relationships. Education officers will be a key target as they hold relevant knowledge, interest and experience in leadership practices in terms of school administration and management plus quality assurance. Local leaders (chiefs and assistant chiefs) will strengthen the credibility of the study by providing information on the linkage between education and governance at the local level. All these respondents will be selected purposefully to provide the best information on EA that is representative of the total population under study. Children have been regarded as the 'best sources' of information about themselves (Cohen, Manion, & Morrison 2011); I will therefore involve Standard Eight pupils in the survey; and FGDs, to add their voice and a layer of quantitative data to this research.

1.10.3 Data Collection Methods, Instruments and Analysis

I will source data using interviews, document analysis, questionnaires and FGDs. The research instruments to accomplish this will be open-ended interview questions and relevant

documents. In addition, I will administer a questionnaire and focus group questions to Standard Eight pupils to achieve both the result (quantitative) and the explanation (qualitative) from pupils. The key advantage for the questionnaire is to allow me to collect extensive quantitative data from a large number of pupils, thus saving me time and costs. On the other hand, FGDs with the pupils will allow them to describe their feelings, attitudes, beliefs and opinions in a more open way. I will present and analyse data in Chapters 6, 7 and 8. I intend to analyse qualitative data using ATLAS.ti, a qualitative software package, to categorise data into codes and themes. I will code, tabulate and analyse quantitative data using MS Excel, as well as apply descriptive statistics to provide simple summaries about the sample and the measures. I will then present data using graphs and tables.

1.10.4 Data Quality

This being a mixed-methods study, I will need to achieve both validity and reliability (quantitative data) and trustworthiness (qualitative data) to strengthen my findings. I will use content validity to sample the appropriate content to answer my research questions. With regard to reliability in quantitative data, I intend to use SPSS to compute Chronbach's Alpha Reliability test to measure the internal consistency of the Likert scale. With regard to validity (trustworthiness) of qualitative data, I will use credibility, dependability, confirmability, verification and transferability in line with Lincoln and Guba (1985); Cohen *et. al.*, (2011) and Leedy and Ormrod, (2001). Briefly:

Credibility – Ensures data, data analysis and conclusions are accurate and trustworthy (McMillan, 2012, p. 302).

Dependability - Is essentially a synonym (Cohen *et. al*, 2011; McMillan & Schumacher, 2006) for consistency and replicability over time, over instruments and over groups of

respondents. I will ensure precision and accuracy by selecting the research design and methods that are appropriate to answer my research questions.

Transferability - Refers to analytical synthesis, extrapolation, assertion or generalisability. I will ensure that others can use the information I obtained to understand similar situations and apply it in subsequent research (McMillan & Schumacher, 2006, p. 9).

Confirmability - Implies objectivity in research, which is both a procedure and a characteristic, (McMillan & Schumacher, 2006, p. 9). To uphold objectivity in the research, I will remain unbiased, open-minded and not subjective in my interpretation.

Verification – I will verify my results in different ways, depending on the purpose of the original study (McMillan & Schumacher, 2006, p. 10).

Just to note that, in cases where some of these aspects are not achieved, findings of this study will be considered in light of its limitations. With the stated objectives and a brief research methodology outlined, I justify the uniqueness and contributions of this study in the sections that follow.

1.11 Rationale and Significance of the Study

Education is crucial to advancing further development (Achoka & Maiyo, 2008; Sen, 1992; Terzi, 2007; Walker, 2008). Consequently, EA becomes both a capability and a social justice argument for creating life chances for pupils. It is therefore appropriate that every school affords children a proper learning environment, learning material and the teachers to teach effectively (Alubisia 2005; Abagi & Odipo, 1997). However, pupils in flood-prone areas are disadvantaged when floods impact on their learning and their life chances are affected. These pupils experience barriers which impede optimal learning. Barriers to learning include all those factors, intrinsic and extrinsic, that prevent children's optimal learning, or reduce the extent to which they can benefit from education (Pendlebury, 2008/9). My study argues

that learning goes beyond physical accessibility and enrolment. It is not enough to provide learning material to these pupils in an equal way as they are given to learners in other schools, but rather to follow on to understand what other strategies need to be employed to ensure the success of these children while at school. The central question this research poses is: 'What else needs to be done in these schools to ensure these pupils have the same EA to learning?' As a valuable contribution to knowledge, the study hopes to develop a model interrogating issues of EA in flood-prone schools which may be useful when developing policies around (equitable) EA, based on bringing synergies between key stakeholders, teachers, the schools and the communities.

1.12 Justification of the research

This is a fairly under-researched area in Kenya that needs more exposure. A lot of research has gone out to explain challenges of physical (formal or institutional) access to education in disaster-prone areas, however there is little research on how these children learn, how much they know, or how their learning needs are supported. Theory around this research tells us about education in disadvantaged communities, but very little specifically about what happens in flood-prone schools in terms of EEA. Based on Sen's capability approach, the study is justified because, if education should prepare young people for productive engagement in society, then overcoming the hurdle of accessing school may not necessarily translate to meaningful learning for learners who may have a wide range of learning barriers given their environment and background.

1.13 Preliminary literature review on key and other concepts associated with this study

The purpose of this section is to present a preliminary literature review before the start of the research: to understand the key concepts and how they relate to the study. The reason is to provide a general overview of the central concepts that are associated with equity in EA. These concepts include educational access (physical and epistemological) and natural disasters (floods). However, the notion of EEA cannot be understood outside the context of some key concepts that support the understanding of pertinent issues of EA. These are educational equality and equity, which I foreground as precursors to a better understanding of the research problem. Besides, the goals of equal education and equity in education have always been central to educational issues and this will assist me to build on my argument about (equitable) EA in flood-prone schools throughout this study. I briefly engage with each of the key concepts in the sections that follow.

1.13.1 Access to education

The question of access to education has remained central to national policies of African governments and international donor policies of foreign agencies (Jansen, 2008/9). Their main argument is that access to all levels of education should be equally available to all (Russo, Beckmann & Jansen, 2005, p. 35). Access to education implies everyone has the right of acquisition to the common education culture (Hemelsoet, 2012, p. 528). Following these statements, the provision of equal access to schools is linked to the definition of minimum standards of physical structures (Leyendecker, Ottevanger & Akker, 2008, p. 11), which are also a prerequisite for quality. Yet the attainment of access to schools has proven to be much more elusive in concept and in practice than is often claimed in the ambitious policies and plans of governments (Leyendecker *et. al*., 2008, p. 7).

Many governments have failed to markedly draw the distinction between quality and access to education, because, many times, quality in education overlaps with the issue of access to education (ibid), where disadvantages would exist less in the provision of a place at school, but in the provision of quality. Whereas it may not be possible to resolve the question of what counts as justice in education at a purely abstract level, access can only be properly understood within specific contexts of interpretation and enactment (Gewirtz, 2006). For a better understanding, I break down education access into the physical and epistemological access as discussed below.

1.13.1.1 Physical Access

Physical, formal or institutional access to education implies the proportion of school-aged children who are enrolled at school (Pendlebury, 2008/9). Physical access denotes all children getting into the school system and staying there. Most countries in Sub-Saharan Africa (SSA) have embraced EFA development goals (Leyendecker *et al*., 2008) by focusing their policy on the quantitative aspect of education. This aspect would imply the physical access to education which has to do with numbers (i.e. the enrolment of learners who access the physical resources at school). However, the question of physical access alone is not as easy as it appears (Jansen, 2008/9). While some countries find it easy to get children into school, others do not due to cultural, economic or physical factors. I echo Morrow's thoughts in Jansen (2008/9, p. 7) that, 'even though children might have physical access to schools, the question of epistemological access (the access to knowledge and to goods distributed by the institution) remains highly unequal even in the same school or classroom.'

1.13.1.2 Epistemological Access

Because EA is the focus of this study, it is only outlined briefly in this section and expanded on in Chapter 4. The term 'epistemological access' was coined in 2002 by the late philosopher of education, Wally Morrow, and has since been deployed in numerous papers and publications as a banner to signal intent to move beyond physical or formal access to meaningful access to knowledge, (Muller, 2014). Morrow distinguished 'formal' and 'epistemological' access to education within the thinking of higher education. Since, the term, sometimes shortened to 'epistemic access,' has been used in the scholarship world at all levels to mean something quite specific in epistemology (ibid). Drawing on this, formal (or institutional) access focuses on the proportion of school-aged children who are enrolled at school, while 'epistemological access' and 'systematic learning' imply that learning must be structured so that children develop coherent ways of understanding and engaging with different learning areas (Pendlebury, 2008/9). In line with Pendlebury, access becomes meaningful only when schools ensure EA and support children's systematic learning of basic skills, knowledge, values and practices, in a manner that respects children's dignity and background. EA therefore implies (Muller, 2014), promoting the capability and agency of learners. This suggests that, while considering quality in education, it should be remembered that one cannot achieve quality without ensuring access (Russo, *et.al.* 2005). However, access without quality is meaningless to those with access (ibid). In line with Russo and team, this study advances the argument that the access to a place at school, as well as to quality education, is key to learning. I now turn my attention to the next key concept, natural disasters.

1.13.2 Natural Disasters (Floods)

This study categorises floods as a natural disaster, which means a serious disruption that overwhelms the capacity of local, regional, or national systems and requires special mobilisation and organisation of resources beyond those normally available (Seyedin, Ryan and Keshtgar, 2011, p. 77). Distinguishing disasters from hazards is challenging. Boin and t'Hart (2010, p. 358) suggest that, although sometimes subtle conceptual distinctions are made between emergency, hazard, crisis and disaster by theorists, the terms may be used interchangeably. The scholars argue that all these concepts may be used to refer to large-scale, threatening, urgent and uncertainty-filled disruptions of the status quo in a community or organisation. This study, however, intends to employ these concepts as per their defined meanings, slightly varying them, depending on the magnitude of impact of floods on learning. What follows is a conceptual understanding of the terms 'educational equality' and 'educational equity', which are central to the argument of distributive justice in this study. Distributive justice is the fair allocation of resources among diverse members of a community, (Maiese, 2003). Maiese elaborates that fair allocation typically takes into account the total amount of goods to be distributed, the distributing procedure and the pattern of distribution that results.

1.13.3 Educational Equality

The ideal of educational equality is fundamentally grounded in the egalitarian principle that social and institutional arrangements should be designed to give equal consideration to all (Terzi, 2007, p. 757). In the current analysis, the notion of 'equality' is usually dated from the French Revolution of 1789 and popularised under the slogan 'liberty, equality, and fraternity' (Espinoza, 2007). Equality, addressed in relation to education, states that schools, given the resources available, must undertake to ensure that the educational needs of all

students, including those with special needs, are identified and provided for (Caulfield & O' Shea, 2010; Terzi, 2007; Walker, 2008). They must also promote the moral, spiritual, social and personal development of students in consultation with parents and have an admissions policy which provides for maximum accessibility. Educational institutions should therefore enact the value of equal concern by ensuring that all students have a fair share of educational goods and fair access to the benefits these yield.

There has always existed a lack of consensus on what a fair share would mean. Conventionally, equality in education is mainly theorised along the 'divide' between equal input, however defined, and equal outcome (Terzi, 2007, p. 757). In introducing this concept, I aim to engage with the debate on equality in education by discussing the issue of provision of equal education to pupils in marginalised environments (e.g. floods). Taking the cue from Terzi, (2007, p. 757), I draw from the capability approach, where the value of equal concern is enacted through equalising people's 'capability to function' i.e. their real opportunities for well-being and, hence, for living good lives. Masese *et al.* (2012) and many other studies suggest great disparity in EA among schools prone to floods. They are, however, inconclusive as to the extent, as well as their specific sources, of the inequality. Therefore, educational equality is more often discussed from a social justice perspective and the principle of fairness as follows.

1.13.4 Educational Equity

In education, the term 'equity' refers to the principle of fairness. While it is often used interchangeably with the related principle of equality, equity encompasses a wide variety of educational models, programmes, and strategies that may be considered fair, but not necessarily equal (The Education Reform, 2013). Conventionally, equity in education

depends on the reforming of existing education systems, which has to do with power distributions among a social class (where class refers to a group of people with similar opportunities or 'life chances'), gender and ethnicities (Leyendecker *et al*., 2008). For the purposes of this study, I would like to include the spatial or geographical factors which Alubisia (2005, p. 50) defines as "the distance children cover to school, population levels, physical features and terrain of schools". Equity implies an equal opportunity: An equal opportunity policy, as Roemer (2005, p. 3) defines it,

> is an intervention (e.g., the provision of resources by state agency) that makes it the case that, regardless of their circumstances, all those who expend the same degree of effort end up with the same outcome.

This means that, the equal opportunity policy 'levels the playing field', in the sense of compensating persons for their deficits in circumstances, so that, finally, only effort counts with regard to outcome achievement (ibid). Given that equity is defined in terms of fairness in social relationships, I find it more practical to discuss the concept in relation to the concept of equality to achieve two purposes: firstly, because the two concepts share a commitment to distributive justice which is the anchor of my study; secondly, to attempt to clear the confusion about what these two concepts really mean, and as they will be used in this study.

1.13.5 Equity versus Equality

'Equality' is not synonymous with 'equity' (Secada, 1989).

'Equity' and 'equality' are considered the main basis of distributive justice, but there are conflicting ideas even among scholars and researchers, with regard to what these concepts mean. The easier solution for most of us is usually to use the concepts interchangeably. I delve into Espinoza's (2007) work on *'Solving the equity–equality conceptual dilemma'* to consider the 'equity' and 'equality' debate, which has provoked a number of controversies

over the past four decades. These concepts are often invoked by policy analysts, policy-makers, government officials and scholars in order to justify or critique resource allocation to different levels of the educational system (ibid). In the provision of education, the 'equity' concept is associated with fairness, or justice, or other benefits, while taking individual circumstances into consideration (Espinoza, 2007); and is often used as a synonym for justice.

'Equality', on the other hand, would usually connote sameness in treatment by asserting the fundamental or natural equality of all persons (ibid). While 'equality' involves only a quantitative assessment, 'equity'; often not a very quantifiable measure (Secada, 1989), involves both a quantitative assessment and a subjective moral, or ethical judgment. According to Espinoza (2007), 'Equity is the process while equality is the outcome,' given that equity (what is fair and just) may not, in the process of educating students, reflect strict equality (what is applied, allocated, or distributed equally). One fundamental understanding is that inequities occur as a result of biased or unfair policies, programmes, practices, or situations which may contribute to a lack of equality in educational performance, results and outcomes (The Education Reform, 2013).

In some cases, 'equity' would mean equal shares, but in other cases, it can mean shares determined by need, effort, ability, results achieved, ascription to any group or by resources and opportunities available depending on the context (Espinoza, 2007). This is perhaps what makes equity as a concept problematic – when the meaning of fairness and justice differs according to the context. However defined, greater 'equity' does not equal greater 'equality'; in fact, more 'equity' may mean less 'equality' in the educational process (resources, access, survival, output and outcome), which then complicates equity-related cause-and-effect

relationships (ibid). Since it is difficult to point out direct cases of equity, many scholars agree that 'equity' arguments and 'equity' assessment are normally used in a context where one social group is being benefited relative to another'. It should however, be known that, if we want to produce the same result, the issue of generating unequal distribution of resources will arise (Espinoza, 2007). In this sense, resources will need to be distributed not according to a criterion of ability, but according to a criterion of need.

Invariably, the school environment mirrors the society in which it is found (Zuze, 2008). It is, therefore, not just the average amount of education that is important, but also its distribution across the school population per societal needs. This research study will therefore address the issue of equity as 'more for those who need it' and equality as 'a level playing field'. For instance, giving students who come to school lagging academically (because of factors outside of a school's control) exactly the same resources as students in higher income schools alone will not close the education - achievement gap (Mann, 2014).

1.13.6 The terms Learners, Students and Pupils

The terms 'learners', 'students' and 'pupils' are used interchangeably by most people, depending on the country and the education system. In Kenya, the terms 'pupils' and 'students' are used in primary and secondary schools respectively, while in South Africa, for instance, all school-going children are 'learners'. For the purposes of this thesis, wherever I am writing about children in primary schools in Kenya, I will be referring to them as 'pupils', while the term 'students' will refer to those in secondary schools. I will also use the term 'learners' when referring to, and interpreting, literature from South Africa and other countries that use this term.

1.13.7 Literature Review

The literature for this thesis is divided into three chapters that are largely conceptual. The first chapter (Chapter 2) presents the theoretical context of the study. The second chapter (Chapter 3) addresses assessment and learner outcomes and how they are used to gauge the extent of learning. The third chapter (Chapter 4) problematises the concept of EA, exposing its intended meaning and argument, using indicators that influence quality learning. In this regard, I do not present a specific chapter on literature review, because I integrated the empirical research with conceptual discussions. This preliminary literature survey has been done beforehand to provide an understanding of key concepts and how they will be used in the research. What follows is an outline of ethical considerations for this study.

1.14 Ethics

Guided by Neuman (2011) and Lutabingwa and Nethonzhe (2006), the study will apply the four pillars relating to ethical issues in Social Science research. These are informed consent, privacy (confidentiality, anonymity) and the right to withdraw (Neuman 2011, p. 149), which may also be listed as informed consent, potential harm to participants, deception and privacy (Lutabingwa & Nethonzhe 2006, p. 125). Next, I outline limitations of this study and provide an overview of the thesis before the concluding comments.

1.15 Limitations of the Study

When all variables cannot be controlled in a research project, due to time or budgetary constraints, weaknesses or limitations may arise. The first limitation in this study may be that, in as much as there is no guarantee in acquisition of better aggregates from pupils from secure schools, in this study I work on the assumption that students from disaster-prone areas are severely affected with regard to access and educational opportunities, compared to

their counterparts in non-flood-prone areas. In this regard, I tend to focus only on EA and EEA in terms of floods and will not explore other variables that may affect learning or individual pupil ability, attitude or interests. Secondly, I determined the nine EA indicators used in this study deductively. Using these pre-determined indicators to frame the study without allowing for other emerging findings would limit the potential accuracy of the findings. Besides, there may be other key indicators within the context of the study that were not identified and therefore not explored from the onset.

1.16 Overview of thesis

This thesis consists of ten chapters. Chapter 1, the Introduction, will be followed by a theoretical orientation of the study in Chapter 2, where I will look at the theoretical framework underpinning this study. In Chapter 3, I will embark on literature on how EA is measured, where I will discuss the concepts of 'assessment' and 'learner outcomes' as proxies for gauging the extent of learning. In Chapter 4, I will provide an in-depth understanding of EA and a conceptual frame for the study based on the nine EA indicators I identified from literature. In Chapter 5, I will describe the research design and methodology this study uses. In this chapter, I will also detail the population sample, data collection methods and instruments, including data analysis plus ethical considerations. I will present and analyse data I gathered in Chapters 6, 7 and 8 and thereafter present answers to my research questions in Chapter 9. I will report my findings before concluding with the overall contributions emerging from the thesis in Chapter 10. In this final chapter, I will also discuss implications of the study, outline the limitations of the study and suggest areas for further research.

1.15 Summary

The major purpose of this introductory chapter was to critically demonstrate the necessity of the study that I will undertake, the nature of the problem and how I conceptualised the research in broad terms. I began by offering a background to the study and highlighting the issues at hand. I then discussed the role of education in human development and individual capacity before discussing Kenya's educational context. In so doing, I outlined the study objectives and background, followed by a theoretical framework consisting of three theories as well as a conceptual framework that would provide the roadmap for the EA study. I presented the methodology to be used in the study justifying why a mixed-methods approach would be beneficial to this research. I also highlighted the uniqueness of the study outlining the key argument and the contribution I intend to make in the study. In this chapter, I briefly outlined a preliminary literature review to address pertinent issues associated with the study, as well as ethical considerations and two key limitations my study acknowledges. I ended the chapter with an overview of the thesis, where I outlined the focus of each of the ten chapters of my research. In the next chapter, I provide an extensive theoretical context of the study.

Chapter 2: Theoretical Orientation

2.1 Introduction

In the previous chapter, I critically discussed the objectives of the study to be undertaken, the nature of the problem, and how I conceptualised the research study in broad terms. In this chapter, I set out a theoretical approach for conceptualising the relationship between capabilities and EA. According to Neuman (2011, p. 85),

> a theoretical framework or system is a more formal or substantive theory and includes many specific formal or substantive theories that may share basic assumptions and general concepts in common.

At the centre of EA is the whole question of schools ensuring the development of individual capabilities among pupils. However, there are pupils who are subjected to deprivations - bringing about a capabilities, and a social justice argument, which are central to the debate around EA. Therefore, when schools develop individual capabilities, they need to ensure that, in so doing, they embark on a socially-just approach. The purpose of this chapter is to present Bhaskar's Critical realism theory premised on Sen's capability approach and Nancy Fraser's social justice framework to examine the extent to which schools in flood-prone environments can generate equitable EA.

I use the 'critical realism framework' as the overarching philosophy within which I draw on the capabilities and social justice approaches. Working within the social justice and capabilities lens, and in line with Tikly and Barrett (2009), I develop a debate around an overall understanding of how EA in flood-prone schools can be understood in relation to the extent to which it fosters key capabilities that individuals, communities and society in general have reason to value. Employing multiple theories in this study may demonstrate that EA is such a complex issue whose ideas may not be fully unravelled using a single

theoretical approach. Whereas Bhaskar's critical realism looks at reality (Neuman, 2011), the two theories offer competing predications that: 1) the development of individual capabilities improves lives; and 2) the development of individual capabilities should be based on a socially just approach.

Drawing principally on the ideas of Amartya Sen's capability approach and Nancy Fraser's social justice framework, I use the two approaches as tools for analysing and understanding the effect of floods in schools. However, my way of looking at reality is informed by Bhaskar's critical realist theory to gain an in-depth understanding of the flooding phenomenon and EA, where I indicate a belief in a mind-independent reality and the notion that perception of this reality is not direct, but is rather mediated by means of our perception (Shipway, 2011, p. 7). Science has found itself in the position of needing to hold to some foundational assumptions, which themselves are unable to be proved by traditional scientific reasoning (ibid). From a critical realist position, I maintain a mind-independent reality, while at the same time, acknowledging the social aspects of scientific knowledge.

I begin the chapter by first discussing Roy Bhaskar's critical realism (CR) movement and its philosophical underpinnings to the study (Archer, Bhaskar, Collier, Lawson and Norrie, 1998). In this section, I focus on positioning Bhaskar's critical realism and the key tenets I use to unravel the reality of schooling in flood-prone areas. Secondly, I demonstrate how Bhaskar's critical realist philosophy links to the two theoretical approaches. The heart of achieving EA, as already emphasised, lies within Sen's capability approach (development of capabilities) and Nancy Fraser's social justice theory (a socially just environment). In this phase, I will engage with Sen's capability theory, its origin and assumptions, the key arguments he proposes and how my research conceptualises these aspects in line with EA. I

will then delve into Nancy Fraser's view of a social justice approach, its assumptions and key arguments, and how these relate to learning in flood-prone schools. Finally, I will critically demonstrate the key elements of a socially-just education system and how these impact on children's education, before I provide my concluding comments for the chapter.

2.2 Bhaskar's Critical Realism – an Overview

During the latter half of the twentieth century, there have emerged two traditions of critical realism: the theological critical realism, which emerges from within the tradition of Christian theology (ThCR); and Bhaskar's critical realism (CR) (Shipway, 2011). In many discussions, 'theological critical realism' is simply called 'critical realism' and common traces and contours are used to distinguish 'theological critical realism' from 'critical realism'. In my study, I will immediately begin with Roy Bhaskar's critical realism as it is based on a realist philosophy of science and stems from the social sciences. Whenever necessary, I will draw into the ThCR to support my discussion.

Who then is Bhaskar?

2.2.1 Positioning Bhaskar

Although a number of philosophers have contributed to the critical realism development, the main impetus and key doctrines can be found in the writings of Roy Bhaskar, a British philosopher of science who has been cited as 'the major stimulus to realist thinking since 1975' (Shipway, 2011, p. 53). Bhaskar emerged into the intellectual scene when there was sustained challenge to the then dominant positivist conception of science (Archer *et.al.*, 1998, p. 3). His major achievement lies in his explanation of, and significant contribution to, his examination of non-positivistic ontological realism and its subsequent reshaping (Shipway, 2011). One of Bhaskar's key contributions was his explanation of scientific

development through three phases (i) an empiricist, (ii) a Kantian and, most importantly, (iii) a transcendent reality stage (ibid), which enabled him to 'counter attack' major empiricist criticisms of positivism which were not previously achieved. Since its emergence in the 1970s, Bhaskar's critical realism has gained ground in the philosophy of human sciences, with a focus on emergence and ontological realism. I preferred the critical realism theory because of its strength in the way I view reality. In so doing, it provides me with an independent mind on how I understand nature (epistemology) and what causes events to be as they are. From a critical realist position, I believe that there must be mechanisms behind every event and experience and these mechanisms are just as real as the events they cause. (ibid). What follows is a discussion of the key aspects of Bhaskar's philosophy that provide a critical understanding of how schooling happens in flood-prone areas.

2.3 Critical Realism: Key Tenets and Characteristics

Bhaskar's CR mainly focuses on the distinction of the *being* (ontology) and *knowledge* (epistemology) towards an independent reality (Bhaskar, 1975). To explain this, CR lends itself to eight key tenets (Shipway, 2011), which are not only vital to its arguments, but also distinguish it from other philosophical positions. Tenet one addresses the *intransitive* and *transitive* dimensions of both natural and social sciences. The *intransitive* dimension is where the objects of knowledge abide, while the *transitive* dimension is the realm where scientific theories reside. Tenet two lends itself to a stratified reality, which consists of three domains: the *real*, the *actual* and the *empirical.* The *real* contains structures, mechanisms and relations that have powers and tendencies. Events in the natural world that take place in the domain of the *actual* are generated by these structures and mechanisms in the domain of the *real.* The domain of the *empirical* is concerned with the human experience of events and behaviour.

Following tenets one and two, and as a researcher adopting Bhaskar's CR philosophy, I will apply scientific theory to pursue a layered and in-depth understanding of the flooding phenomenon and schooling. As a critical realist, and in line with tenet three, I believe that we can never claim to understand the world fully through 'closed systems' (Shipway, 2011; Bhaskar, 1998, Elder-Vass, 2004.). We can attempt to offer the best explanations of generative mechanisms, events and experiences through 'open systems'; and explain causes of social phenomena, not through prediction and control, but through our social science theories – what Bhaskar refers to as 'objective critique'.

Tenet 4 deals with Ubiquity determinism (i.e. natural laws as tendencies). In line with Shipway (2011), my critical realism position lies in the fact that generative mechanisms are responsible for the patterns of 'natural laws' and that science needs to explain these laws. That it is not possible to predict with absolute certainty the connection between observable events and the underlying structures and mechanisms which cause them using only the stratified reality levels (tenet two). Tenet five concerns a stratified and emergent model of structure and agency (TMSA); and mind and body (SEPM). This tenet reflects the stratified nature of reality by arguing for an evolutionary concept of emergence. Thus, CR is a non-positivistic movement with a focus on emergence and ontology. However, the whole question of revealing the underlying structures of these events requires an explanation between fact and value to make a value judgment about which tenet six details.

In tenets seven and eight, we get the idea that CR is not static. In this sense Bhaskar gives room for emancipation of reality. He explains the primacy of the category of absence and a stratified notion of truth, which allows truth to be both inter-subjective and alethic, (Shipway, 2011). In so doing, Bhaskar speaks about reclaiming reality through the truth

(Bhaskar, 1975) and ontological objectivity as a basis for human emancipation. In Bhaskar's view, we can only understand and solve social sciences problems through ascertaining the generative mechanisms behind what goes on around us.

Having outlined the key components of CR, I would like to locate the critical theory in my study and explain why I speak from a critical realist position. Like Bhaskar, and as a researcher adopting this philosophy, I would be unable to discover the reality about the flooding phenomenon and knowledge attainment without understanding the underlying mechanisms and structures (the real). Bhaskar (1975) endeavours to distinguish the nature of reality from the knowledge of reality, in what he describes as 'epistemic fallacy'. Referring to the *intransitive* and *transitive* dimensions (tenet one), and from a critical realist point of view, I am concerned with the properties that schools, school communities and the community in general in flood-prone areas possess, that might make them possible objects for knowledge. In an effort to deliberate further on Bhaskar's philosophy on a reality independent of individual experiences and behaviour, it is essential that I distinguish *being* (ontology) and *knowledge* (epistemology) towards an independent reality. To understand this reality, I base my discussion on Bhaskar's stratified reality (tenet two) to explain the *real*, the *actual* and the *empirical*, with input from the other tenets to establish existing mechanisms and the interplay between floods and individual capability development in these disadvantaged schools.

2.3.1 A Stratified Reality: Domains of the Real, the Actual and the Empirical

Having understood that real objects of scientific knowledge exist and act independently of the conditions that allow men access to them, I understand that it must be possible for events to occur independently of the experiences which allow their perception, (Shipway, 2011;

Bhaskar, 1998). Therefore, structures and mechanisms are distinct from the patterns of events they generate, just as events are distinct from the experiences in which they are apprehended. To account for the above statement, the ontology of CR is *stratified;* where stratification refers to the layering of ontology into the domains of the *real,* the *actual* and the *empirical* (Shipway, 2011, p. 74; Archer *et.al.*, 1998). According to Bhaskar (1998), the domains of the *real* the *actual* and the *empirical* are characterised by a fourfold distinction as illustrated in Table 2.1.

Table 2.1 Diagram of Bhaskar's stratified reality

	Domain of real	***Domain of actual***	***Domain of empirical***
Mechanisms	√		
Events	√	√	
Experiences	√	√	√

(Bhaskar, 1998, p. 41; Shipway, p. 75).

2.3.1.1 The domain of the Empirical

Starting from the top and moving to the more base strata, the domain of the *empirical* concerns only our experiences of what happens in the world. It is all about what we construct with our sense of perceptions, directly or indirectly, that are inevitably limited to impressions of those segments of reality that we are capable of perceiving with the senses we possess (Elder-Vass, 2004). It is this superficial way of looking at things (Bhaskar, 1975), that tends to collapse these domains so that what is experienced in the domain of the empirical is taken to be what it is in the domains of the actual and real. A *stratified reality* allows CR to criticise this (Shipway, 2011, p. 76) on the basis of 'epistemic fallacy'. This critique acknowledges experience as being part of the world and as the most basic evidence in our lives. However, we need to acknowledge that, just because peoples' experiences are part of our world, they cannot be used to define it. CR therefore probes underlying powers and mechanisms without collapsing the ontological layers.

2.3.1.2 The domain of the Actual

The domain of the actual contains our *experiences* of the world and the *events* happening in the world, whether we experience them or not (Bhaskar, 1975). *Events* is what happens when the real is activated, thus mechanisms operating beneath that bring about experiences and events (see Table 2.1). According to Shipway (2011), if mechanisms exist in the world in an 'untriggered' state, no event would be caused. Just because no event has occurred, it does not mean that the mechanism to trigger the event has ceased to exist; it just exists 'untriggered'. An example of these mechanisms would include: cultural beliefs, attitudes, educational policies and knowledge, which trigger events and experiences into phenomena. It therefore means, for me to understand the nature of the research problem, I need to comprehend the mechanisms (the real) that impact on the reality of flooding and learning at the empirical and actual levels.

2.3.1.3 The domain of the Real

Being the base stratum, the domain of the *real* concerns experiences, events and mechanisms, which exist in the social world independently of the events they generate. This domain concerns where the objects of knowledge abide and why things are the way they are in the domains of the actual and the empirical. According to Bhaskar (1975), behind every event and experience are structures that are influenced by their own powers and tendencies. Though these mechanisms may not be seen or observed (Elder-Vass, 2004), they influence our understanding of the social world. It is on this basis that Bhaskar (1975) acknowledges the limited knowledge we have about experiences and events until we understand the underlying mechanisms or powers that generate them, which distinguishes CR from other critical realists. In the next phase, I engage with Bhaskar's stratified reality to unravel the reality of schooling in flood-prone areas.

2.4 Critical Realism and the Reality of Schooling in Flood-Prone Areas.

In my discussion earlier, I elaborated how critical theory distinguishes between knowledge (epistemology) and being (ontology). In addition, CR holds the belief that, for events to happen, there exist mechanisms or powers that trigger them into a reality. As a critical realist in support of Bhaskar's philosophy, I begin by attempting to understand the mechanisms behind flooding and EA in five flood-prone primary schools of western Kenya, which I hope will yield, and contribute more knowledge to research through developing policies around (equitable) EA based on creating synergies between key stakeholders. I want to conceptualise how equitable EA can be achieved in flood-prone schools and the role these schools play in promoting EA. It therefore follows that, as I begin to gather data, I should not accept at face value what I gather from interviews, questionnaires or documents as the truth. Data, being only the first step to ultimate truth, will be probed deeply for me to understand the impact of the flooding phenomenon and learning – the *actual*; and provide the best interpretation of the '*real'* – thus the explanation behind this impact.

I mentioned earlier that, to understand equitable EA and the flooding phenomena deeper, required two more theories in addition to Bhaskar's philosophy. I now turn my attention to Amartya Sen's capability approach as the first approach to providing an overall understanding of EA and individual capabilities.

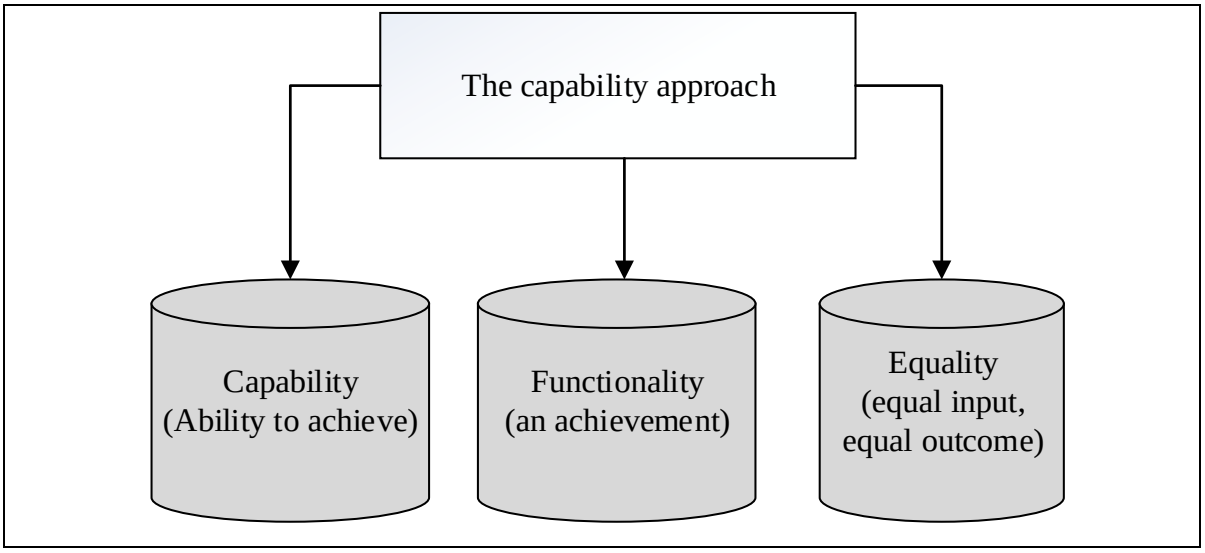
2.5 Amartya Sen's Capability Approach

2.5.1 Origin, Tenets and Assumptions

The capability approach was pioneered in development economics by Amartya Sen and has been developed philosophically by Martha Nussbaum as a significant contribution to campaigns for poverty reduction and against global inequalities. The approach offers a

potentially radical freedom-focused approach to the problematic issue of education as a space for the formation of persons and for individual and social transformation (Walker, 2008). From the 1970s, Sen and his associates introduced the concept of capability for the first time (Saito, 2003).

Figure 2.1 Tenets of the Capability Theory



Source: Own

Walker (2006, p. 165) defines a capability as,

> a potential functioning that may include doings and beings such as being well-nourished, having shelter and access to clean water, being mobile, being well-educated, having paid work, being safe, being respected, taking part in discussions with your peers, etc.

With 'functionings and capabilities' as the core concepts of this approach, Sen (1995, p. 266) described the capability approach as 'concentration on freedom to achieve in general and the capabilities to function in particular'. 'A functioning is an achievement, whereas a capability is the ability to achieve' (Sen, 1987, p. 36). What then are the key arguments of this approach?

2.5.1 Key arguments

There seems to be a potentially strong and mutually enhancing relationship between Sen's capability approach and education. Firstly, Sen links the notion of capability to 'freedom',

thus the range of options a person has in deciding what kind of life to lead (Dreze & Sen, 1995; Terzi, 2007). The capability theory operates on three major tenets: capability, functionality and equality (as illustrated in Figure 2.1). The three tenets seem to suggest that social and institutional arrangements should enact the value of equal concern by aiming at equalising people's capability to function (i.e. their real opportunities for wellbeing and hence for living good lives) (Terzi, 2007). Its major assumption lies in its argument for democratic freedom and the role of education in forming reflexive human beings, able to choose and to have full and complete lives (Walker, 2008, p. 149). To become reflexive, and in line with CR's stratified layered ontology, we need to look deeper into the social settings and how we can improve things in the social world.

The capability approach focuses on what people are actually able to be and do, personally and in comparison with others, in order to generate reflective, informed (Sen 1992; Saito, 2003; Walker, 2008) ways of living that each of us deems important and valuable. This has to do with freedom and how such freedom enhances the ability of people to help themselves and also influence the world, which points to matters that are central to the process of development (Sen, 1999). Sen argues that education within the human development paradigm should be evaluated on how it expands our freedom to do valuable acts or reach valuable states of being. Then freedom becomes the real opportunity to accomplish what we have to. Education for Sen (1992) is not only instrumentally important for human capital and economic productivity, but has intrinsic and social value independent of economic opportunities. Education leads to the knowledge, skills and understandings required by students to maximise their freedom in employment, but also for their development as individual personalities and for producing informed and critical democratic citizens (Terzi,

2007). The capability approach therefore determines how EA is viewed and sees human beings as productive beings with ethical and political concerns (Du Plooy & Zilindile, 2014). The essential question the capability approach asks is: 'What substantive freedom enhances the ability of people to help themselves and also influence the world?' I return to Du Plooy and Zilindile, (2014) who argue that the skills and knowledge acquired through education serve as a precursor to a decent life and, subsequently, to influencing the world. Therefore, schooling becomes a basic need for all children that needs to be promoted through equal EFA and EEA. Educational equality is conceptualised through the capability approach by focusing on fundamental functionings promoted by education that are essential prerequisites for an equal participation in society (Terzi, 2007), which would consist of equal and effective opportunities and access to these basic functionings.

In this regard, pupils in flood-prone schools are entitled to achieve educational functionings established for all. Therefore, they should have educational opportunities and resources to achieve effective levels of functionings. This, however, points to the principled justification for additional resources and the measure of the differential amount due to these students as a matter of justice (Terzi, 2007). What matters is how education as a capability is distributed, to whom and with what agency effects (Walker, 2008). What emerges from this discussion, from a capability perspective, is that compulsory education for eligible children is needed (Du Plooy & Zilindile, 2014). Before embarking on this discussion in detail, it is important that we understand that education systems and practices of teaching and learning are historically, economically and contextually shaped; and are central to contestations over what it means to be an educated person or a 'good' citizen (Walker, 2008), bringing about debates around what defines fairness (refer to Chapter 1, section 1.13.4). I now link the capability approach to the problem of education under four key elements: the notion of

agency; educational equality and quality; social justice; and the interplay between these concepts within the context of disadvantaged children's education.

2.6 Key Elements of Sen's Capability Approach

2.6.1 Capabilities and the notion of agency freedom

According to Sen (1999, p. 19), the concept of 'agency freedom' means,

> someone who acts and brings about change, and whose achievements are to be judged in terms of her own values and objectives, whether or not we assess them in terms of some external criteria as well.

This implies each person is a 'source of agency' and worth in their own right, with their own plans and their own lives to live,' (Nussbaum, 2000). Therefore, the capability approach takes seriously the development of each and every person as an end in themselves and not as the means to some other end, such as economic development (Walker, 2008, p. 151).

Using Walker's (2008, p. 151) analogy:

> A student choosing to become a plumber rather than to go on to higher education because she values vocational work, the freedom of running her own business, the flexibility of working hours etc. – and even though her exam grades have won her a place and financial support at a good university - is making a choice from genuinely valuable options. However, a young man who chooses plumbing either because his grades are not good enough for higher education entry, or he is unable to take on the financial risk of further study, is not choosing from equally valued options.

Walker insists that knowledge and skill acquisition would be judged according to how it increased our well-being and agency to live a flourishing life, with genuine choices. In line with Sen (1985, p. 45),

> the quality of life a person enjoys is not merely a matter of what he or she achieves, but also of what options the person has had the opportunity to choose from.

At stake is whether it is sufficient, with regard to education as a process and praxis of human development that we are for freedom, without at least giving some consideration to how

education contributes to such freedom, rather than to marginalisation and failure (Walker, 2008, p. 150). Walker argues for giving at least some content to education and, by implication, the kind of good society education is intended to help produce, while still keeping open the possibility of reasonable choices about what makes for a good life. Following the author, this distinction between capability and functioning is important because it asks us to look beneath outcomes to consider what freedom a person had to choose in order to achieve valued functioning. For instance, Walker (2008, p. 152) argues:

> If two students; Student A and B attain the same result, in a national history examination, it may not necessarily mean that their opportunities to achieve that result were the same. Student A may have attended a well-resourced secondary school, with well-qualified teachers, but was more interested in drama than history. Student B on the other hand attended a school where learning conditions were difficult and teachers not supportive of her aspirations to study history at university. However, the student struggled through and managed a B grade, a grade not good enough to win her a university place in an outstanding history department of her choice.

According to Walker, achieving the same grade demonstrates equality and, as we might agree, the outcome of these students seems equal if we look only at functioning. The capability approach however, requires that we look beneath this outcome at the real freedom or opportunities each student had to achieve what she valued (Walker, 2008). The argument here is that evaluation of equality must take account of freedom in opportunities as much as of observed choices. It is clear that Student A had both rationality and freedom in her choices; while Student B had rationality, but not freedom. Sen (1992) advocates for rationality and the freedom to choose and make a valuable life. This paves the way to my discussion on education equality as a key element of the capability approach.

2.6.2 Capabilities and Educational Equality

Since there exists a potentially strong and mutually enhancing relationship between human capital and human rights in education, it becomes difficult to discuss the two dimensions without bringing in educational equality: a concept that has made a significant contribution to the EA debate. As already mentioned, the ideal of educational equality is fundamentally grounded in the egalitarian principle that social and institutional arrangements should be designed to give equal consideration to all (Terzi, 2007). At this point, I expose an analysis of the distribution of inputs and how these facilitate the development of key capabilities, because equality in education is mainly theorised along the 'divide' between equal input (however defined) and equal outcome (refer to Chapter 1), while emphasising the importance of context. To build more on this, Tikly and Barrett (2009) refer to the extent to which the needs and rights of different groups are recognised in education; how decisions about education quality are governed; and the nature of participation at all levels. What then would constitute a just provision of EA to pupils in schools prone to floods? Terzi (2007) argues that the capability approach helps substantially in conceptualising educational equality, by focusing on the fundamental functionings promoted by education that are essential prerequisites for an equal participation in society through educational equality.

2.6.3 Capabilities and the Quality of Education

According to Sen (1992), the difference between a capability and functioning is like one between an opportunity to achieve and the other an actual achievement; thus the difference between potential and outcome. This, in line with Tikly and Barrett (2009), has implications for the way that education is understood and evaluated, because a key role for a quality education becomes one of supporting the development of autonomy and the ability to make choices in later life, rather than simply providing individuals with the necessary resources to

learn. In this regard, and in line with Unterhalter (2007), educational evaluations need not just be pegged on inputs like teachers, hours in class, learning material, outputs, or earnings from a particular level of education. Rather, evaluations should look at the condition of being educated; the negative and positive freedoms that sustain this condition; and ways in which this education supports what every person has reason to value (refer to Chapter 4 on EA). Capabilities looked at in this way become a basis for assessing quality and not simply access to resources or equality of outcomes (Tikly & Barrett, 2009).

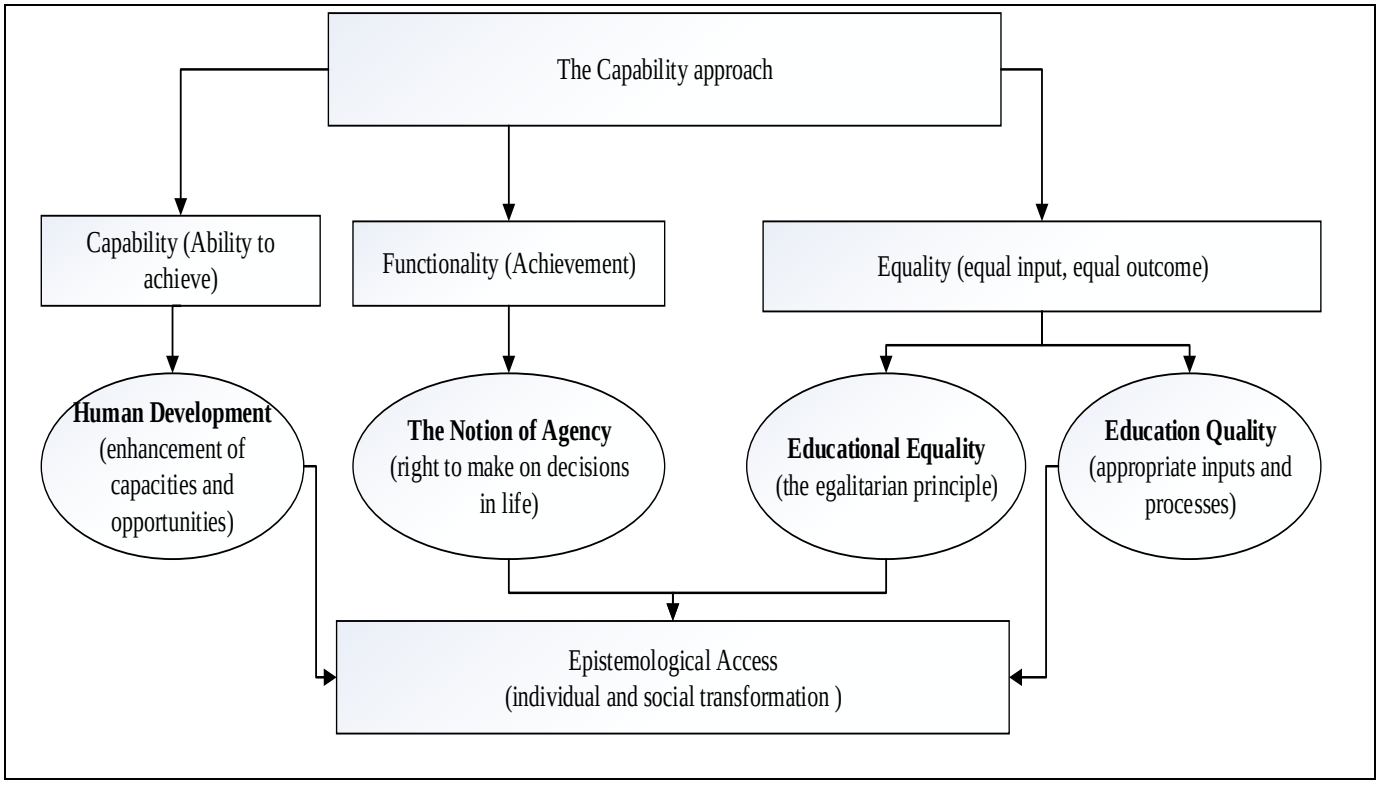
It should be understood that quality in education goes beyond years spent in school, therefore expansion in educational opportunities alone may not necessarily address quality and capability concerns. Indeed, an effective school would require inputs of both financial and material resources, including teacher and pupil characteristics, to produce outcomes. One reason the improvement of the quality of education has been lagging behind in most national agendas is the assumption that, if schools are basically functioning, there is no need to strive to improve on quality. According to Tikly and Barrett (2009, p. 3):

> Basic school functioning means staff and students are able to be physically present in a school building with classrooms and minimum of furniture and they are physically, emotionally and mentally well enough to apply themselves to teaching and learning (i.e. they are not hungry and are in good health).

Basic school functioning is a typical setting in the case of flood-prone schools, where children attend school in buildings with no, or minimal, furniture. It becomes difficult for the relevant authorities to re-invent the wheel with regard to their role in ensuring the quality of schooling in these regions, just because the schools are seen as functioning. More often than not, schools prone to floods have been exposed to uniform national assessments (Chapter 3) of cognitive learning to measure cognitive outcomes, not only overlooking, but making no reference to the learning processes. However, where improving the quality of education has

been seriously considered, the rationale for investing in quality has simply been seen as a means to increase retention or outcomes (Tikly & Barrett, 2008). The quality of education has, in fact, declined as governments have become progressively more successful at increasing enrolments ahead of limited initiatives to improve quality (UNESCO, 2008; Zuze, 2008; Tikly & Barrett, 2008). This has, in turn, reinforced a tendency, particularly within human capital theory, to neglect the processes of teaching and learning and the question of how resources get distributed within schools, (Tikly & Barrett, 2008, p.11). Figure 2.2 below summarises my discussion on the tenet and key elements of the capability approach.

Figure 2.2 A Conceptualisation of the Capability Approach



Source: Own

Because the capability approach (Sen 2002; Nussbaum 2000) is viewed potentially as a robust framework for social justice in education, I draw on the social justice theory which integrates justice into equality of capabilities and equal valuing of individual diversity, mainly because both theories share a commitment to equality in opportunities (Saito, 2003) and would sufficiently frame the debate on (equitable) EA, based on human capital

(capabilities) and human rights approaches (social justice) (Tikly & Barrett, 2009). My next discussion is underpinned by Nancy Fraser's social justice perspective, along with Sen's understanding of capabilities as applied to educational settings.

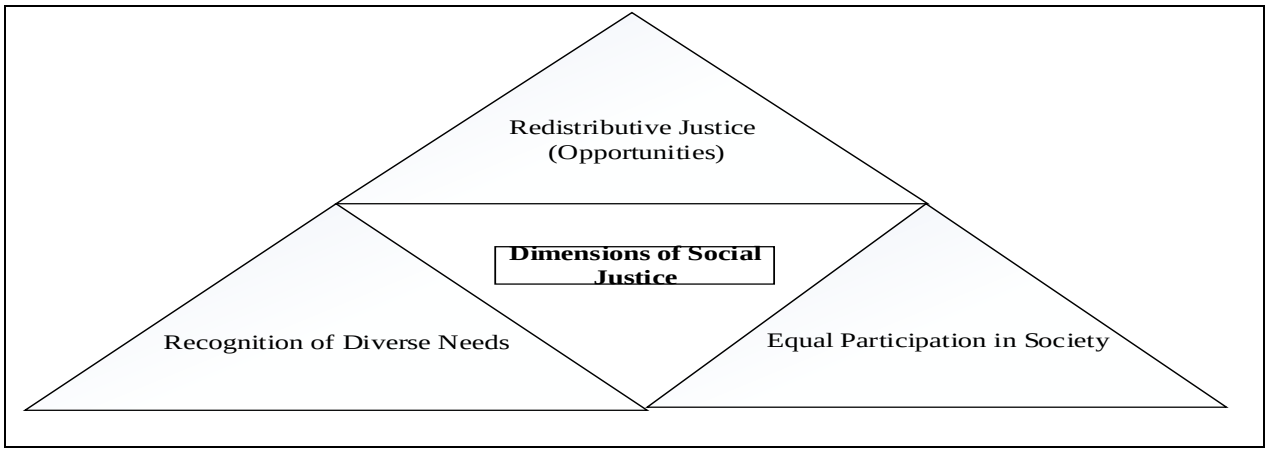
2.7 Nancy Fraser's Social Justice Framework

2.7.1 Assumptions and Key Arguments

The social justice theory implies fairness and mutual obligation in society. That we are responsible for one another, and that we should ensure that all have equal chances to succeed in life. In Chapter 1, section 1.2, I emphasised that the key arguments of social justice consider education as a human right which must be provided. However, in so doing one should embark on a socially just approach. In line with Nancy Fraser, the quality of distribution should be equitable so that people can have the same kind of opportunities and freedom to choose the kind of lives they want to live.

Nancy Fraser argues for equal opportunities for all eligible children through quality public schooling, for the simple reason that some people do economically better than others and can access better education facilities. This results in large-scale inequalities given the uneven distribution of resources. In societies, wherein life chances are not distributed equally, implies redistribution of opportunities, although the shape that such redistribution should take remains contested (Rawls, 1971). Nancy Fraser and many other agents of social justice advocate for education as a public good from a social justice approach (section 1.5.1). In her view, by investing in education as a private good allows us to operate like a 'market' which is inappropriate. I now draw on Nancy Fraser's three dimensions of social justice, namely redistribution, recognition and participation, and in line with Miguel (2010) to explain how opportunities may be redistributed with particular focus on EA in flood-prone schools.

Figure 2.3 Nancy Fraser's 3 Dimensions of Social Justice



Source: Own

2.8 A Capabilities Approach towards a Socially Just Education System and its relation to EEA in Flood-Prone schools

This section discusses the capabilities approach and how it extends to social justice and EA. In line with Tikly and Barrett (2009), I focus my discussion on Fraser's three dimensions of social justice, namely, redistribution, recognition and participation. Redistributive social justice focuses on the instrumentalist aspects of capabilities and draws insights from the human capital traditions which are then extended from a social justice perspective. Recognition, according to Tikly and Barrett (2009), would concern cultural needs and identities of different groups of marginalised pupils. Participation draws us to a consideration of the implications of representation for education quality drawing attention to the processes by which the capabilities that are valued as constituting quality education, both within processes and through outcomes are decided. What follows is a discussion on each of the dimensions.

2.8.1 Redistributive Justice and Quality Education

Nancy Fraser and other researchers point out that redistributive justice is underpinned by class based struggles in the arena of social policy (Tikly & Barrett, 2009). This is related to wealth distribution, which could also be described as capability inputs (resources which can

be converted into capabilities). As already mentioned, redistributive justice draws on the instrumentalist aspects of education producing those capabilities linked to sustainable livelihoods and economic growth and access to material and human resources.

In the schools under study, the government has succeeded in enrolling students to school through FPE. Other factors notwithstanding, it is evident that this enrolment does not correlate with the school capacity, in terms of resources and materials. Emphasis has been put on retaining pupils at schools and the outcomes of assessment. I agree that improved access to school equals outcomes and equity, however, the question of quality inputs has often been overlooked especially in disadvantaged schools. The question of factors like school feeding programmes, teaching and learning materials, teacher quality, instruction leadership, as discussed in Chapter 4, all add to the debate on how redistribution and quality can raise performance and improve scores for the socio-economically disadvantaged. In addition, as materials and other pedagogical inputs are provided, it is fundamental that they are appropriate to the environment, which leads me to the final social justice dimension on recognition of diverse needs in education.

2.8.2 The Capability Approach: Recognition of Diverse Needs in Education

Recognition within social justice concerns distinctive perspectives of groups that are marginalised by dint of their ethnicity, sexuality or religion, among other characteristics (Tikly & Barrett, 2009). In line with Walker (2008), learning is a process where capabilities are not just 'beings' and 'doings' but are also 'becomings'. Recognition claims therefore can be made from school, while at the same time creating status of inequalities by making particular demands of educational processes and being sensitive to how education actively shapes identities. Ethnicity, minority or marginalised ethnic groups require curricula and

teaching and learning processes that recognise and value their particular histories, lifestyles and pedagogic texts (Tikly & Barrett, 2009, p. 15). Recognition claims of marginalised groups can be considered to illustrate some of these demands and values. These would entail values that constitute barriers to access to schools and attainment of quality knowledge and then converting these to capabilities and functionings. This has happened in some schools in Australia and the USA who design and implement the curriculum in collaboration with members of the local and aboriginal and Native American community that accommodate their hybrid culture and history, (ibid). Another good example from the authors exists in Uganda East Africa where: to accommodate needs and lifestyles, nomadic pastoralists in North East Uganda under the Alternative Basic Education for Karamoja (ABEK) have a flexible daily schedule to either begin in the early morning or late at night to allow children to participate in household chores.

In this regard, teaching and learning skills need to identify with a people's culture and environment (see Chapter 4). Learning materials and teaching methodologies in environments prone to floods should be linked to their history and culture to help them identify themselves. This would extend to the use of local languages in the early years of primary schools because new languages of instruction may lead to dropouts where children may feel culturally alienated and not valued in school. Claims such as these are recognised by human rights approaches as entitlements related to cultural rights and require that quality education meets pupil's needs, including those stemming from their various cultural identities (Tikly & Barrett, 2009). In their view, determining the curricula content is one way by which a society decides the capabilities which it values. In this way, learners are able to convert resources or capability inputs into capabilities (outcomes) that will enable them to

live better lives in future. Recognition, a key dimension of social justice is subject to societal representation from a capabilities perspective, a discussion I now turn to.

2.8.3 Education and Equal Participation in Society.

In this section, I discuss the role of participatory social justice and education quality. Fraser, just like Sen and Nussbaum's notion of capability propose the idea of public dialogue and debate. Fraser particularly refers to the double exclusion faced by parents, communities in debates about a quality education (Tikly & Barrett, 2009). Going back briefly, education, both in terms of formal schooling and informal learning, is central to the capability approach. The approach emphasises specifically what the capability to be educated makes to the formation and expansion of other capabilities and hence, the contribution it makes to people's opportunities for well-being and for their effective freedoms (Terzi, 2007). Education, according to Sen (1992), is among basic capabilities (i.e. among a relatively small number of centrally important beings and doings that are crucial to wellbeing).

Even though the idea that education should equip individuals to become effective and equal participants in their social framework (Terzi, 2007), the precise meaning of an effective and equal participation in society, needs further articulation and specification. While an immediate understanding of this concept may conjure up images of success and adherence to a predefined, somehow 'normal' view of what effectively participating in one's framework entails, I agree with Terzi (2007) that an understanding in line with the capability approach endorses instead the view of an individual who has effective opportunities to lead a meaningful life, free from the constraint of deep inequalities in well-being and able to choose, among a set of capabilities, those that she has reason to value. In line with Terzi (2007), having effective opportunities enables people 'stand as equals' in societal

participation which contributes to the removal of relations of oppression and discrimination. I summarise the capability and social justice approaches as follows:

When education plays an essential role in the sense of meeting a basic need, it means a lack of it constitutes a fundamental disadvantage, as emphasised by Sen throughout his work. Sen emphasises that people have to meet fundamental needs to achieve well-being (Saito, 2003, p. 19) and so everyone should have goods and services that satisfy their basic needs. Children, being deprived of education during childhood, be it in formal schooling or informal learning in social interactions determines a disadvantage that proves difficult, and in some cases truly impossible, to compensate for in later life. Terzi (2007) suggests important considerations about the kind of education that should be provided to individuals given the complex interrelation of individuals with the society they inhabit. It follows that an education consistent with enabling people to achieve well-being and allowing the exercise of agency, entails the promotion of functionings and capabilities pertaining to abilities and knowledge that enable them to become participants in dominant social frameworks, while at the same time promoting reflection on valued goals. Since this study concerns children, it would be valuable to explore the capability approach to education from children's perspective. In line with Saito (2003), I engage with two possibilities to explore children's education as follows:

2.8.1. The Capability Approach and its Applicability to Children

When it comes to children, the notion of capability as 'freedom' (i.e. the range of options a person has in deciding to lead a good life) still applies. However, the one question is, 'Can we discuss the well-being of children as well as of adults in terms of capabilities?' (Saito, 2003). Many would agree that children need support from all quarters: parents, teachers, the

society in choosing what is best for their lives; and the same argument applies when it comes to education.

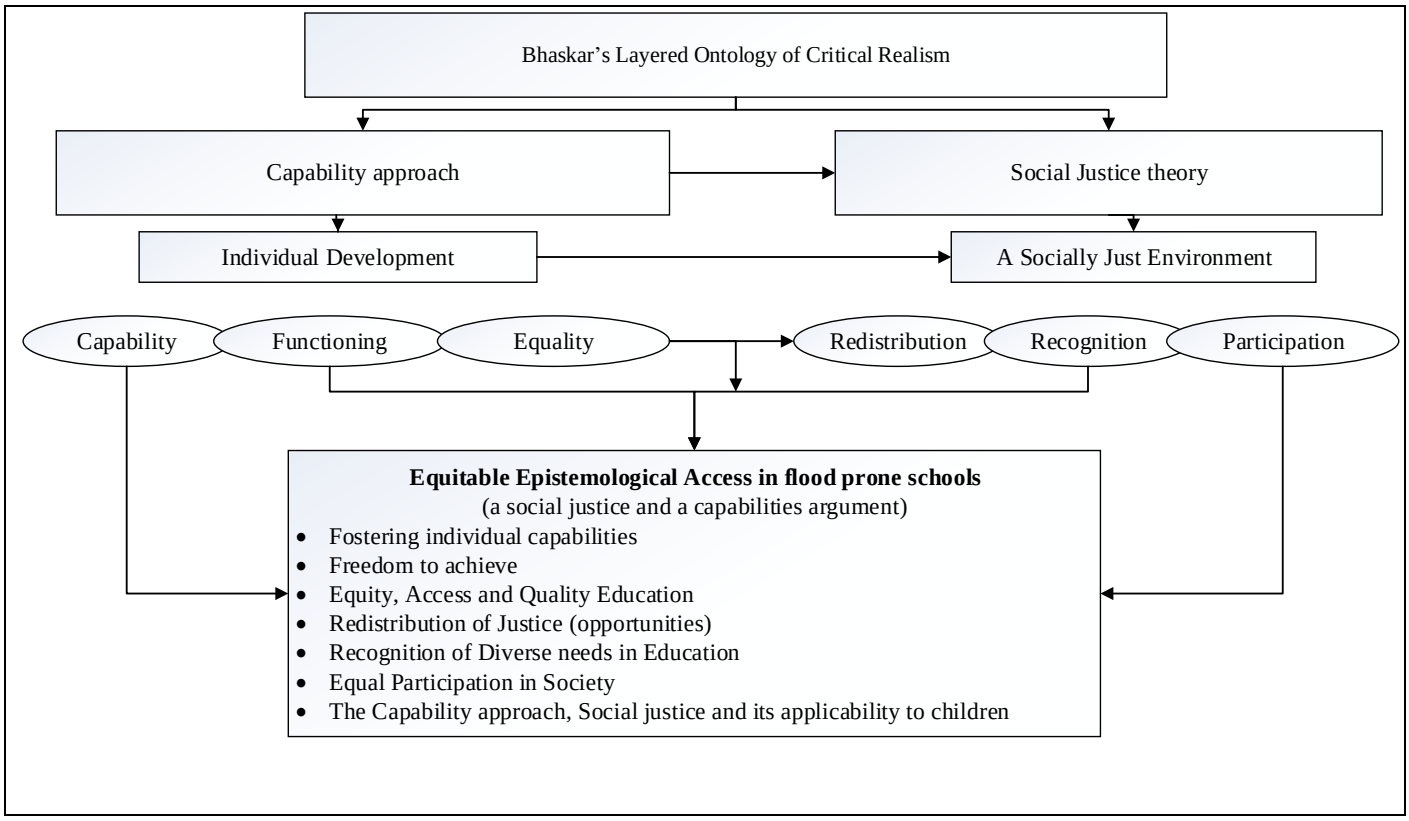
Despite the fact that neither parents nor the State have a right to complete authority over the education of children, it seems appropriate to say that a child remains in the care of others in the choice of what to learn, so that the child's interests can be facilitated. Therefore, following Saito (2003), I would agree that although functionings (the set of things that a person can do in life) are of course important for children, when it comes to capabilities in children, the matter appears complicated and problematic. Saito however poses the question, 'How can we apply the capability approach to children, since children are not mature enough to make decisions by themselves?'

Sen emphasises the importance not of the freedom a child has now, but of the freedom the child will have in the future because the child must have more freedom when it grows up. It is not practical not to teach a child anything claiming we do not know what is best for the child in future. It is also not proper to let a child choose what they want to learn, as this may restrict the range of good possibilities in the future. In the same vein, it is not proper to ignore children's capability needs just because they are children. It is only appropriate that we promote EA in flood-prone schools for sake of the future of children who, at the moment, depend on us. As long as we consider a person's capabilities in terms of their life-span, the capability approach seems to be applicable to children (Saito, 2003). What therefore is the role of education in the capability approach in the perspective of children?

2.8.2 The Expansion of Capabilities

It is now clear that education plays an important role in the expansion of capabilities through the expansion of a child's capacity or ability. Capability has to do with what education enables the child to do, whereas capacity is the expansion of opportunities that the child has. Education makes a child autonomous in terms of creating a new capability set for him/her. In order for the child to be able to make choices in his/her life, s/he needs to become autonomous through education. However, it should remain the child's responsibility to choose to stay autonomous, or not (White, 1973). Sen's capability approach stresses that giving children opportunities to learn under a system such as 'compulsory' education seems to be an ideal concept, because compulsory education will give the child much more freedom when they grow up. However, Saito (2003) notes that compulsory education does not necessarily enhance children's capabilities. The author argues that extremely 'top-down' and competitive systems tend to study subjects that are required for examination success, a discussion to which I have devoted a whole chapter (Chapter 3). Such systems produce children who may have gone through a compulsory education system, but are less autonomous with limited capabilities. In conclusion, a good education system should play a role in expanding the child's capabilities and make them autonomous in future.

Figure 2.4 A Stratified Layered Ontology and the Capabilities Approach towards a Socially-Just Education System in Flood-prone schools



2.9 A critical analysis of the three theories

As summarised in Figure 2.4, I have presented Bhaskar's critical realism theory, Sen's capability approach and Nancy Fraser's social justice framework, to examine the extent to which schools in flood-prone environments can generate equitable EA. Based on a stratified layered ontology and the capabilities approach towards social justice, I employed the 'critical realism framework' as the overarching philosophy, within which I drew on the capabilities and social justice approaches. My decision to use more than one theoretical framework demonstrates that three key theoretical positions have influenced my thinking about this research, as illustrated in Figure 2.4. Before discussing this further, I would like to share who I am in the light of my position in this research.

2.10 My positionality

Guided by Hall (1990), research often asks that you, the researcher, positions yourself somewhere in order to say anything at all about your study. Bourke (2014, p. 2) says that,

> research sets the researcher as the data collection instrument. It is reasonable to expect that the researcher's beliefs, political stance, cultural background (gender, race, class, socioeconomic status, educational background) are important variables that may affect the research process.

Following Bourke (2014), positionality represents a space in which objectivism and subjectivism meet. Bourke says that we can never truly divorce ourselves of subjectivity, rather we can strive to remain objective, but must be ever mindful of our subjectivities, which come to bear on the research project and any subsequent reporting of findings. In line with Savin-Baden and Major (2013), I will engage with three primary ways to accomplish my positionality in this research.

Firstly, I locate myself in relation to my personal position on the research subject. I have come with epistemological assumptions that pupils in flood-prone schools are disadvantaged in terms of educational opportunities because of floods. This positionality not only shapes my own research, but influences my interpretation, understanding and, ultimately, my belief in the 'truthfulness' of others' research that I have read, or to which I am exposed (Holmes, 2014).

Secondly, I locate myself in relation to my research participants. Being an outsider to this research task, I will align with participants to draw upon their experiences to obtain data and will be careful not to influence participants in any way, especially with qualitative data where I am set as a data collection instrument.

Thirdly, in locating myself in relation to the research context and process, my position situates me as a researcher with a stronger qualitative background. However, because of the nature of data that I require to answer my research questions fully, I will need a layer of quantitative data. In this regard, I find myself gravitating naturally into a mixed methodological kind of thesis. Therefore, there may be some bias in my analysis, where the analysis of qualitative is stronger than that of the quantitative data. I am aware that a researcher's positionality is never fixed and is always situation-, and context-, dependent (Holmes, 2014), which now explains how the three key theories have so far influenced my positionality.

Returning to Figure 2.4, Bhaskar's layered ontology of critical realism has influenced my methodological approach in two ways: Firstly, regarding the subject, I need to make reasonable assumptions and describe social phenomena as they are and not how I perceive them to be. Secondly, I should not accept data from interviews, questionnaires or documents at face value as the ultimate truth. I will need to probe the data deeply for me to understand the underlying mechanisms behind these events and experiences of schooling in flood-prone areas. Therefore, to provide a fitting explanation to my problem, such data requires triangulation, hence my use of a mixed-methods approach. The capability theory and the social justice framework both share a commitment to equality in opportunities through distributive justice. They will influence my debate on EA, in that I will need to define how capabilities affect individual development; and how EA becomes a social justice issue, using Nancy Fraser's social justice framework. This will influence my approach to the research problem and the kind of questions I ask participants, as well as the thinking I will use in my analysis in an attempt to reduce bias and partisanship.

2.11 Summary

In this chapter, I have engaged with critical realism and its tenets as the philosophical basis to my study, premised on Sen's capability approach and Nancy Fraser's social justice framework. In so doing, I have justified the importance of the development of capabilities in a socially-just environment and their relevance to equitable EA in flood-prone schools. This being a study about children, the chapter has also explored capabilities and freedom in relation to children's education. Having highlighted capabilities in relation to autonomy and education systems, I devote the next chapter to assessment and learner outcomes - and their role in relation to the development of capabilities within the Kenyan education system.

Chapter 3: Equity, Assessment and Learner Outcomes

3.1 Introduction

In the previous chapter, I engaged with Bhaskar's critical ontological realism as the philosophical basis for my study. Within this paradigm, I discussed the importance of developing capabilities in a socially-just environment towards achieving equitable EA in deprived environments. If EA is about schools ensuring the development of capabilities among all pupils, I feel it is important to provide an understanding of how EA is measured: i.e. how we gauge the extent of learning in schools. In the literature that I have examined so far, it follows that EA may not be measured directly, but through indicators and proxies. Assessment and learner outcomes therefore become the best proxies of measurement to provide the most valid way of determining the extent of quality learning and instruction for any schooling period. Because of the broader context of the role of assessment in educational progression, I have decided to devote a full chapter to the discussion of issues around assessment and learner outcomes to see the meanings, approaches, pros and cons of different assessment modes. This will allow me to evaluate the meaningfulness of the practices in the Kenyan education context. The purpose of this chapter, therefore, is to critically engage with the two proxies, assessment and learner outcomes; and the extent to which they determine EA and educational progression, based on the backdrop of equity and social justice. The importance of this chapter is to arrive at an understanding of how modes of assessment and learner outcomes would influence EA and the educational progression of an education system.

I begin this chapter by briefly discussing the history and role of educational assessment in the society, dating back to both the pre-, and post- colonial periods in Africa to date. The

complexity of the concept of assessment necessitates an exploration into its roots. Following the history of assessment, I will highlight the ideal dimensions and modes of assessment in relation to the Kenyan education system. In the second phase of the chapter, I will review literature on learner outcomes and how they are measured within the Kenyan context. Based on this discussion, I will debate about how they determine educational progression and the impact this would have on primary school pupils, before providing my concluding remarks.

3.2 The History of Assessment in Society

Assessment is both the end point and a central determinant of teaching (Steinberg, 2013). Assessment and evaluation of learner performance and progress provide feedback i.e. results, which are useful in guiding learners and teachers about skills that require further instructional activities (Leyendecker *et al*., 2008). Assessment has always been characterised by disagreements over the purposes which it should serve (Lubisi, 1999). One key reason for this is the crucial role it plays in society. However, since society represents different interests, it is unlikely that there will be a consensus about whose interests assessment should serve, or promote, nor what forms it should take (Lubisi, 1999, p. 27). Because schools are part of society, they follow particular societal beliefs about the purposes of assessment (ibid), which, therefore, becomes a social phenomenon with social effects on pupils in schools.

For a long time, schools have had a dominant form of assessment - examinations or tests (Alubisia, 2005; Eshiwani, 1990). Following Lubisi (1999), Asian, European and African countries have had examinations as a form of assessment for social selection. China began this practice in 200 BC, where people were subjected to examinations on classical texts in order to be selected into the administrative elite (ibid). Until the bourgeoisie (industrial/capitalist class) realised there was a need to have a strong base for skilled middle-

class professionals, Europe had gone through a prolonged period of feudalism (a social system dominated by kings, lords and bishops and largely based on agricultural economy), where membership of the feudal elite was determined by heredity and patronage (ibid). To occupy a high social position, one was either born to the family (heredity), or was a favourite of the feudal elite (patronage). According to Lubisi, the rise of capitalism replaced heredity and patronage with merit as a criterion for social selection, where people were to be educated and, through examinations, would qualify for various profession-based social hierarchies. In fact, a person had to be certificated after writing an exam, a process that was passed down to Africa by colonialists and still happens today (ibid) - a discussion to which I now turn my attention.

3.3 Education Assessment in Colonial Africa

Back home in Africa, many African countries were once colonised by Europe, courtesy of the 1884-5 Berlin conference (Ntabo & Okware, 2011, p. 137), where European countries maintained control over their colonies through assessment in the form of examinations. The British, particularly, required schools in their colonies to write examinations set in Cambridge or Oxford to obtain school-leaving certificates (Lubisi, 1999). These were called 'O-Level' [7]and 'A-level' [8]exams. It was therefore obvious that, to do the Cambridge exam, one would need to follow the Cambridge syllabus. Even after the British departure, control was still maintained over what was taught in schools through examinations, where passing the Cambridge or Oxford exams meant one could proceed to higher education even in Britain - the former colonising country (ibid). Exams, therefore, served as a gate-keeper for access to

[7]'O-Level' –a qualification in a specific subject formerly taken by school students aged 14–16, at a level below A level

[8]'A-level'- a qualification in a specific subject typically taken by school students aged 16–18 at a level above GCSE

higher education. Once again, we see social interests (colonial interests) being served by examinations as a form of assessment.

3.3.1 Assessment in Post-Colonial Africa

Since 1960 and even before, African states have become independent and self-governing, with their own heads of state and governments, founded on the principles of their colonial masters (Ntabo and Onkware, 2011, p. 137). Following in the footsteps of the colonial era, many African countries today are undertaking important economic reforms, based on education assessment – mainly examinations (Leyendecker *et al*., 2008). In Africa today, examinations are high stakes[9] and remain the dominant assessment for education; and a popular determinant for success (Leyendecker *et al*., 2008; ANPPCAN, 2005). It is evident they provide the incentives and motivation for students to learn as a gateway to higher education and the world of work. In fact, according to Leyendecker and team, some countries like Botswana have noted that the lack of examination consequences reduce motivation to learn, while the Republic of Ghana recommends reference to academic performance for all business-related activities in the country. In Kenya, examinations encourage competition, which is viewed as a healthy way of determining the choice of schools and universities (Stone, 2005). Some researchers, however, hold the view that, since examinations hold great significance as a rite of passage, pupils' futures depend significantly on examination success, resulting in teachers teaching only for examination success and mostly leaving out what is not assessed (Abagi and Odipo, 1997).

In many, if not all Sub-Saharan African (SSA) countries, current assessments are not objective measurements of the intended modern curriculum, because, to a large extent, they effectively measure only a part of the curriculum content (Leyendecker *et al*., 2008).

[9] Having the potential for very significant gains or losses especially in the life chances of learners.

Furthermore, whereas assessment documents in some SSA countries claim that a wide range of assessment techniques are used to assess the different knowledge, skills and attributes, reality looks remarkably different (ibid). Generally, evaluations and experiences in SSA countries, according to the authors, have shown that, due to practical problems on the ground, the current assessment realities look less promising than the well-meant idea spelled out in curriculum reform. For most countries, alignment between curriculum development and assessment and evaluation should be better at the organisational level (Leyendecker *et al*., 2008). Today, the current discrepancy between examinations and curriculum in SSA countries points towards shortcomings in the coordination between the national agencies responsible for curriculum and assessment (ibid).

In East Africa specifically, harmonising educational and training standards is becoming important (Zuze, 2008) in the integration of regional activities through examinations grades. Kenya's education system has, on the whole, remained traditional (competitive exam-based) and certificate-orientated (Eshiwani, 1990). This has led to widespread repetition practices, high staff turnover and overcrowded classrooms (Alubisia, 2005), compromising internal efficiency in schools. In many cases the pressure under which primary school pupils work is worrying, where the overloaded 8-4-4 curriculum ends up affecting their participation in school negatively (Abagi & Odipo, 1997). In Tanzania, until recently, school was considered complete at the end of primary school (Zuze, 2008). The automatic promotion through primary school was in stark contrast to the exam-driven climate in Kenyan schools. Uganda's strain on compromised education quality has been quite apparent, given the dramatic increase in failure rates among pupils writing primary leaving examinations (Zuze, 2008). The three East African countries - Kenya, Uganda and, to a lesser extent, Tanzania, are exam-orientated countries.

Due to the motivational factor of examinations and national ranking, teachers focus mostly on examination success at the expense of general knowledge and understanding (O-saki & Ndabili, 2003 cited in Leyendecker *et al*., 2008). Lubisi (1999) argues that, despite this assumption being made commonly today regarding education assessment and examinations in most education systems, it should be noted that assessment is not obtained only, or even necessarily, through tests and examinations. Finding out about a student's abilities may involve a spectrum of assessment situations, ranging from the very informal or almost casual (Lubisi, 1999, p. 75), to the highly formal, perhaps even ritualistic or habitual. Having briefly outlined the history of assessment with a strong focus on success in examinations, I now return to engage with what the ideal assessment characteristics of an education system should be.

3.4 Key Characteristics of Assessment in Education

The assessment and feedback process is a key medium to facilitating the development of learners who are independent, able to monitor, evaluate and regulate their own learning, to develop beyond basic education to graduation and into professional practice (Maringe, 2010; McLernon and John McCord, 2014). In this regard, Lubisi (1999, p. 16) proposes,

> when you teach learners something, you often wonder whether they really acquire the knowledge and skills that you teach them. You ask yourself questions such as: 'To what extent are the knowledge and skills acquired?' and 'What do learners still need to do to satisfactorily acquire the knowledge and skills?" In order to monitor the learners' progress, you assess learners using various methods.

There has been a remarkable growth of interest and a growing awareness of the role of feedback as an integral part of the learning process (Joughin, 2010). However, Joughin (2010) reiterates that more limited attention has been given to:

a) the underlying nature of assessment

b) the concerns that arise when assessment is construed as a measurement process

c) the role of judgment in evaluating the quality of pupils' work.

Joughin (2010, p. 16) argues that the concept of assessment and learning should draw together three core functions: supporting the process of learning; judging students' achievement in relation to course requirements; and maintaining the standards of the profession/discipline for which pupils are being prepared. Leyendecker *et. al.* (2008, p. 3) view the term 'assessment' as all instruments applied to measure students' achievements. These refer to the so-called norm-referenced [10]and criterion-referenced formal examinations[11]; and continuous assessment practices (ibid). Rowntree, (1987, p. 4) proposes that,

> ...assessment can be thought of as occurring whenever one person, is in some kind of interaction, direct or indirect, with another, is conscious of obtaining and interpreting information about the knowledge and understanding, or abilities and attitudes of that other person; which to some extent or other is an attempt to know that person,

Drawing further from Rowntree, Lubisi, (1999, p.17), defines 'assessment in education' as "making sense of a learner's knowledge, skills and values in a process of direct or indirect human interaction." He defines 'making sense' as an act of obtaining and interpretation of 'something' which is a person's knowledge, skills and values. What is common about Lubisi (1999) and Rowntree (1987) definitions is that they view assessment as a human interaction that can either be direct or indirect. Direct interaction would entail the presence of both parties in the same place involved in the interaction. Indirect interaction would mean the involved parties are not necessarily in the same place allowing communication to take place through an independent medium. Examples of such indirect interactions in schools include

[10]norm-referenced - evaluation which yields an estimate of the position of the tested individual in a predefined population

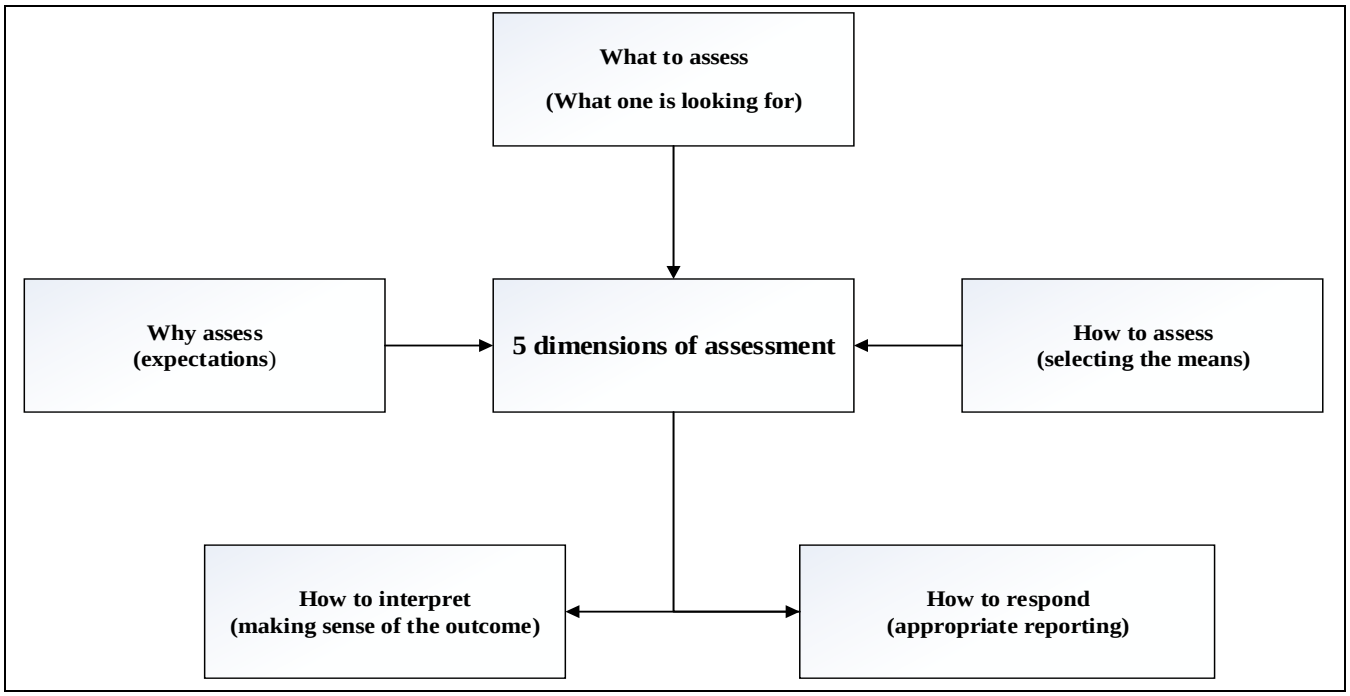
[11]Criterion-referenced – also ipsative assessment. Contrasts norm reference through non-comparison

tests, essays, written homework and worksheets. Simply put, Joughin (2010, p. 15) defines assessment in education as the process or means of evaluating academic work or 'gauging' the extent of learning. According to him, the act of assessment or appraising the quality of what students *have done* in response to a set task is vital, so that we can infer what the students *can do,* from which we can draw an inference about what students *know'*. Joughin (2010) however acknowledges that his definition does not assume the purpose(s) of assessment, who assesses, when assessment occurs or how it is done. This is often referred to as the assessment practice, which Lubisi (1999) breaks into practice and dimension, as discussed in the next section. It should, however, be understood that there exist many perceptions about assessment and several ways in which assessment can be understood to be promoting learning, within and outside of the education arena (Leyendecker *et al*., 2008).

3.4.1 Dimensions of the Assessment Practice.

In line with Lubisi (1999), there are five dimensions of assessment that are key activities in the process of assessment (see Figure 3.1). It should, however, be noted that these are not necessarily present in all assessment situations and are not mutually exclusive, as there may be some overlaps between them (Lubisi, 1999, p. 19). Following Lubisi, the most important question behind the framework above is: *why* and *how* we assess. Our choice of modes (general nature, style and character) of assessment determines many aspects of assessment.

Figure 3.1 Five dimensions of assessment



Source: Own (Adapted from Lubisi (1999, p. 18-19)

Firstly, it determines when the assessment should take place (i.e. at the end of term or throughout the course); secondly, it indicates who the assessor is (i.e. the teacher or an external examiner). The mode also depends on who the main beneficiary should be (i.e. is the assessment mainly to help the pupil with learning? Or to get a place at a national school, the university or job entry?). Is the assessment to help evaluate teaching, or demonstrate to the public, parents and inspectors that the school is doing a good job?

In short, the choice of mode will decide how we assess, what we assess and what we do with the assessments. Lubisi (1999) argues that it is important to differentiate between the mode (selecting the means) and purpose (the expectation) of assessment. 'Selecting the means' implies the *how* (mode) of assessment, while 'the expectation' would imply the *why* (purpose) of assessment. The choice of mode, as detailed in the next phase of the discussion, therefore depends on fitness for purpose.

3.4.2 Choice of Modes of Assessment

It is important that any education system is clear about the mode of assessment that is employed, as well as its benefits. Depending on *how* and *why* assessment is done, the mode of assessment of an education system is based on one or more of the aspects discussed below (Lubisi, 1999). Before I engage with each aspect, it is important to provide a brief discussion on the education assessment practice in Kenya, in order to relate the way in which these aspects compare with the assessment practice.

3.4.3 Education Assessment in Public schools in Kenya

It is important that I define educational attainment and explain how it is assessed within the Kenyan context and how this impacts on learner outcomes and future educational progression. Following Stone (2005, p. 7-8), educational outcomes in Kenya are measured through high-stakes exams at standard Eight (end of Primary) and Form Four (end of secondary school), which determine the chances for a student to proceed to the next level of education. In Kenya, and as earlier stated, a national curriculum has been in place since colonial times, when high school students sat for the Cambridge Exams. The national curriculum today is proposed by the Ministry of Education and consists of detailed guidelines, syllabi, schemes of work (a year-long plan) and a comprehensive national exam (Branyon, 2013 p. 40). I already mentioned that the intention of a common curriculum is to level the playing field for all pupils, regardless of their origin and background, so that they can all attain equal education. In this way, pupils tend to learn the same subject content (common curriculum) and undergo a common assessment (national examination). Exam aggregates in Kenya are solely determined as the preferred educational outcome and a gateway to higher learning and the world of work.

The education system in Kenya is highly selective from the onset, where advancement is purely based on performance in high-stakes examinations, which largely specify educational attainment (Yara & Wanjohi, 2011; Stone, 2005). According to Yara and Wanjohi, (2011), examinations are used to measure the level of candidates' achievements and clarify their level of education, training and employment; therefore only the high performers in examinations proceed to the next level of education. The authors ascertain that examinations also provide the basis for evaluating the curriculum, both at local and national levels. While vocational training and work are a good way of absorbing students with lower ability into the job market, Kenya's education system, like others in the developing world, has not succeeded in inculcating realistic assessments of employment opportunities and favourable attitudes towards rural and manual work (Yara & Wanjohi, 2011, p. 107). Assessment techniques hardly embrace vocational work, leaving learners to fight for the few white-collar jobs available after school, implying the school leavers' problem remains large and will grow in the future, (Eshiwani, 1990; Leyendecker *et al*., 2008). With this brief introduction to Kenya's assessment practice, I now return to the Lubisi (1999) framework of the seven modes and choice of assessment below, and how they are contextualised within the Kenyan education context.

a) Formal or informal assessment?

The most formal assessment is the public examination taking place in deliberately contrived situations (planned and controlled), or a planned informal assessment (Lubisi, 1999, p.17), where recorded observations form a much more valid assessment in comparison to a formal examination. Whereas formal assessments are pre-planned and systematic assessments to gauge what students have learnt, informal assessments are day-to-day observations of students' behaviour and performance in class, where teachers may not necessarily have a

specific agenda in mind, but are more interested in learning different things about students' natural daily progress at school.

Is Kenya's assessment mode more formal than informal?

As indicated earlier, the most formal assessment in Kenya is a national examination based on a national curriculum taking place in deliberately contrived situations (planned and controlled): that is the examination room. I also mentioned in section 3.4.3, that a common curriculum is argued to level the playing field for all students (regardless of their origin and background) to attain equal education to get them to the next level. In spite of efforts to diversify the curriculum and increase its relevance, Kenya's education system has, on the whole, remained highly traditional and certificate-orientated (Eshiwani, 1990), where exam aggregates are solely determined as the preferred educational outcome. This form of assessment is acceptable for the purpose of uniformity. However, it is best only where we have equality of inputs, which result in equal outcomes and, therefore, equal opportunity. It is acceptable that differences in outcomes would arise from differences in efforts; and the resulting disparities would not be considered discriminatory or unfair (Adrogue, 2013). The questions we should be addressing are: 1) To what extent has the objective of equality of educational opportunity been achieved in some areas? 2) If a national examination is the preferred assessment method, with exam aggregates as the preferred educational outcome to proceed to the next level, are pupils from flood-prone schools deprived of education and its benefits from the onset?

b) Final or continuous assessment?

Should assessment be final (terminal assessment) occurring at the end of a course or should it be a procedure which is concurrent with the course ('continuous assessment')? Many

education systems find it not possible to assess pupils all the time because it can become very costly. Therefore, such assessment like examinations would usually take place at intervals. Examinations, however, allow for a limited measurement of certain skills and knowledge only (Leyendecker *et al*., 2008, p. 64). It should also be noted that continuous assessment significantly contributes to a learner's progress, which differs from assessment carried out, for example, during teaching when the teacher asks questions to gauge the extent of learning.

Is Kenya's assessment mode final and hardly continuous?

It was anticipated that the new 8-4-4 curriculum, with its focus on continuous assessment and vocational training, would put an end to the examination-driven learning (Zuze, 2008) in Kenya. Unfortunately, the 8-4-4 system has been heavily criticised for being poorly planned and unrealistic, with some arguing that the scope of the curriculum was so vast that it actually encouraged rote learning and forced staff to teach exclusively for examination purposes (Abagi 1999; Amutabi 2003). In Kenya and many other SSA countries, the widened assessment practice is generally referred to as continuous assessment (CASS) (Leyendecker *et al*., 2008, p. 64). Countries increasingly intend to introduce continuous assessment as part of their assessment or examinations (although it is not implemented in reality). The Kenyan education system therefore continues to employ a final or terminal assessment occurring at the end of the year. Schools hardly use continuous assessment - which is concurrent with the course. It is considered an expensive exercise to assess pupils as such assessment would usually need to take place at intervals. What exists are termly tests and CATs that do not contribute towards the final examination grade. I feel that continuous assessment would be a good way to add a layer of assessment, especially for deprived pupils to bring out a true reflection of their capabilities, given the disparity in the quality of education and input due to floods.

c) Formative or summative assessment?

Following Lubisi (1999), formative assessment is designed to help a pupil to learn and progress. It is usually informal and non-judgmental, concentrating on positive encouragement and constructive criticism. Summative assessment is concerned with the final summing up of a learning course and is often used for grading, ranking and selection purposes. Formative evaluation[12] focuses on questions of implementation practicality and informs developers about the omission of critical curriculum characteristics, or the implementation of inappropriate techniques (Leyendecker *et al*., 2008) and helps in determining what works best for whom. Formative evaluations need to include the interrelation of implementation with educational functions serving in key areas, for example assessment and examination, teacher orientation and training, learning support materials and regional capacities (ibid).

Is Kenya's assessment mode more summative than formative?

The Kenyan education system is mostly of a summative nature often used for grading, ranking and selection purposes. Competitive school-leaving examinations continue to dominate the education landscape in Kenya at both primary and secondary school levels (Zuze, 2008). Assessment is hardly designed to help pupils to learn and progress or concentrate on positive encouragement and constructive criticism. Learning is a process that may vary, depending on the location where it is taking place. This needs to be accommodated and acknowledged in light of assessments, cultures and environments in schools. In the Bunyala Sub-county, the average mark for the KCPE was 267.75 out of a possible 500 in 2013. This is a lower mark in comparison with other sub-counties in the same county. From data gathered, it is evident that there is an effort for school heads to provide continuous

[12] *Summative:* final, to gauge quality *Product-oriented:* what's been learnt, *Judgmental:* arrive at an overall grade/score while assessment is *Formative:* ongoing, to improve learning, *Process-oriented:* how learning is going, *Diagnostic:* identify areas for improvement

assessment to pupils – which is acknowledged, however, Kenya's education system provides little support and only acknowledges the final grade in the national examinations, despite the imbalance in learning inputs.

d) Internal or External assessment?

External assessment involves public examinations - set and marked by external agents (examination boards), mainly intended for external users, such as schools, universities, employers and the public; so, most teachers do not have much choice in this regard. To some extent, teachers are used as assessors in public examinations, where they are involved as paid employees of the examination boards in setting and marking examinations papers. Lubisi (1999) clarifies that internal assessment does not necessarily mean an internal syllabus. One may very well assess an external syllabus through internal means. Alternatively, an internal syllabus may be assessed by a local consortium (a collaborating group) of teachers working on an agreed marking scheme, which is a form of external assessment. The advantage of this internal way of assessment is that it brings freedom of choice and opportunities in field work and projects in more practical contexts. It also allows teachers to use their own detailed knowledge about the work and capability of individual pupils whom they have known over a long period of time. There may, however, be disadvantages to this mode of assessment, where teachers' judgments may be biased or lack standardisation. This can be curbed by imposing discipline on a teacher, as well as exposing them to new assessment techniques. Overall, internal assessment would be helpful in school purposes to decide who follows which course, or mainly when the teacher uses it in a non-judgmental way for the benefit of both teacher and pupil. It should be noted that it is possible to completely internalise assessment in schools.

Is Kenya's assessment mode mostly external and not internal?

Kenya's education system is external, with public examinations set and marked by external agents (examination boards). These are mainly intended for external users (i.e. school and university selectors and probably the public). As mentioned earlier, internal assessment does not necessarily mean an internal syllabus. A local consortium of teachers working on an agreed marking scheme may be used to assess an external examination internally. In so doing, it allows teachers to use their own detailed judgment regarding the capability of individual pupils. In as much as teachers' judgments may be biased, or lack standardisation, I think it is a form of assessment that can well be applied in marginalised areas to allow for fairness in progression.

e) Process or product-orientated assessment?

Should assessment concentrate on the process or the product? The end product usually reflects a smaller part of the process. For instance looking at a pupil's final grade may not possibly allow one to assess how far the pupil has acquired the ability to use various skills, such as in time management, project and field work and to master various techniques of a subject (Lubisi, 1999).

Is Kenya's assessment mode more product than process orientated?

Having discussed the modes of assessment above, it is almost obvious that the Kenyan education system would concentrate on the product not the process, where the end product, usually an examination grade, reflects on a smaller part of the process. Looking at a pupil's final grade may possibly not allow one to assess how far the pupil has acquired the ability to use non-examinable skills. Furthermore, good grades favour the intelligent students; the less intelligent and the deprived only get de-motivated and progress less. It is without doubt that,

in Kenya, assessment tasks that can be completed without active engagement in learning cannot demonstrate that learning has occurred (Joughin, 2010). In flood-prone schools, about three months of learning time is lost in one academic year when flooding seriously occurs. There is usually little or no active engagement in learning, as these children, parents and teachers prioritise the impact of flooding. As they prepare to sit the same national examination with their counterparts in secure schools, chances are that the product (examination grade) will be average. Alternatively, if the grade happens to be reasonably good for progression, learning may still not have taken place, compromising their capability development.

Convergent or Divergent assessment?

Convergent assessment usually has only one correct answer. Multiple choice questions and all objective tests are based on convergent answers, which are often only expected by teachers in the classroom. They ask questions to which they already know the answers and reject any diversions, even when a pupil supplies new and relevant information, or a correct alternative answer (Lubisi, 1999). Divergent answers, where there is no unique solution, are seen as more difficult to mark than convergent, because, generally, assessing creativity, imagination or problem-formulation and solving situations is difficult. Overall, assessment procedures based solely on convergence and not divergence have a profound impact and do not always have beneficial effects on the curriculum (ibid).

Is Kenya's assessment mode more convergent and less divergent?

In Kenyan primary schools, the national examination is still based on convergent assessment (i.e. multiple-choice questions based on convergent answers). They do not allow for any diversions (i.e. a pupil to supply new and relevant information), or a correct, but alternative,

answer. We know that the locus of assessment should lie beyond the course and in the world of practice (Joughin, 2010), so the use of holistic approaches to assessment needs to be reconsidered. Assessing creativity, imagination or problem formulation and solving situations is difficult with convergent answers. Similarly, assessment and evaluations that only require students to reproduce facts and definitions will inevitably train students for rote learning and memorising facts, whatever the curriculum wishes to aim for (Leyendecker *et al*., 2008). Leyendecker and team argue that assessment and qualifications that only test for methodological and social competencies lack the achievement of clear exit skills, and have proven to lead to an 'anything goes' attitude in the classroom (ibid). In line with Lubisi (1999), assessment procedures based solely on convergence, and not divergence, have profound effects and do not always have beneficial effects on the curriculum. I do not directly link this to marginalised pupils, though it does suggest how assessment can be improved to benefit pupils and the curriculum.

f) Competitive or Non-competitive assessment?

From historical roots, and as already pointed out, most assessment in schools has been competitive. It is argued that competition is a fact of life and the best possible way to gauge the extent of learning, and that grading enables selection for further education and the job markets and is therefore necessary. Furthermore, success or failure in competitive examinations provides appropriate feedback for parents and pupils so that curricular and career choices can be made. The result is that pupils, parents and employers expect competitive examinations, because they see competition as a motivator (Lubisi, 1999; Leyendecker *et al*., 2008).

The school system is largely based on competition – which is inherent in placing pupils (streaming). From primary school, pupils are aware that the pupils who read best are placed in one category, be it streams or sitting arrangements. Those who fail examinations in secondary schools are reminded that they are not intelligent. The beneficiaries of this system (Lubisi, 1999,) are universities and employers, who are able to cream off the most successful pupils. In as much as competition motivates many successful children, it only de-motivates the less able. Lubisi (1999) states that there are non-competitive forms of assessment and that pupil achievement can be measured against course objectives (criteria), with an aim of ensuring all pupils achieve the objectives (mastery of learning).

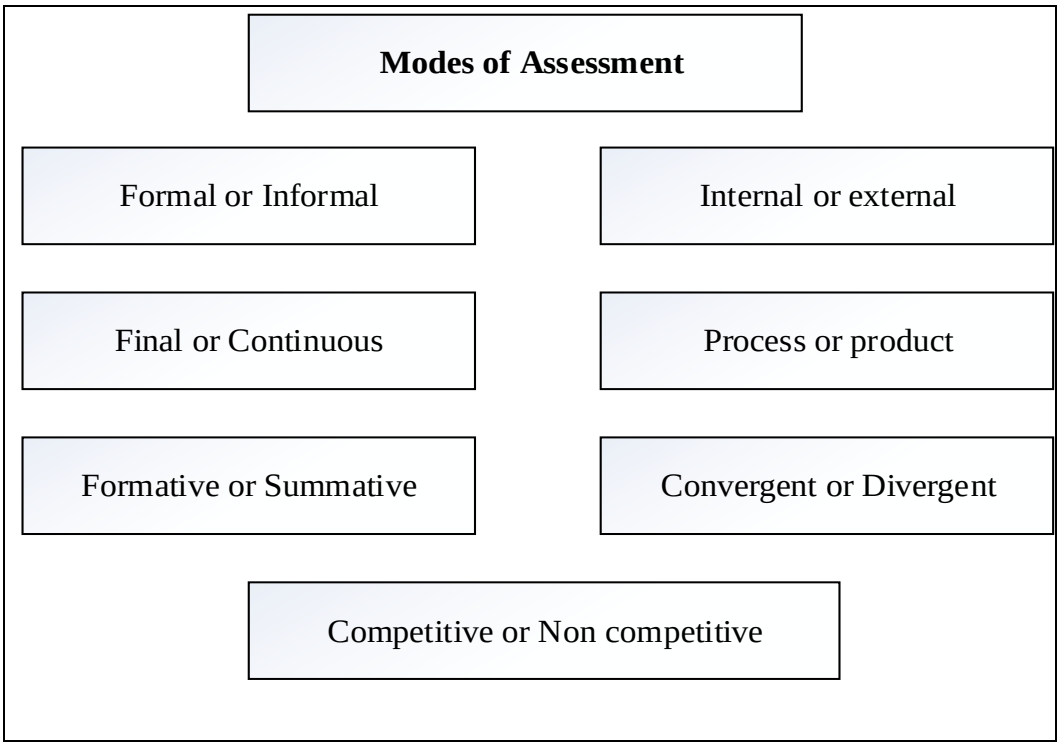
Kenya's assessment mode is always competitive never non-competitive

Since the colonial era to date, assessment in Kenyan schools has largely been competitive where very few pupils value learning for its own sake. The majority of pupils' lives are characterised by the 'grade point perspective', according to which 'grades are the major institutionalised valuable of learning (Joughin, 2010, p. 18), thus becoming the focus of attention for almost all pupils, teachers and parents in Kenya. As argued previously, grading enables selection for further education and the job markets – therefore it is seen as necessary in Kenya. Teachers, principals, parents and politicians judge educational success in terms of results (Leyendecker *et al*., 2008), where teachers and schools themselves are often measured according to the same examination results of their students/pupils. So rampant is pressure to attend the best primary and secondary schools that it has been reported to influence parental pre-school selection (Zuze, 2008).

To echo Lubisi (1999), there are non-competitive forms of assessment in Kenya that have been ignored and which can measure pupil achievement or mastery of content. A

competitive exam-based education system that uses a complicated curriculum can certainly produce pockets of excellence (Zuze, 2008), but it does so by exerting tremendous pressure on educational resources, which perhaps should be an enduring lesson from Kenya's educational history thus far. Symptoms of this strain in Kenyan schools are seen in widespread repetition practices, high staff turnover and overcrowded classrooms (Alubisia 2005). The effect increases double-fold when the education system is implemented in marginalised and underperforming areas. Schools in these areas endure learning where quality, equity and efficiency are highly compromised due to competition. As schools, universities and employers become major beneficiaries of this kind of system, vulnerable pupils are subjected to failure and wastage due to competition, (Lubisi, 1999).

Figure 3.2 Lubisi Framework of Modes of Assessment



Source: Lubisi (1999)

In summary, Lubisi states that many teachers are not aware of the range of assessment possibilities. They may also not be aware that not all their pupils are best served by the assessment procedures they use and that some objectives may not be assessed adequately

using traditional methods. As stated by Ramsden (2003, p. 182), 'from our students' point of view, assessment always defines the actual curriculum', and assessment and examinations may cripple a curriculum, or drive and steer it. There is, however, a ray of hope in Kenya, as current educational thinking now opens up discussion and new emphases, without necessarily rejecting traditional modes of assessment (Leyendecker *et al.,* 2008,).

Education assessment yields feedback or results which I can refer to as 'educational outcomes'. The section that follows briefly discusses educational outcomes within the Kenyan context, regarding: *what* they are; *how* they are measured; and their *impact* on pupils' 'future progression'

3.5 Learner Outcomes and Assessment

Quite often, assessment is discussed alongside outcomes. There may exist as many definitions and examples of education/learner outcomes as there are authors, depending on the education system and where it is implemented. The significance of this section is to connect assessment and learner outcomes and the way they shape educational progression and, eventually, the development of individual capacities. From literature, I have identified four common learner outcomes: performance, progression, attitudes and employability, which I will discuss within the Kenyan education system in relation to the specific context of floods. What follows is a brief discussion of each of the four common learner outcomes.

3.5.1 Performance

Generally said, academic performance is an educational outcome portraying the extent to which a student, teacher or institution has achieved intended educational goals (Leyendecker *et al.,* 2008). When performance in education is positive, it is termed academic achievement.

Performance is often discussed alongside examinations, where assessment varies across countries in SSA. Quite often, performance is affected by population size, resources or educational policies, which may, in some cases, restrict the transition from primary to secondary schools (ibid). According to Leyendecker *et al.*, it follows that performance is counted in terms of primary completion rates, transfer rates and gross enrolment ratios[13]. In this study, I focus more on completion and transfer rates of primary schools in disadvantaged areas to measure performance in flood-prone primary schools of western Kenya. Admittedly, academic performance in SSA is affected by other factors, like household incomes, location, ethnicity, gender, classroom size, parent's level of education and type of neighbourhood (Leyendecker *et al.*, 2008; BLS, 2015; Fenesi & Sana, 2015; Laosa, 2005), which I address in the next chapter. It is important to mention that, as we acknowledge factors that may influence academic performance, most countries in SSA, including Kenya, by and large use examinations as the dominant assessment factor for educational performance (Leyendecker *et al.*, 2008), which defines the progression of pupils as discussed in the next section.

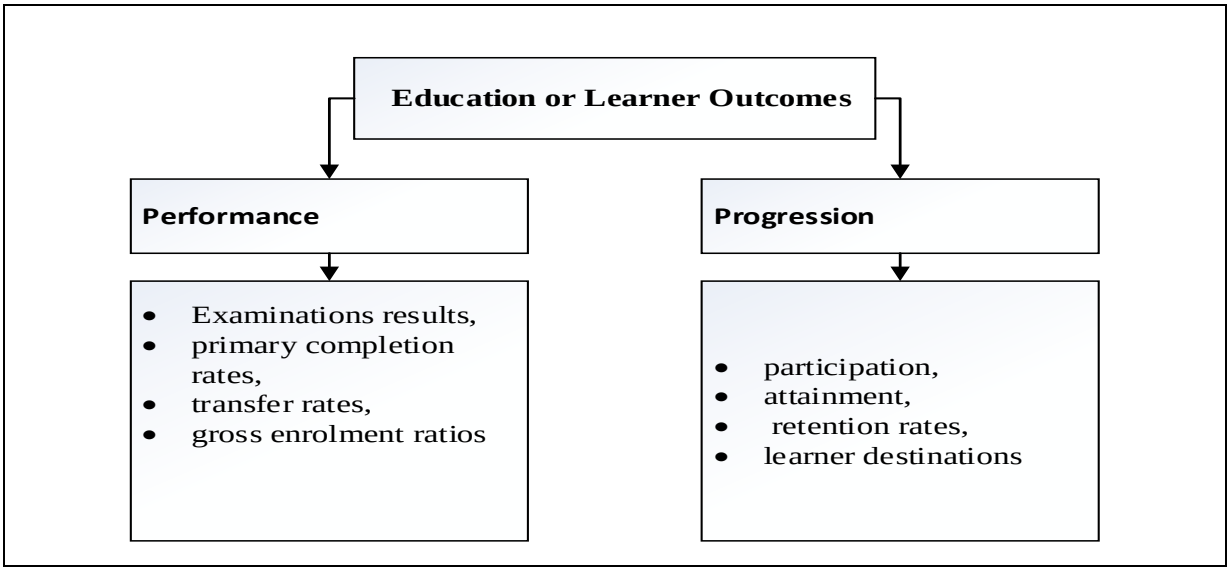
3.5.2 Progression

Learner progression has most frequently been used to refer to movement between different stages of education; types and levels of qualification; learner 'destinations', following secondary and post-compulsory education; and transitions from schooling to the labour market (Spours, Hodgson, Brewer & Barker, 2009). Per data that is more routinely collected nationally and internationally, learner progression can be measured through participation, attainment, retention rates (Spours *et al.,* 2009) and learner destinations. However, the

[13] **Gross Enrolment Ratio** (**GER**) or **Gross Enrolment Index** (**GEI**) is a statistical measure used in the education sector and by the UN in its Education Index to determine the number of students enrolled in school at several different grade levels (like elementary, middle school and high school), and use it to show the ratio of the number of students who live in that country to those who qualify for the particular grade level.

definition of progression is bound up with the technical problems of *what*, *when* and *where* to measure (ibid), which align with Lubisi's (1999) universal dimensions of assessment (see section 3.4.1). It is unusual to discuss learner progression without discussing factors that affect this concept, or how it is measured (more especially within specific contexts), if progression has to be effective from school, through further education to employment. I am in agreement with Davies and Webster (2005) that the ways in which further education is being measured and inspected should capture important issues affecting learner movement - notably learner aspirations; internal course practices to promote completion and progression; and the impact of labour market - thus the 'pull factors' in some contexts. Following Spours *et al.* (2009, p. 433), learner participation, retention and attainment (progression) are seen as constituent parts of a longitudinal process, which begins with learner aspirations and ends with learner movement and, ultimately, transition to work or higher study. In any educational assessment, progression has a loosely coupled relationship to the labour market/workplace. More often than not, the progression rate is defined as the number of learners who moved on to a new course as a proportion of those who started that course in the college (Spours *et al.*, 2009).

Figure 3.3 Education Outcomes and their measurement 1



Source: Own

This study considers the progression rate of the number of learners who move on to secondary school from primary school in flood-prone schools. Having contextualised 'performance' and 'progression' within the Kenyan context, I next engage with 'employability' and 'attitudes.'

3.5.3 Employability

In an increasingly competitive global and knowledge-based economy, it is more important than ever to invest in education and continuous learning (BLS, 2015). One basic set of facts remains constant, despite a country's rapidly changing economy: the strong, positive correlation between earnings and educational attainment (Fenesi & Sana, 2015; BLS, 2015; Du Plooy & Zilindile, 2014) as illustrated in Table 3.1 and in line with Sen's capability approach as discussed in Chapter 2.

Table 3.1 US BLS data from the 4th Quarter of 2014

US BLS data from the 4th Quarter of 2014		
Type of Worker		**Median Weekly earnings ($)**
1	Full time workers aged 25 and over without a high school diploma	491
2	High school graduates	664
3	High school graduates with associates' degree or some college	771
4	Bachelor's degree	1,224
5	Workers with advanced degrees	1,401

Source: U.S Bureau of Labour Statistics (2015)

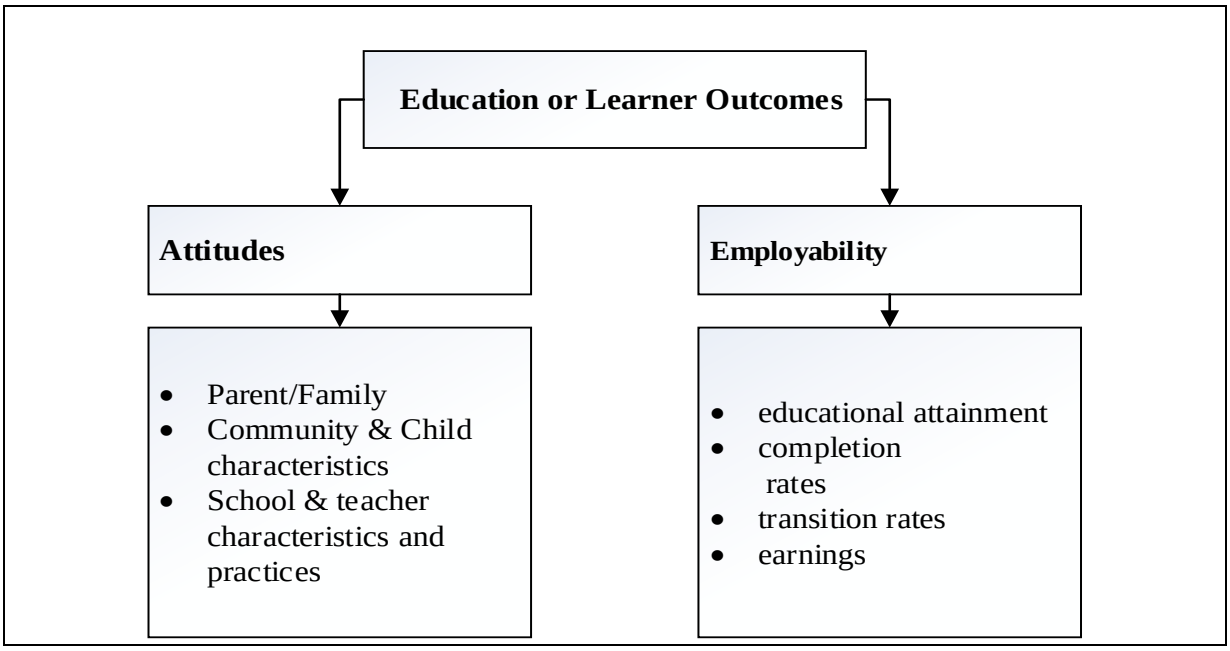
Having already mentioned the relationship between progression (evidenced in Table 3.1) and employment, and its link to Sen's capability theory, I can justify that a learner whose educational progression is affected from the onset would suffer social injustice. However, I will not go into a deep critical analysis of the term 'employability', as this study's empirical focus is at the primary school level. I conclude with Fenesi and Sana's (2015) words that,

"pursuing any further learning at any level, is similar to purchasing stocks as an investment intended to provide future benefits". In the same vein, it is important to make sure that everyone has access to quality educational opportunities in order to be equipped for a wide range of job possibilities in a dynamic and constantly changing world (BLS, 2015; Secada, 1989; Sen 1999; Walker 2008). What follows, is a brief discussion on attitudes as a learner outcome.

3.5.4 Attitudes

Scientific research increasingly shows that learning involves not only cognition, but also social and emotional processes (Laosa, 2005). Attitudes towards education are perceptions that play a significant role in how children interact and learn. This is normally influenced by various factors, including home background, socio-economic status, child's ability to learn, cultural and community influences, among others (Laosa, 2005; Leyendecker *et al*.,2008; BLS, 2015; Fenesi & Sana, 2015), as will be detailed in the coming chapter on EA. '*Attitudes'* is an important factor that dictates an individual's thinking throughout schooling to their 'destinations'. It is free of the knowledge, skills and abilities acquired in learning, and mostly has to do with the individual's surrounds and who they interacted with in the early years of schooling. In this study, I do not directly discuss 'attitudes' as a concept, but use data gathered to link the impact of this outcome on the community and culture, plus school-family partnerships to understand the key role *attitude* would play in EA. Table 3.4 below summarises the discussion about employability and attitudes.

Figure 3.4 Education Outcomes and Measurement 2



Source: Own

In this section, I have briefly discussed the four kinds of education outcomes and how they are measured. Earlier in the chapter, I problematised Lubisi's (1999) modes of assessment within the Kenyan context. I now embark on discussing how assessment methods and learner outcomes in Kenya may impact EA and the educational progression of pupils in flood-prone schools.

3.6 A Reflection on Assessment, Learner Outcomes and Educational progression in Flood-Prone Schools

To reflect on EA in flood-prone schools under the umbrella of assessment and learner outcomes, I mainly focus on performance and progression for two major reasons. Firstly, learner outcomes in Kenya are predominantly measured in terms of performance and progression through examinations and further education respectively. So intertwined are these two concepts, that for one to progress (progression) to the next level of education, one needs to have passed the examinations (measure of good performance). Secondly, performance and progression are the more relevant outcomes at primary school level to

advance my argument on EA in flood-prone schools. To do this, I will base my discussion on 2 areas: a) Education inputs, outputs and outcomes and b) Examinations.

3.6.1 Education Inputs, Outputs and Outcomes

An appropriate school environment provides adequate level of inputs, such as personnel, learning materials and facilities that must accompany the learning process for its efficiency and effectiveness. 'The greater the quality and quantity of inputs, the better the quality of output, which will satisfy the expectation of the society and the government' (Achoka & Maiyo, 2008, p. 157). However, education involves a range of complex processes, so it is not realistic to expect a simple one-to-one relationship between inputs and outputs (Wildeman, 2008). A school system can be looked at as having inputs, processes, outputs and outcomes, which in the long run produce feedback (refer to Figure 3.5). Inputs include resources such as textbooks, teachers, pupils, computers, sanitation facilities, money and physical resources (e.g. classrooms) (Achoka & Maiyo, 2008; Munyi & Orodho, 2015). These inputs in the school environment undergo a process during which they are planned, organised, motivated and controlled, ultimately to meet the organisation's goals (Munyi & Orodho, 2015).

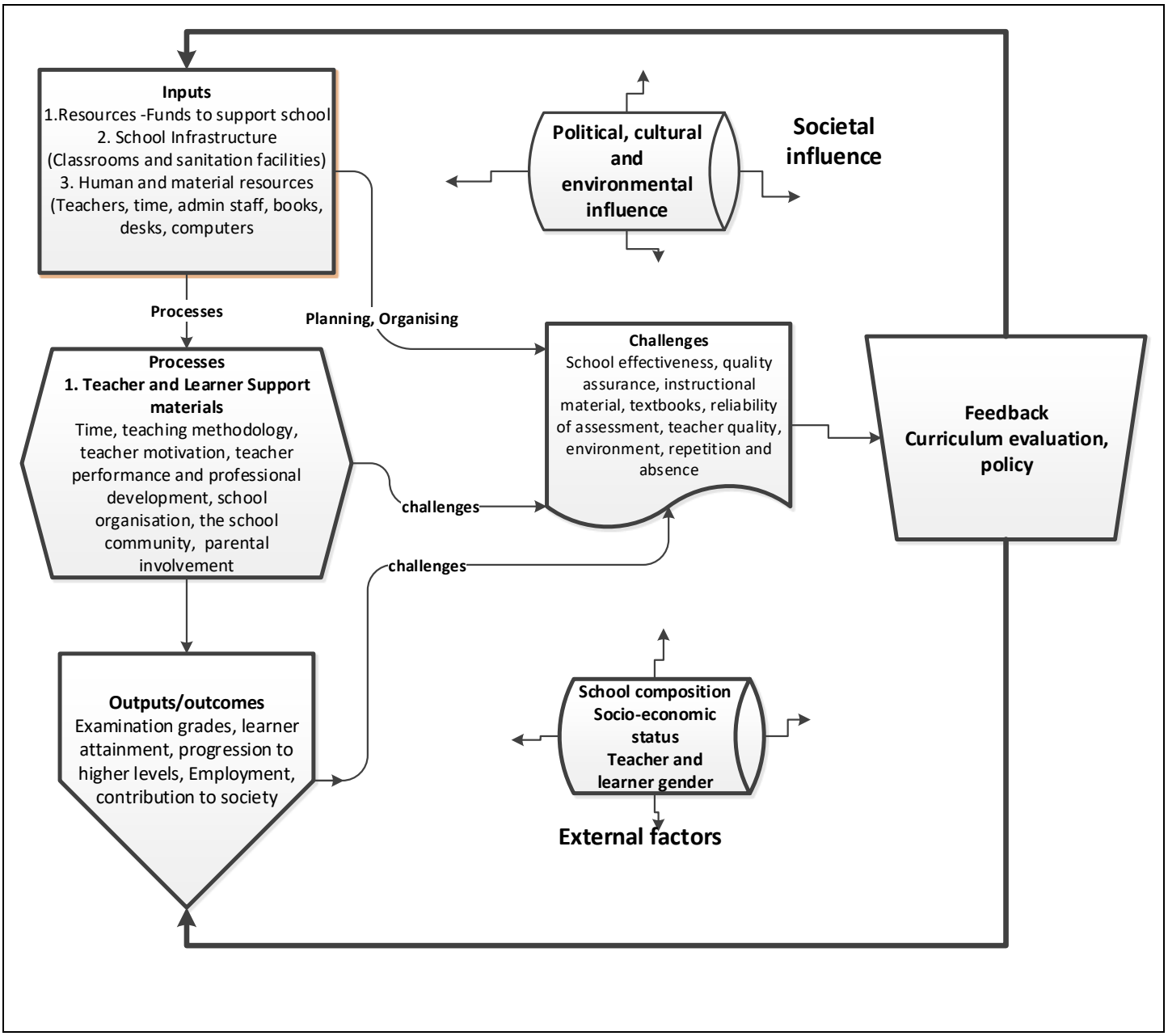
Outputs vs. outcome: According to Munyi & Orodho (2015), Outputs relate to "what we do and with whom," while outcomes refer to "what difference this makes". Outputs would then concern aspects like curriculum, assessment, services and the people participating. What difference this makes is a question about outcomes. If there is a mismatch (Munyi & Orodho, 2015) between inputs, processes and outputs in an educational system, then it is said to be inefficient. However, schools are open systems that respond to external influences

as they attempt to achieve objectives (ibid). Figure 3.5 above provides a summary of what an appropriate school system would like. There are three ways of looking at this:

- Scenario one means the inputs may be sufficient for the intended purpose, but the outcomes may be influenced by external factors.
- Scenario two, on the other hand, presents a school with insufficient inputs from the onset, which in turn yield insufficient outcomes.
- Scenario three demonstrates a combination of both scenarios two and three, where insufficient inputs yield insufficient outcomes, which are again affected by external factors.

In studying a system consisting of inputs, educational processes, and outputs as the one above, one of the most desirable outputs in primary school is the pupils' achievements as one of the major indices reflecting the degree of efficiency of the primary education system (Munyi & Orodho, 2015).

Figure 3.5 A school System: Inputs, Outputs and Outcomes



Source: Own

Further findings in Munyi and Orodho's (2015) study reveal that a number of factors, both internal and external, were noted to influence achievement of pupils. In flood-prone areas of western Kenya, there are hardly any facilities left in schools to promote school effectiveness once flooding occurs. Pupils from these areas toil hard to compete on par with their counterparts from non-marginalised areas through a common assessment, as discussed below.

3.6.2 Common Assessment

According to Leyendecker *et al*., (2008, p. 57),

> examination results in Africa are high stakes. They have been and still are the dominant assessment factor for education where students' futures depend significantly on examination success. Examinations are the most popular determinant of access to secondary education, to particularly valued streams of secondary education, to higher education and to the world of work. They hold great significance as a rite of passage, thereby providing incentives and motivation for students to learn.

Kenya has made significant progress toward equitable educational opportunities for all. However, the educational opportunities of many students in flood-prone schools remain separate and unequal as a result of common assessment of learner outcomes (Clark, Lappin & Jacobs, 2007). The common curriculum and examinations have largely failed to guarantee an equal education in these schools. In Kenya, progression in education is based on examination grades obtained, as evidenced by primary school leavers seeking admission to secondary schools. Stone (2005) states that university places in Kenya are offered to those with the highest aggregates and based on subject grades. High achievers, it is assumed, have the motivation to think actively and deeply about social phenomena. Using examination grades as a measure, disadvantaged students would not only easily progress to higher levels, but would not also get absorbed into job markets. Stone emphasises that students gain advantages in national exams, because the national curriculum is the basis for the Kenyan national exams in Standard Eight (8^{th}grade) and Form Four (12^{th} grade), which are significant levels of progression in the education system. Therefore, a high pass rate in exams is key if a student in Kenya has to proceed to the next level. In flood-prone schools, there remains de-motivation for those who do not 'pass' national examinations and are then branded 'academically weak'. The result is: dropouts, vocational training or non-lucrative courses, which deny pupils the rationality and freedom to choose and make a valuable life.

As the system is highly selective, advancement depends solely on students' performances in examinations, where only the high performers in examinations proceed to the next level of education. If examinations are in themselves affected by many other factors, what is the future progress of these pupils in societal engagement if they are only measured by merit? Yes, examinations remain the best way to judge one's intellectual ability in Kenya, but only if other factors, both internal and external, are equal. In short, based on Sen's capability approach, assessment and learner outcomes and how they are measured within the Kenyan context do affect the progression of pupils whose playing field is not level, ruining the life chances of a child because of his/her background.

3.7 Summary

The central purpose of this chapter was to demonstrate how the study connects assessment and learner outcomes with EA in flood-prone schools. Throughout the chapter, I have emphasised the close link between assessment and learner outcomes and how they are used to gauge the extent of learning. I began by discussing the broad role of assessment in the society before engaging with assessment in pre- and post-colonial Africa. I then discussed assessment methods and the challenges in SSA and East Africa, before embarking on the Kenyan context. In so doing, I discussed examinations as a dominant assessment factor in Kenya and debated about how this can impact on educational achievement for disadvantaged pupils. Since assessment is discussed alongside learner outcomes, I took time to engage with learner outcomes within the Kenyan context and to consider how they influence progression. I also briefly discussed four common learner outcomes, how they are measured and their role in educational achievement and progression. This paves the way to the next chapter that I have devoted to discussing indicators that promote EA as the conceptual framework of this study.

Chapter 4: The Concept of Epistemological Access

4.1 Introduction

In the previous chapter, I demonstrated the linkage between assessment, learner outcomes and how they are used to gauge the extent of learning and progression in Kenya and beyond. I contextualised the role of assessment and outcomes in the lens of the development of capabilities for pupils in flood-prone schools, as well as their progression. Following on from preliminary literature in Chapter 1 and the theoretical context in Chapter 2, I now go into a deep critical analysis to problematise the concept of 'epistemological access.' The purpose of this chapter, therefore, is to provide an in-depth understanding of the EA concept and expose its uniqueness within the context of schooling in flood-prone areas. I will also present the conceptual framework to address the remaining chapters of the thesis. The default concept in this chapter would be quality of education, given that EA in education is an element of quality education (as detailed in Chapters 1 and 2). However, given the broadness of the concept of 'quality' in education, it may not provide a proper understanding of EA per the context and intended objective of the study. Being a relatively new term in education and a fairly under-researched topic, I delineate EA from educational quality to expose its intended meaning and argument, using indicators that influence quality learning and achievement. I now provide an in-depth analysis of the nine indicators of EA that I have identified from literature as essential to EA, which also form the conceptual framework of my study, to demonstrate how these indicators influence quality learning in flood-prone areas.

4.2 Critical Analysis of Epistemological Access

Before I consider the EA indicators, I briefly engage with the concept of EA again with reference to Chapter 1 (section 1.13.1.2). EA has been defined as the intent to move beyond physical or formal access to meaningful access (Muller, 2014) and would also denote access to knowledge (Jansen 2008/9). The concept has also been conceptualised as providing educational access through quality education (Du Plooy & Zilindile, 2014). Based on my understanding, I have defined EA as access to knowledge, skills and attitudes (see p. 1) to promote progression to higher levels without educational wastage. We may argue that Morrow's intention of the concept of EA was borne out of a particular need to democratise South Africa's higher education in the last years of the apartheid regime (Du Plooy & Zilindile, 2014, p. 188). I, however, reiterate that my definition considers EA in any given cycle, because EA, as Morrow intended it, does apply to all education levels, including basic education. Though it appears that literature relating to basic education is still lacking, I use Morrow's lens to distinguish institutional access from EA, along with other researchers' views on the meaning of EA, as it pertains to access to basic education (ibid).

Following Morrow's words, and borrowing from international declarations, such as the Universal Declaration of Human Rights in 1948 and those from the Dakar conference on EFA in 2002, access to education as a basic human right does not mean access to a place of schooling only, but equal access to quality education. That access, equity and equality (refer to Chapter 1, section 1.13.5) are the three main pillars upon which educational reform efforts rest (Leyendecker *et al.*, 2008) and directly link to education quality (EA). However, Morrow, (2009, p. 77) proposes that,

> there is a tendency to collapse the word education (formal aim and the actual process of acquiring knowledge) to obscure this distinction because what is required for access is very

> different in these two cases; we cannot talk in the same way about entitlement to formal access and entitlement to epistemological access.

In Morrow's (2009) view, EA is a term that cannot be sold, bought or automatically transmitted to learners. However, in as much as it is not an entitlement, teaching presupposes that the learning environment is appropriate to provide the essential rationale for EA (ibid). We are also aware that many a times the teaching situation is undermined by other factors beyond the teacher and learner control, which subsequently affect EA in a given school. One would then ask what essential rationale for EA would mean in this regard. Out of other existing indicators that constitute EA, I identify nine common ones likely to undermine learning within the context of floods: time-on-task, resources, teaching methodology, instructional leadership, teacher motivation, parental involvement, school communities, the community/environment and culture.

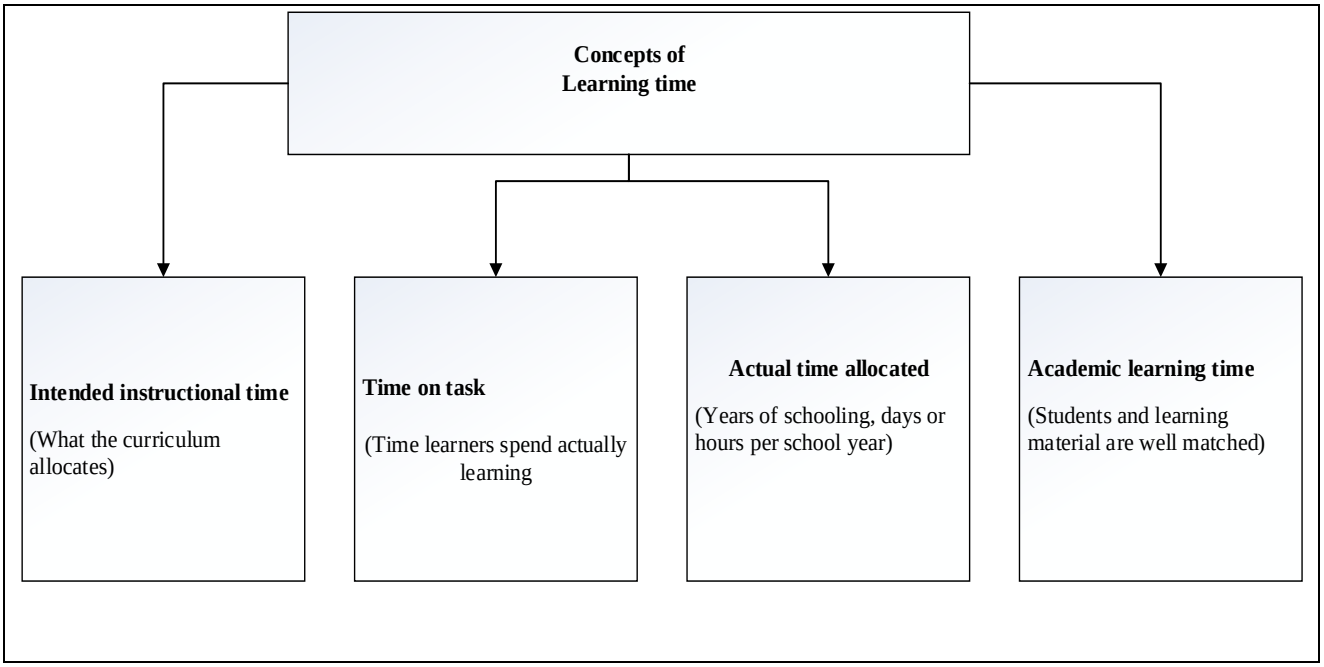
4.2.1 Time-on- Task

The length of instructional time is a matter of considerable significance and a strong indicator of students' access to learning opportunities (Leyendecker *et al*., 2008); however, intended instructional time is not the same as actual learning time. Studies reveal disparities between intended *instructional time* in the curriculum, *actual time allocated* in schools, the time learners spend actually learning *(time-on-task)* and the time they spend in situations where students and learning material are well-matched and learning occurs (see Figure 4.1) in a fairly ideal fashion (*academic learning time*) (ibid). In this study, time-on-task would mean the time learners spend actually learning (*time-on-task*). Learner time-on-task would refer to the time spent on learning activities that are significantly affected by learning interruptions (Karweit, 1984). I will also loop in years of schooling and days or hours per

school year (*actual time allocated*) and academic learning time, where pupils and learning material are well matched, whenever possible to strengthen my argument.

Karweit (1984) confirms that numerous studies conducted over the last 50 years have examined the effects of time on learning, promoting time almost as an elixir for school improvement (ibid). In these studies, it is true that there exists a positive association between time and learning (Karweit, 1984; Leyendecker *et al*., 2008) and many studies find a statistically significant effect of engaged time on learning. However, the authors warn that, though research increasingly portrays these studies as useful in a general way, they may not be well suited for predicting how specific changes in school time might affect student achievement. Though time is necessary, it is not a sufficient condition for learning. This is to say, providing time does not, in itself, ensure that learning will take place (Leyendecker *et al*., 2008).

Figure 4.1 Concepts of learning time



Source: Own (Adapted from Karweit (1984) and Leyendecker et al. (2008).

Following Karwett, (1984), policy makers should only understand that there are additional reasons to be cautious about when interpreting this association, because there may exist other

factors related to time, but not measured, that do affect student achievement. Reasons for a low time-on-task, for instance, may include: a low allocation for teachers, absenteeism, lack of discipline, lack of teaching materials and a large number of extra-curricular activities (Leyendecker *et al*., 2008). It is important to note that effective use of time may go along with other variables, like good leadership, competent teachers or an appropriate school environment (Karwett, 1984). So, providing more time to a school that does not meet the required conditions may not increase achievement, because time spent is not consistently related to achievement as it may seem (ibid). This generalisation suggests that oversimplified policies regarding time are likely to be misguided and to produce disappointing results. The limited time-on-task has a strong negative influence on learning opportunities (Leyendecker *et al*., 2008), however, it does not mean that focusing on time as a vehicle for improvement is misguided, rather other intervening variables are required to improve it. Getting teachers and policy planners to think seriously about trying to improve time-on-task is clearly a worthwhile objective that schools should pursue, but they need to be clear about where the true effects really lie (Karwett, 1984).

4.2.2 School Resources

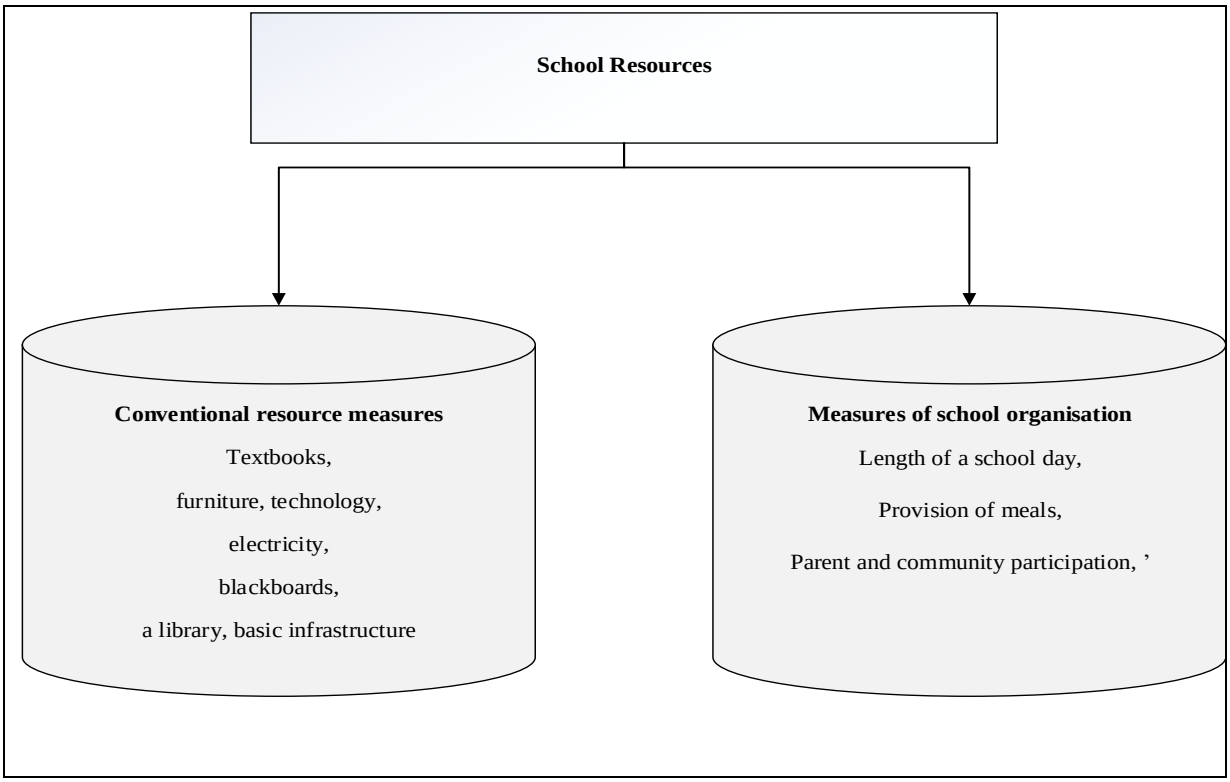
In their research study, Chudgar, Chandra, Iyengar and Shanker (2015, p. 516) categorise and define school resources based on two measures: conventional resource measures and measures of 'school organisation':

> simple or conventional resource measures include the availability of textbooks, furniture, technology, electricity, blackboards, a library and other basic infrastructure. Some studies also include measures of the length of a school day, provision of meals and parent and community participation, grouped together as measures of 'school organization'.

In this study, I focus on conventional/traditional resources and the role of inputs that policymakers can influence, such as teacher, classroom and school attributes. School

resources would refer to the availability of conventional resources (e.g. education facilities and infrastructure, thus, sanitary facilities, classrooms, laboratories, pathways, electrical cables), among other facilities which are rendered unusable when floods and other disasters occur. I will bring in measures of school organisation to support my discussion where necessary as illustrated in Figure 4.2.

Figure 4.2 School Resources



Source: Own

Following Chudgar, *et al.* (2015, p. 516),

> a child's home background is crucial in explaining his/her educational outcomes: children in more educated and better-resourced families tend to have better educational outcomes. School resources may be especially important for improving learning outcomes in poor and unequal countries.

Guided by Chudgar *et al.* (2015, p. 529), schools with more learning-specific facilities (library, laboratory, and other resources) and with more co-curricular activities (sports, cultural events) are schools where, all else being equal, children perform well. Schools in the rural and other marginalised areas experience extreme difficulties (ANPPCAN, 2005). In

these rural areas, pupils learn in ill-equipped and dilapidated classrooms, some with no roofs, doors and even walls (ANPPCAN, 2005, p. 10). The absence of these conventional/traditional resources impacts on the education sector in flood-prone schools; yet, learners from these areas toil hard to compete on par with their counterparts from non-marginalised areas.

On the other hand, it is conventional that a well-functioning education system requires adequate educational expenditure and basic infrastructure. Yet, like time-on-task, research shows that resources alone will not ensure higher learning levels (Chudgar *et al.*, 2015, p. 516). Research findings reveal that increased financial allocations lead to some improvements in woefully inadequate conventional resources, but do not commensurately improve student learning (Chudgar *et al.*; Alubisia, 2005). This raises an important question, 'In addition to conventional resources, what other school resources are important to improve learning?' Adequate conventional resources increase the potential of a school, but it is acknowledged that eventually it is how the few available resources are managed and utilised, along with the teacher plus other school factors, that will make the difference in the quality of instruction (Chudgar *et al.*, 2015; ANPPCAN, 2005; Alubisia 2005). This paves the way for my next discussion on teaching methodology.

4.2.3 Teaching Methodology

I take my cue from Steyn, Badenhorst & Yule's (1981, p. 1) analogy below on the teaching situation:

> To be able to drive a vehicle on a public road, certain basic knowledge is absolutely necessary. The regulations concerning driving must not only be known, but also be applied by the driver of the vehicle. He must know *how* to drive a vehicle; know *where* he is going and be aware of his destination in the most *satisfactory way*.

According to Steyn *et al.* (1981), to be able to teach children, the teacher must have certain basic knowledge of the way to go about it. The teacher must know *how* to teach children, *where* he is going with his children (the ultimate aim) and how the aim must be reached in a satisfactory way for the teacher as well as the children (ibid). Therefore, it is evident that general aspects concerning method are involved that may not be influenced by variables, such as subject matter, type of lesson, cultural background, age of pupils etc. Following Steyn *et al.*, general teaching methods are teaching methods applicable to all types of schools and all the different subjects taught in them. Thus, anything concerning the *how* of teaching, not referring to a specific subject, can be seen as a general method. General teaching methods in their view include whole class teaching, individual teaching and individualised class teaching as briefly discussed below.

4.2.3.1 Whole Class Teaching

Because it is impossible to provide every pupil with a teacher, teaching groups of pupils in classes is a common practice throughout the world (Steyn *et al*., 1981, p. 2). What this means is that all the children in a given class are treated as *one group*; presented with the same *subject matter* by means of the *same method*. In this case, their rate of learning and previous experience with subject matter is assumed to be on the same level. Usually, the common factor in this group is age and not ability. The fact that the class is not a homogeneous group, everything (method, rate of learning, level of presentation etc.) is determined by the *'average'* pupil, not taking into consideration the gifted pupil and the slow learner (Alubisia, 2005). In as much as class teachers revert to activities that attempt to level ability, those activities involving all the pupils in a controlled way are extremely limited.

In flood-prone areas, there are two scenarios: the one involves the whole population being treated as *'one class'* compared to other schools; the other involves individual learning differences in those flood-prone classes, compared to other schools. I portray *'one class,'* as the ability of pupils across the board being measured by external, and not internal factors. In this context, external factors would mean examinations, resources, learning time, the syllabus etc.; and not internal factors that would include, for instance, learning ability influenced by cultural background, or spatial (geographical) factors.

Schooling within the Kenyan context has been treated as a *'one class'* teaching affair, informed by pupil's age, where the rate of learning and experience of specific subject matter is assumed to be on the same level. The second scenario would address a *class* in a flood-prone school, where the individual learning rate is affected by environmental factors (floods in this case). This relates to how a pupil's interest, culture and mastery of content is affected by prevailing circumstances that surround him/her. This would then mean that pupils require *individual* teaching to achieve more; as discussed in the next phase.

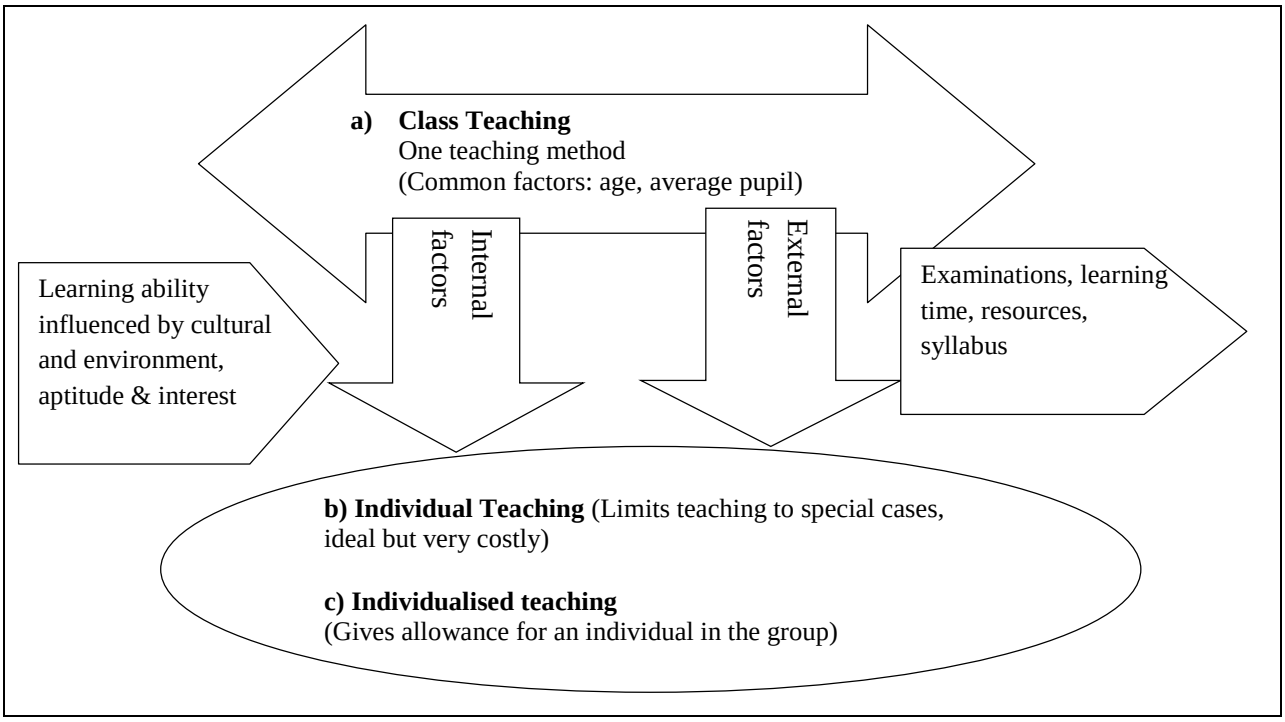
4.2.3.2 Individual Teaching

In individual teaching, the activity of the pupil is determined by the pupil's aptitude, nature and interest (Steyn *et al*., 1981, p. 2). The teacher is guided by the pupil's individual development in leading and guiding him/her. This would be the ideal teaching method for schools in marginalised areas. However, the severe shortage of teachers, especially because of FPE (ANPPCAN, 2005), limits individual teaching to special cases only; and may become too costly for any state to afford. The two teaching methods discussed above display their shortcomings as far as teaching methodology is concerned. This brings my next discussion to a third teaching method, which attempts to combine the two methods above.

4.2.3.2 Individualised Class Teaching

With this method, the individual pupil's needs and emotions are no longer controlled by the class (Steyn *et al*., 1981). Every allowance is made for the individual in the group and the necessary attention is given to the slow learner, as well as the gifted child. This means that the child can still express himself as an individual within his own peer group. While the rest of the class is occupied with their own work from the teacher, individual attention is given to slower pupils, while the teacher is still able to maintain order in the class (ANPPCAN, 2005). Individualised class teaching is the combination of the two general methods previously discussed and should be the ideal for every teacher. The three types of teaching methods are illustrated in Fig 4.3 below.

Figure 4.3 Summary of teaching methods



Source: Own (Adapted from Steyn *et. al.,* 1981)

Teaching methods are significantly influenced by the organisation of the school - which brings me to the next discussion on instructional leadership.

4.2.4 Instructional Leadership

> So you want to become an effective teacher? Well you face a challenge because as things stand we do not actually have a definition of what one looks like (Male, 2006, p. 1).

In the effective school, the principal acts as an instructional leader and effectively and persistently communicates that mission to the staff, parents and students (Lezotte, 1999). While the standards for instructional leadership tend to focus on the principal and the administrative staff of the school, Lezotte (1999) is of the view that leadership should be viewed broadly as a dispersed concept that includes all adults, especially the teachers at school. In schools, the principal understands and applies the characteristics of instructional effectiveness in the management of the instructional programme (Male, 2006; Lezotte, 1999).

The leadership theory, a highly contested conceptual field implies that leadership and headship are one and the same thing (Male, 2006). The role of the principal therefore changes to that of "a leader of leaders", rather than a leader of followers (Lezotte, 1999, p. 2), where the broader concept of leadership recognises that leadership is always delegated from the follower-ship in any organisation. In the leadership role, the principal develops his/her skills as coach, partner and cheerleader who directs the school community towards a community of shared values, through identifying what this school community cares most about (ibid). More importantly, Lezotte is of the view that the principal needs to embrace the fact that expertise is generally distributed among many, not concentrated in a single person, therefore he/she cannot be the only leader in a complex organization like a school.

According to Male (2006), standards have been published across the world that specify the tasks and personal qualities associated with formal school leadership, but none of these can be universally applied; as each headship is unique. Male says that head teachers are appointed

to a school, as well as to a system. Therefore, the circumstances of the school, under which the head teacher is appointed, are a major determinant of what an effective head teacher looks like. In short, the role of headship is context-bound (i.e. situational and contingent on context and circumstance) (Whitaker, 1983; Male, 2006). In fact, part of the head teacher selection procedure should be to relate the qualities and aptitudes of the candidate to the specific requirements of the school (Whitaker, 1983). Schools are similar to other organisations (Male, 2006) and it is key that effective leaders achieve the right balance between leadership, management and administration, both in terms of their personal engagement and the overall balance of those three operational aspects within the school. Effective leadership significantly impacts on a school's teaching methods, which in turn could motivate teachers; a discussion to which I now turn.

4.2.5 Teacher Motivation

Teachers' readiness to invest time and efforts positively correlates with motivation, (Leyendecker *et al*., 2008, p. 85). Certainly, the concept of motivation has received considerable attention over the course of this century, but this attention has, for the most part, focused on clarification of what motivation encompasses and not on identifying its features (Evans, 1998). Very often, the concepts, teacher motivation, teacher morale and job satisfaction go together and may interlink when defining contexts linked to these concepts (Evans, 1998, p. 32), as these factors may often be equated to job fulfilment, or job comfort, or even both. I find it necessary to give a synopsis of these concepts before embarking on teacher motivation as a factor contributing to EA.

4.2.5.1 Job Satisfaction

The study of employees' attitudes to their work and, more specifically of job satisfaction, has contributed a substantial body of knowledge about what makes people happy, or unhappy, with their jobs (Evans, 1998, p. 3). Evans points out that, whilst much of the work in this field has focused on employees in general, some has been related to specific occupations and a small proportion of this to teachers. This has been attributed to conceptual problems related to researching teachers' job satisfaction emanating from a lack both of clarity and consensus about what is meant by 'job satisfaction'. Generally, many authors, including those in the previous century's interpretation of job satisfaction lends itself to individual needs fulfillment (Schaffer, 1953, p. 3). That job satisfaction will vary directly with the extent to which those needs of an individual, which can be satisfied in a job, are actually satisfied: the stronger the need, the more closely will job satisfaction depend on its fulfilment (ibid).

What influences job satisfaction?

Evans (1998, p. 19) identifies five levels of understanding that may affect teachers' job satisfaction. The first level is about conventional wisdom, exemplified by arguments that are typically promulgated by the media, such as those which equate job satisfaction with centrally initiated policy and conditions of service, including pay. Such arguments evidently assume much homogeneity amongst teachers and are therefore highly generalisable. The second level moves partly away from a homogeneity basis towards typologies and trends, exemplified by studies which reveal teachers' seniority, head teachers' leadership styles, schools' organisational climates etc., to be key determinants of job satisfaction or morale.

The third level focuses on narrower, more specific, typologies. It moves towards awareness of significance both of teachers' heterogeneity and of match or mismatch between teachers

and the context within which they work. It is exemplified by the contention that organisational goals are an important point of comparison between individuals and the organisations in which they find themselves, which confirms the idea that the person-organisation fit relates to positive employee attitudes and intentions.

The fourth level is not education-specific. It is a level of in-depth analysis and recognition of the need for conceptual clarity and precision. It recognises the inaccuracies associated with crude generalisations, which ignore individualism and focuses upon the lowest common factor in relation to determinants of job satisfaction amongst individuals. It sees commonalties and generalisations, which are accurate because they are free from contextual specificity. This level has contributed not only to what job satisfaction and morale are, but to what fundamentally determines them and thus individuals' needs fulfillment, expectations fulfillment or value congruence[14]. The fifth level that supplements the four levels applies to the lowest common factor analysis of level four to teaching-specific exemplars.

4.2.5.2 Morale

Traditionally and typically, any concern over how members of the teaching profession feel about their work is interpreted as a morale issue (Evans, 1998, p. 21). Like the conceptual problems of job satisfaction, the meaning of the concept *morale* is generally inadequately explored.

What is morale? As observed by current and seasoned authors, literature on morale yields definitions which are varied as they are numerous, (Baehr & Renck, 1959; Evans 1998). Evans notes that many writers employ definitions incorporating phrases such as 'shared

[14] The extent to which the individual can behave at work consistent with their own self image

purpose', 'group goals', and 'feelings of togetherness'. However, in her view, the notion of individual morale, or morale in isolation is eschewed and that morale is determined only in relation to common objectives. Therefore, "Morale is a state of mind encompassing all the feelings determined by the individual's anticipation of the extent of satisfaction of those needs which s/he perceives as significantly affecting his his/her total work situation," (Evans, 1998, p. 30).

How is morale related to job satisfaction?

Authors in the past century, as well as those today have generally observed that there is confusion or failure to distinguish between morale and satisfaction, which Smith (1976) criticises. "High morale may exist in a situation where many job dissatisfactions exist and are being overcome." (Smith, 1966, p. 144). However, other authors in the recent past, (Guba, 1958 cited in Evans, 1998) see high morale as dependent upon achievement of a high level of satisfaction. He argues that satisfying acts require less expenditure of energy than unsatisfying acts, and so satisfaction is necessary to avoid expending the requisite energy for morale. Therefore, job satisfaction is a static, shallow concept, whereas morale is dynamic and forward-looking (Evans, 1998). The basis of Evans' (1998, p. 26) distinction is that of temporal orientation – the one being present-orientated and the other future-orientated. Evans perceives satisfaction to be a response to a situation, whereas morale is anticipatory. Morale therefore involves anticipation of continued or sustained job satisfaction in the form of job comfort. The author argues that morale is an extension of job satisfaction and, in this way, the two concepts continue to interact. This process may present the illusion of being one – an idea which I adopt in this research study.

3.2.5.2 Motivation

Being the focus of this study, motivation is probably the one for which the fewest definitions are available. Much has been written about what motivates or demotivates, but conceptual analysis is very thin on the ground (Evans, 1998, p. 32). The attention paid to motivation as a concept has, for the most part, focused on clarification of what motivation encompasses and on identifying its features (ibid). This has resulted in descriptions, or interpretations, of motivation rather than definitions.

What is motivation?

'Motivation is a condition, or the creation of a condition, that encompasses all those factors that determine the degree of inclination towards engagement in an activity (Evans, 1998, p. 34). In Evans' (1998) view, the definition incorporates recognition that motivation does not necessarily determine whether or not activity occurs, it need only determine the extent to which an individual feels inclined towards an activity, as it is possible to be motivated to do something without actually doing it (ibid).

How are morale, job satisfaction and motivation related?

I am guided by Evans (1998) that the link between morale, job satisfaction and motivation becomes apparent with deeper analysis. The author distinguishes the three concepts as follows:

> *Job satisfaction* is a state of mind encompassing all the feelings determined by the extent to which the individual perceives her/his job-related needs to be being met.
>
> *Morale* is a state of mind encompassing all the feelings determined by the individual's anticipation of the extent of satisfaction of those needs which s/he perceives as significantly affecting his/her total work situation.

> *Motivation* is concerned with the degree of inclination towards an activity, but that degree of inclination is determined by the pursuit of goals which will satisfy needs.

Morale levels are determined by expectancy of continued *job satisfaction*. High morale, resulting from high expectations, *motivates* individuals towards goal-focused activity which is expected to sustain, and increase, job satisfaction, which in turn raises morale (see Fig. 4.4). It is therefore important to note that what motivates in a work context is the desire for job satisfaction; and individuals are motivated to participate in activities that appear to them to be orientated towards job satisfaction (Evans, 1998, p. 40).

What therefore motivates teachers?

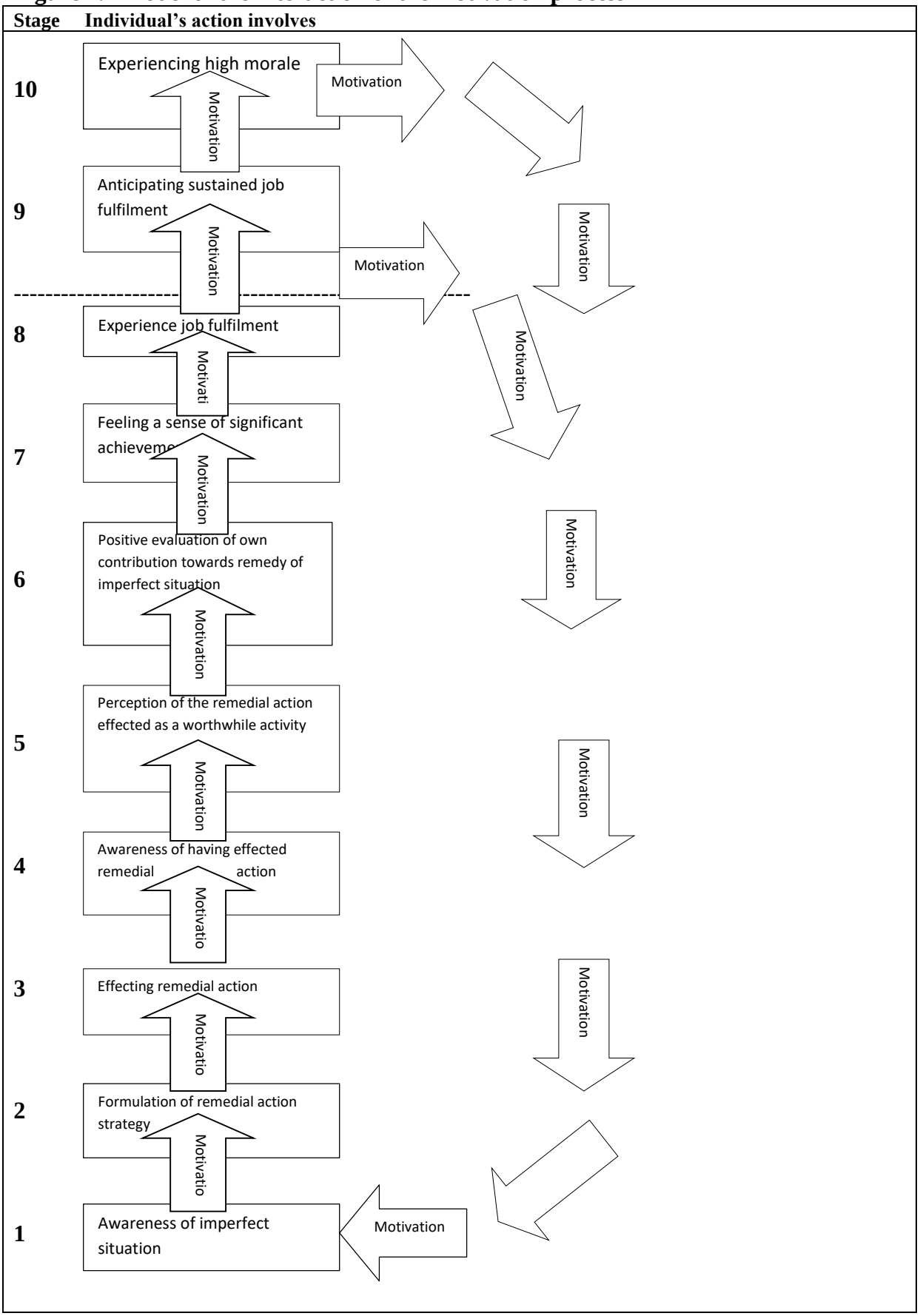
It is evidenced in various research studies that teachers are not motivated by the need to achieve ideal-orientated goals. Much more specificity is required, with attention needs being directed at *what,* precisely, motivates rather than at *why* it motivates (ibid). There is a commonly held assumption outside the academic community that teacher motivation is pay-related; and that pay is assumed to be an effective motivator in relation to improving job performance (the expectancy theory of motivation and productivity[15]) (Leyendecker *et al*., 2008). Teacher motivation has to do with many other factors other than pay; which may cut across job satisfaction, morale and motivation. Following Leyendecker *et al*. (2008, p. 85), and as already said, 'Teachers' readiness to invest time and efforts positively correlates with motivation'. While the motivational levels of teachers differ considerably within and across SSA countries, they are, on average, regarded as low (ibid). This has been fueled by some factors like the number of working hours that have often been reduced to the number of contact periods (if at all); lack of preparation for lessons, which has reduced instructional

[15] Theory posits that individuals are likely to put effort into their work if there is an anticipated reward they value

processes to common; un-demanding outdated methodologies; doubled-up classes in which some are not attended at all; efficient and transparent use of resources (or a lack thereof); effective leadership; recognition of effort/talent; head teacher-teacher relationship; among other factors (Leyendecker *et al*., 2008; Evans, 1998; ANPPCAN, 2003). In general, work attitudes, work ethics, levels of determination and levels of motivation within the educational system are rarely congruent to the requirements of the educational tasks at hand, especially in SSA, according to Leyendecker *et al.*

In summary, improvement for teachers' conditions may increase their motivation; however, it should be cautioned that only offering comparatively higher teacher salaries, as Botswana and Namibia have done, without implementing other changes, will not, on its own, increase levels of motivation or instructional quality (Leyendecker *et al*., 2008, p. 86). From the discussion and analysis, it is evident that the concept of teacher motivation is directly linked to the concepts of job satisfaction and morale, as illustrated in Figure 4.4.

Figure 4.4 Model of the interaction of the motivation process



Source: Evans (1998).

In the previous sections, I have engaged with factors influencing EA within the context of the school. However, it is not only the school setting that contributes to learner achievement. More importantly, inter-relationships between contexts do play key roles in a child's development at school. The next phase of discussions focuses on how the multidimensional relationship between the school, the home and the community (underpinned by culture), impacts on learning.

4.2.6 Parental involvement

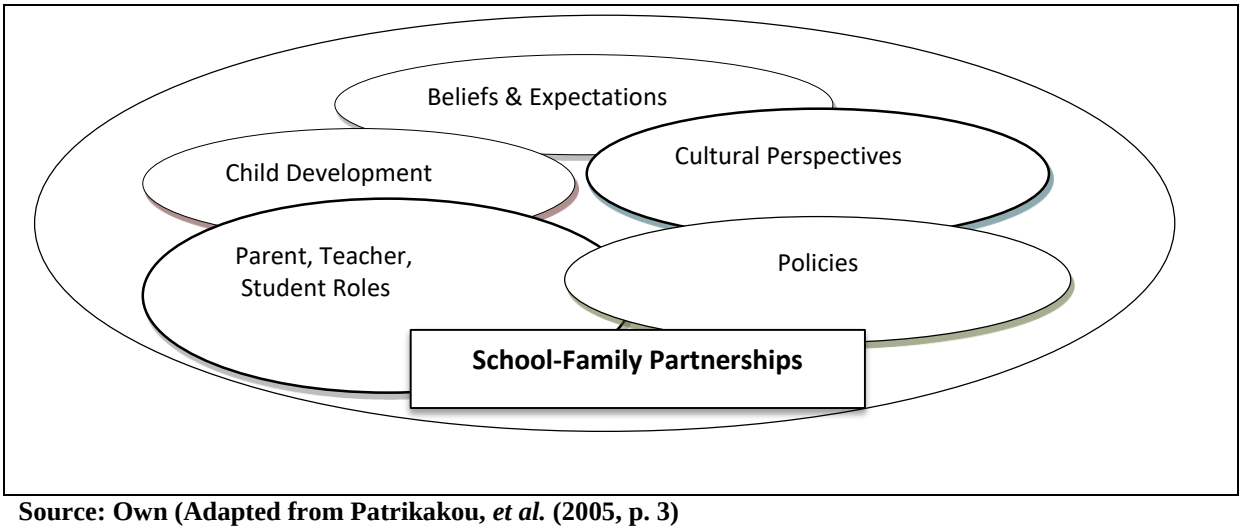
Children learn and grow at home, at school and in the community. Their experiences may be positive or negative, but it is clear that the people in these three contexts influence student learning and development from infancy on (Epstein, 2005, p. vii). In support of this statement, (Patrikakou, Weissberg, Redding & Walberg, 2005, p. 1) allude that the realisation of children's potential depends, to a great degree, on the context within which they develop and learn, as well as the interconnections between those contexts. Yet, despite this certainty, there are still many questions that must be addressed to enable more families, ideally all families, to become and remain involved in their children's education in positive ways across the grades (Kellaghan, Sloane, Alvarez & Bloom, 1993; Epstein, 2005; Patrikakou, *et al.*, 2005). There is evidence that aspects of family involvement in education does help more learners succeed. In fact, parental involvement or, more broadly, school, family and community partnerships is a multidimensional concept (Epstein, 2005, p. vii), which has short and long-term benefits in, and after early childhood education programmes. Epstein asserts that learner success must be considered more broadly, because successful learning and development are defined not only by achievement test scores, but also by many other social and emotional skills, attitudes and behaviours that students develop and improve across the

grades. It is very clear that neither the quality of schools, nor the success of students, can be understood by measuring and monitoring only achievement test scores.

4.2.6.1 What is parental involvement?

In their work, *School-Partnerships for Children's Success*, Patrikakou, *et al.* (2005) state that research studies usually operationally define the construct of home-school connections, but a broadly accepted definition is far from being used. The broad term 'parent involvement' has been mostly used intuitively, but its operational use has not been consistent or clear (Patrikakou, *et al.,* 2005, p g. 3). Terms such as 'parent involvement', 'parent participation', 'home-school connections' and 'school-family partnerships' are used to describe a broad array of parent beliefs, behaviours and practices (ibid). Therefore, the term 'school-family partnerships' would reflect the multidimensional nature of home-school interactions and indicates a *shared responsibility* that both home and school have in children's education, thus there is a partnership orientation (see Figure 4.5).

Fig. 4.5 The Multidimensionality of School-Family Partnerships



Source: Own (Adapted from Patrikakou, *et al.* (2005, p. 3)

I emphasise *partnership orientation,* implying shared goals, contributions and accountability, because it reflects a relationship between home and school, rather than an occasional interface of the two institutions (Patrikakou, *et al.*, 2005, p.3). Evidence suggests that both

parents and teachers would like more interaction, but it is often difficult to achieve. Even if it initially exists, it declines rather rapidly as children make their transition to secondary school (Davis-Kean & Eccles, 2005, p. 57). So, what are the challenges schools and parents face in retaining participation links over time?

Better school-family collaborations – influences and challenges

I adopt Davis-Kean and Eccles (2005, p. 58) review on challenges to forming partnerships between schools and families. Recent reviews on parent involvement have supported the existence of various influences and challenges (Handerson & Mapp, 2002) to result in better interactions and communication between parents and the school. These challenges are categorised and reviewed as below.

1. Parent/Family Characteristics

The parent/family category concerns the general socio-economic status of the family, as well as the mental health of the parents (Davis-Kean & Eccles, 2005, p. 58). This means parents' level of education and workforce are important predictors of involvement, with more highly educated parents being more involved and those in the workforce having limited time for involvement (Hoover-Dempsey & Sandler, 1997). Another important parent/family characteristic linked to involvement concerns the social and psychological resources of the parent, their perception of their child, the parents' beliefs about their role in their child's education, their attitude towards school, ethnic identity, socialisation practices and prior involvement in their children's education (Davis-Kean and Eccles, 2005, p. 58). Davis-Kean and Eccles (2005) observe that some parents do not have the confidence that they can influence their child's achievement by getting involved in their school work. Some have difficulty participating, as they do not understand the material sent home (ibid). Others have

not been exposed to participating opportunities; they imagine that getting the child to school on time with appropriate material is sufficient. All these factors are important in determining how willing parents are to get involved in school activities.

2. Community characteristics

Community characteristics in which families are members influence involvement in schools, because parents develop parenting (Davis-Kean & Eccles, 2005, p. 59) behaviours that are consistent with the demand of their environments. For instance, parents in high-risk environments would spend more time protecting their children and not dwell on other issues of education development. According to Davis-Kean and Eccles (2005), these parents are not necessarily less involved, they have simply prioritised other issues (e.g. family protection), rather than academic achievement. In any way, it is parents with lower education, lower-status jobs, lower social support and lower social skills that often face socio-economic challenges (e.g. residing in high risk environments, poverty etc.) These parents therefore face additional challenges and may not prioritise participation in their children's school activities. In this case, schools need to employ appropriate strategies to help these parents get involved and stay involved (Eccles & Harold, 1993), because school may just be the one safe and stable place for these children and parents to experience positive involvement with the community. Another aspect of community characteristics is beliefs, attitude and culture, which I have discussed in detail under 'School communities, Community/Environment and culture' as a factor influencing EA.

3. Characteristics of the child

Characteristics of the child could also influence the participation of parents at school (Davis-Kean & Eccles, 2005). This especially happens when the children enter adolescence, a time

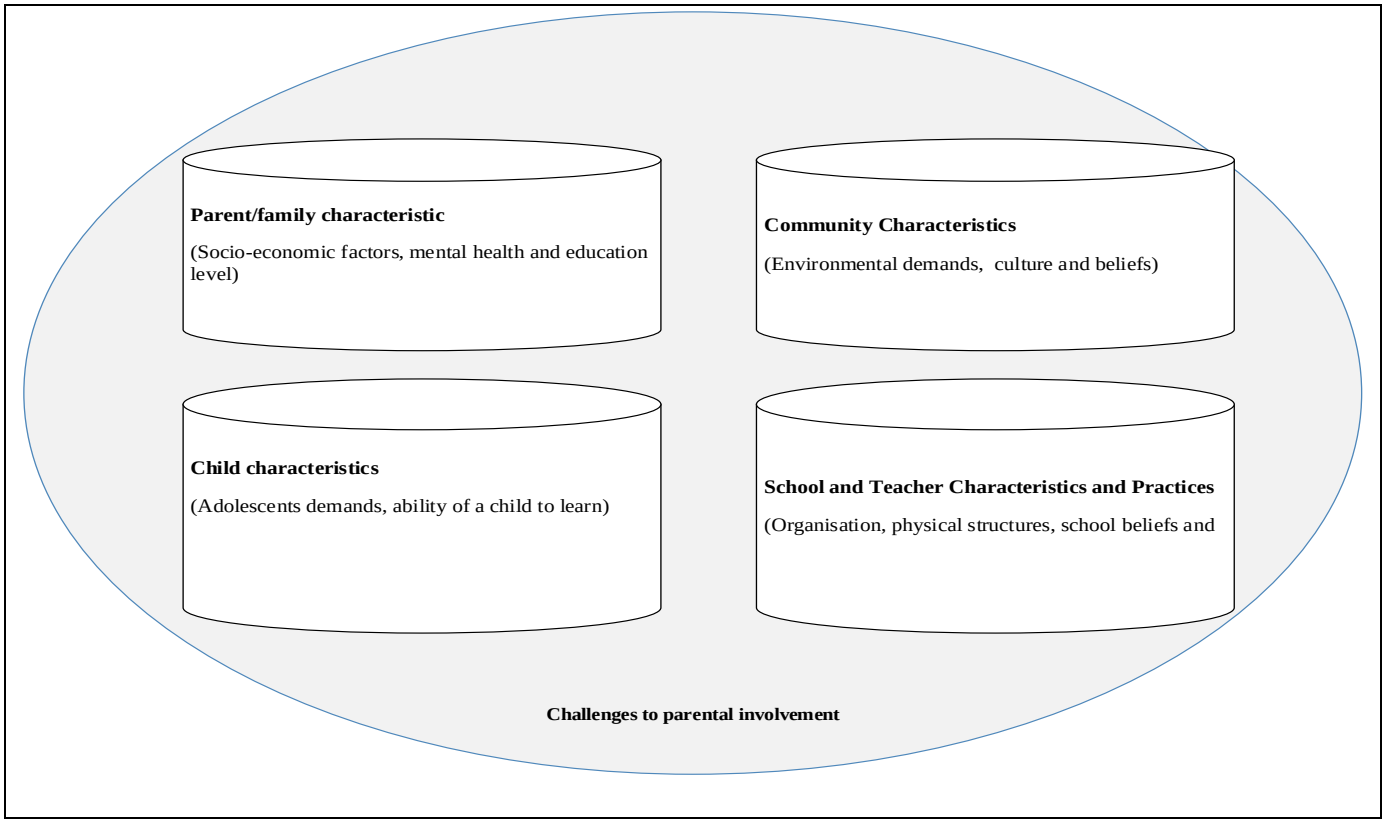
of tremendous exploration and growth. Through open and ongoing communication and collaboration, schools and families must work together to promote positive, healthy and successful development (Davis-Kean & Eccles, 2005, p. 60). The authors also identify parents' response to the growing autonomy of the child as one reason for the decline in involvement. Some parents feel that, as their children get older, they want less participation from their parents. Besides, school homework becomes more complicated over the years. In other circumstances, parents may feel that their children are spending more time with peers and that the school has fewer activities requiring their participation (ibid). All these factors present fewer avenues where parents can participate at school. Research continues to show, however, that adolescents would want their parents more involved in their lives at school. Another important characteristic of children is their ability to learn. Some parents find it difficult, embarrassing or time-wasting to participate in a child's education if they are weak in class, or if the child's education is affected by factors beyond their control, where they give up participation. Schools need to encourage such parents through appropriate strategies and innovations about how to cope with such children (Amutabi, 2003).

4. School and Teacher Characteristics and Practices

Certainly, school and teacher characteristics influence parental involvement at school. Factors such as teachers' beliefs about the role of the parent in the classroom, the available opportunities for involvement in the classroom (Davis-Kean & Eccles, 2005, p. 61), the school and the school's policies (or lack thereof) regarding parental involvement impact on parents' involvement at school (Lezotte, 1999). Therefore, to increase parents' involvement, there are two major challenges to overcome: the organisation and physical structure of the school, and the school community's beliefs and attitudes (Davis-Kean and Eccles, 2005, p. 61). In their view, the school needs to create space and allowance for parental involvement.

Teachers need to be accommodating so that through their attitudes, parents feel welcome at school, (Lezotte, 1999). Challenges to school family partnerships are illustrated in Figure 4.6.

Figure 4.6 Influences and Challenges to better parent-school collaborations



Source: Own

In summary, the goal of family-school connections for children's learning must be to create a culture of success that enhances learning experiences and competencies across home and school (Christeson, Godber & Anderson, 2005, p. 22). Education may be considered essential for accessing most areas in life, where failure to acquire basic skills limits the participation in the social and cultural life of society (Kellaghan *et al.*, 1993). It is, however, important to note that cultural issues are central when discussing school-family partnerships, (Patrikakou, *et al.*, 2005, p. 12); and that broader beliefs, ideologies and stereotypes significantly impact on home-school relations. In the next phase of the discussion, I engage with the community and cultural dimension and how this may impact learning and school success.

4.2.7 School Communities, Community/Environment and Culture

The pressure on education reform towards education equity and quality has brought about a struggle around tackling complex issues of culture, the community and the educational environment (Laosa, 2005). By closely linking culture, the community and the school within the context of EA, I discuss the concepts as one, even though they are later analysed separately due to the nature of data required. It is evident that culture and the community cut across factors affecting learning. As previous discussions have emphasised, schools, families and communities share major responsibilities for children, and, when working collaboratively, they can play important roles in fostering cross-cultural understanding and intergroup cooperation (Laosa, 2005, p. 77). This, according to Laosa, is because the school is located in a community inhabited by people who identify through a common culture. I begin the discussion with the important roles the community, school and culture play in education, then proceed to discuss each aspect individually, before linking these components to educational achievement.

Schooling has a range of practices that make up a school community (Felgate, 1996, p. 1) and these practices can be found within the foundation of any community through bonds of norms, values and beliefs that inform any engagement of the community with change. Following Felgate (1999), if the community is the conduit for social change in education, then culture is the way in which these dynamics are experienced, lived or interpreted. In this sense, all communities have their own type of autonomy to engage with societal challenges, including those in education. Felgate (1996) asserts that culture is not just about norms and values, it is a personal identity marking a sense of ‘belonging’ within the community. What therefore, is a community?

4.2.7.1 The Community/Environment

Commonly, communities are thought of as groups of people who derive meaning by living together in the same locality (Bell & Newby, 1971, p.4 cited in Felgate, 1996, p. 29). They either derive meaning from the locality itself, as in the case of communities forming around working-class terrace housing, or from beliefs derived from linguistic, religious or ethnic similarities. The authors observe that, by deriving meaning from living together, the people that make up a community form bonds of ties. According to Felgate (1996, p. 29),

> the local school is the meeting ground between the community and the educational bureaucracy. Resources are provided by the state to schools, whilst keeping control over the public production of culture, usually taking the form of 'national and evaluation structures'. The local school then becomes the forum to which each side brings their own agenda of meanings where outcomes are largely played out in the school classroom. Therefore, who participates, how, and at what level are important questions for analysis.

In this sense, it is evident that the community should have more control over schools in their surrounds, including resources and how those are distributed. It follows that community involvement in a resource distribution policy and effective intervention in the school organisation by parents, leads to greater pupil attainment (Leyendecker *et al*., 2008; Felgate, 1996; Laosa 2005). It is indeed a responsive relationship, based on the participation of both the client/community and the suppliers/school, (Keith and Girling, 1990, p.16). Through teachers, the school needs to reach out to the community through parents and the child. It is through this inter-generational link that the community can take control of their environment (Felgate, 1996, p.38).

Generally, the literature on community and schools sees the community as being outside the school (Felgate, 1996; Lezotte, 1999). The weakness of this approach has resulted in the relationship between the school and the educational bureaucracy being insufficiently problematised. In this sense, Felgate states that it would be essential to move away from

concentrating on the relationship between the community and the school to one that sees the local school as a community.

4.2.7.2 School Communities

According to Wexler, Crichlow and Kern (1992), any outcome within a school is dependent on the experiences each social agent brings, be it a parent, student or teacher. My view of a school community is one that comprises groups of people with direct working relationships with, or being interested in work done by, the school internally and externally. In this study, other than teachers and administrative staff, parents, community leaders, government officials will also be viewed as part of the school community in the area under study. Having defined the context of the school community, "the school then is an arena where experiences are shared, struggled over and particular sets of relationships develop and form, which either encourage further participation or lead to the withdrawal of the agents from the process" (Felgate, 1996, p. 39). Taking my cue from Leyendecker *et al*. (2008, p. 85), low levels of school cultures do not allow for achievement of high levels of learning outcomes. I now turn my attention to culture.

4.2.7.3 Culture

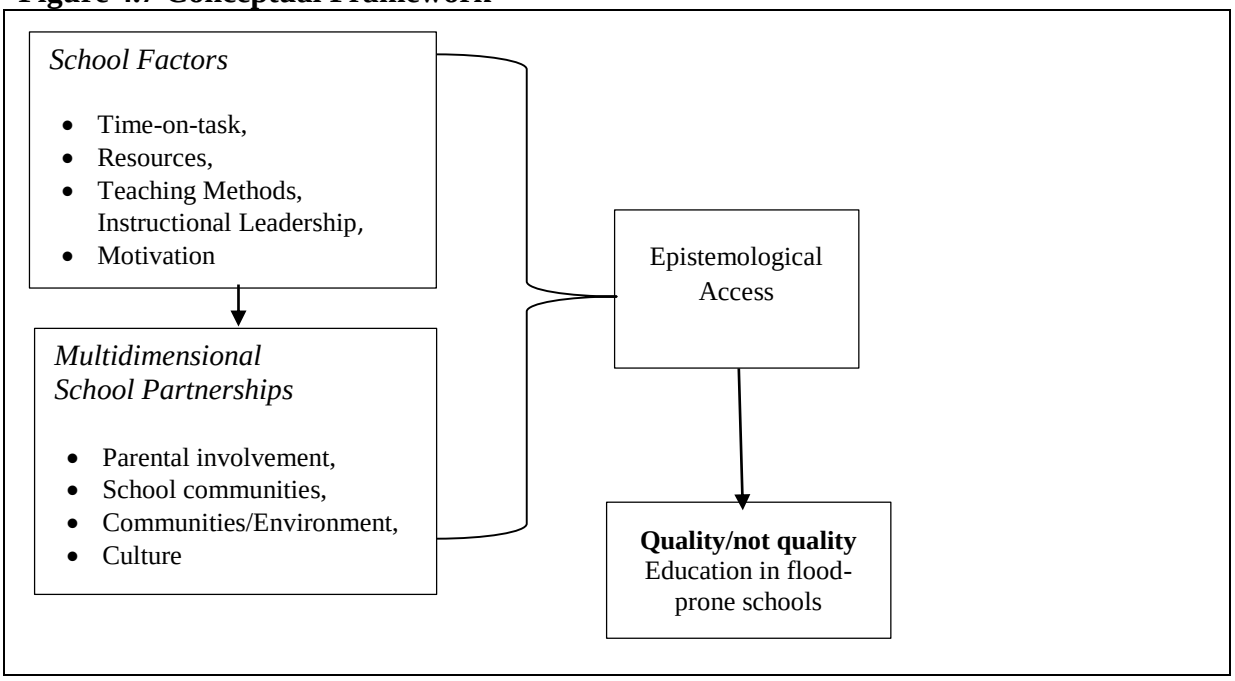
There are sets of practices, meanings and values in any society, in any particular period that can be termed as dominant and effective (Williams, 1987 cited in Felgate 1996, p. 55) These set of meanings and values that stem from lived experience or reality are culture, which plays a key role in the way individuals interact and learn and also provides the individuals with a sense of identity that helps them understand their worlds (Laosa, 2005). Culturally determined discrepancies between the home and the school can affect the child's success in school (Laosa, 2005, p. 77). It is important to ensure academic, social and emotional learning

in the context of the child's culture, if schools are to be successful in their educational mission (ibid). Scientific research increasingly shows that learning involves not only cognition, but also social and emotional processes; and that culture plays a key role in the way in which individuals interact and learn (Laosa, 2005). Culture also provides individuals with a sense of identity and a frame of reference that help them understand their world. In relation to Felgate's (1996, p. 57) linkage between community, culture and the school community, "the past and present mingle to define community experience, which is often dramatically altered by change". The impact of this community experience and change gives rise to an emerging set of principles, practices and meanings (ibid). It is within the making of these 'common' meanings, according to Felgate (1996) that schools locate themselves in an education environment in an effort to identify with participants. In the next section I present the conceptual framework of my study based on the nine indicators of EA that I have discussed.

4.3 Conceptual Framework

I have so far identified the nine indicators that provide the essential rationale for EA. I have discussed in depth how these indicators can influence EA. Based on this discussion, I now present the conceptual framework in Fig. 4.7, which will guide the remainder part of the thesis.

Figure 4.7 Conceptual Framework



Source: Own

4.4 Summary

In this chapter, I have engaged with EA and the nine indicators that influence learning as the basis of my study. Out of these indicators, I have developed a conceptual framework based on the EA indicators as a guide to address the remainder part of the study, from research questions through to the methodology, data collection and analysis to the conclusion of the study. In the chapter that follows, I explain and justify the methodological approach and methods that I use in answering the research questions in this study.

Chapter 5: Research Methodology – A Mixed-methods Approach

5.1 Introduction

In the previous chapter, I engaged with the concept of EA in terms of its uniqueness within the context of schooling in flood-prone areas. I identified nine EA indicators, from which I presented the conceptual framework I will adopt for the remainder chapters of the thesis. Drawing from the thesis abstract, I will conduct this study within a mixed-methods framework based on Sen's capability theory and Nancy Fraser's social justice framework, as discussed in Chapter 2.

When I started on this study, I considered the research problem and questions and constructed possible outcomes to guide the investigation of my problem, using possible explanations that data would ultimately reveal. Data is the link between absolute truth and the researcher's inquiring mind (Leedy and Ormrod, 2001, p. 60). I first had the presumption that this study would be of a qualitative nature, but as I engaged with the research questions more, I accepted that a mixed-methods approach would enrich this research more, based on the objectives and the nature of data I anticipated.

Before I embarked on the research, I needed to know precisely what I intended to do to avoid going beyond the precincts of my problem (ibid). I therefore had to come up with the overall structure of what I intended to do and procedures I needed to follow (the research design) to solve my research problem. In so doing, I considered that, in research, the methodology to be used for a particular research problem must always take into account the nature of data to be collected. With my research questions at hand, I not only had to come up with a plan for data

collection, but also the kind of data I wanted to gather, then link these to the research methodology.

The main purpose of this chapter is to present my arguments for using a mixed-methods approach for the research problem that I have identified. To enable me to more clearly articulate these arguments, it is important to have a broader understanding of the debates around scientific assumptions and the nature of truth in research. The methodological dimension of a research project is one of the scientific assumptions, approaches or paradigms in scientific inquiry in pursuit of truthful knowledge. Before I take a view of the research methodology I engaged with, l thought it was important to introduce these scientific paradigms, or approaches, which count as accepted or correct scientific knowledge (Kuhn, 1962), or way of working.

5.2 Scientific Paradigms

According to Kuhn (1962), approaches to methodology in research have been seen to reside in 'paradigms' and communities of scholars. "A paradigm is a way of looking at or researching phenomena, a world view, a view of what counts as accepted or correct scientific knowledge or way of working (Kuhn, 1962, p. 23)." It is a basic orientation to theory and research, or generally a whole system of thinking (Neuman, 2011, p. 96), which includes basic assumptions, key issues, models of quality research and methods of seeking answers. Scientific inquiry is driven by the search for true, or at least truthful knowledge (Mouton 1996, p. 28) and the predominant purpose of all research is to arrive at results that are as close to the truth as possible (Neuman, 2011). This commitment to the 'search for truth' is in the notion of the epistemic imperative, thus the pursuit of truthful knowledge, which is influenced by four sets of assumptions (Cohen, Manion & Morrison, 2000). Cohen and his

colleagues base their analysis on Burrell and Morgan's (1979) work, who define the four assumptions as: ontological, epistemological, axiological and methodological. The *ontological* assumption concerns the very nature of reality of a phenomenon; the *epistemological* assumption refers to how we come to know these multiple realities; while the *axiological* assumption refers to the principles and meanings in conducting research and the ethics that govern these. The three sets of assumptions (ontological, epistemological and axiological) discussed, have direct implications for the methodological concern of researchers, therefore resulting in the fourth assumption – the *methodological* assumption. This assumption concerns how we research complex realities and basically ensures objectivity in the research. It is important to note that these assumptions/values/approaches abide by different, but flexible, social theories and research techniques (Mouton 1996, p. 28-29). Methodological paradigms include certain assumptions and values regarding their use; and would include a 'theory' of why, and when, to apply a particular paradigm, including an awareness of limitations of that particular paradigm (Leedy and Ormrod, 2001, p. 100). This awareness could stem from a wide variety of research methodologies, though many researchers tend to separate research studies into two broad categories: the quantitative research (Positivist/experimental/traditional) and qualitative research (post positivist/interpretive/constructivist) (ibid).

a) Positivism

Positivist social science (PSS) has been a dominant paradigm in social science that supports ontological and epistemological assumptions that are usually linked to the quantitative research approach (Cohen *et al.* 2001). According to 'ontological naturalists' or positivists, all genuine knowledge is based on sense experience and can only be advanced by means of observation and experiment. However, Cohen and his team feel that, in as much as positivism

strives for objectivity, measurability, predictability and controllability, this paradigm has generally been criticised for perceiving the universe as a mechanism and not a living organism.

b) Non-positivism

Those who disagree with the natural scientists or positivism can be broadly classified into two categories: the anti-positivists and the realists (Mouton, 1996, p. 47). Anti-positivists argue that individuals' behaviour can only be understood by the researcher sharing their frame of reference, thus understanding the individuals' interpretation of the world around them (Cohen *et al,* 2001; Mouton, 1996, p. 47). Anti-positivists would include constructivists[16], intepretivists[17] and phenomenologists[18]. Realists, on the other hand, believe that though fundamental differences between the social and natural world exist, there are (Mouton, 1996, p. 47) similarities or continuities which justify the adoption of similar approaches in epistemology and methodology.

The methodological dimension of a research refers to the 'knowledge of how' or 'know-how' to do things; or the total set of 'means' that scientists employ in researching their goal of valid knowledge (Mouton, 1996, p. 35-36). The methodological dimension would refer to the research approaches, methods, techniques, procedures and instruments, as well as the design, sampling strategy, methods of data collection and the data analysis of a research study. However, for purposes of structuring of my thesis, I have moved the 'analysis' element of methodology from the methodology chapter to Chapters 6, 7 and 8, because, in my view, it fits better with the analysis itself as a prelude to the discussion of data analysis. The most

[16] That people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences

[17] Intepretivist work out people's interpretations by putting themselves in their shoes

[18] Phenomenologists study of experience and how we experience through structures of conscious experience as experienced from a subjective or first-person point of view

common methodological approaches include the qualitative and quantitative approaches. However, since many situations are best investigated using a variety of methods (which is becoming increasingly popular), I settled on combining both the qualitative and quantitative methods (McMillan & Schumacher, 2006, p. 26) as discussed below.

5.3 The Mixed-Methods Approach

As already mentioned, I chose to engage with a mixed-methods approach, which is slowly gaining ground as a new paradigm. I realised that the best approach to answering my research questions was to use both quantitative and qualitative methods in the same study (Mcmillan & Shumacher, 2010, p. 395; Creswell & Plano Clark, 2011, p. 5) to provide complete answers that meet the goal or purpose of my study, which investigates the very nature of reality of a phenomenon (ontology): flooding within its real-life context. The gap between the phenomenon (floods) and reality can be turned into meaningful knowledge through specifying what is 'valid' to be known and ways of knowing it (Epistemology). This knowledge is gained through both quantitative (positivism) and qualitative (non-positivism) approaches. Based on the mixed-methods approach, I will conduct research through long interviews directed towards understanding the people's perspectives on their everyday lived experience with flooding (Mcmillan & Shumacher, 2006, p. 26), while observing human ethics (axiology). Having engaged with Creswell and Plano Clark (2011), I understood that a mixed-methods research approach provides strengths that offset the weaknesses of both qualitative and quantitative research and provides more evidence for studying a research problem than when either quantitative or qualitative approaches are used alone. Taking the cue from Cohen *et. al* (2001, p. 26), mixed-methods research is an approach driven by pragmatism, which yields real answers to real questions, that is useful to the real world and avoids mistaken allegiance to qualitative and quantitative approaches.

In my view, the mixed-methods approach would yield rich data that would afford me the triangulation that each research study would yearn for. From the start, I decided that my research would assume a qualitative priority, where a greater emphasis is placed on the qualitative methods, while the quantitative methods would be used in a secondary role. Then, using data collected, I would draw inferences using both the qualitative and quantitative data. The most important advantage of this approach for my research was that it did not limit me to traditional qualitative or quantitative approaches. Secondly, the approach allows for the result (quantitative) and an explanation why it was obtained (qualitative) (ibid).

Critics have wasted no time in criticising this approach. According to Cohen *et al.* (2001, p. 26), since the mixed-methods approach is underpinned by both quantitative and qualitative research, which are of different ontology and epistemology, mixing them is to dilute and adulterate them. I am also aware that mixed-methods studies may not always be feasible to conduct, as they require extensive data collection and more resources than many studies using only one approach (Mcmillan & Schumacher, 2010, p. 396) for credible findings. Also, the researcher combining qualitative and quantitative methods requires competence in each type of approach (ibid) and more time to conduct the research, compared to the other approaches.

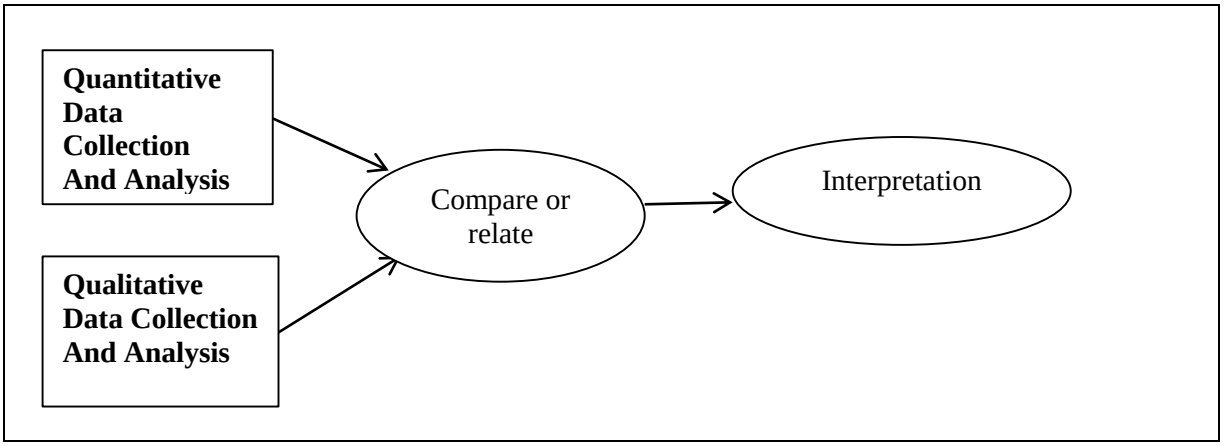
5.4 The Research Design

According to Creswell & Clark (2011, p. 69), there are six major mixed-methods designs recommended: the four basic designs are the convergent parallel design, the explanatory sequential design, the exploratory sequential design and the embedded design. The other two, the transformative design and the multiphase design are included as examples of designs that bring multiple design elements together.

I took a keen look at the four basic designs and noticed that all, except the convergent design, implemented both qualitative and quantitative strands sequentially in two distinct interactive phases. The exploratory and explanatory sequential designs analysed the first phase of data collection before proceeding to the next. The embedded design may choose to add a supplemental strand (qualitative or quantitative) to enhance the overall design in some way (Creswell & Clark, 2011, p. 73).

I opted for the convergent parallel design or triangulation design (McMillan & Schumacher 2006). Taking my cue from McMillan and Schumacher (2006), the method is appropriate for collecting both quantitative and qualitative data at the same time, where the strengths of one method offset the weakness of the other, providing a more comprehensive set of data. I realised this would allow me concurrent timing to implement the quantitative and qualitative data during the same phase of the research process, given the limited time I had for collecting data (Creswell & Clark, 2011 p. 73). It also allowed me to prioritise the methods equally, keeping the strands independent during analysis, then mixing results during the overall interpretation. Besides, this design is also appropriate when studying school cultures and experiences which supported the kind of research I was conducting.

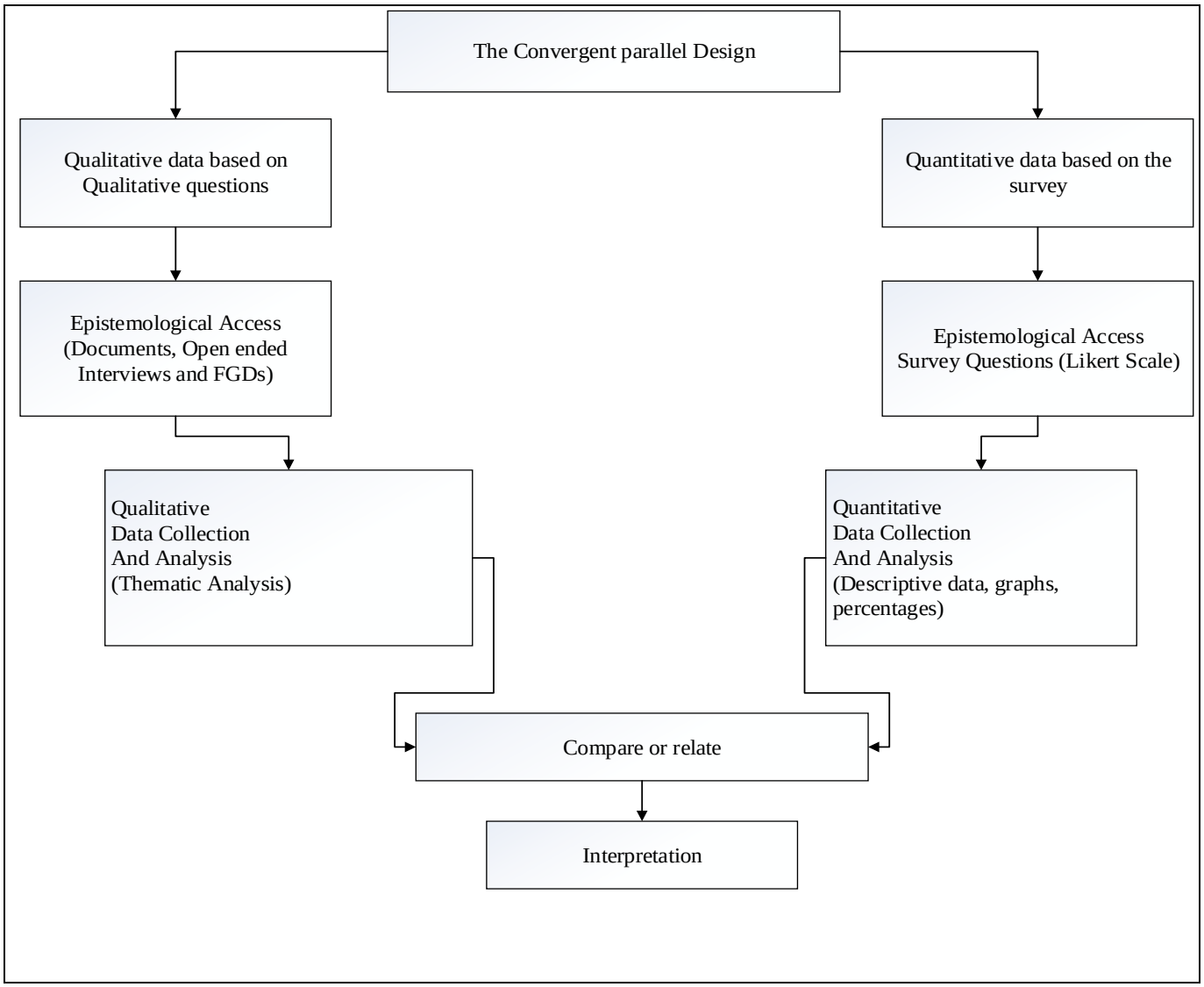
Figure 5.1 The Convergent Parallel Design



Source: Creswell & Clark (2011, p. 69)

To collect qualitative data, I was guided by Leedy and Ormrod (2001, p. 152) and McMillan and Schumacher (2006, p. 26) on the phenomenological study design, where a researcher "brackets" all prejudgments and focuses on data and how individuals make sense of a particular experience or situation. I attempted to understand, firstly, the people's perceptions, perspectives and understandings of the flooding situation and performance; secondly, the learning experience beyond the physical access in flood-prone schools. Figure 5.2 below presents a typology of the convergent parallel research design, which I adapted from Creswell & Plano Clark (2011) and modified for this study.

Figure 5.2 The Convergent Parallel Research Design



Source: Own

With this design, I collected and analysed both quantitative and qualitative data during the same phase of the research process and then merged the two sets of results into an overall interpretation (Creswell & Plano Clark, 2011). When the results of each method converge and indicate the same results, there is triangulation and thus greater credibility in research findings (ibid). Having set the scene, I now embark on how I gathered data.

5.5 Data Generation Methods

Data gathering is the general plan for collecting data (Tlhoalele, Nethonzhe & Lutabingwa. 2007, p. 562), the elements of which include data collection methods and data analysis, as well as sampling. My process of data generation began in April 2015. I took about three months to reflect and formulate the field questions. A significant consideration at this time was identification of the schools and the people I needed to interview to obtain the right data. I sought permission from the relevant county and government authorities then planned to travel, since the research study was located out of the country. All this took me another three months.

With the permission for research, ethics approval from the university and letters of consent, I made contact with the schools I had identified and began the field work as detailed under population and sampling. The real data collection began in October 2015 and lasted till December 2015. Since I already had my general plan for collecting data, I settled for interviews and documents, which, in line with Merriam (2002, p. 12), are two of the three major sources of data collection for a qualitative research study; the third being Observations. To obtain quantitative data, I engaged in surveys which were specifically for pupils. This allowed me to collect data from a large number of pupils, thus saving me time and costs. I also conducted focus group discussions (FGDs) with the pupils to allow them to describe

their feelings, attitudes, beliefs and opinions in a more open way. The sequence of data collection was: documentary analysis, then qualitative interviews, surveys and lastly FGDs. I chose this order because I believed some of the interview questions would be influenced by information gathered from documents. Likewise, the survey responses by the pupils would shape the focus group discussion. Below is a brief discussion of each data collection method.

5.5.1 Documents analysis

I realised that, in order to get the information needed for my research, I had to complement participants' interview responses with document analysis, which refers to both data collection and data analysis. At this stage, I discuss documents analysis as a data collection method. I was more interested in official documents and less interested in personal documents or objects, as categorized by McMillan and Schumacher, (2010, p. 361). I collected public records referring to the official, ongoing records from schools and representatives from the Sub-county education offices. Among the public documents I accessed were Sub-county annual reports, teaching methods, school board reports and photographs. I also collected statistical data at both the school and Sub-county levels that showed demographic information of staff and pupils, dropout rates, enrolment rates, gender disparity, attendance records, achievement records, continuous assessments and national examination scores (see an analysis in Chapter 8). As McMillan and Schumacher (2010, p. 361) rightly state, the statistical data assisted me in suggesting trends, proposing new questions and corroborating qualitative data.

I chose to use the *document analysis* method to allow me build on my interview questions and also to consider the advantages this method had for my research. Following McMillan (2012, p. 297), document analysis was relevant as it provides data into which participants

have had significant and thoughtful input. For instance, data on national examination scores, enrolment rates per school and gender, plus according to which schools were severely affected by floods had been carefully put together by individuals with relevant knowledge. Other than these, the method was inexpensive with fewer resources needed and was just right as an alternative source for triangulation. Besides, audio-visual data provided creative sources of information, especially with various teaching methodologies. I also enjoyed analysing documents, as they were readily accessible. From them I got detailed participant language and wording, which was useful for further analysis.

I was, however, made aware of the shortcomings of this method. Some researchers feel that document analysis sources may not be accurate or complete (McMillan, 2012; McMillan & Schumacher, 2010). Document analysis does not allow probing for additional information and may provide incomplete (McMillan, 2012), or partial information. Some researchers' perception is that it is also difficult to understand and code document analysis data. Having understood these disadvantages, I interacted with as many principals and teachers as possible, and also education officers plus local leaders, to retrieve relevant, but accurate, information from the documents. Good interaction with everyone was an advantage as I was able to access documents from relevant offices and schools, including 'classified' information, which not only saved me time and expenses, but also enriched my data. It is also important to mention that the education office worked directly with the schools, donor support office and the local leaders to help me understand the meaning of information detailed in each document.

5.5.2 Survey research

According to O' Leary (2004, p. 182-183), a survey research is a method of sociological investigation that uses question-based, or statistical surveys to collect information about how people think and act. A good survey, according to O' Leary, has the potential to reach a large number of respondents; generate standardised, quantifiable, empirical data; and offer confidentiality/anonymity. The reason I chose to engage with this method was because I wanted to hear from learners themselves about how floods impacted on their learning; yet it was not possible to conduct qualitative interviews with them due to numbers. In line with Leedy and Ormrod (2001, p.196), the most appropriate method was to develop a questionnaire. This allowed me to send out questions to a large number of pupils, from which I would summarise responses with percentages, frequency counts or other statistical indices and then draw inferences (ibid). To avoid cases where questionnaires get lost or are returned late, I ensured that the questionnaire was filled in in my presence in one room at each school. Table 5.1 below illustrates an excerpt of the questionnaire I designed:

Table 5.1 Pupils Questionnaire

Element	**Interview Questions**	SA	A	UD	D	SD	MR
A. Pedagogy	Teachers are always on time for the lessons						
B. Time-on-task	There is extra learning before and after flooding						

Key: SA=Strongly Agree, A=Agree, UD=Undecided, D=Disagree, SD=Strongly Disagree

I also wanted learners to describe their own experiences about floods. Since the questionnaire did not allow for this, I asked pupils to write a paragraph of their own personal experience on how floods impacted on their learning, which I would analyse together with the questionnaire responses. In short, I wanted to link the result (from the survey) with an explanation (written paragraph) to obtain credible findings. This allowed me to collect rich data, with the quantitative being complemented by the qualitative. The Survey was appropriate as it

captured a fleeting moment in time (Leedy & Ormrod, 2001, p. 196); provided greater representativeness at low costs; and had little or no observer subjectivity (Cohen *et al.,* 2011).

5.5.3 Open Ended Interviews

'Open Interviews' was a significant and appropriate data collecting method in my research that allowed me to obtain important information through direct interaction with participants, that would not have been obtained from documents or observations alone (Gay & Airasian, 2000, p. 219). I employed open-ended interview questions, ranging from highly structured, where specific questions on flooding and knowledge attainment were posed (with the order in which they are asked determined ahead of time); to unstructured, where I explored the topic area, but neither the questions nor the order was predetermined.

Being a novice researcher, I had to equip myself with good interviewing techniques beforehand, as I was going to interview high-profile individuals in the education offices, whose confidence and attention I needed to win. Having done intense reading on the data collection process, I realised I needed to review my interview questions before conducting the interviews by adding some questions, re-structuring others and doing away with some completely.

Since there are aspects of my research that are emotional and sensitive, I employed exploratory interviews to enable respondents to talk freely and emotionally and to provide candour, richness, depth, authenticity and honesty about their experiences with floods (Cohen *et al.*, 2011, p. 413). The order of questions was from simple to abstract, because I learnt from McMillan and Schumacher (2010, p. 358) that complex, controversial and difficult questions are usually reserved for the middle or later periods in the interview, when

the informant's interest has been aroused. Based on this, the order of my interviews was from the DEO to the QASO, who addressed more general questions about schools. This was followed by more specific questions to principals, senior teachers, parents, chiefs and FGDs. Lastly, I interviewed other participants based on the information I had obtained from earlier groups. Of most importance was keeping respondents at ease, in the right environment and using the right language level. I exercised the four pillars of ethics, which worked to my advantage. I remember having had to use the native language, because most parents on the board of management (BoM) did not understand English. This not only calmed them down, but restored their confidence during the interview period. Since some of the questions were sensitive, I assured them the confidentiality and anonymity they needed, as this would assist in getting accurate information from them. For some participants, I had to reschedule to a time that was suitable; and provided transport for some that had to walk miles to school for the interview – the purpose of which was to make the whole interview process easy and convenient for both parties. For flexibility, I had to conduct telephonic interviews with other respondents, since they were not available at the relevant time.

Interviews do have weaknesses, of which I was aware during the interviewing process. I had different questions that gathered different information for different groups. This, according to Cohen *et al.*, (2011, p. 413), can be less systematic and comprehensive if certain questions don't arise naturally, making data organisation and analysis quite difficult. It is possible to omit important and salient topics due to flexibility and wording of questions (ibid). Above all, I noticed that, if I did not put respondents at ease by creating space for flexibility to talk openly, I would most likely end up with less accurate answers. It was all about creating the mood for the willingness to provide accurate information, which largely depended on my interviewing techniques. Each interview was recorded and re-played

before the next one, in order to obtain relevant additional interview questions. Through this, I obtained rich and quality data, which I read through and followed up for any additional information before analysis.

5.5.4 Focus Groups

A focus group is a group interview that is used extensively: typically a one-to-two hour interview of eight-to-twelve persons that is designed to promote interaction among the individuals and lead to a richer understanding of whatever is being studied, because of what is generated in the discussion (McMillan, 2012). When participants interact with one another, views of the participants emerge with their agenda, rather than the researcher dominating (Cohen *et al.,* 2011). Focus groups are contrived settings whose contrived nature is both their strength and their weakness (Cohen *et al.,* 2011, p. 436). They are unnatural settings focused on a particular issue to yield insights that might not otherwise have been available in a straightforward interview. Normally, focus groups are used for encouraging interaction with one another about a concept of idea, therefore, having a verbatim record or notes is usually important for data analysis (McMillan, 2012, p. 294).

Children have been regarded as the "best sources of information about themselves" (Cohen *et al.,* 2011, p. 432). In line with my research on epistemological access, I considered roping in the learners as much as possible to see the situation through their eyes. I wanted to interact with the children more and chose to do so through focus groups, which are usually useful to triangulate with questionnaires. Group interviewing would be useful for children, as it encourages interaction between the group, rather than simply a response to an adult's question (ibid). It is also less intimidating for them.

When I went to the field, I had already prepared questions for the focus groups in line with my objectives. Focus groups were intentionally the last activity in my field work, as they were meant to build on from both the interviews and questionnaires. I chose neither the group nor class teachers to do so, instead I asked for volunteers; and the pupils' willingness to voluntarily participate in the discussion was overwhelming. In cases where the number volunteering was higher than required, or where there was gender imbalance, I asked for the class representative's assistance. By not being part of the selection process, they understood that the selection came from them and was fair, which was already an important step towards creating a good rapport with me.

I explained carefully what the purpose of the interview was, while taking care of the cognitive and linguistic abilities. I began by telling the children that they were privileged to represent their colleagues and the school in this discussion. This not only made them feel special, but also raised their confidence during the discussion. To direct the discussion, I posed the questions, one research assistant took notes and the other facilitated in the form of rephrasing or writing on the board. The children interacted freely and challenged each other in very impressive ways that one may not see in an individual adult-child interview. I entered their world and used a language that was comfortable and familiar to them - and they surely said a lot. I noticed that they divulged more when there was no teacher in the room. In fact, the schools where there was no teacher accompanying the process had the most interesting and 'honest' results. However, when I piloted the study, I noticed that these pupils could not sustain a discussion for more than ten minutes whereas a proper FGD would usually take twenty minutes on average. I attributed this largely to their competency level. With the help of my research assistants, I directed the discussion to simply sustain conversation for more

information. Just to note that the questions we asked were meant to explore the area of discussion further and not necessarily structured by us.

After the discussion in each school, I replayed the audiotape to the children. Firstly, it was purely out of fun - to just let them hear how they sounded; and it was interesting to see how they felt about their responses. Secondly, it was to ensure content validity, which was useful as clarifications and additional information was provided during this informal session. Data obtained was analysed, along with questionnaire and interview responses and inferences drawn. I learned that focus groups, if well managed, can increase not only the validity, but the credibility of the entire study. It is the data collection technique that I enjoyed most in the field. A comprehensive analysis of the FGDs is found in Chapter 8.

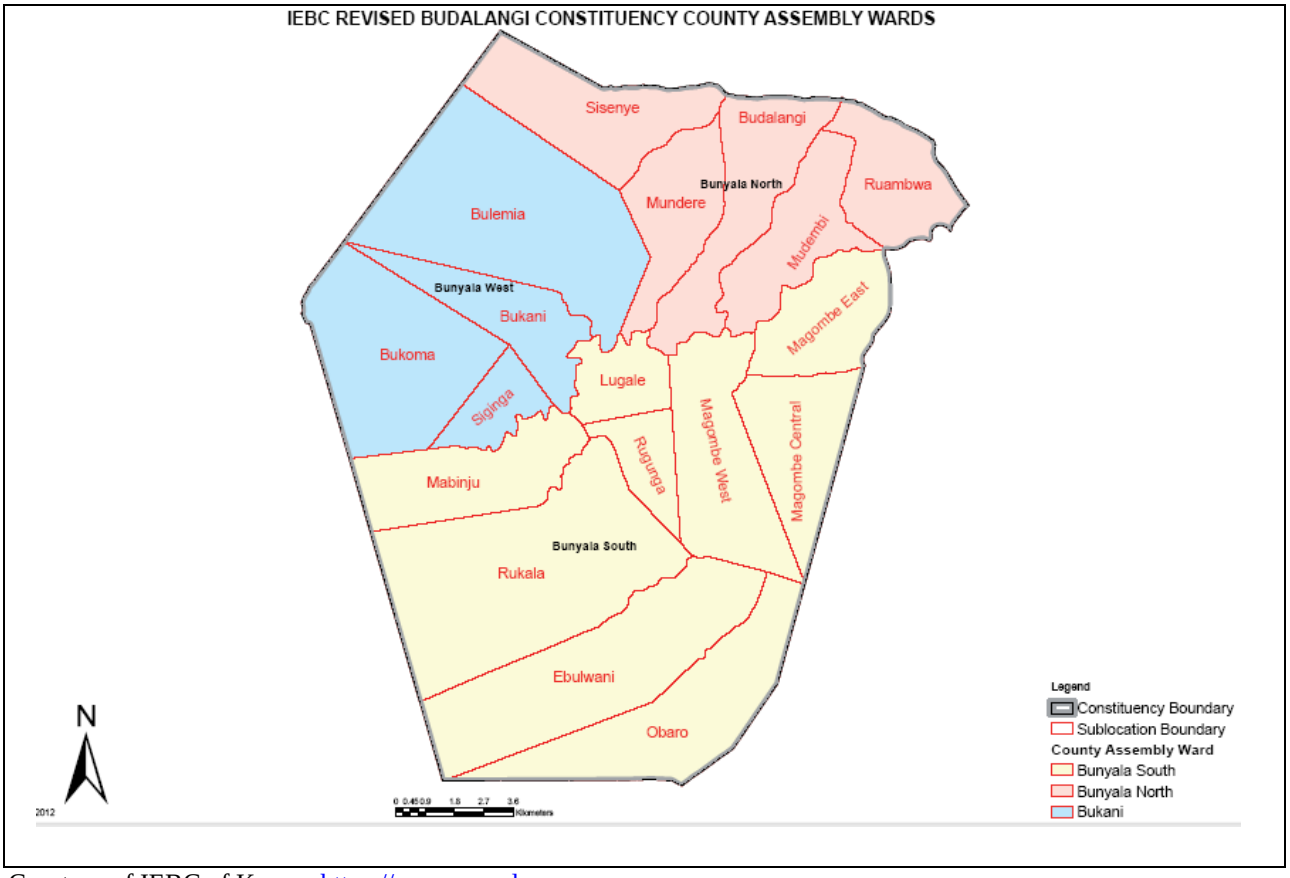
5.6 Population and Sampling

Selecting a sample from which the researcher will collect data (Merriam, 2002, p. 12) is an important stage in the design of a research study. A sample is a smaller group or subset, where a researcher obtains data from a smaller group or subset of the total population (Cohen *et al.* 2011, p. 143) in such a way that the knowledge gained is representative of the total population under study. It was thus important that the sampling strategy I adopted was suitable to obtain quality out of my piece of research. One of the first steps was to choose the individuals from whom data would be collected (McMillan & Schumacher, 2006, p. 119). I began by identifying the schools and then the participants, using specific criteria as detailed in the sample size and population sections that follow. The road map to understanding issues of epistemological access in flood-prone schools of western Kenya began here.

5.6.1 Population

A population, or universe, is a group of elements or cases, that conform to specific criteria and from which we intend to generalise the results of the study. In this study, the unit of analysis is the school and the total population of the study included all schools in flood-prone areas confronted with epistemological access. The flooding disaster affects various areas of the western and the coastal regions in Kenya, with Western Kenya being severely affected. I went through a pre-selection process and settled for the Budalang'i region of western Kenya per Figure 5.3.

Figure 5.3 Map of Budalang'i Constituency



Courtesy of IEBC of Kenya: https://www.google.co.za.

Budalang'i is an electoral constituency in Bunyala Sub-county of Busia County and the most affected by floods. Schools in this constituency experience different levels of flooding. Some have been categorised as severely affected, others are averagely affected and some are not affected at all by floods. The reason for this choice was firstly because it is located

in a county that neighbours my home county. It would therefore be easier in terms of accessibility, familiarity and language. Secondly, I have seen and experienced the impact of the flooding disaster on these people's livelihood in this Sub-county and would like to understand this phenomenon more.

5.6.2 Sample size and Sampling strategy

Out of the six locations of Bunyala Sub-county, I chose two: Bunyala East and Bunyala Central, comprised of six sub-locations from which I pre-selected five sub-locations. Taking my cue from Merriam (2002, p. 12), it was important to select a sample from which the most can be learned: a purposive or purposeful sample. Collecting data from all the locations was not feasible: other than the issue of cost and money, I would end up with too much data to analyse. After careful screening, I selected four sub-locations out of the five, because they had all the categories of schools that I wanted, were in close proximity and were accessible. These saved me cost and time, without sacrificing the accuracy of the research. From the four locations, I selected five schools as follows:

Table 5.2 Selection of schools

School	Status about floods	Performance
School A	Slightly affected by floods	low
School B	affected by floods	Good
School C	affected by floods	average
School D	affected by floods	fluctuates
School E	severely affected	Very low
~~**School F**~~	~~severely affected~~	~~Good~~
~~**School G**~~	~~severely affected~~	~~Low~~

A preliminary analysis of performance in flood-prone schools suggested that there are some schools that are slightly affected by floods, but do not do well. There are schools that are affected by floods whose performance is average or good. There are also schools affected

by floods, whose performance is not consistent, but fluctuates. Some schools are severely affected and have performed consistently poorly. I had to choose a school from each category to be part of my sampling frame, which spread across four locations, as displayed in Table 5.2. I selected these schools using the stratified random sampling strategy, where I divided the schools in Budalang'i into sub-groups or strata on the basis of the impact of flooding and performance. I proceeded to select the schools randomly from each stratum, each of which was represented by the same number of schools and subjects. I believed data from these schools would answer my research questions and even draw further conclusions about isolated cases of good, average and low performing schools.

I then moved to select my primary participants using a purposive/purposeful sampling strategy. In purposeful sampling, particular elements (McMillan & Schumacher, 2010, p. 138) from the population are selected that will be representative or informative about the topic of interest. This implied that potential respondents would be selected based on my knowledge of the population to provide the best information. Therefore, the following participants were well known in advance and selected:

i. Principals and Senior Teachers

Principals were key informants in this research. According to Male (2006), head teachers are appointed to a school, as well as to a system, and need to exercise effective leadership to achieve the right balance between leadership, management and administration. Principals, it is believed, require the ability to manage and distribute leadership including, empowering and motivating staff. In this regard, they are best placed to address and report on indicators about EA in their schools as discussed in Chapter 4.

ii. Senior teachers

(STs), from their title, are high-level teachers who guide other teachers and also participate in classroom teaching. Given the broad leadership role of the principal, I chose STs to engage with, regarding instructional practices at classroom level and daily management of teachers, pupils and non-staff. This would enable me to holistically understand the leadership role that STs and other teachers, plus pupils, play in EA at classroom level.

iii. Standard Eight Pupils

As already mentioned, children have been regarded as the best sources of information about themselves (Cohen *et al*., 2011). Given that this research concerns children and their education, it was only fair that I hear from the children as well. I chose Standard Eight pupils, as they are the longest serving pupils in the school and have therefore experienced floods more than the rest. Other than their duration at school, they were in a better position to engage with this research, due to their level of maturity and immediate progression to secondary school.

iv. Parents

School, family and community partnerships is a multidimensional concept (Epstein, 2005), with short and long-term benefits in, and after early childhood education. I saw the need to engage with parents, especially those on the School BoM as my primary participants. The reason for this was to capture information on epistemological access from the perspective of both family and school-community partnership. These would allow me to wholly capture EA issues with regard to parental involvement: firstly, in their children's learning and, secondly, on the school administration and governance front.

v. Sub-county Quality Assurance and Education Officers, Local Leaders.

This research would not be complete without the input of the Sub-county education office that holds relevant knowledge, interest and experience in leadership practices. The education office also holds relevant officers in charge of school administration and management, plus quality assurance in schools. The Sub-county education officer was valuable in terms of school management practices, while the quality assurance officer provided information on quality education in schools in line with my topic. The education office was also instrumental in providing statistical data on enrolment, gender and performance, which would later be very instrumental during data analysis. Local leaders would strengthen the credibility of my study by providing information on the linkage between education and governance at local level.

vi. Other participants

Following the interviews I conducted and from what had emerged, I found it necessary to also gather data from the Sub-county offices in charge of disaster management and health; and also the dean of the faculty on disaster management at a nearby university, which comprised my secondary participants.

5.7 Ethical Considerations

A credible research design involves not only selecting informants and effective research strategies, but also adhering to research ethics (Mcmillan & Schumacher, 2010, p. 338). One of the challenges facing both quantitative and qualitative social science researchers has to do with ethical issues (Lutabingwa & Nethonzhe, 2006, p. 124). Researchers studying human beings have to be concerned about how they treat them (ibid). Moreover, when researchers are studying a people's behaviour, or interviewing them over a particular social reality, they

have responsibilities to those people. Although different approaches to science address ethical values differently, all approaches recognise the ethical dimension of research (Neuman 2011, p. 143).

There are four pillars relating to ethical issues to be considered when tackling Social Science research. Lutabingwa and Nethonzhe (2006, p. 125) list these pillars as: informed consent, potential harm to participants, deception and privacy. The four ethical issues which I adopt in this study are informed consent; privacy – confidentiality; anonymity; and the right to withdraw.

5.7.1 Informed Consent

It is not adequate to obtain permission from participants, they need to know what they are being asked to participate in. Informed consent is a statement, usually written, that explains aspects of a study to participants and asks for their voluntary agreement to participate before the study begins (Neuman 2011, p. 149). In gaining permission, I gave participants assurances of confidentiality and anonymity (McMillan & Schumacher, 2010). I used no deception and ensured all participants were briefed about the objective of the exercise and that they were expected only to participate voluntarily after having learned the basic details about my research. I took all necessary precautions in this phase, because I understand that social researchers transgress the privacy of subjects in order to study social behavior and must take precautions to protect participants' privacy (Neuman 2011, p. 152). This is observed through anonymity and confidentiality, a linkage I briefly discuss below.

5.7.2 Privacy

A person's privacy is invaded when beliefs, background and behaviour are probed in a way that reveals intimate private details (Neuman 2011, p. 152). No matter how sensitive the information is, ethical researchers protect the right to privacy by guaranteeing anonymity or confidentiality (Lutabingwa & Nethonzhe, 2006, p. 129; Neuman, 2011, p. 152), as explained below.

5.7.2.1 Anonymity

Anonymity means that research participants remain unknown; thus the settings and participants should not be identifiable in print (Mcmillan & Schumacher, 2010). I understood that I had a dual responsibility: to protect the individuals' confidences from other persons (anonymity) in the setting and to protect informants from the general reading public (confidentiality). I respected the decision of all participants who wished to remain anonymous and would only disclose details about those who consented to this. However, my study does not have any participant or settings identifiable in print; and specifies that the participants' consent was sought beforehand for use of fictitious names and codes.

5.7.2.2 Confidentiality

Confidentiality is the ethical protection for those who are studied by holding research data in confidence, or keeping them secret from the public - not releasing information in a way that permits linking specific individuals to specific responses (Neuman 2011, p. 153; Mcmillan & Schumacher, 2010). Both confidentiality and anonymity were exercised where I respected the values and wishes of participants; and performed member validation before publishing any findings.

5.7.3 Right to withdraw

In studies involving human subjects, participants must be informed that they have the right to withdraw from the study at any time (Lutabingwa & Nethonzhe 2006, p. 129). This means the right not to participate in research. I entered the field knowing and accepting that participants are free to participate, or not, in a research process, which I made clear during the briefing for the research procedure. I was flexible and made the interviewing process convenient in terms of location, time and language, while taking care of any discomfort arising. I would like to report that there was no withdrawal of any participant from this research, which indicated a level of success in my ethical considerations.

In abiding by the four pillars of ethical issues, it is advisable that the researcher does not obtain information from vulnerable groups who Lutabingwa and Nethonzhe (2008, p. 127) define as groups that can easily be taken advantage of, because they are not fully capable of protecting themselves. These groups could be children, individuals of low intelligence, institutionalised groups or those that need special care. Other than the pupils with whom I interacted, no other vulnerable persons were interviewed. It is important to note that the children participated with permission from their parents, their teachers and themselves as they were old enough to consent to participating in this research. Apart from conducting member checks, I screened out participants who might be harmed by the research procedures and committed to conduct follow-up interviews should there be any long-lasting effects. I have done follow-up and can report that there is no known emotional harm to participants so far.

5.8 Research Quality

Research quality has to do with the reliability, validity, credibility and ethical practice of a piece of research (Badenhorst, 2012). In quantitative research, research quality is usually described in terms of its validity and reliability (Neuman, 2011), which are used in connection with measurement. Validity is all about how well we measure social reality using our constructs about it (Neuman, 2011, p. 208), while reliability means dependability or consistency. The validity and reliability of measurement in instruments influence: a) the extent to which you can learn something about the phenomenon you are studying b) the probability that you will obtain statistical significance in your data analysis, and c) the extent to which you can draw meaningful conclusions from your data (Leedy & Ormrod, 2001). Being a mixed-methods study, validity and reliability (quantitative data) and trustworthiness (qualitative data) were sought as discussed below.

5.8.1 Quantitative data

5.8.1.1 Instrument Validity

Validity is the degree to which a test measures what it is supposed to measure (Gay, 1976) and can be evaluated only in terms of purpose. It is the extent to which references and uses made on the basis of scores refers to the consistency of measurement (Mcmillan & Schumacher, 2006). In line with Gay, there are several different types of validity: content, construct, concurrent and predictive (ibid) as summarised in Table 5.3 below:

Table 5.3 Validity of Instruments

Type of Validity	Explanation
content	The degree to which a test measures an intended content area. The extent to which items on the questionnaire relate to key concepts/questions.
construct	The degree to which a test measures an intended hypothetical constructs (a non-observable trait e.g. behaviour, creativity and curiosity.
concurrent	The degree to which the scores on a test are related to the scores on another, already established, test administered at the same time, or to some other valid criterion available at the same time.
predictive	The degree to which a test can predict how well an individual will do in a future situation. For instance, an algebra aptitude test would fairly accurately predict which students will do well in algebra and those that will not.

In my study, I do not intend to measure hypothetical constructs and thus non-observable traits, for instance behaviour, anxiety or creativity (construct validity). Concurrent validity will not be applicable either, because, other than the questionnaire I developed, there will be no established test or criterion to establish relationship or discrimination (Gay, 1976, p. 89). In the same way, predictive validity does not apply in my study, because it is not my purpose to predict future situations using the questionnaire. In my study, the questionnaire will apply content validity to measure an intended content area (ibid) and sample the appropriate content to answer my research questions.

5.8.1.2 Instrument Reliability

Reliability is the degree to which a test consistently measures whatever it measures (Gay, 1976; Cohen *et. al,* 2011). A reliability test will be run using SPSS to compute the Chronbach Alpha Reliability test to measure the internal consistency of the Likert scale that

I will use in the questionnaire. The reliability coefficient will be calculated using Chronbach alpha (Cr α) reliability analysis (see Chapter 6, section 6.2).

5.8.2 Qualitative data

As suggested by Lincoln and Guba (1985), Cohen *et al.,* (2011) and Leedy and Ormrod (2001), the quality of qualitative research is measured through its credibility, dependability, confirmability, verification and transferability as follows:

Credibility is described as the extent to which the data, data analysis and conclusions are accurate and trustworthy (McMillan, 2012, p. 302). I took specific steps to ensure the credibility of this study, by prolonging my engagement with participants through interaction in the field. This ensured that I had close involvement with them, and that the additional time spent with participants did not change results (ibid). I also conducted member checks by asking participants to review interpretations and conclusions before publishing. Through triangulation, I was able to gather data from different sources and methods to ensure consistency of results, as already discussed in this chapter.

Dependability is essentially a synonym for consistency and replicability over time, over instruments and over groups of respondents (Cohen *et. al*, 2011, p. 199; McMillan & Schumacher, 2006). It has to do with precision and accuracy, where the researcher selects the research design and methods that are appropriate to answer the research questions. As stated earlier, I engaged with a mixed-methods approach in order to link the result (quantitative data) with the explanation of why it was obtained (qualitative data). I also used various data collection methods (open ended interviews, survey, document analysis and focus group discussions) to triangulate my study.

Transferability, also referred to as analytical synthesis, extrapolation, assertion or generalisability, means that others can use the information to understand similar situations and can apply the information in subsequent research (McMillan & Schumacher, 2006, p. 9), because knowledge is produced not by replication, but by the preponderance of evidence found in separate case studies over time. To support this, I ensured my interview questions provided a thick description where readers could make their own conclusions about the data presented. I sought opinions from other people in the field[19], to confirm that I had made appropriate interpretations and drawn valid conclusions from the data (Leedy & Ormrod, 2001). This study gathered sufficient data through triangulation and various data collection methods to support the credibility of the study and possible generalisation.

Confirmability implies objectivity in research, which is both a procedure and a characteristic (McMillan & Schumacher, 2006, p. 9). Simply put, objectivity means unbiased, open minded, not subjective. As a procedure, objectivity refers to data collection and analysis procedures from which a reasonable interpretation can be made (ibid). This refers to the quality of the data produced by procedures that control bias and subjectivity. I made it known that this study is located in a neighbouring county well known to me. However, all information given is not controlled by my own beliefs and values, but by the data gathered. The entire scientific process was adhered to and all ethical issues complied with.

Verification implies that the results are verified in different ways, depending on the purpose of the original study (McMillan & Schumacher, 2006, p. 10). To develop knowledge, a single study attempts to be designed and presented in such a manner to allow verification where the results can be confirmed or revised in subsequent research. As already mentioned, there has

[19] My study leader and the Dean - Disaster Management faculty at a nearby university, relevant staff in the Sub-county education office.

been research around the impact of flooding on learning, which dwelt mostly on the physical access to schools. This study has gone beyond the physical to the epistemological access. Further work in line with this study with other groups or settings could conform or revise findings (ibid). Interpretations in this study can be extended in other similar research works for revision. To ensure reliability and validity for my research, I conducted a pilot study to test my instruments.

5.9 Pilot Study

For the purposes of this research project, a pilot study was conducted in one of the schools in the Sub-county where the research was undertaken. The pilot study started in June 2015, after obtaining permission from relevant authorities (per attached appendices). The pilot study was important, as I wanted to familiarise myself with the Sub-county education leaders, the school principals and the contexts of the schools. It was important that I know heads of respective education departments, power dynamics, culture and clues of communication with respondents.

After gaining access to the site, I began with a transect walk, normally conducted at the beginning of any field research and involving site tours with key informants to observe and talk about important features (Rule & John, 2011). My key informants were officers from Budalangi's Sub-county education office, who provided me with information on school characteristics and their location. They also informed the relevant principals of the intention of my visit and accompanied me to the schools as well. It was important as I got to understand each principal and how they wanted the interviews conducted. During this visit, I was able to discuss interview questions and the pupils' questionnaire with the head and senior teachers, who guided me on key issues about their schools (e.g. language complexity). The

transect walk provided very important information about how to deal with different school contexts. I was able to draw my plan based on the location of the schools to save on time and travel costs. I then took time to revise my questions per the transect walk and visited my pilot school.

The purpose of the pilot was to gauge the quality of questions, ensuring they were readable and understandable by respondents. I had to find a research assistant who spoke the local language, as I learned that some parents on the BoM could not communicate in English. I also had to go through the consent forms in each school upon realising that most respondents gave consent to be interviewed, but did not quite understand the content, particularly regarding payment. I revised the questions to the required language level, mostly for parents and pupils, swapped some words with other easier ones and crossed out some questions altogether.

Of importance, was the practicability of the field research - whether it would achieve the expected results in the scheduled time. During interviews, I had to be friendly and non-formal, adopt their culture in terms of the dress code and greetings etc., to obtain more information. I interacted freely in different school settings, sat in the staffroom and had lunch with teachers. I was also informed that parents in this locality practised farming and could only be available in the afternoon. Since they stayed far from school, I facilitated their travel to school, not only to save on time in the afternoons, but also to motivate them.

5.9.1 Lessons learned and how this informed the major study

After the pilot study, I engaged with the following questions before embarking on the actual data collection:

1. What did the pilot study suggest about my research questions?
2. Did the pilot study answer my research questions?
3. What did the pilot study seem to say about the outcome of my data collection?
4. What were the lessons learned and how did this inform the major research?

Overall, the pilot study guided me about what questions to revise or simplify. Based on this pilot study, I revised some of the questions not so much the content, but the wording, because there had been some evidence that some respondents had difficulty in understanding some of the questions. To a very large extent, the pilot study answered the research questions. This seemed to predict a successful outcome for my research. However, in line with Van Teijlingen, and Hundley (2010), I learnt that completing a pilot study successfully is important, but may not be a guarantee for a successful research study. There is a possibility of making inaccurate predictions or assumptions on the basis of pilot data. Also, the result design can change after the pilot process, as long as you the researcher, feels that the new research design answers your question better.

5.10 Summary

In this chapter, I have presented my argument for using a mixed-methodological approach to unravel the research problem that I stated in Chapter 1. In so doing, I firstly engaged with the debates around the four scientific assumptions on the nature of truth in research and how they linked to my study. In line with the approach, I outlined the research design and appropriate methods of data gathering for this research, highlighting strengths and challenges of each method. I also justified my choice of respondents, as well as the sampling strategy to use in

the study. This being a social science research, I discussed ethical issues under the four pillars of ethics, including issues of reliability and the validity of my research. Lastly, I presented my pilot study in this chapter from which I learnt many lessons and discussed how I could address them before proceeding to the actual data collection phase. It is in this methodological chapter, that I provided an overview of my research planning and field experience. Based on this experience and some decisions I had to make while in the field, I agree that it is the researcher who determines the road map of his/her research to make the research sound and justifiable. Having accomplished data generation successfully, I now present it in the next three chapters, starting with the quantitative data.

Chapter 6: Presentation and Analysis of Survey Data

6.1 Introduction

In the previous chapter, I provided the research methodology I adopted in this study. In this chapter I present and analyse survey data based on a questionnaire administered to 191 Standard Eight pupils from the five primary schools under study. The purpose of the questionnaire was to involve the pupils' voice in the research, since this study concerns them. Through the survey, I obtained information about their personal experience with floods and learning.

I started by obtaining socio-demographic information from the pupils to support my analysis. I then divided the questionnaire into six parts, based on the indicators of EA, I identified in Chapter 4. The parts included: Time-on-task, pedagogy, resources, parental involvement, school communities and community/culture (refer to Appendix L). Each of the six parts comprised of five questions, totaling thirty questions to be completed across the five schools under study. Based on a Likert-type scale, I asked pupils to indicate the extent to which aspects in the questionnaire affected their learning. In addition, I also asked pupils to write a paragraph to describe their personal experience of learning in flood-prone schools. The importance of this exercise was to add a qualitative strand to strengthen the quantitative data from pupils through explanation. Other than obtaining quantitative data, the questionnaire was important mostly because I used pupils' responses to restructure topics for FGDs (Chapter 8).

I begin this chapter with a brief discussion on the validity and reliability aspects of quantitative data. I then move on to the socio-democratic characteristics of pupils and how

they support my interpretation of data, before I present data based on the six parts of the questionnaire. In each section, I summarise the data at hand with descriptive statistics to render it more comprehensible. I conclude the chapter with an analysis of the one paragraph presented by pupils before drawing a summary of the chapter. I now briefly turn to aspects of reliability and reliability.

6.2 Instrument Reliability

Guided by Mouton (2012, p. 176), it was important that I consider factors that could prevent me from making valid inferences or variables that could threaten the final validity of my findings. To do this in my survey data, I employed measures of reliability and validity to control for systematic bias and other sources of error (ibid). As discussed in section 5.8 of my methodological chapter, reliability refers to the consistency of measurement, or the extent to which scores are similar over different forms of the same instrument, (Mcmillan & Schumacher, 2006; Gay 1976; Cohen *et al.,* 2011). Ogomaka (2016) explains further that an instrument is reliable to the extent that the instrument measures (is used to measure) whatever "object" consistently. To obtain reliable scores, a reliability test was run using SPSS, where the Cronbach Alpha Reliability Coefficient value was computed to determine the internal consistency and average correlation of questions that measure EA. The threshold value accepted in this study was 0.7 and higher according to Fraenkel and Wallen (2000) and Mugenda and Mugenda, (2003).

Table 6.1 Instrument Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
0.732	34

Table 6.1 above demonstrates that, based on the 34 items in the questionnaire and using Chronbach alpha (Cr α) reliability analysis, a reliability coefficient of 0.73 was obtained. Therefore the instruments were reliable.

6.3 Instrument Validity

Validity addresses the consistency of measurement (Mcmillan and Schumacher, 2006). As justified in my discussion in section 5.8.1.1, of the methodology chapter, my questionnaire will apply content validity to measure the intended content. In this sense, I present quantitative data using six categories: pedagogy, time-on-task, resources, parental involvement, school communities/communities/environment and culture, to answer a series of research questions within the context of EA in flood-prone schools. Before I present quantitative data obtained, and an analysis, I present data on socio-demographic characteristics of the pupils as an important aspect of data interpretation.

6.4 Socio-demographic Characteristics of Pupils

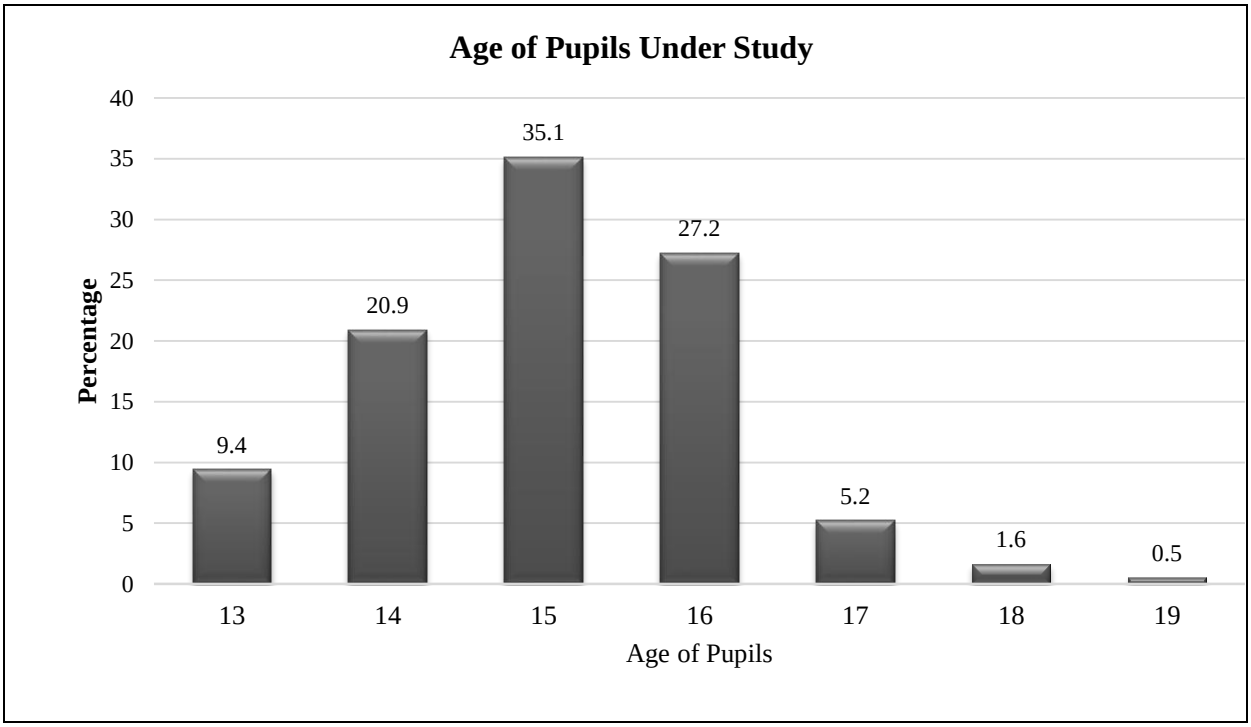
I computed three variables: age, gender and cases of repetition based on the demographic data provided by pupils. The importance of these variables was to support my interpretation of data. I illustrate the pupils' responses across the schools as follows:

Table 6.2 Age of pupils: School cross tabulation

Age		School					Total
		A	B	E	C	D	
13	f	3	3	0	7	5	18
	%	16.7%	16.7%	0.0%	38.9%	27.8%	100.0%
14	f	4	10	1	20	5	40
	%	10.0%	25.0%	2.5%	50.0%	12.5%	100.0%
15	f	20	10	10	8	19	67
	%	29.9%	14.9%	14.9%	11.9%	28.4%	100.0%
16	f	15	10	2	11	14	52
	%	28.8%	19.2%	3.8%	21.2%	26.9%	100.0%
17	f	5	3	1	0	1	10
	%	50.0%	30.0%	10.0%	0.0%	10.0%	100.0%
18	f	1	1	1	0	0	3
	%	33.3%	33.3%	33.3%	0.0%	0.0%	100.0%
19	f	0	0	0	1	0	1
	%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%

Data in Table 6.2 indicates that the majority of pupils in Standard Eight across the five schools were 15- (67 pupils) and 16- (52 pupils) years old. There were also eighteen pupils and forty pupils aged 13 and 14 years respectively. Ten pupils were 17-years-old, three pupils were 18-years-old, while only one was 19-years-old.

Figure 6.1 Age of Pupils



Data in Figure 6.1 indicates that the age range of the 191 Standard Eight pupils in the five schools under study ranges from 13 – 19 years. The common age is 15 years, with 35.1% followed by 16 years with 27.2 %. Overall, data indicates that many of the pupils were between the age of 13 and 16 years old across the five schools.

Table 6.3 Gender: School cross tabulation

Gender		School					Total
		A	B	E	C	D	
Male	f	22	18	8	22	24	94
	%	23.4%	19.1%	8.5%	23.4%	25.5%	100.0%
Female	f	26	19	7	25	20	97
	%	26.8%	19.6%	7.2%	25.8%	20.6%	100.0%

The data in Table 6.3 indicates that out of the 191 pupils in the five schools under study, 94 pupils were male while 97 were female. This is illustrated better in Figure 6.2 below, where

50.8% represents female while 49.2% represents male. This implies that the enrolment of boys and girls was similar irrespective of the school.

Figure 6.2 Gender of pupils

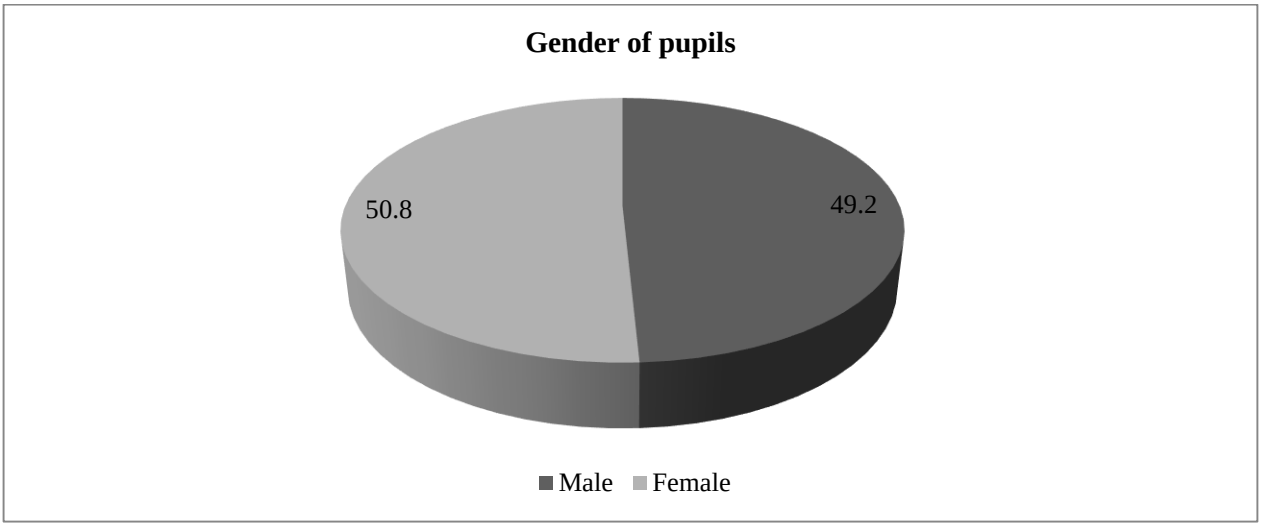


Table 6.4 Cases of repetition: School cross tabulation

Repetition		School					Total
		A	B	E	C	D	
Yes	f	35	23	9	24	34	125
	%	28.0%	18.4%	7.2%	19.2%	27.2%	100.0%
No	f	13	14	6	23	10	66
	%	19.7%	21.2%	9.1%	34.8%	15.2%	100.0%

In Table 6.4, data indicates that 125 out of the 191 pupils had repeated a class across the five schools. The pie chart below illustrates this data.

Figure 6.3 Cases of repetition

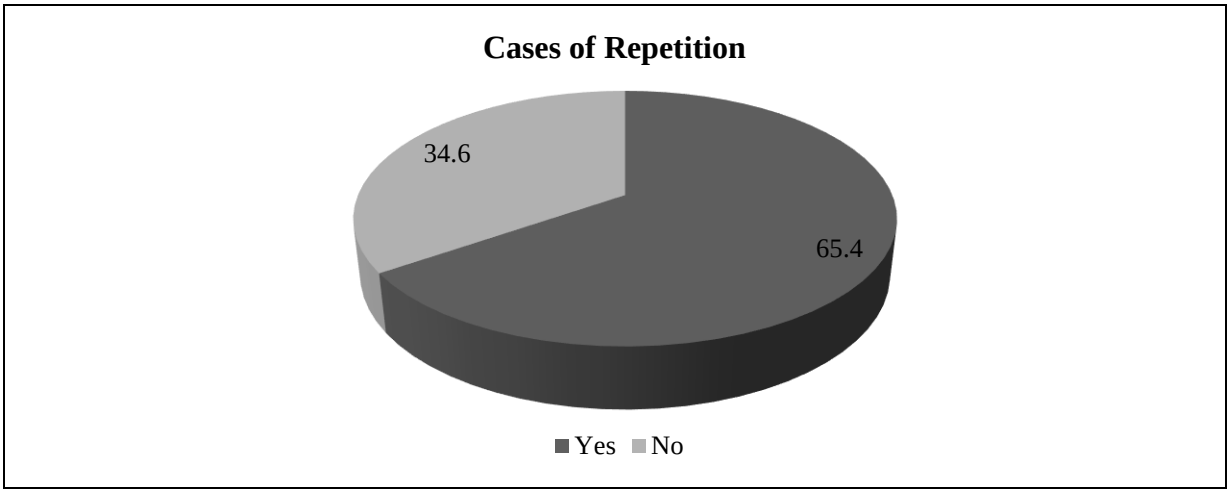


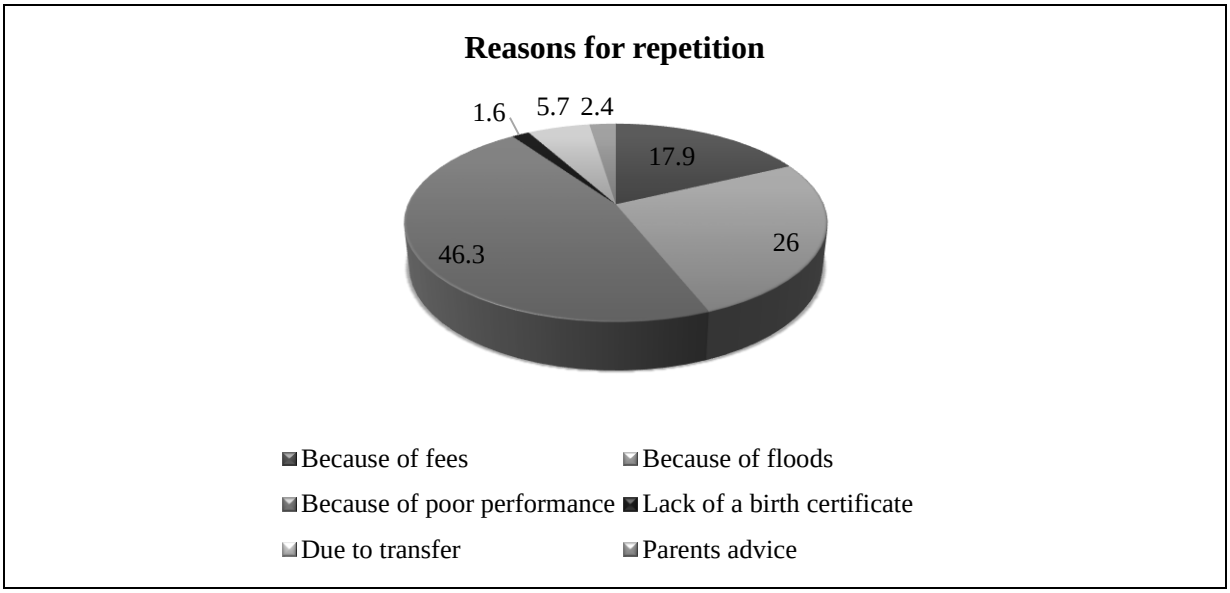
Figure 6.3 shows that that 65.4% of pupils across the 5 schools had at least repeated a class, while only 34.6% had not repeated any class.

Table 6.5 Reasons for repetition

Reason	Frequency	Percent
Because of fees	22	17.9
Because of floods	32	26.0
Because of poor performance	57	46.3
Lack of a birth certificate	2	1.6
Due to transfer	8	5.7
Parents advice	4	2.4
Total	**125**	**100.0**

Data in Table 6.5 shows the reasons for repetition that pupils provided and their respective percentages, as illustrated in Figure 6.4 below. The biggest cause of repetition, according to data, was 'poor performance at 46.3%, followed by 'effects of floods' at 26% and a lack of fees at 17.9%.

Figure 6.4 Reasons for repetition



Having presented data on pupils' demographics, I now present data obtained from the six parts of the questionnaire. In section A of the questionnaire, I applied the five-point scale of the Likert-type scale to allow pupils to express how much they agreed, or disagreed, with

questions on pedagogy. The five-point Likert scale ranged through: strongly disagree, disagree, undecided, agree and strongly agree.

6.5 Pedagogy

I interviewed pupils on some areas of pedagogy that would promote epistemological access. The areas were:

a) Teachers' punctuality for lessons.

b) Teachers keeping pupils meaningfully busy during lessons.

c) Teachers' individual support in subjects.

d) Availability of teachers in school.

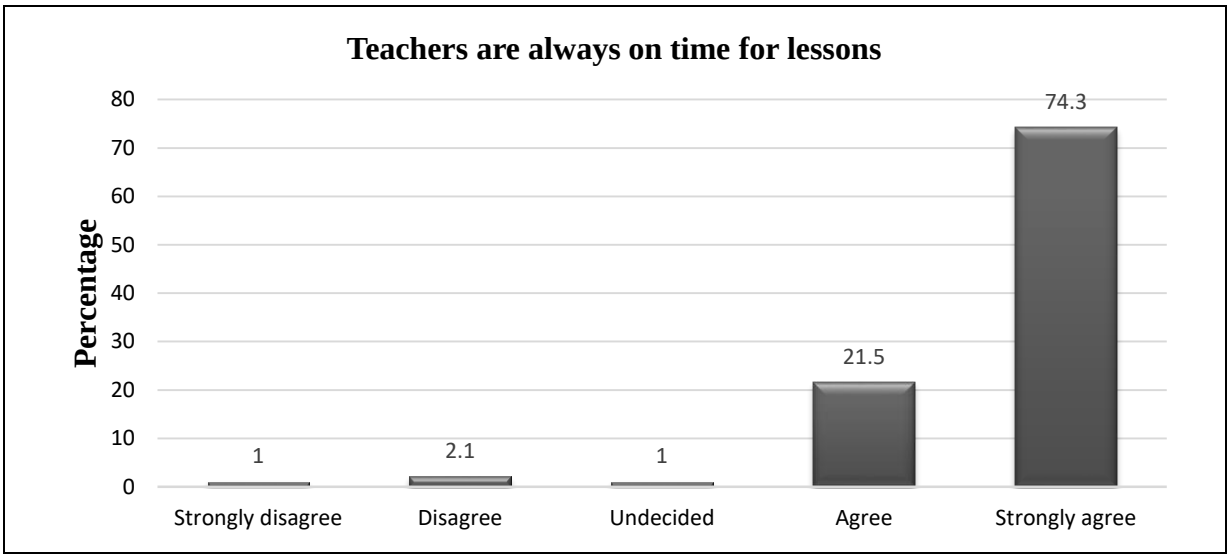
e) Teachers' capability in using different teaching methods to increase the quality of learning. The graphs and cross tabulations below illustrate the responses given by pupils in the five areas.

Table 6.6 Teachers and time for lessons: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	0	1	0	0	1	2
	%	0.0%	50.0%	0.0%	0.0%	50.0%	100.0%
Disagree	f	0	1	0	3	0	4
	%	0.0%	25.0%	0.0%	75.0%	0.0%	100.0%
Undecided	f	0	1	0	0	1	2
	%	0.0%	50.0%	0.0%	0.0%	50.0%	100.0%
Agree	f	5	5	0	21	10	41
	%	12.2%	12.2%	0.0%	51.2%	24.4%	100.0%
Strongly agree	f	43	29	15	23	32	142
	%	30.3%	20.4%	10.6%	16.2%	22.5%	100.0%

The data in Table 6.6 indicates that there is a stronger agreement than there is disagreement across the five schools over the issue of teachers' punctuality for lessons. This is summarised better in the graph below:

Figure 6.5 Teachers and time for lessons



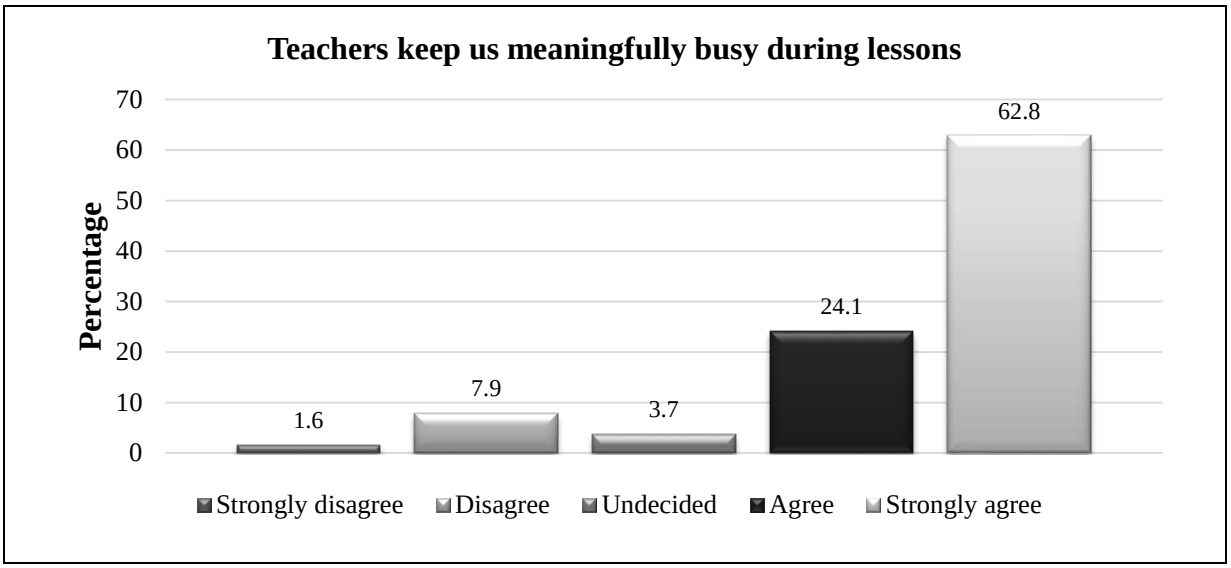
Data in Figure 6.5 indicates that 74.3% of pupils strongly agree that their teachers are always on time for lessons. Only 1% strongly disagree, while another 1% is undecided. Overall ratings from the five schools indicate that the majority of pupils is pleased with their teachers' attendance of lessons.

Table 6.7 Teachers keep us meaningfully busy during lessons: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	0	2	0	1	0	3
	%	0.0%	66.7%	0.0%	33.3%	0.0%	100.0%
Disagree	f	2	4	0	4	5	15
	%	13.3%	26.7%	0.0%	26.7%	33.3%	100.0%
Undecided	f	1	1	0	0	5	7
	%	14.3%	14.3%	0.0%	0.0%	71.4%	100.0%
Agree	f	7	8	3	20	8	46
	%	15.2%	17.4%	6.5%	43.5%	17.4%	100.0%
Strongly agree	f	38	22	12	22	26	120
	%	31.7%	18.3%	10.0%	18.3%	21.7%	100.0%

The data in Table 6.7 indicates that there is a strong agreement across the five schools regarding the question of teachers keeping pupils meaningfully busy during lessons. This is summarised better in the graph below:

Figure 6.6 Teachers keep us meaningfully busy during lessons



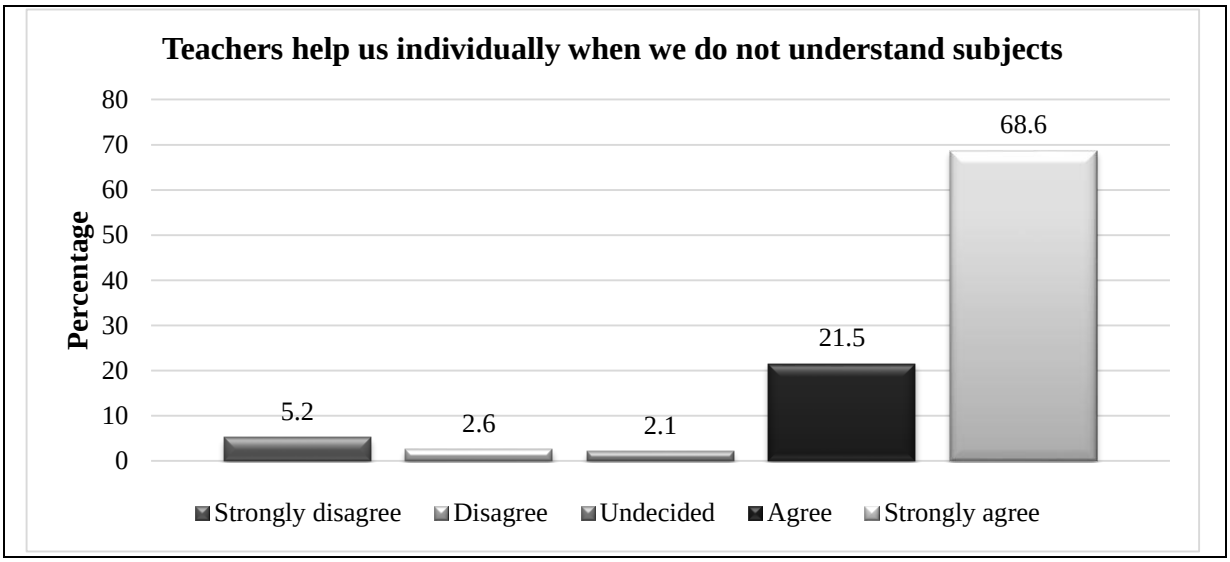
Data in Figure 6.6 indicates that 62.8% of pupils strongly agree, while 24.1% agree that teachers keep them meaningfully busy during lessons. Overall ratings show that pupils are generally happy with how their teachers manage them during lessons.

Table 6.8 Teachers' individual help in subjects: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	6	1	1	1	1	10
	%	60.0%	10.0%	10.0%	10.0%	10.0%	100.0%
Disagree	f	3	0	0	1	1	5
	%	60.0%	0.0%	0.0%	20.0%	20.0%	100.0%
Undecided	f	1	1	0	2	0	4
	%	25.0%	25.0%	0.0%	50.0%	0.0%	100.0%
Agree	f	5	2	0	20	14	41
	%	12.2%	4.9%	0.0%	48.8%	34.1%	100.0%
Strongly agree	f	33	33	14	23	28	131
	%	25.2%	25.2%	10.7%	17.6%	21.4%	100.0%

The data in Table 6.8 indicates that there is a strong agreement across the five schools regarding the question of teachers keeping pupils meaningfully busy during lessons. This is summarised better in the graph below:

Figure 6.7 Teachers' individual help in subjects



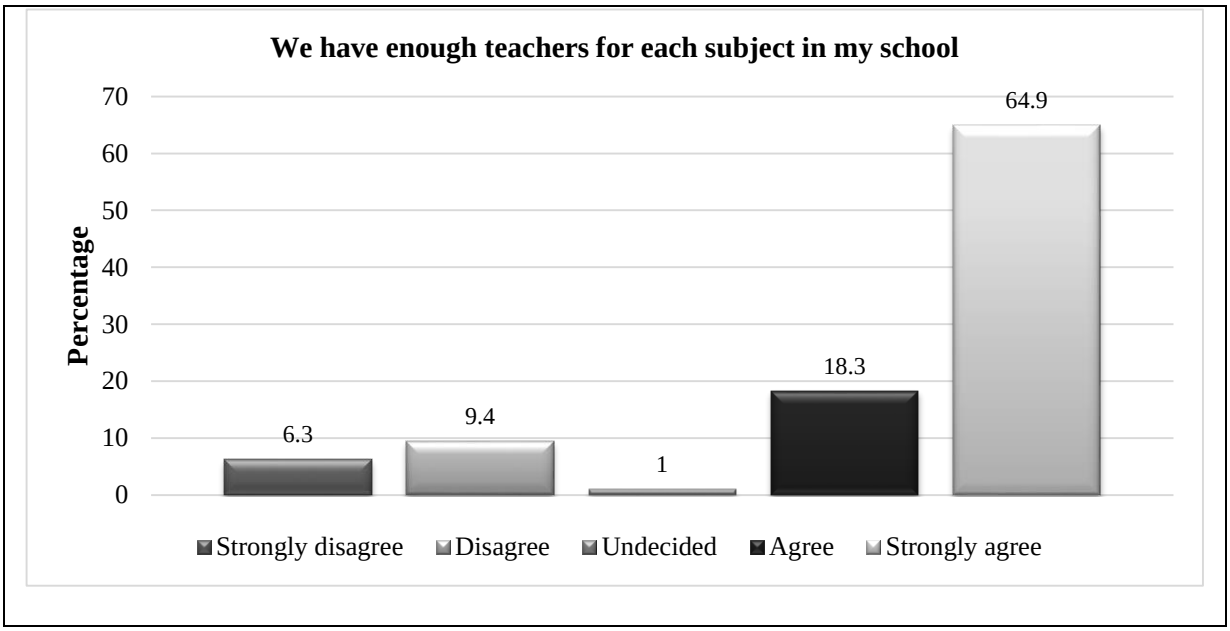
Data in Figure 6.7 indicates that 68.6% of pupils strongly agree that their teachers help them individually when they do not understand. Overall ratings portray pupils who are satisfied with their teachers' support in subject areas.

Table 6.9 Availability of teachers for each subject: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	2	1	1	3	5	12
	%	16.7%	8.3%	8.3%	25.0%	41.7%	100.0%
Disagree	f	4	1	1	6	6	18
	%	22.2%	5.6%	5.6%	33.3%	33.3%	100.0%
Undecided	f	0	0	0	1	1	2
	%	0.0%	0.0%	0.0%	50.0%	50.0%	100.0%
Agree	f	3	4	1	16	11	35
	%	8.6%	11.4%	2.9%	45.7%	31.4%	100.0%
Strongly agree	f	39	31	12	21	21	124
	%	31.5%	25.0%	9.7%	16.9%	16.9%	100.0%

The data in Table 6.9 indicates that there is a strong agreement across the five schools regarding the question of availability of teachers for each subject, as summarised in the graph below:

Figure 6.8 Availability of teachers for each subject



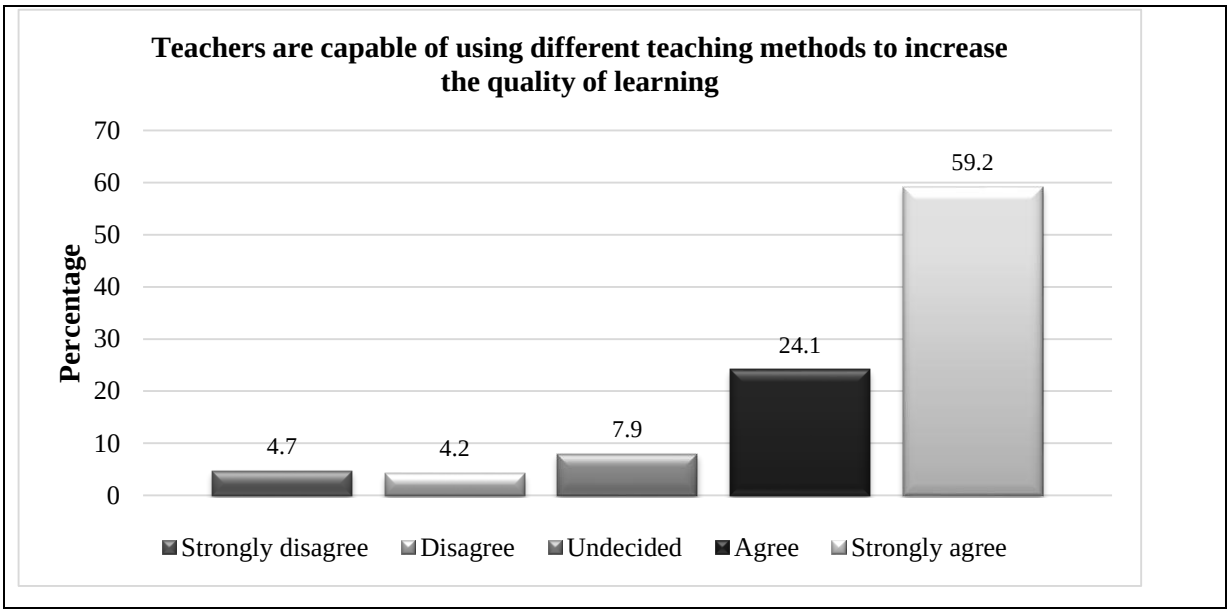
Data in Figure 6.8 indicates that 64.9% of pupils strongly agree that they have enough teachers for each subject in their schools. 18.3% agree, while only 6.3% strongly disagree.

Table 6.10 Capability of using different teaching methods to increase the quality of learning: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	0	1	1	4	3	9
	%	0.0%	11.1%	11.1%	44.4%	33.3%	100.0%
Disagree	f	2	0	0	3	3	8
	%	25.0%	0.0%	0.0%	37.5%	37.5%	100.0%
Undecided	f	0	4	1	5	5	15
	%	0.0%	26.7%	6.7%	33.3%	33.3%	100.0%
Agree	f	8	7	1	18	12	46
	%	17.4%	15.2%	2.2%	39.1%	26.1%	100.0%
Strongly agree	f	38	25	12	17	21	113
	%	33.6%	22.1%	10.6%	15.0%	18.6%	100.0%

In Table 6.10, the combined figures for pupils who agree that their teachers are capable of using different teaching methods is 83.3%, as summarised in the graph below:

Figure 6.9 Capability of using different teaching methods to increase the quality of learning



In Figure 6.9, data indicates that 83.3% of pupils agree, while 8.9% disagree that their teachers are capable of using different teaching methods to increase the quality of learning. Overall, ratings generally show that pupils agree that they are taught using different teaching methods.

6.11 Descriptive Statistics

I now apply descriptive statistics to summarise data that I have presented on pedagogy. Guided by Mouton (2012, p. 163), descriptive statistics are concerned with organising and summarising data at hand into basic patterns to render it more comprehensible.

Table 6.11 shows a mean of about 4.4 across the five questions on pedagogy. Based on a five-point scale and a midpoint of 2.5, it implies that the responses provided by pupils were almost evenly distributed across the scale. An average standard deviation of 0.9 indicates that the opinions of the pupils are not widely spread. It shows most of these pupils think in almost the same way regarding pedagogical aspects in their schools.

Table 6.11 Descriptive Statistics on Pedagogy

	N	Minimum	Maximum	Mean	Std. Deviation
Teachers are always on time for the lessons	191	1.00	5.00	4.6597	.70666
Teachers keep us meaningfully busy during lessons	191	1.00	5.00	4.3874	.98763
Teachers help us individually when we do not understand subjects	191	1.00	5.00	4.4555	1.03967
We have enough teachers for each subject in my school	191	1.00	5.00	4.2618	1.24163
Teachers are capable of using different teaching methods to increase the quality of learning	191	1.00	5.00	4.2880	1.08861
Valid N (listwise)	**191**				

In the next section, I present data on Part B of the questionnaire on Time-on-task.

6.6 Time-on-task

In this section I explored how the time pupils spend actually learning is enhanced to promote EA. I explored five areas:

a) Extra learning before and after floods.

b) Frequent pupil absenteeism during flooding, due to unfavourable environments.

c) Forced repetition due to poor performance in my school.

d) Significant learning time lost, during and after, flooding.

e) Education achievement and more learning time at school.

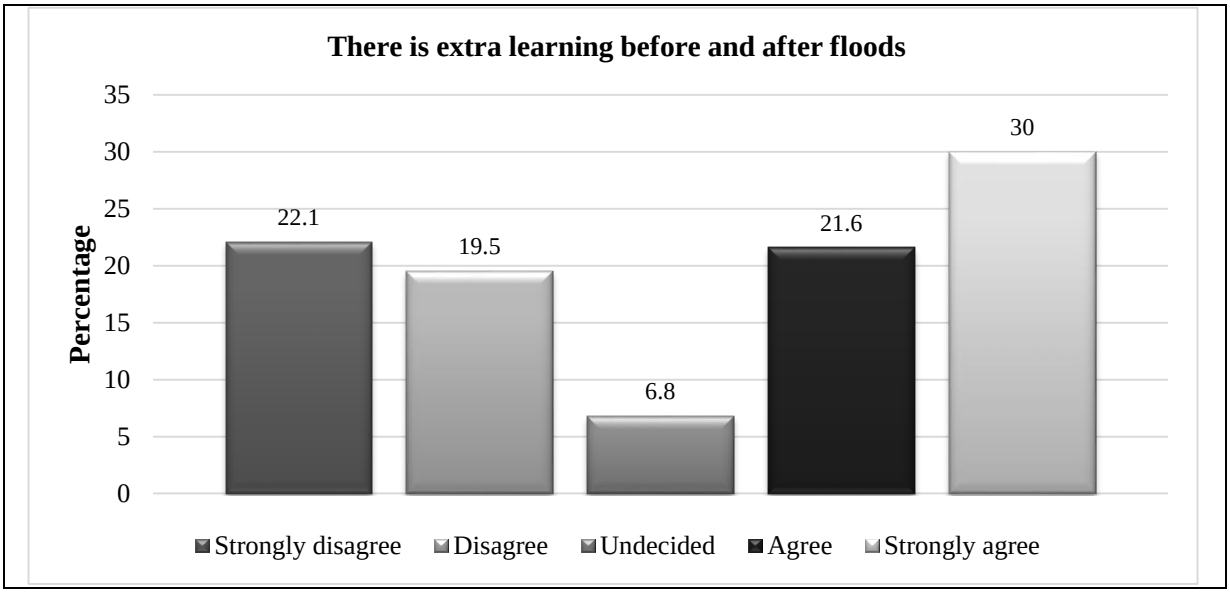
I illustrate pupil responses for each question in the form of graphs and tables as follows:

Table 6.12 Extra learning before and after floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	11	7	1	12	11	42
	%	26.2%	16.7%	2.4%	28.6%	26.2%	100.0%
Disagree	f	12	4	0	16	5	37
	%	32.4%	10.8%	0.0%	43.2%	13.5%	100.0%
Undecided	f	0	5	0	4	4	13
	%	0.0%	38.5%	0.0%	30.8%	30.8%	100.0%
Agree	f	12	8	2	6	13	41
	%	29.3%	19.5%	4.9%	14.6%	31.7%	100.0%
Strongly agree	f	13	13	12	8	11	57
	%	22.8%	22.8%	21.1%	14.0%	19.3%	100.0%

The data in Table 6.12 indicates that there is a stronger agreement than disagreement across the five schools regarding the question of extra learning time. This is summarised better in the graph below:

Figure 6.10 Extra learning before and after floods



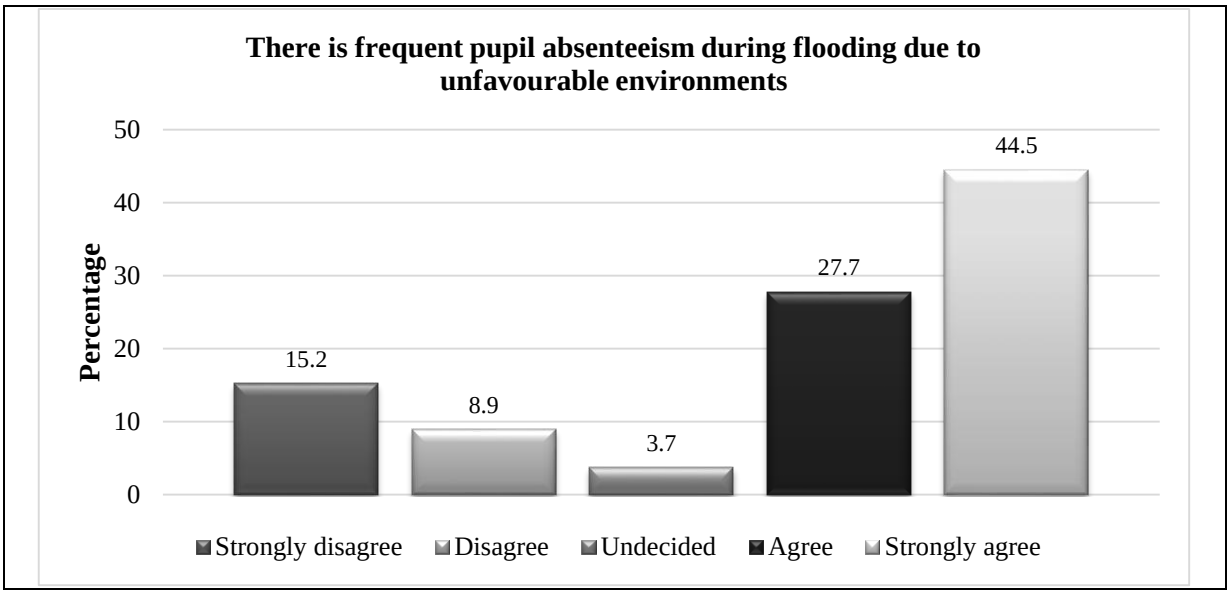
Data in Figure 6.10 shows that a combined figure of 51.6% of pupils agreed that there was extra learning before and after floods, while 41.6% disagreed. 6.8% of pupils was undecided on this statement. Overall ratings indicate that there is a mixed reaction over the issue of extra time spent on learning.

Table 6.13 Frequent pupil absenteeism during flooding due to unfavourable environments: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	8	5	4	5	7	29
	%	27.6%	17.2%	13.8%	17.2%	24.1%	100.0%
Disagree	f	6	2	0	5	4	17
	%	35.3%	11.8%	0.0%	29.4%	23.5%	100.0%
Undecided	f	2	0	1	1	3	7
	%	28.6%	0.0%	14.3%	14.3%	42.9%	100.0%
Agree	f	8	12	2	19	12	53
	%	15.1%	22.6%	3.8%	35.8%	22.6%	100.0%
Strongly agree	f	24	18	8	17	18	85
	%	28.2%	21.2%	9.4%	20.0%	21.2%	100.0%

Data in Table 6.13 shows there is a stronger agreement than disagreement across the five schools regarding the question of frequent pupil absenteeism during floods due to unfavourable conditions, as summarised in the graph below:

Figure 6.11 Frequent pupil absenteeism during flooding due to unfavourable environments



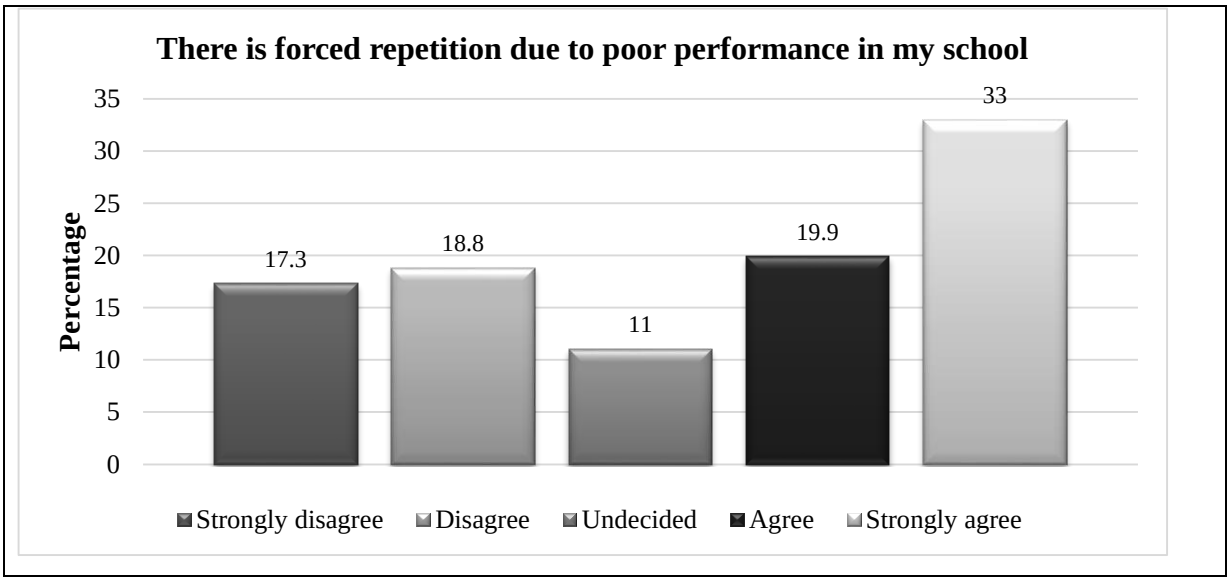
Data in Figure 6.11 shows that 44.5% of pupils strongly agree, while 27.7% agree that there is frequent pupil absenteeism during flooding, due to unfavourable environments. 8.9% disagree with this; 15.2% strongly disagree; while 3.7% is undecided. Overall ratings demonstrate that majority of pupils in the five schools under study experience absenteeism due to unfavourable environments as a result of floods.

Table 6.14 Forced repetition due to poor performance at school: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	6	7	5	7	8	33
	%	18.2%	21.2%	15.2%	21.2%	24.2%	100.0%
Disagree	f	6	4	3	16	7	36
	%	16.7%	11.1%	8.3%	44.4%	19.4%	100.0%
Undecided	f	3	5	2	6	5	21
	%	14.3%	23.8%	9.5%	28.6%	23.8%	100.0%
Agree	f	8	7	1	9	13	38
	%	21.1%	18.4%	2.6%	23.7%	34.2%	100.0%
Strongly agree	f	25	14	4	9	11	63
	%	39.7%	22.2%	6.3%	14.3%	17.5%	100.0%

The data in Table 6.14 indicates that there is a stronger agreement than disagreement across the five schools regarding forced repetition due to poor performance in schools. This is summarised better in the graph below:

Figure 6.12 Forced repetition due to poor performance at school



Data in Figure 6.12 indicated that forced repetition was significant across the five schools, due to poor performance. While 33% of pupils strongly agreed, 17.3% strongly disagreed.

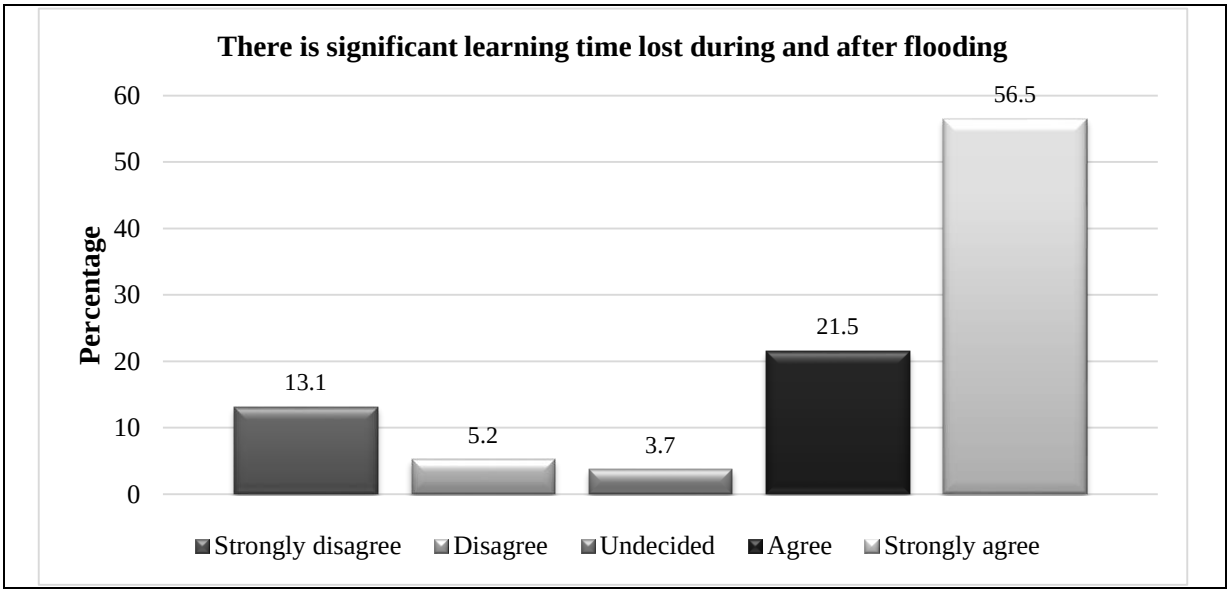
While 19.9% just agreed, 18.8% disagreed and 11.0% were undecided. Though data shows mixed responses, overall ratings point at forced repetition due to performance in schools.

Table 6.15 Significant learning time lost during and after flooding: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	9	4	0	3	9	25
	%	36.0%	16.0%	0.0%	12.0%	36.0%	100.0%
Disagree	f	3	0	0	4	3	10
	%	30.0%	0.0%	0.0%	40.0%	30.0%	100.0%
Undecided	f	1	4	1	1	0	7
	%	14.3%	57.1%	14.3%	14.3%	0.0%	100.0%
Agree	f	4	6	3	17	11	41
	%	9.8%	14.6%	7.3%	41.5%	26.8%	100.0%
Strongly agree	f	31	23	11	22	21	108
	%	28.7%	21.3%	10.2%	20.4%	19.4%	100.0%

The data in Table 6.15 indicates that there is a strong agreement across the five schools regarding significant learning time lost during and after flooding, as summarised in the graph below:

Figure 6.13 Significant learning time lost during and after flooding



When asked if there was significant learning time lost during and after flooding, data in Figure 6.13 indicates that 56.5% of pupils strongly agree compared to only 13.1% that

strongly disagree. This shows that generally, these pupils' learning time is impacted by floods.

Table 6.16 More achievement with more learning time at school: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	3	0	1	1	1	6
	%	50.0%	0.0%	16.7%	16.7%	16.7%	100.0%
Disagree	f	2	0	0	1	2	5
	%	40.0%	0.0%	0.0%	20.0%	40.0%	100.0%
Undecided	f	1	0	0	3	1	5
	%	20.0%	0.0%	0.0%	60.0%	20.0%	100.0%
Agree	f	5	5	2	14	11	37
	%	13.5%	13.5%	5.4%	37.8%	29.7%	100.0%
Strongly agree	f	37	32	11	28	29	137
	%	27.0%	23.4%	8.0%	20.4%	21.2%	100.0%

The data in Table 6.16 indicates that there is a strong agreement across the five schools where pupils feel they would achieve more with more learning time at school. This is summarised better in the graph below:

Figure 6.14 More achievement with more learning time at school

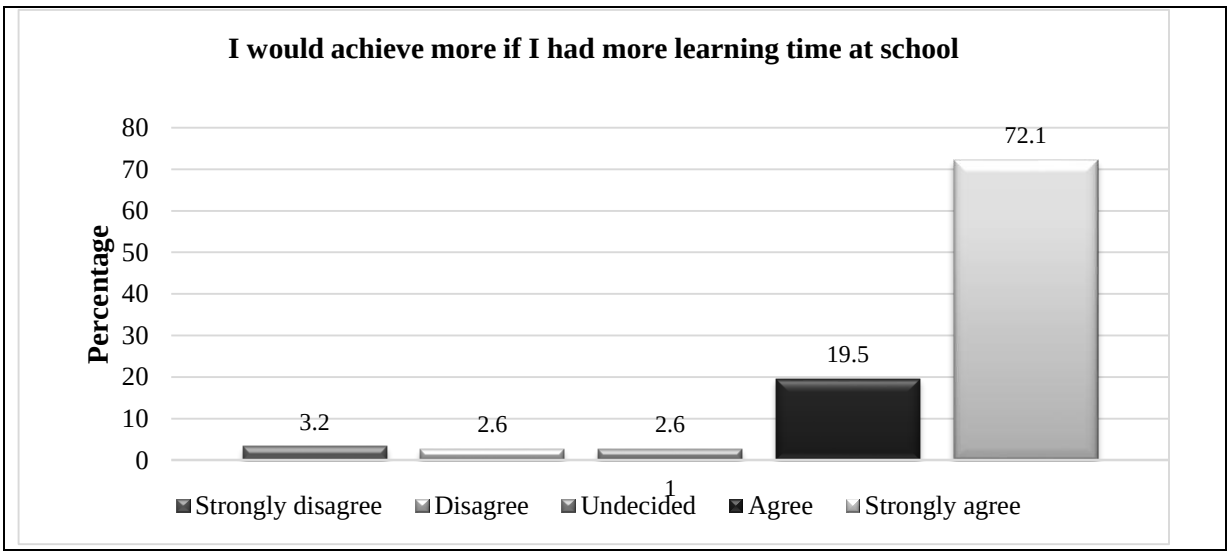


Figure 6.14 shows a high percentage of 72% of pupils' responses stating that they would achieve more with more learning time at school. This means that most of these pupils would appreciate more learning time, in addition to the extra learning time they already have.

Table 6.17 Descriptive statistics on Time-on-task

	N	Minimum	Maximum	Mean	Std. Deviation
There is extra learning before and after floods	190	1.00	5.00	3.1789	1.57345
There is frequent pupil absenteeism during flooding due to unfavourable environments	191	1.00	5.00	3.7749	1.47134
There is forced repetition due to poor performance in my school	191	1.00	5.00	3.3246	1.51809
There is significant learning time lost during and after flooding	191	1.00	5.00	4.0314	1.41386
I would achieve more if I had more learning time at school	190	1.00	5.00	4.5474	.91742
Valid N (list wise)	189				

Table 6.17 above shows measures of central tendency across the five questions on time-on-task. Regarding extra time given to learning, and forced repetition, pupil responses are almost evenly distributed, but their opinions are widely spread. It implies that pupils do not mostly think in the same way as far as extra learning and forced repetition are concerned. In the remaining three questions, the responses provided by pupils are almost evenly distributed across the scale and are not as widely spread. It shows that most of these pupils think in almost the same way. In Part C of the questionnaire, I addressed the issue of 'Resources' as below.

6.7 Resources

In this section I addressed the issue of resources as an indicator that promotes EA in schools. In this regard, I requested pupils to respond to the following five areas:

a) Toilet facilities at school.

b) Sufficient textbooks in school.

c) Adequate classrooms in school.

d) Enough pupils' desks in school.

e) The classrooms are permanent structures to counter floods.

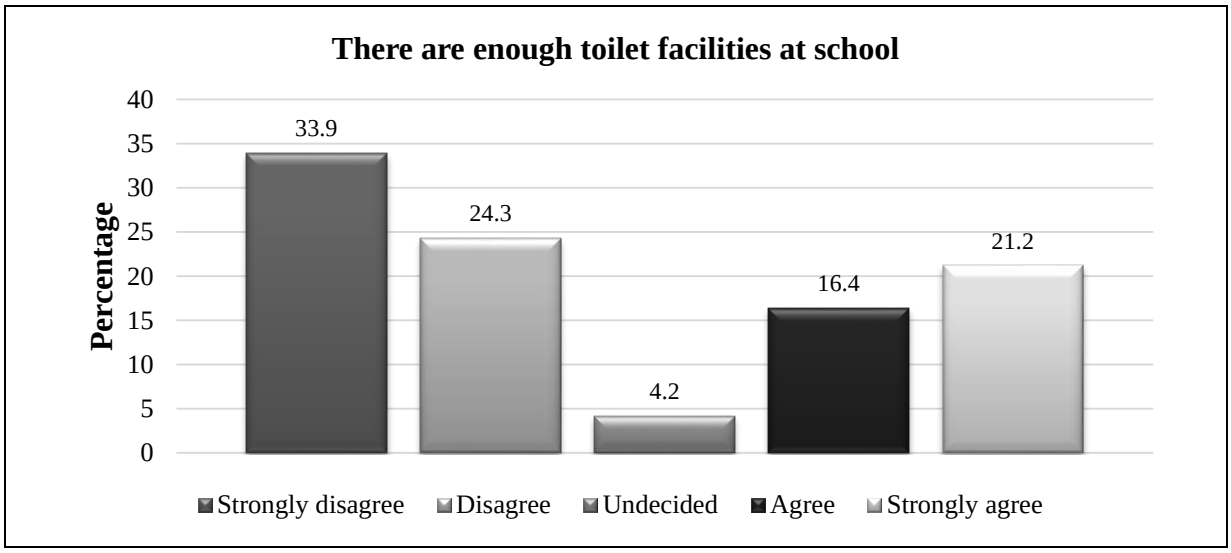
The graphs and tables below illustrate the pupils' responses in the five areas.

Table 6.18 Toilet facilities: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	22	8	1	16	17	64
	%	34.4%	12.5%	1.6%	25.0%	26.6%	100.0%
Disagree	f	14	5	1	17	9	46
	%	30.4%	10.9%	2.2%	37.0%	19.6%	100.0%
Undecided	f	0	2	2	1	3	8
	%	0.0%	25.0%	25.0%	12.5%	37.5%	100.0%
Agree	f	4	7	4	8	8	31
	%	12.9%	22.6%	12.9%	25.8%	25.8%	100.0%
Strongly agree	f	8	15	7	4	6	40
	%	20.0%	37.5%	17.5%	10.0%	15.0%	100.0%

The data in Table 6.18 indicates that there is a stronger disagreement than agreement across the five schools regarding availability of toilet facilities at school, as summarised in Figure 6.15:

Figure 6.15 Toilet facilities at school



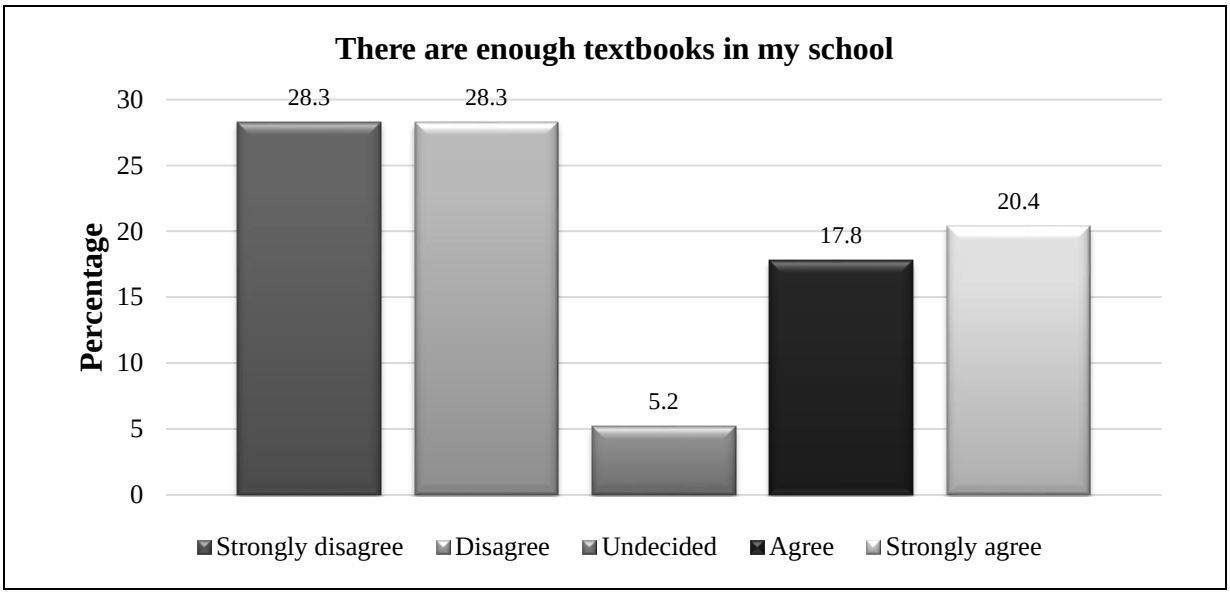
Data in Figure 6.15 indicates that 33.9 % of pupils strongly disagree that there are enough toilet facilities in their schools. This percentage compares to 21.2% that strongly agree with this fact. Overall ratings show that most of the pupils across the five schools do not have enough toilet facilities in their schools.

Table 6.19 Enough textbooks in school: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	10	8	1	20	15	54
	%	18.5%	14.8%	1.9%	37.0%	27.8%	100.0%
Disagree	f	18	8	2	15	11	54
	%	33.3%	14.8%	3.7%	27.8%	20.4%	100.0%
Undecided	f	2	2	1	1	4	10
	%	20.0%	20.0%	10.0%	10.0%	40.0%	100.0%
Agree	f	8	8	3	8	7	34
	%	23.5%	23.5%	8.8%	23.5%	20.6%	100.0%
Strongly agree	f	10	11	8	3	7	39
	%	25.6%	28.2%	20.5%	7.7%	17.9%	100.0%

The data in Table 6.19 indicates that there is a stronger disagreement than agreement across the five schools regarding the availability of textbooks in schools, as summarised in Figure 6.16:

Figure 6.16 Enough textbooks in school



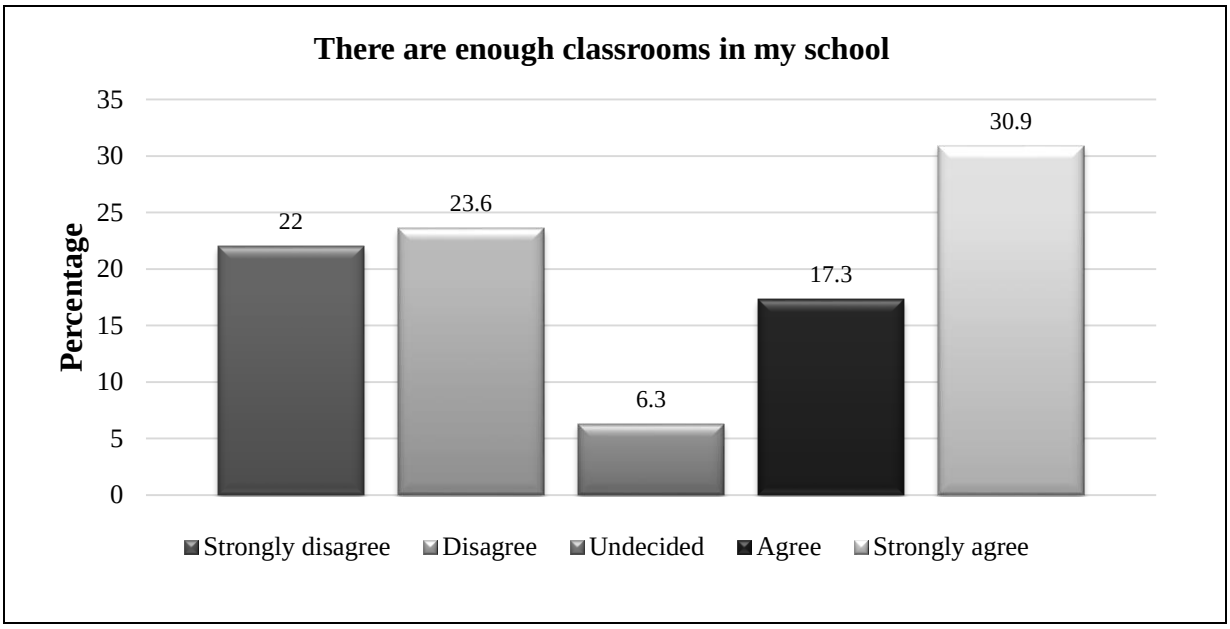
Data in Figure 6.16 shows a combined figure of 56.6% who disagree, while 38.2 % agree that there are enough textbooks in their schools. Overall ratings show that most pupils feel they lack textbooks in their schools.

Table 6.20 Enough classrooms in my school: School cross tabulation

		School					
		A	B	E	C	D	Total
Strongly disagree	f	21	3	0	12	6	42
	%	50.0%	7.1%	0.0%	28.6%	14.3%	100.0%
Disagree	f	13	5	1	19	7	45
	%	28.9%	11.1%	2.2%	42.2%	15.6%	100.0%
Undecided	f	2	2	1	2	5	12
	%	16.7%	16.7%	8.3%	16.7%	41.7%	100.0%
Agree	f	2	6	0	6	19	33
	%	6.1%	18.2%	0.0%	18.2%	57.6%	100.0%
Strongly agree	f	10	21	13	8	7	59
	%	16.9%	35.6%	22.0%	13.6%	11.9%	100.0%

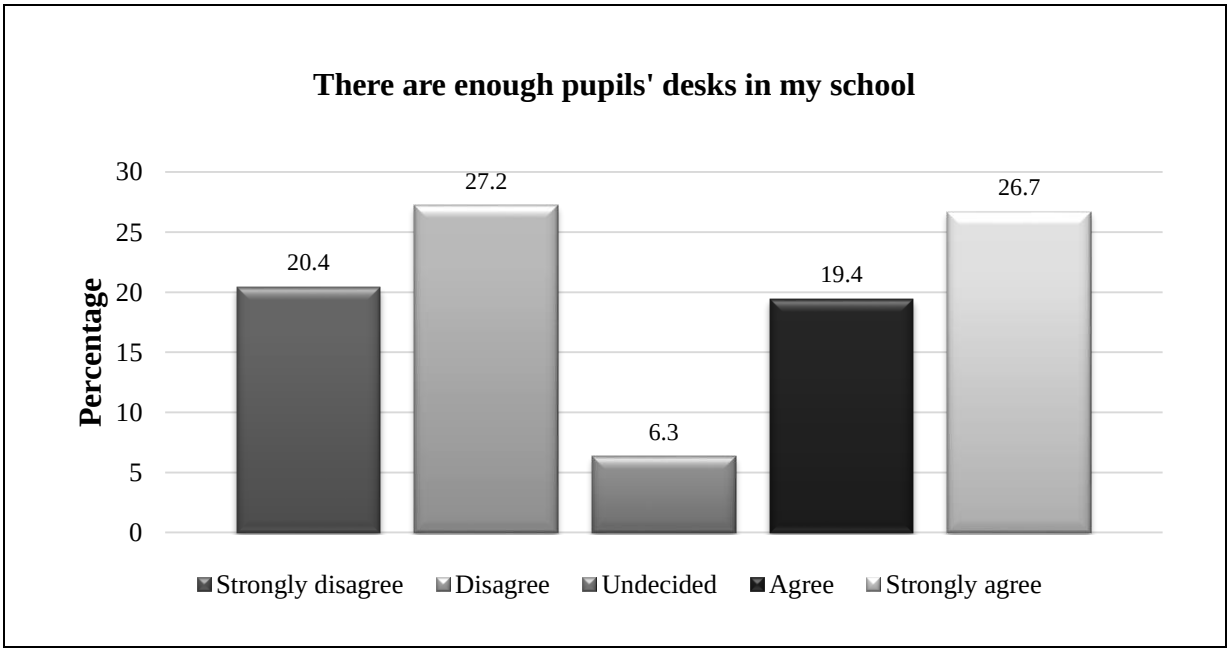
The data in Table 6.20 shows a mixed response across the five schools about the availability of classrooms, as summarised in Figure 6.17:

Figure 6.17 Enough classrooms in my school



Data in Figure 6.17 shows a variation of responses from pupils as to whether there are enough classrooms in their schools. A combined figure of 48.2 % agrees, while 45.6% disagree on this item. Generally, data indicates that more pupils across the five schools do not have enough classrooms.

Figure 6.18 Enough pupils' desks in my school



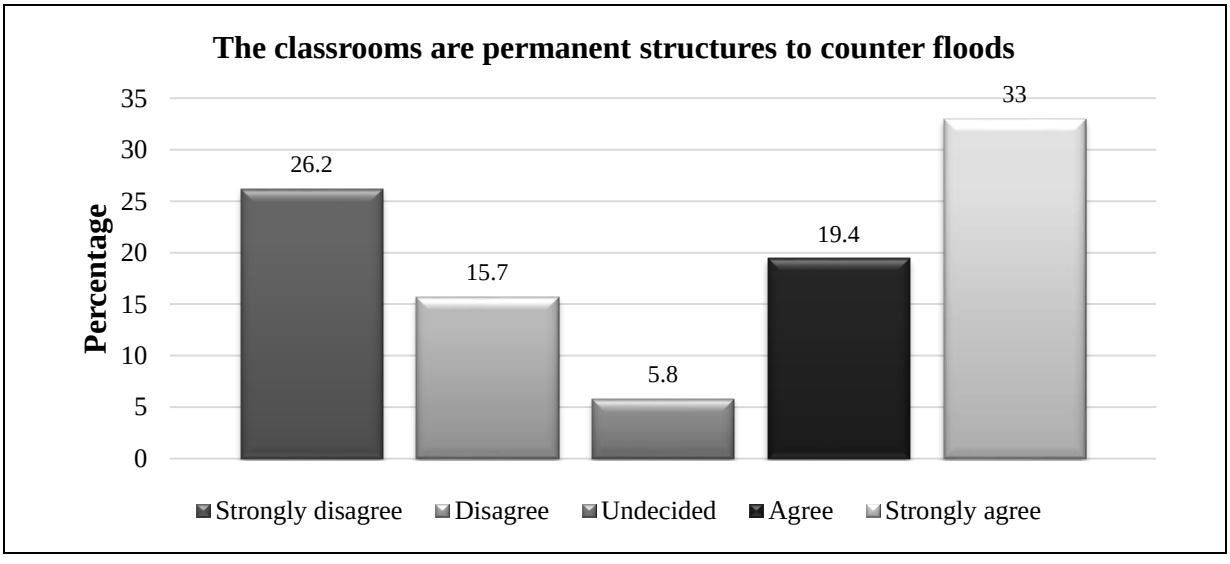
Data in Figure 6.18 shows a combined figure indicating that 46.1% agree, compared to 47.6% who disagree, while 6.3% are undecided as to whether classrooms in their schools are permanent structures to counter floods.

Table 6.21 Classrooms are permanent structures to counter floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	14	8	2	15	11	50
	%	28.0%	16.0%	4.0%	30.0%	22.0%	100.0%
Disagree	f	10	6	0	9	5	30
	%	33.3%	20.0%	0.0%	30.0%	16.7%	100.0%
Undecided	f	1	3	1	1	5	11
	%	9.1%	27.3%	9.1%	9.1%	45.5%	100.0%
Agree	f	8	9	3	10	7	37
	%	21.6%	24.3%	8.1%	27.0%	18.9%	100.0%
Strongly agree	f	15	11	9	12	16	63
	%	23.8%	17.5%	14.3%	19.0%	25.4%	100.0%

The data in Table 6.21 indicates that there is a stronger agreement than disagreement across the five schools regarding permanent structures to counter floods. This is summarised better in the graph below:

Figure 6.19 Classrooms are permanent structures to counter floods



Data in Figure 6.19 indicates a variation of responses from pupils as to whether their classrooms were permanent structures to counter floods. 33% of pupils strongly agree, while

26.2 % strongly disagree. 19.4% agree, while 15.7% disagree, yet a further 5.8% are undecided.

Table 6.22 Descriptive Statistics on School resources

	N	Minimum	Maximum	Mean	Std. Deviation
There are enough toilet facilities at school	189	1.00	5.00	2.6667	1.58450
There are enough textbooks in my school	191	1.00	5.00	2.7382	1.53368
There are enough classrooms in my school	191	1.00	5.00	3.1152	1.58855
There are enough pupils' desks in my school	191	1.00	5.00	3.0471	1.53653
The classrooms are permanent structures to counter floods	191	1.00	5.00	3.1728	1.64365
Valid N (list wise)	189				

Table 6.22 indicates that, though pupil responses are close to the mean and almost evenly distributed, their opinions are, to an extent, widely spread. It means that pupils across the schools do not think in the same way about issues of resources in their schools.

I now turn to parental involvement which forms part D of my questionnaire.

6.8 Parental Involvement

In part D of the questionnaire I explored how involved parents were in their children's learning. In so doing, I used the following five areas:

a) My parents' involvement in my school work helps me succeed more.

b) School and family interactions are very important towards education achievement.

c) We have several parents' meetings at school.

d) My parent ensures I get to school during floods.

e) My parent prepares well with me before floods.

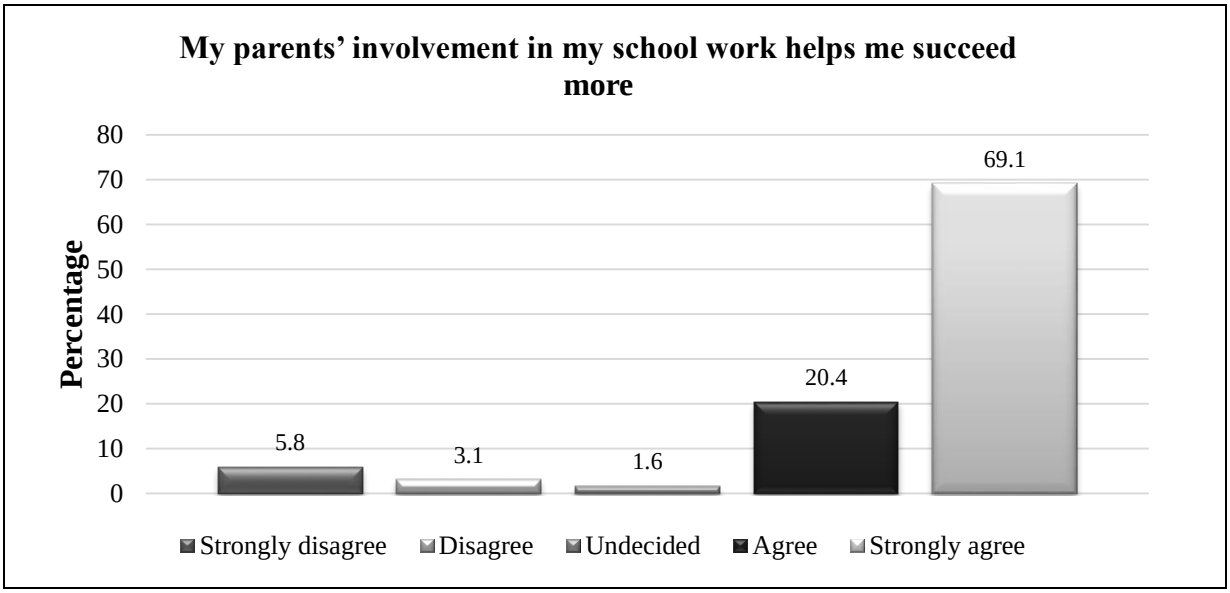
The following graphs and tables illustrate the pupils' responses in the five areas.

Table 6.23 Parental Involvement in Pupils' school work: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	1	5	0	2	3	11
	%	9.1%	45.5%	0.0%	18.2%	27.3%	100.0%
Disagree	f	1	0	0	3	2	6
	%	16.7%	0.0%	0.0%	50.0%	33.3%	100.0%
Undecided	f	1	0	1	1	0	3
	%	33.3%	0.0%	33.3%	33.3%	0.0%	100.0%
Agree	f	8	3	1	17	10	39
	%	20.5%	7.7%	2.6%	43.6%	25.6%	100.0%
Strongly agree	f	37	29	13	24	29	132
	%	28.0%	22.0%	9.8%	18.2%	22.0%	100.0%

The data in Table 6.23 indicates that there is a strong agreement across the five schools regarding parental involvement in school work. This is summarised better in the graph below:

Figure 6.20 Parental Involvement in Pupils' school work



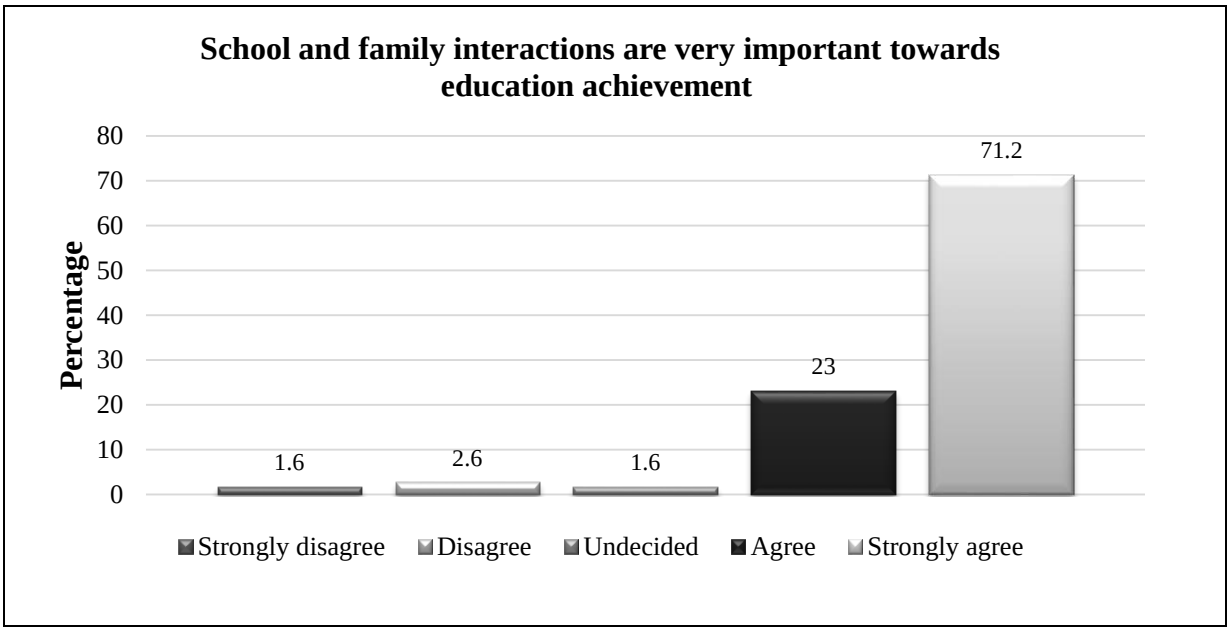
Data in Figure 6.20 shows a combined figure of 89.5 % of pupils agreeing that their parents' involvement in their school work helps them succeed more. This indicates that the majority of pupils, irrespective of their school, appreciate their parents' involvement in their school work.

Table 6.24 School and family interactions and education achievement: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	1	1	0	1	0	3
	%	33.3%	33.3%	0.0%	33.3%	0.0%	100.0%
Disagree	f	1	0	0	2	2	5
	%	20.0%	0.0%	0.0%	40.0%	40.0%	100.0%
Undecided	f	0	0	0	1	2	3
	%	0.0%	0.0%	0.0%	33.3%	66.7%	100.0%
Agree	f	4	7	4	19	10	44
	%	9.1%	15.9%	9.1%	43.2%	22.7%	100.0%
Strongly agree	f	42	29	11	24	30	136
	%	30.9%	21.3%	8.1%	17.6%	22.1%	100.0%

The data in Table 6.24 indicates that there is a strong agreement across the five schools regarding schools and family interactions towards educational achievement. This is summarised better in the graph below:

Figure 6.21 School and family interactions and education achievement



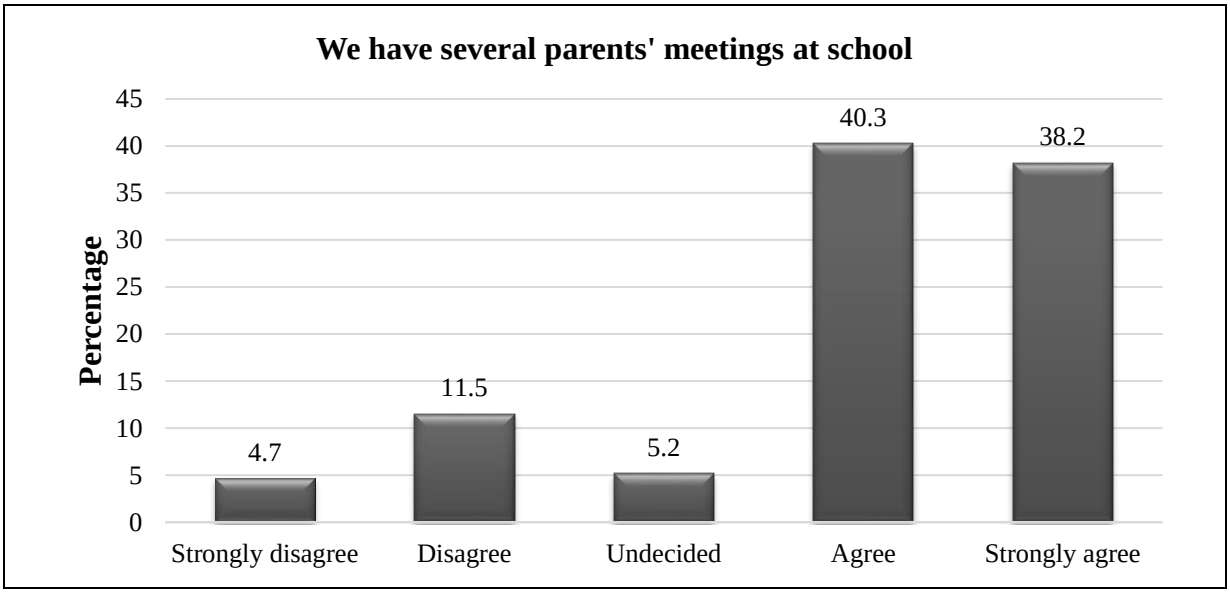
In Figure 6.21, data indicates that 94.2% agree that school and family interactions are very important towards their educational achievement.

Table 6.25 Parents' meetings at school: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	1	1	0	4	3	9
	%	11.1%	11.1%	0.0%	44.4%	33.3%	100.0%
Disagree	f	11	3	0	5	3	22
	%	50.0%	13.6%	0.0%	22.7%	13.6%	100.0%
Undecided	f	1	3	0	3	3	10
	%	10.0%	30.0%	0.0%	30.0%	30.0%	100.0%
Agree	f	14	11	7	25	20	77
	%	18.2%	14.3%	9.1%	32.5%	26.0%	100.0%
Strongly agree	f	21	19	8	10	15	73
	%	28.8%	26.0%	11.0%	13.7%	20.5%	100.0%

The data in Table 6.25 indicates that there is a strong agreement across the five schools regarding parental meetings at school. This is summarised better in the graph below:

Figure 6.22 Parents' meetings at school



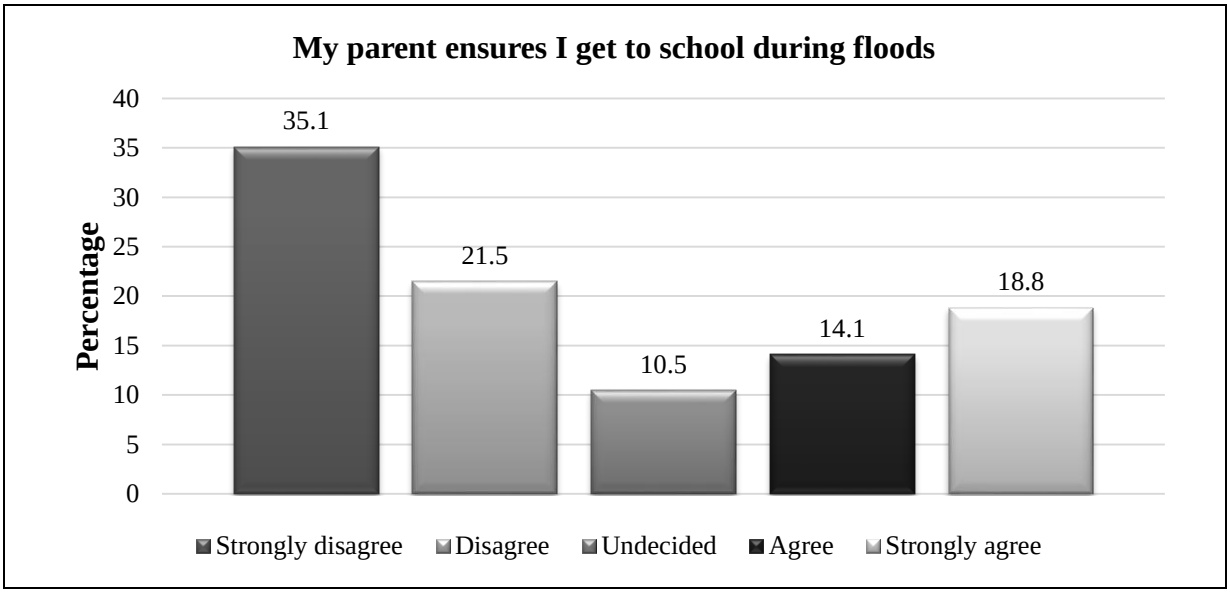
In Figure 6.22, data indicates that a combined figure of 78.5% of pupils agree that there are several parents' meetings at their schools. This implies that there are a number of parents' meetings going on in the schools under study.

Table 6.26 My parent ensures I get to school during floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	16	15	3	17	16	67
	%	23.9%	22.4%	4.5%	25.4%	23.9%	100.0%
Disagree	f	8	4	1	15	13	41
	%	19.5%	9.8%	2.4%	36.6%	31.7%	100.0%
Undecided	f	2	4	4	5	5	20
	%	10.0%	20.0%	20.0%	25.0%	25.0%	100.0%
Agree	f	6	3	2	9	7	27
	%	22.2%	11.1%	7.4%	33.3%	25.9%	100.0%
Strongly agree	f	16	11	5	1	3	36
	%	44.4%	30.6%	13.9%	2.8%	8.3%	100.0%

The data in Table 6.26 indicates that there is a stronger disagreement than agreement across the five schools regarding parents ensuring their children get to school during flooding. This is summarised better in the graph below:

Figure 6.23 My parent ensures I get to school during floods



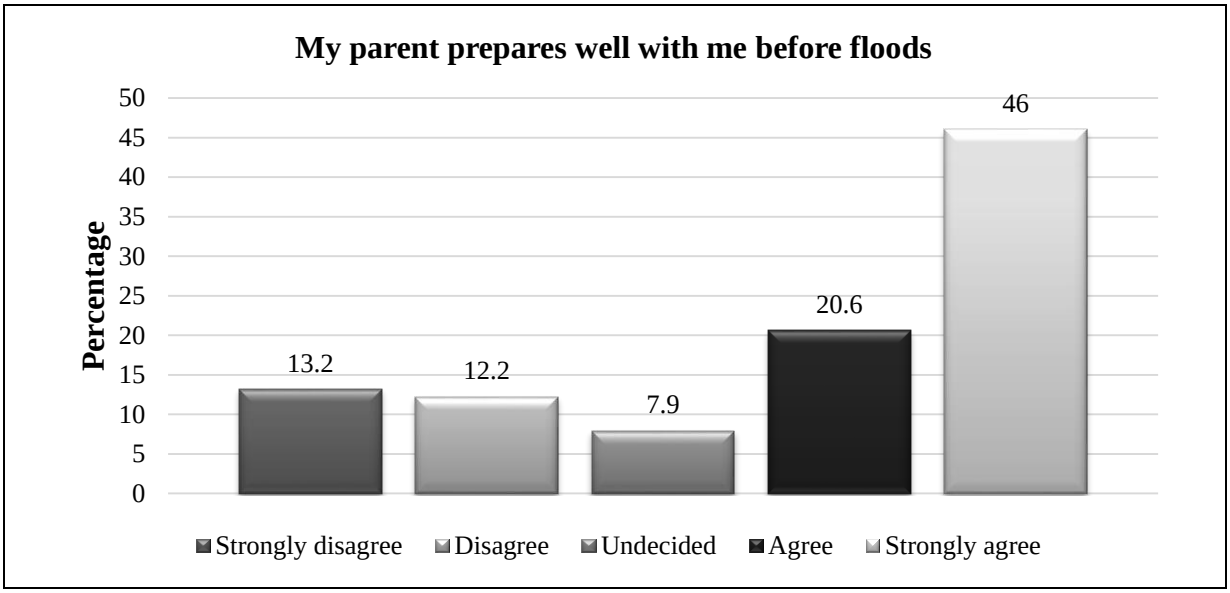
Data in Figure 6.23 shows a combined figure of 56.6% of pupils who disagree that their parents ensure they get to school during floods. Though 32.9% of pupils agree, it shows that a majority feel that they do not get the needed support from their parents to get to schools during floods.

Table 6.27 Parents' preparation before floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	5	5	1	7	7	25
	%	20.0%	20.0%	4.0%	28.0%	28.0%	100.0%
Disagree	f	5	3	0	5	10	23
	%	21.7%	13.0%	0.0%	21.7%	43.5%	100.0%
Undecided	f	0	3	2	4	6	15
	%	0.0%	20.0%	13.3%	26.7%	40.0%	100.0%
Agree	f	9	5	2	17	6	39
	%	23.1%	12.8%	5.1%	43.6%	15.4%	100.0%
Strongly agree	f	29	21	9	13	15	87
	%	33.3%	24.1%	10.3%	14.9%	17.2%	100.0%

The data in Table 6.27 indicates that there is a strong agreement across the five schools regarding parents preparing their children well before floods. This is summarised better in the graph below:

Figure 6.24 Parents' preparation before floods



In Figure 6.24, data shows that 46% of pupils strongly agree, while 20.6% agree with the fact that their parents prepare them well before floods occur. Though 25.4% disagree, overall, a majority of parents prepare well with their children before floods occur.

Table 6.28 Descriptive Statistics on Parental Involvement

	N	Minimum	Maximum	Mean	Std. Deviation
My parents involvement in my school work helps me succeed more	191	1.00	5.00	4.4398	1.07864
School and family interactions are very important towards education achievement	191	1.00	5.00	4.5969	.78793
We have several parents' meetings at school	191	1.00	5.00	3.9581	1.15089
My parent ensures I get to school during floods	191	1.00	5.00	2.6021	1.53856
My parent prepares well with me before floods	189	1.00	5.00	3.7407	1.47009
Valid N (list wise)	189				

Table 6.28 indicates that the responses provided by pupils are almost evenly distributed across the scale; and the standard deviation indicates that the opinions of the pupils are not as widely spread. It shows most of these pupils think in almost the same way regarding parental involvement in their schools. What follows is part E, which involves questions about the school community, the community and its environment.

6.9 School Community, the Community and its Environment

In this part of the questionnaire, I posed questions related to how the school community, the community and the environment promote the pupils' learning. To do this, I used five relevant questions:

a) Teachers' support in coping after floods.

b) Lunch at school during flooding.

c) Teachers' transfer to other schools.

d) Community support for pupils to attend school during floods.

e) The hostile flooding environment and learning.

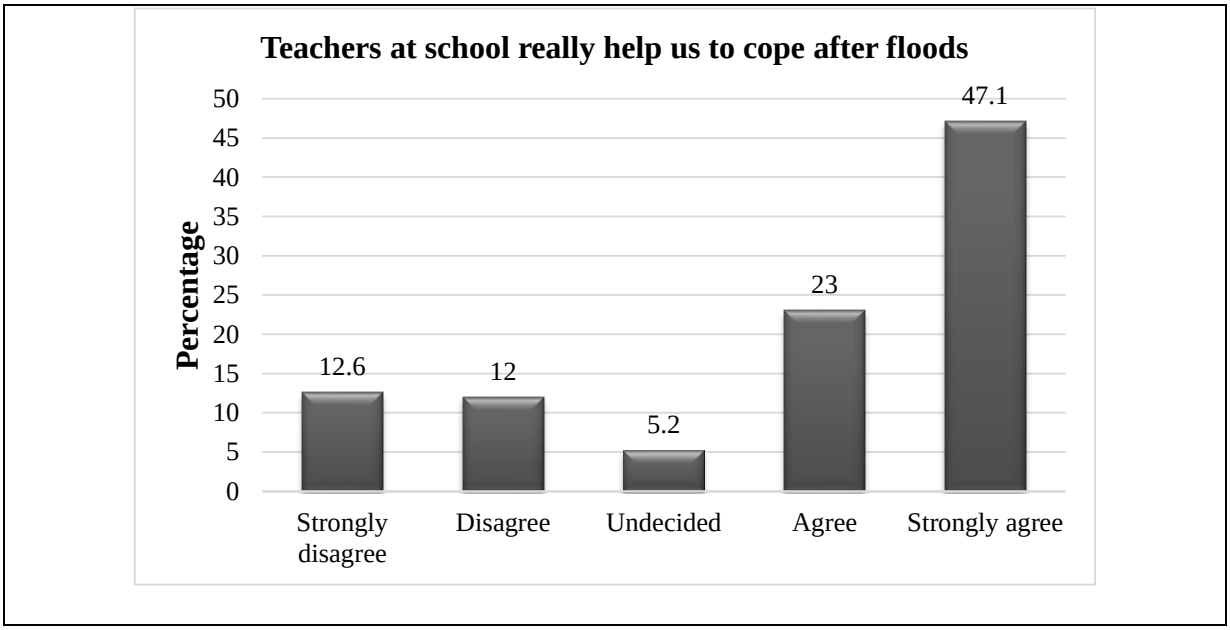
The following graphs and tables illustrate pupil responses in the five areas.

Table 6.29: Teachers' support in coping with floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	11	5	1	5	2	24
	%	45.8%	20.8%	4.2%	20.8%	8.3%	100.0%
Disagree	f	5	4	1	6	7	23
	%	21.7%	17.4%	4.3%	26.1%	30.4%	100.0%
Undecided	f	0	1	1	5	3	10
	%	0.0%	10.0%	10.0%	50.0%	30.0%	100.0%
Agree	f	8	5	1	19	11	44
	%	18.2%	11.4%	2.3%	43.2%	25.0%	100.0%
Strongly agree	f	24	22	11	12	21	90
	%	26.7%	24.4%	12.2%	13.3%	23.3%	100.0%

The data in Table 6.29 indicates that there is a strong agreement across the five schools regarding teachers' support coping with floods. This is summarised better in the graph below:

Figure 6.25 Teachers' support in coping with floods



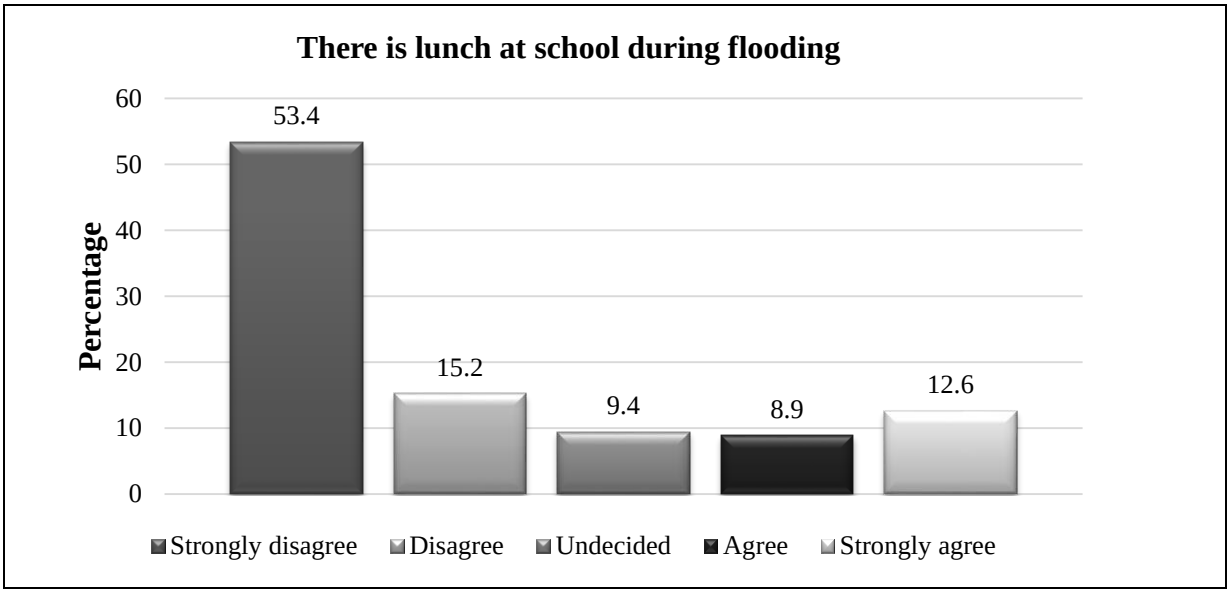
In Figure 6.25, data indicates that 47.1% of pupils strongly agree that teachers in their schools really help them to cope with floods. Another 23% agree with this fact, while 12.6% strongly disagree. Overall ratings indicate that a majority of pupils receive coping support from their teachers after floods.

Table 6.30 Lunch at school during and after flooding: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	24	21	8	25	24	102
	%	23.5%	20.6%	7.8%	24.5%	23.5%	100.0%
Disagree	f	8	5	0	11	5	29
	%	27.6%	17.2%	0.0%	37.9%	17.2%	100.0%
Undecided	f	0	3	4	4	7	18
	%	0.0%	16.7%	22.2%	22.2%	38.9%	100.0%
Agree	f	3	1	3	6	4	17
	%	17.6%	5.9%	17.6%	35.3%	23.5%	100.0%
Strongly agree	f	12	7	0	1	4	24
	%	50.0%	29.2%	0.0%	4.2%	16.7%	100.0%

The data in Table 6.30 indicates that there is a strong agreement across the five schools regarding provision of lunch during and after flooding, as summarised better in the graph below:

Figure 6.26 Lunch at school during and after flooding



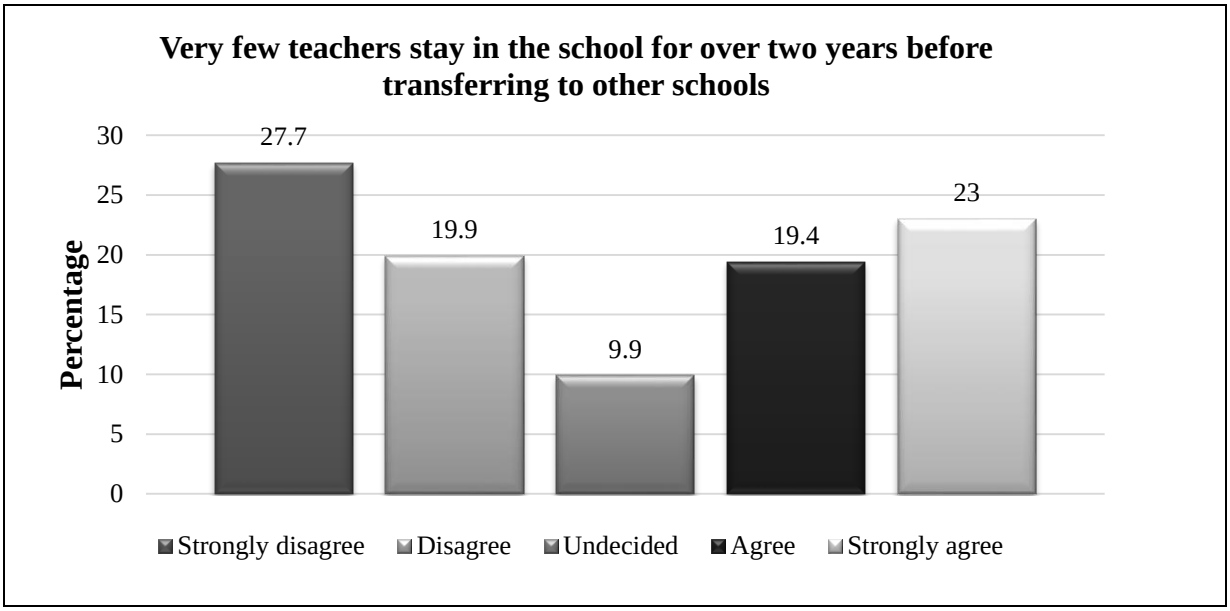
Data in Figure 6.26 indicates that a combined figure of 68.6% of pupils disagree that they get lunch at school during flooding. The varied responses could mean, that there are unstructured or no feeding programmes in the schools under study.

Table 6.31 Teachers' frequent transfer to other schools: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	17	9	6	12	9	53
	%	32.1%	17.0%	11.3%	22.6%	17.0%	100.0%
Disagree	f	8	9	1	11	9	38
	%	21.1%	23.7%	2.6%	28.9%	23.7%	100.0%
Undecided	f	1	1	2	5	10	19
	%	5.3%	5.3%	10.5%	26.3%	52.6%	100.0%
Agree	f	7	8	2	12	8	37
	%	18.9%	21.6%	5.4%	32.4%	21.6%	100.0%
Strongly agree	f	15	10	4	7	8	44
	%	34.1%	22.7%	9.1%	15.9%	18.2%	100.0%

The data in Table 6.31 indicates that there is a stronger disagreement than agreement across the five schools regarding teacher transfers. This is summarised better in the graph below:

Figure 6.27 Teachers' transfer to other schools



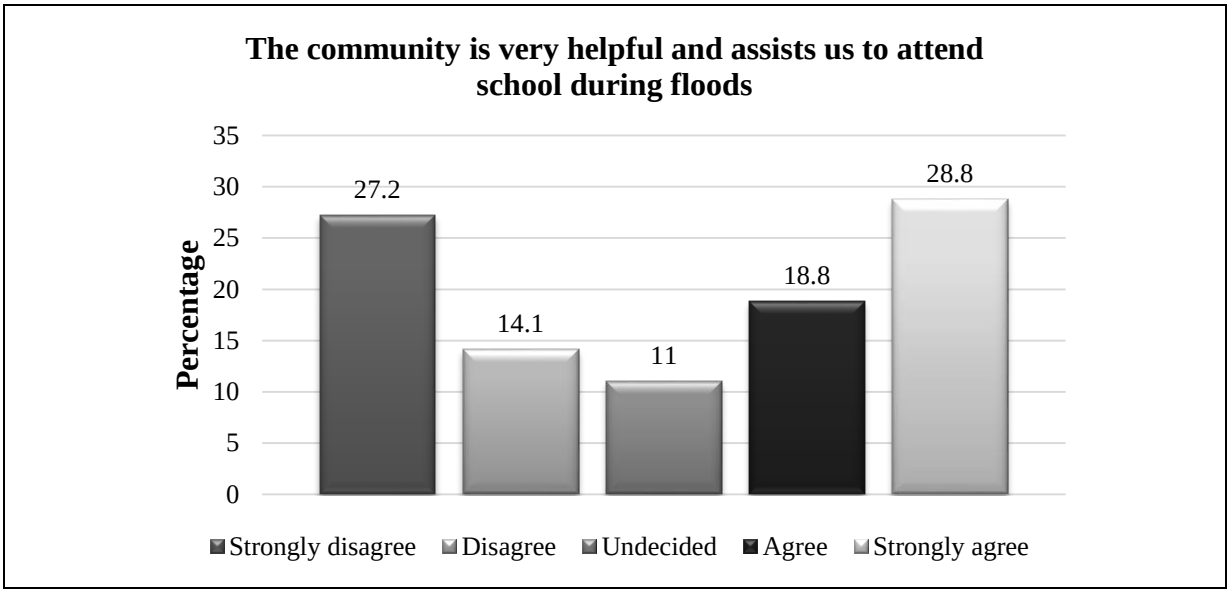
In Figure 6.27, data shows combined figures of 47.6% of pupils who disagree, while 42.4% agree that very few teachers stayed in their schools for over two years before transferring to other schools. Though the pupils' responses to this question vary, overall ratings show that very few teachers transferred schools within a period of two years.

Table 6.32 Community support to attend school during floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	12	13	2	13	12	52
	%	23.1%	25.0%	3.8%	25.0%	23.1%	100.0%
Disagree	f	6	4	0	13	4	27
	%	22.2%	14.8%	0.0%	48.1%	14.8%	100.0%
Undecided	f	3	3	0	5	10	21
	%	14.3%	14.3%	0.0%	23.8%	47.6%	100.0%
Agree	f	7	6	6	9	8	36
	%	19.4%	16.7%	16.7%	25.0%	22.2%	100.0%
Strongly agree	f	20	11	7	7	10	55
	%	36.4%	20.0%	12.7%	12.7%	18.2%	100.0%

The data in Table 6.32 indicates that there is a stronger agreement than disagreement across the five schools regarding community support. This is summarised better in the graph below:

Figure 6.28 Community support during floods



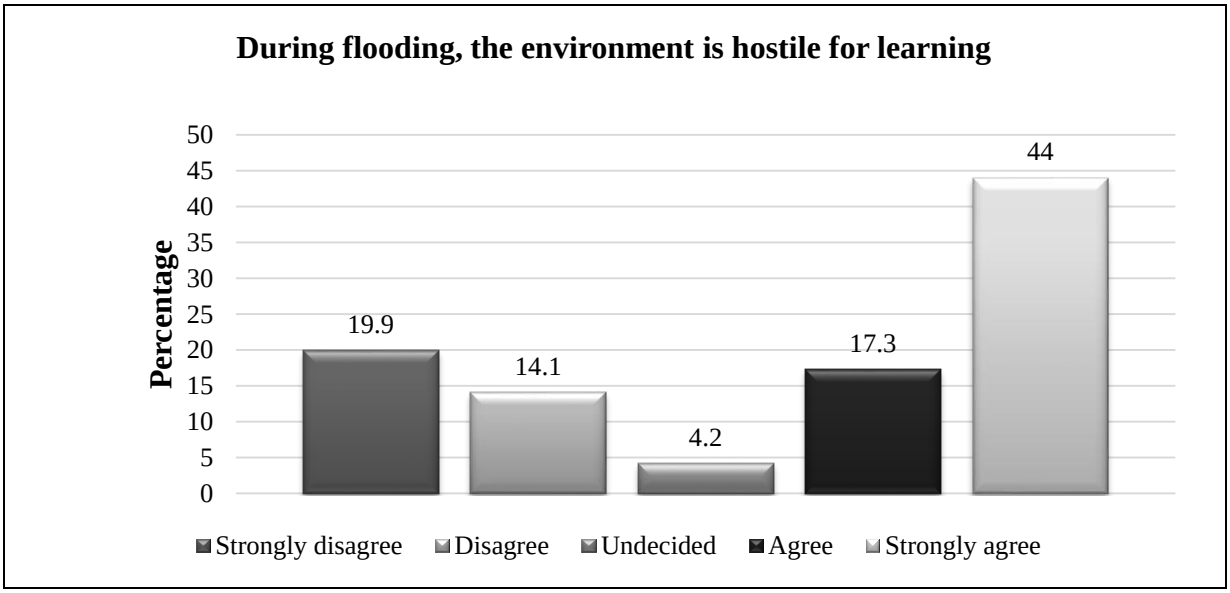
Data in Figure 6.28 indicates a variation of responses about whether the pupils receive community support during floods. A combined figure of 47.6% agrees, 41.3% of pupils disagree, while 11% are undecided. This implies that, on average, about half of the pupils receive community support, while close to half do not.

Table 6.33 Flooding and the schooling environment School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	9	10	1	11	7	38
	%	23.7%	26.3%	2.6%	28.9%	18.4%	100.0%
Disagree	f	9	8	0	6	4	27
	%	33.3%	29.6%	0.0%	22.2%	14.8%	100.0%
Undecided	f	3	1	0	2	2	8
	%	37.5%	12.5%	0.0%	25.0%	25.0%	100.0%
Agree	f	9	4	1	12	7	33
	%	27.3%	12.1%	3.0%	36.4%	21.2%	100.0%
Strongly agree	f	17	14	13	16	24	84
	%	20.2%	16.7%	15.5%	19.0%	28.6%	100.0%

The data in Table 6.33 indicates that there is a stronger agreement than disagreement across the five schools regarding flooding and the learning environment. This is summarised better in the graph below:

Figure 6.29 Flooding and the schooling environment



In Figure 6.29, data indicates that a combined figure of 61.3% of pupils agrees, while 34.0% disagree that, during floods, the environment is hostile for learning.

Table 6.34 Descriptive Statistics of the school community, the community and the environment

	N	Minimum	Maximum	Mean	Std. Deviation
Teachers at school really help us to cope after floods	191	1.00	5.00	3.8010	1.45175
There is lunch at school during flooding	190	1.00	5.00	2.1158	1.45743
Very few teachers stay in the school for two years before transferring to other schools	191	1.00	5.00	2.9005	1.55785
The community is very helpful and assists us to attend school during floods	191	1.00	5.00	3.0785	1.60562
During flooding, the environment is hostile for learning	190	1.00	5.00	3.5158	1.62235
Valid N (list wise)	189				

Table 6.34 implies that the responses provided by pupils about the school community, the community and environmental aspects are closer to the mean and almost evenly distributed across the scale. It means that opinions were, to an extent, widely spread. What follows is part F on Culture.

6.10 Culture

In the final section of the questionnaire, I explored the way in which culture in this society influences learning through the following questions:

a) Flooding and the continuation of learning.

b) Pupils engagement in activities (e.g. fishing) unrelated to learning during floods.

c) Some of the beliefs in the community that affect learning.

d) Attitudes towards learning in the community that affect learning.

e) The community's culture and floods and how they affected learning.

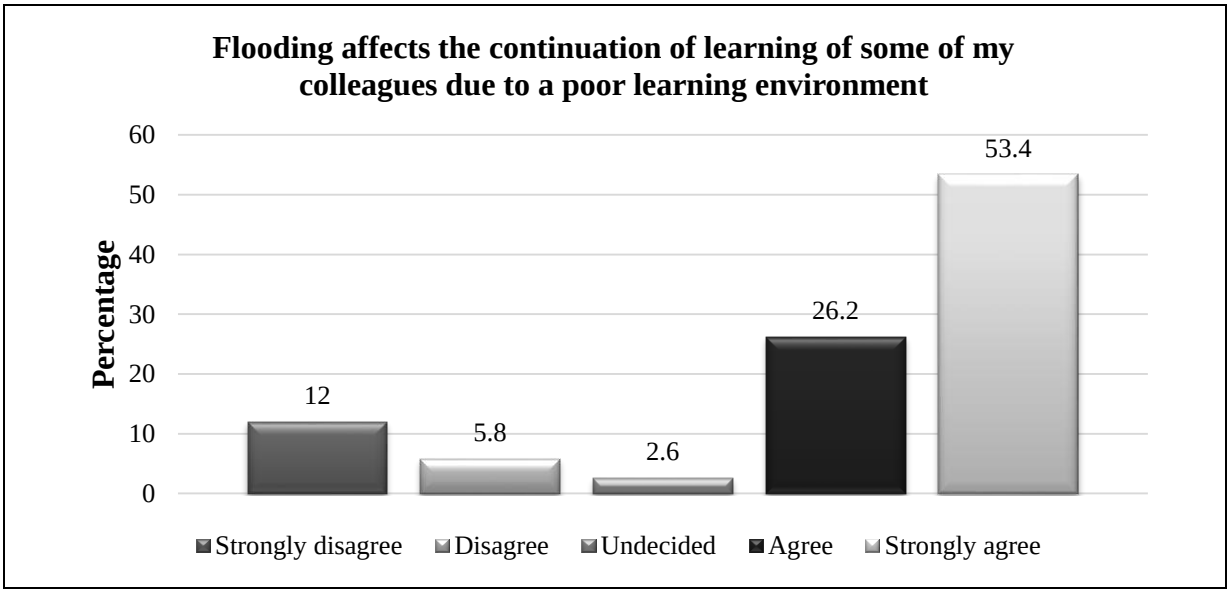
I illustrated pupils' responses as follows:

Table 6.35 Flooding and the continuation of learning: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	7	5	2	2	7	23
	%	30.4%	21.7%	8.7%	8.7%	30.4%	100.0%
Disagree	f	3	2	0	3	3	11
	%	27.3%	18.2%	0.0%	27.3%	27.3%	100.0%
Undecided	f	0	2	0	2	1	5
	%	0.0%	40.0%	0.0%	40.0%	20.0%	100.0%
Agree	f	10	9	3	17	11	50
	%	20.0%	18.0%	6.0%	34.0%	22.0%	100.0%
Strongly agree	f	28	19	10	23	22	102
	%	27.5%	18.6%	9.8%	22.5%	21.6%	100.0%

The data in Table 6.35 indicates that there is a strong agreement across the five schools that flooding affects the continuation of learning due to poor learning environments. This is summarised better in the graph below:

Figure 6.30 Flooding and the continuation of learning



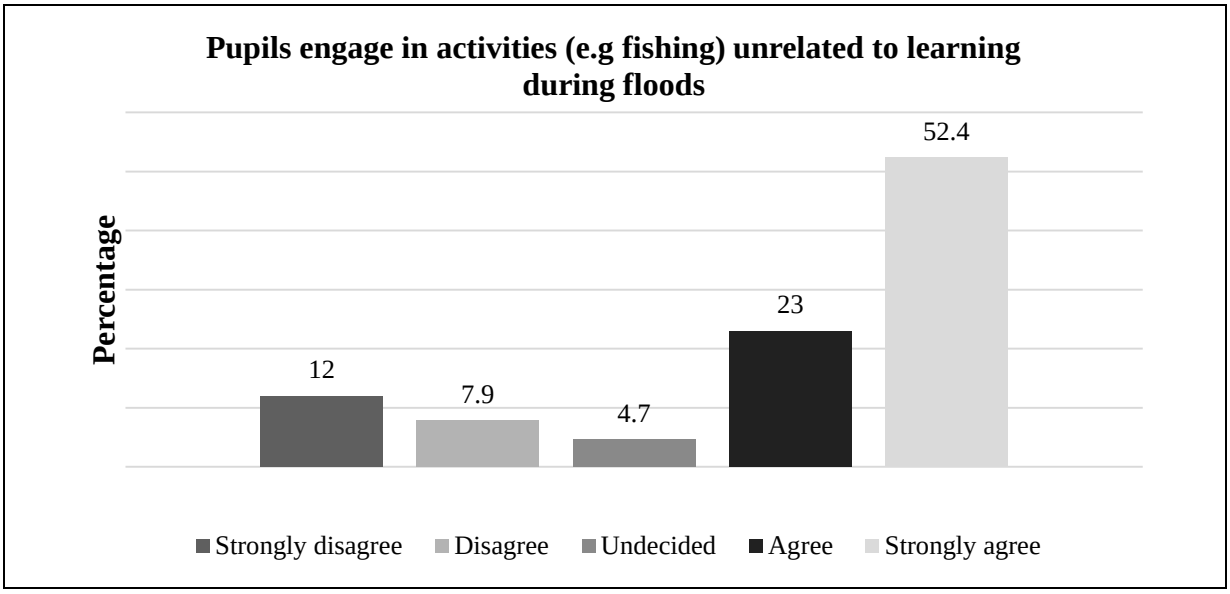
In Figure 6.30, data indicates that a majority of 79.6% of pupils agrees that flooding affects the continuation of learning of some of their colleagues, due to poor learning environments.

Table 6.36 Pupils engagement in activities unrelated to learning during floods: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	6	6	1	3	7	23
	%	26.1%	26.1%	4.3%	13.0%	30.4%	100.0%
Disagree	f	3	1	2	5	4	15
	%	20.0%	6.7%	13.3%	33.3%	26.7%	100.0%
Undecided	f	0	3	0	1	5	9
	%	0.0%	33.3%	0.0%	11.1%	55.6%	100.0%
Agree	f	13	6	2	15	8	44
	%	29.5%	13.6%	4.5%	34.1%	18.2%	100.0%
Strongly agree	f	26	21	10	23	20	100
	%	26.0%	21.0%	10.0%	23.0%	20.0%	100.0%

The data in Table 6.36 indicates that there is a strong agreement across the five schools that pupils do engage in activities unrelated to learning during floods. This is summarised better in the graph below:

Figure 6.31 Pupils engagement in activities unrelated to learning during floods



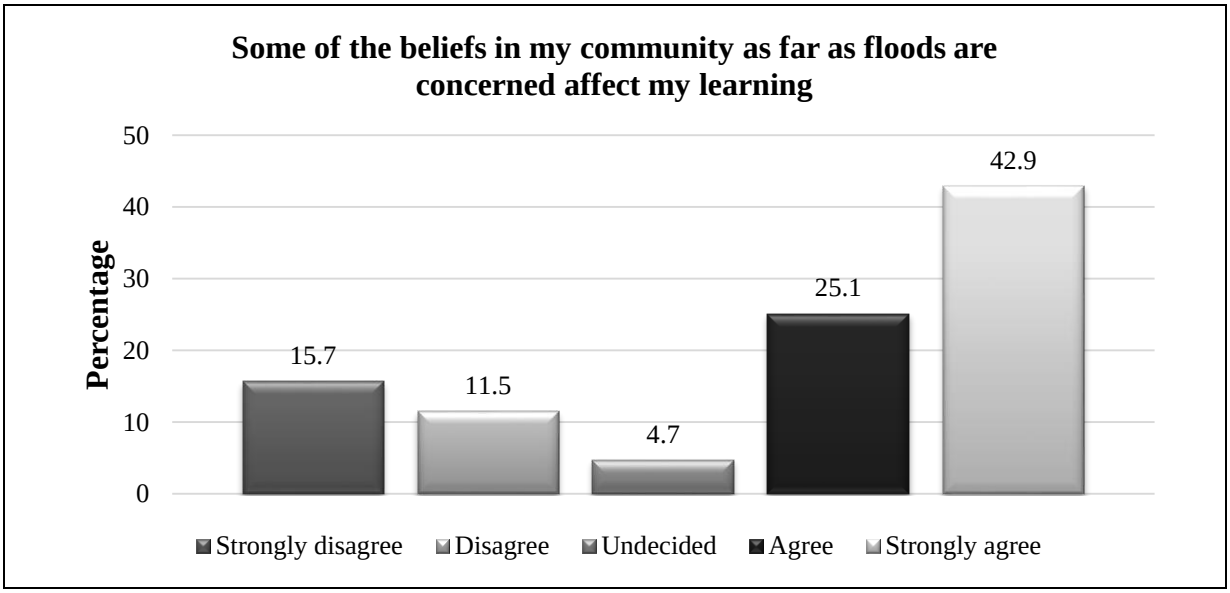
In Figure 6.31, data indicates that a majority figure of 75.4 % agrees that some pupils engage in activities like fishing that are unrelated to learning during floods, as summarised in the graph below:

Table 6.37 Community beliefs and learning: School cross-tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	7	8	3	6	6	30
	%	23.3%	26.7%	10.0%	20.0%	20.0%	100.0%
Disagree	f	5	5	0	4	8	22
	%	22.7%	22.7%	0.0%	18.2%	36.4%	100.0%
Undecided	f	2	1	0	2	4	9
	%	22.2%	11.1%	0.0%	22.2%	44.4%	100.0%
Agree	f	7	6	1	19	15	48
	%	14.6%	12.5%	2.1%	39.6%	31.2%	100.0%
Strongly agree	f	27	17	11	16	11	82
	%	32.9%	20.7%	13.4%	19.5%	13.4%	100.0%

The data in Table 6.37 indicates that there is a strong agreement across the five schools that some beliefs in the community affect pupils' learning, as illustrated in the graph below:

Figure 6.32 Community beliefs and learning



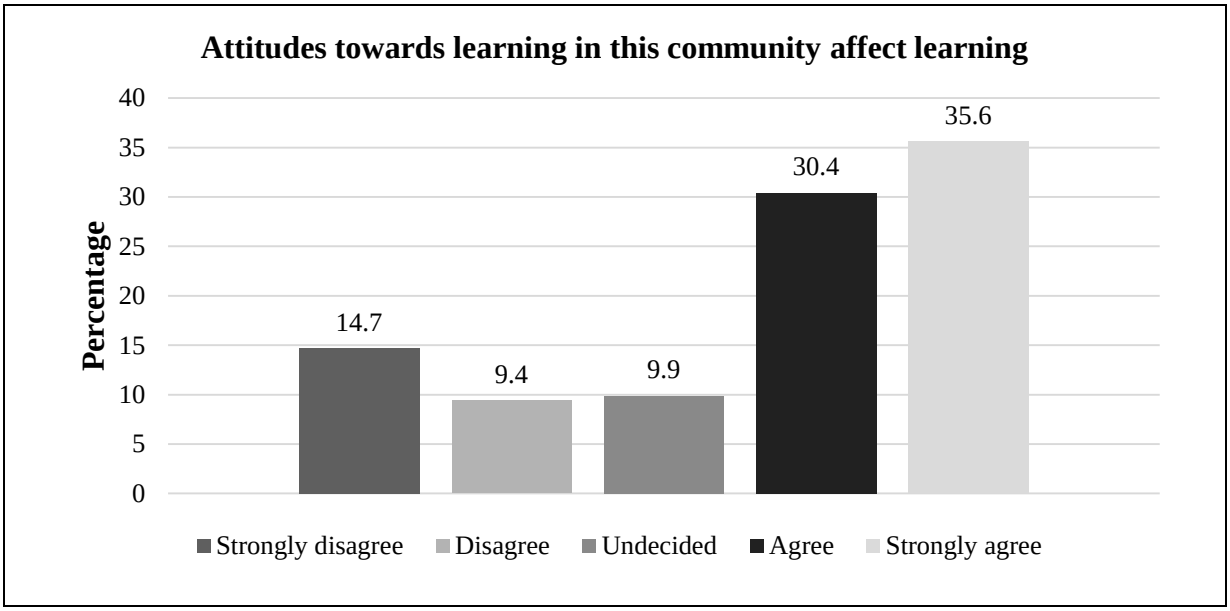
Data in Figure 6.32 indicates that, while 68.0% of pupils agrees that some of the beliefs in their community, as far as floods were concerned, affect their learning, 27.2% disagree. It means that some cultural beliefs do affect their learning.

Table 6.38 Attitudes towards learning affect learning: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	7	4	5	3	9	28
	%	25.0%	14.3%	17.9%	10.7%	32.1%	100.0%
Disagree	f	2	8	1	6	1	18
	%	11.1%	44.4%	5.6%	33.3%	5.6%	100.0%
Undecided	f	2	3	1	5	8	19
	%	10.5%	15.8%	5.3%	26.3%	42.1%	100.0%
Agree	f	12	9	5	17	15	58
	%	20.7%	15.5%	8.6%	29.3%	25.9%	100.0%
Strongly agree	f	25	13	3	16	11	68
	%	36.8%	19.1%	4.4%	23.5%	16.2%	100.0%

The data in Table 6.38 indicates that there is a strong agreement across the five schools that attitudes towards learning in this community affect learning. This is summarised better in the graph below:

Figure 6.33 Attitudes towards learning affect learning



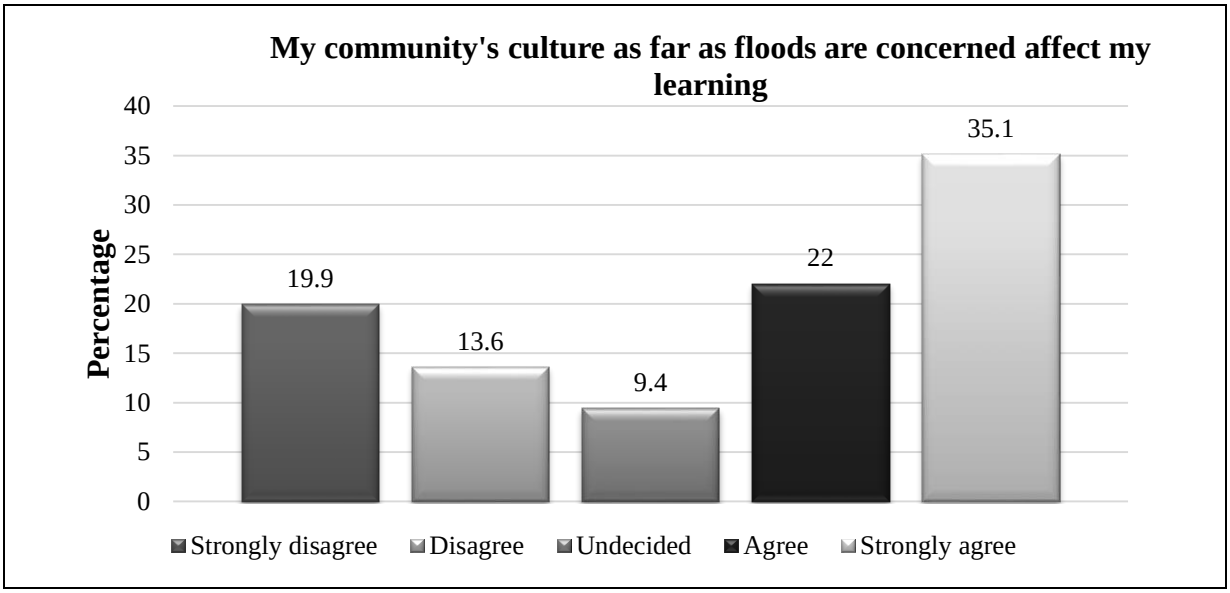
In Figure 6.33, a combined figure of 76.0% of pupils agrees that attitudes towards learning in their community affect learning. These responses imply that there are some attitudes towards learning in their community that do affect their learning.

Table 6.39 Community's culture affects learning: School cross tabulation

		School					Total
		A	B	E	C	D	
Strongly disagree	f	14	10	2	7	5	38
	%	36.8%	26.3%	5.3%	18.4%	13.2%	100.0%
Disagree	f	6	4	3	6	7	26
	%	23.1%	15.4%	11.5%	23.1%	26.9%	100.0%
Undecided	f	3	1	0	5	9	18
	%	16.7%	5.6%	0.0%	27.8%	50.0%	100.0%
Agree	f	6	7	2	18	9	42
	%	14.3%	16.7%	4.8%	42.9%	21.4%	100.0%
Strongly agree	f	19	15	8	11	14	67
	%	28.4%	22.4%	11.9%	16.4%	20.9%	100.0%

The data in Table 6.36 indicates that there is a stronger agreement than disagreement across the five schools that the community culture, as far as floods are concerned, affect learning. This is summarised better in the graph below:

Figure 6.34 Community's culture affects learning



Data in Figure 6.34 shows combined figures of 57.1% of pupils agreeing, while 33.5% disagreeing that the culture in their community, as far as floods are concerned, affects their learning. Though a further 9.4% are undecided, overall ratings imply that some cultural practices exist that do affect learning.

Table 6.40 Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Flooding affects the continuation of learning of some of my colleagues due to poor learning environment	191	1.00	5.00	4.0314	1.37230
Pupils engage in activities (e.g. fishing) unrelated to learning during floods	191	1.00	5.00	3.9581	1.40612
Some of the beliefs in my community as far as floods are concerned affects my learning	191	1.00	5.00	3.6806	1.50354
Attitudes towards learning in this community affect learning	191	1.00	5.00	3.6283	1.42276
My community's culture as far as floods are concerned affect my learning	191	1.00	5.00	3.3874	1.55484
Valid N (list wise)	191				

Table 6.40 implies that the responses provided by pupils on cultural aspects are closer to the mean and almost evenly distributed across the scale. It means that opinions are, to an extent, widely spread and therefore these pupils tend to think in the same way.

In the next and final section of this chapter, I analyse the one paragraph written by pupils to describe their experiences with floods.

6.10 Description of pupils' personal experience with floods.

After completing questionnaires, I asked pupils to write a paragraph about their own personal experience with floods and learning. The importance of this section was to allow pupils to provide a descriptive picture of their experiences with floods, to add a qualitative strand to the data provided. I summarised their responses in Table 6.41, based on common themes against the number of pupils.

Table 6.41 Description of pupils' personal experience with floods

Theme	Number of Pupils out of 191
Accessibility challenges Inaccessibility to school, where some pupils schooling across rivers have to use boats, due to lack of proper infrastructure.	27
Affordability of boat transportation Unaffordability of boat transport, because costs are borne by their families.	11
Destruction of homes Houses where learners live are usually swept away by floods, leaving pupils with no shelter.	19
Destruction of schools and learning materials Floods destroy learning materials such as books together with physical facilities in schools	38
Waterborne Diseases Contamination of water sources leads to an outbreak of waterborne diseases, e.g. cholera.	9
Food insecurity Food reserves are destroyed by floods, resulting in a lack of food.	16
Poor performance Failure to reach schools leads to a drop in performance, leading to further repetition and school dropouts.	41
Teacher absenteeism Floods impact on teachers, as they do on learners. Therefore, most teachers do not come to school during floods.	11
Drowning of pupils Due to poor accessibility and a lack of proper infrastructure, some pupils drown trying to access school.	5
Stress across the community Teachers, pupils and parents alike get stressed by the effects of floods.	16

Following the common themes I identified in Table 6.41, I quote the following five striking paragraphs from each school that explain experiences as described by some pupils. In order not to lose the intended meaning and expressions, and to familiarise my readers with the language level, I have not modified the language in these quotes.

> According to my experience for many years in our land, the floods have affected us physically also on health. This may lead us not to enrich the schools. For example, their may be some hardship of movements. The flood water may restrict us to get to school. This is because of fear. We believe that we may drown in ditches that were left after sand mining. In detail, also there may be water borne diseases and this has widely affected many learners. We may get diseases like cholera because of poor supply of good water, this is by which people end up taking contaminated water. The next thing is that during flood season their may be hunger. This leads to some pupil going to look for food.
>
> - Boy, School C

> During flooding situations, I was not able to go to school because of poor roads. Floods affected my learning very poorly. There was no other ways of going to school during flooding. In order to go to school we were using boats. The person who was doing that work he/she needs 'something' (meaning pay) so that you can pass. And according to me, my parents had lost everything during flooding. So I used to remain where we had been staying during flooding until we will get back home. This can take almost one month. You see that I was loosing a lot. I was not able to perform well in my learning during flooding situations.
>
> - Girl, School B

> During the floods season, I really went through hard life. My fellow schools in my area really suffered. Some schools came to our school which acted as the horst of all other schools. My fellow pupils in my school some could not reach at school in the right time. The floods really affect us. Floods brought many dangerous diseases like malaria, bilharzias and cholera. Our teachers failed to reach at school the normal time because some as they moved was affected by floods. Our school was conjested with many different pupils making it have few teachers to teach the increased number. Our toilets were also not enough to be used by the large number that our school had on 2013 floods.
>
> - Boy, School A

> In 2012 I remembered very well. We were preparing for the mid- term exam and I was in standard six. Within a twinkle of an eye we heard that there is flood we were extremely sad

about that. Two days later the flood come. The floods affect our learning it forced us to remain at home until it is over. It forced many people to move from their places to our school. Many pupils engaged in fishing instead of reading. Surely the flood made many pupils to drop out of school to go and fish so that they can get money. Surely I remembered a hage that said that experience is the best teacher.

- Girl, School D

Surely when there is floods, pupils are the ones who are affected so much. First, they could not go to school because of floods. Also diseases like bilharzias, cholera and typhoid become so much. After floods they would have loose a lot because there is not place for learning to take place. When they come back to school after floods, their would find classrooms fallen down, so it would take long for the school and community to build other classes.

- Girl, School E

6.11 Summary

In this chapter, I have analysed quantitative data obtained from a questionnaire completed by 191 Standard Eight pupils. I presented data across the five schools under study as follows: I began with graphical presentations of each of the thirty questions based on the five-point Likert-type scale. I then presented a school cross-tabulation for each of the questions, to establish the association between responses and the school. At the end of each section, I provided descriptive statistics for each of the six parts of the questionnaire to determine the mean, and standard deviations of each of the responses, to establish the closeness of the responses. Finally, I analysed paragraphs from the pupils, describing their own experience with floods to add a qualitative strand to the quantitative data provided. I will interpret the data obtained together with that from FGDs in Chapter 8. Survey data provides the first analysis of the four data collection methods I use in this study. In the next chapter, I present and analyse qualitative data from interviews.

Chapter 7: Presentation and Analysis of Interviews

7.1 Introduction

In Chapter 5, I discussed the importance of using interviews as one of my data collection methods. Having provided results from the survey in the previous chapter, the interview responses would explain survey results (Leedy & Ormrod, 2001). The central purpose of this chapter, therefore, is to present and analyse qualitative data obtained from interviews. Before turning to questions and responses obtained, I first address the analytical method I used.

7.2 Analytical Method

I conducted twenty-three in-depth individual interviews with a target group I selected through purposeful sampling. Fifteen of these interviews were with parents on the Board of Management (BoM) and senior school managers at the level of principal and senior teachers (S/Ts) from five flood-prone primary schools. I conducted eight other interviews with representatives at the public health, disaster management and the county government departments as illustrated in Table 7.1 below.

Table 7.1 Interview Respondents

Departments	**Representatives**	**No. of Interviews**
5 Primary Schools	5 Parents, 5 Principals and 5 Senior teachers (S/Ts)	15
Sub-county education office	Sub-county Education Officer (DEO) and the Sub-county Quality Assurance and Standards Officer (QASO)	2
Public Health	Public Health Officer (PHO)	1
Disaster Management	Disaster Management Officers	2
County Government	Chiefs	3

Data was based on open-ended interview questions framed from the nine EA indicators and in line with research questions. To present data, I grouped responses into four categories, based on how the nine indicators aligned with my research questions. To strengthen the quality of my data, I tailored particular questions, based on respondents whenever necessary. For instance, questions to the principal on 'time-on-task' would differ slightly from those of the senior teacher or a parent. In such cases, I have presented the specific question before presenting responses (refer to Appendices E to L). I will further develop responses in Chapters 9 and 10, together with results from the survey and FGDs. Below are the responses based on the questions I asked.

Question 1. The impact of floods

Floods generally affect learning. Can you tell me something about flooding and school access? What do you do to ensure children come to school?

This question was relevant to principals, S/Ts, parents, local leaders, Sub County DEO and QASO. The bio-demographic information below is only for descriptive purposes of respondents for each category and not to make a comparison between different groups. Below is the bio-demographic information of principals, followed by an analysis of some of their key responses

Table 7.2 Principals' Bio-demographic information

Age bracket	48-50 years
Gender	All male
Teaching experience	25-28 years
Experience in leadership position	6-15 years
Experience as leaders in flood-prone schools	3-15 years

Impact of flooding: There was convergence from principals across the five schools that floods did have an impact on learning.

> Well, the situation as you know has not been very good. At times children are completely displaced from their schools. When they are displaced, they are relocated to nearby schools that are least or not affected and my school hosts such children. Challenges include a) overstretched physical facilities, b) shortage of sanitary facilities c) overcrowding in classrooms d) overworking teachers.
>
> - Principal A, (mildly affected by floods)

Principals cited difficult access to schools and absent-mindedness, due to psychological effects.

> Floods occur naturally and when it happens here in Bunyala South, Budalang'i division, Busia County, it is very difficult to access schools and at times we are even forced to use boats to access schools. The schools on high lands are used as camps for affected families. The kids then decide to stay with their parents. This affects the kids in so many ways and even psychologically.
>
> The pupil becomes absent minded, they can't even answer the simplest questions that you were discussing in class. Their minds are thinking of the effects of the floods they have experienced and how their parents are surviving back at home.
>
> - Principal, School B

School access: Principals in schools B and C talked of difficult access to schools because of the home shifts along dykes[20], where parents temporarily settled their children. These children could not access school, as they could not wade in water to come to school. Besides, most of the classes during flooding were used as homes for the displaced.

> All the families just spread along the dykes in small structures given by the Red Cross or other donors. So they make a small area where they put up as a family. There are camping facilities given by Red Cross where they are told to construct small huts along the dykes.
>
> - Principal, School B

[20] A more raised area within the locality constructed to prevent water movement to other areas.

Transfers: Principals agreed that the effects of transfers to other schools minimised time-on-task. One principal (School B) stated that flooding took three months, which meant a whole term was affected. In this case, the affected principals informed pupils of the intended host schools and then distributed teachers to those schools. While some pupils would form new classes with the distributed teachers, others joined other pupils in the host classrooms. Principals emphasised a lack of proper and adequate resources, overstretched facilities (e.g. toilets, classrooms etc.) and a challenge in the management of a big crowd. Again, teacher distribution was not automatic, because different subject teachers had probably been displaced and so learning could not take place in those particular subjects. When asked how they ensured pupils came to school during and after floods, principals were clear that access during floods was not an issue, as pupils camped next to, or in, schools.

> After floods, some principals would normally call on the county administration and school management to join in encouraging parents to return to their homes. But it is really upon the school to know where pupils are.
>
> - Principal, School B

Gender: When asked about who was mostly affected between girls and boys, the principals confirmed that both were. Although girls were more affected, as they fell pregnant and dropped out of school, boys also interacted with some challenges in the camps, which distracted them from learning. One principal confirmed that, during such a season, quite a number of pupils dropped out of school.

> There are about 3 girls who dropped out and they only came back to sit for their final exams. And definitely they did not do well because they were also expectant
>
> - Principal, School A

Despite all the challenges listed, principals across the five schools stated that there was usually no financial support from the county administration. Next, is an analysis of responses from senior teachers.

Table 7.3 Senior Teachers Bio-demographic information

Age bracket	32-49 years
Gender	3 Male; 2 Female
Teaching experience	8-30 years
Senior Teacher experience	5-19 years
No. of years as senior teacher in the school	2 – 5 years
Experience in flood-prone schools	3 – 30 years

The S/T in school B is usually tasked with moving books and other facilities to higher places, and even out of the school completely, before floods occur. In school A, which hosts affected pupils, the S/T faces challenges of ensuring teachers come to school and that parents pay some levy to counter the overstretched facilities, due to the high population at school. After floods, S/Ts organise for interim feeding programmes to ensure that children come and also stay at school. The S/T in school A said,

> Our school has created a variety of programmes. We try to provide food in school, during and after floods, property is destroyed and families are displaced making it hard to provide food for the pupils. So, when the community hears the school provides food, they will find a way to ensure their kids come to school.
>
> At times we provide shelter for the affected families hence the place becomes home and school at the same time.
>
> - S/T, School A

> We adjust our timetables to accommodate everyone. Mostly, it rains in the afternoon so the pupils come in the morning and leave by noon before it starts raining; and after floods we create extra time to make up for the time lost during floods.
>
> - S/T, School D

S/Ts also organise and co-ordinate boarding facilities for both learners and displaced families. This means that children will be at school and home at the same time. In the case of the flooding period,

> Special attention is given to Class Eights. Those ones are allowed by the school to board whether their parents are camping there or not but from class 7 to ECDE, they are allowed to join their parents in different camps till the floods end.
>
> - S/T, School C

Common challenges, as elaborated by the S/T in school E, are similar to those listed by principals and learners and include: a) lack of facilities, b) compromised syllabus coverage due to transfers c) overcrowding in schools d) high rate of absenteeism resulting to poor performance and dropouts. The next analysis is from parents who were also members of the BoM in schools.

Table 7.4 Parents' Bio-demographic information

Age bracket	35-79 years
Gender	All male
Time of service in the BoM	2-15 years
No. of children in the school	1 -5 children

Responses showed that as soon as floods occurred, the BoM quickly met to discuss the way forward. Before embarking on other plans to counter floods, they ensured that all pupils went home to their parents. One parent from School B, however, said poverty and hunger were a major cause of poor performance in the local schools especially when pupils returned to school after floods. To respond to this, the BoM in this school had initially partnered with the Ministry of Agriculture on a project called *'Njaa Marufuku'*, a three year programme to enhance the distribution of homegrown foods to schools,

> Even after the ministry ended the 3-year contract, as a board we sat down and saw it was a good programme so we continued with it, so last year we hired 3 acres of land, planted rice and harvested around 72 bags in order to get money (after selling) and food to sustain the programme.
>
> Apart from rice, we also have 8 fish ponds where we harvest fish for sale in order to sustain the programme.
>
> - Parent, School B

School B is the best performing school, but is affected by floods. It is the only school of the five categories that provided lunch for my research team of five members without prior notice. They seemed to have enough for pupils, teachers and even visitors. Going back to the quantitative results in Chapter 6, it was the school whose pupils listed a variety of strategies at school to curb the impact of flooding. However, some parents felt that the BoM did not sufficiently execute its duties fully, because money set aside to counter effects of floods was not used for that purpose. Besides, any additional money allocated was misappropriated by members. In summary, parents mentioned the following challenges:

a) The difficulty in sharing one tent with mature children during floods

b) A lack of food and proper shelter

c) The spread of waterborne diseases, plus malaria.

Parents also said that children who moved to stay with relatives performed badly, because they were uncomfortable being away from their parents. They also expressed anxiety for the children's safety, as they were too young to wade in water, or use boats to get to school.

The next category of respondents was the local leaders.

Table 7.5 Local leaders' Bio-demographic information

Age bracket	49-59 years
Gender	All Male
Local leadership experience	16-28 years
No. of schools in your area	2 -10 schools
Can the county government improve flooding in this area	2 Yes: 1 No (Because interventions are too costly and are beyond the county government budget).

Local leaders in their capacity ensured children continued with school after floods.

> We put up policies like canoes for transportation to ferry pupils to schools from different locations if there are floods and schools are not affected.
>
> - Chief A

One chief talked of educational boards at the sub-location level that ensure children go to school without fail. Chiefs also talked of three types of bursaries available to ensure that children go to school:

a) National Government Bursary (Constituency Bursary)

b) School Constituency Bursary

c) Children Development Bursary

On asking how they determined who qualified for it, the chief said,

> While moving around, we get to know the issue, weigh its vulnerability and which kind of bursary they might need and book them for assistance.

5. Sub-county Quality Assurance Officer

The Sub-county Quality Assurance and Standards Officer (QASO) is a male between forty and forty-five years with ten years teaching experience. He also has ten years of quality assurance experience; six of which he has served as Sub-county quality assurance officer. On the impact of flooding and quality of learning, the officer was sincere in his opinion that access to schools was a problem, because the government did not provide him with resources to go to schools. In fact, the government did not regard him as an officer serving those areas because he fueled his own vehicle to visit schools. On enquiring whether the office has raised this with the government, he said,

> Yes we have, who does not know that Bunyala is a flood-prone area? Who does not know that Bunyala has schools across the lake? If I am to go across the lake, what means do I use?

During floods he did not do any school visits, saying,

> They have only given us one vehicle but they have not given us a boat even for hire to help us go across and that makes it a very big challenge.

Some challenges cited by the QASO:

> You know the place that is mostly affected by floods is Bunyala South. Bunyala South is a completely hardship area and people don't go there. In the south there is poor curriculum supervision, poor curriculum implementation, no monitoring of the syllabus even the teachers' professionalism is poor. Actually, at one time it was being viewed as a discipline zone for all teachers who had discipline cases. Though this has changed, it is now used for dropping head teachers i.e. if they want to drop a head teacher; they take you to Bunyala South and console you with the hardship allowance which is 35% of their salary. 'Teachers don't even stay those sides. They stay across but just go to those flood-prone areas to teach.

The QASO talked of a lack of co-ordination and funds to visit schools prone to floods. It is difficult to work in a hardship area with a team with no allowance. He said that they could not do much on the ground since change needed to come from the TSC[21]. They have, however, TAC tutors who organise seminars and workshops and joint examinations in both Bunyala North and South. He agrees that they try to balance service in the two regions, but do not visit the south regularly, especially during floods.

6. Sub-county Education Officer

The Sub-county District Education Officer (DEO) is a male between fifty-five and sixty years, with thirty-seven years teaching experience and another seventeen years in school management experience - nine of which he has served as a Sub-county education officer. His key responses on the impact of flooding and quality of learning leaned on the issue of affordability with regard to boarding facilities and transportation, where parents made a small contribution towards fuel. It should be noted that the provision of motor boats by the CDF[22] to ferry pupils to-and-from school was well co-ordinated, with principals being in charge. When I asked what his office was doing in such situations, he said,

[21] Teachers Service Commission is an independent government commission established under the Constitution of Kenya to manage human resource within the education sector.
[22] CDF Constituency Development Fund

'That is left for the head teacher to decide, my office does not interfere with that.'

My assumption was that, an education office would take responsibility to ensure proper monitoring and co-ordination of strategies and, more importantly, manage any complexities that may result from these strategies.

Question 2. Time-on-task

Floods generally reduce the time pupils have in their subjects. Can you tell me how you manage the issue of learning time? What are the challenges and what can be improved?

1. Principals

Principals agreed that they tried hard to ensure they compensated for lost learning time through extra classes. The only challenge was how to motivate teachers to do extra teaching outside normal teaching hours. Principals clarified that schools do not have extra funds for extra learning, it is entirely the burden of parents. They persuaded parents to contribute to support teachers, but this is only achievable for candidate classes when parents struggle to support the school, knowing that, without extra learning, their children will fail exams. The principal said the following:

> Yes the teachers are fine. We don't give them anything monetary, just something small to motivate them. You buy *mwalimu* (teacher) something like a jug, a flask and they will appreciate. There is nothing like payment (in form of money). It is just out of their good heart that they are doing that.
>
> - School A

It was evident that principals looked for time outside the normal learning hours (over the weekend) and accommodation for pupils. Another principal said,

> Even my Class Eights (Std 8 pupils) are putting up in the school. I had to look for money from well-wishers[23] to buy food for the staff and some of the basic needs.
>
> - School B

In School B, the principal just ensures that his teachers have all their meals at school. Through his own initiative, the school plants rice on a piece of land donated by a member on the school management committee, whose proceeds support the teachers at school. In this regard, all teachers are always present at school and teach for extra hours without a problem. As mentioned earlier, it is in this school that we interacted with a very enthusiastic staff over lunch. Besides, it is the best performing school of the five schools. School B has introduced these strategies, including boarding facilities, to ensure extra learning takes place. Principals do agree that reduced learning time affects the quality of learning. It is not easy to do homework in camps that have neither tables nor electricity, recounts School A's principal. In fact children are exposed to uncomfortable environments where they share one tent with the whole family. This is uncomfortable and definitely creates a climate of non-performance. Besides, there are many other 'immoral' acts happening in the camps, due to a lack of mechanisms to control adults in these camps. When teachers were dispatched to the host school to find out learners' progress during the flooding period, School B principal acknowledged that there was no meaningful learning during floods, because some learners got into schools that were ahead, or behind, in the syllabus.

> We make sure that when they come back, we go back to where we had left before the floods and begin there. That is when we come up with weekend programmes, new timetables i.e. coming up to school very early in the morning, and begin lessons at 7 a.m. until 6 in the evening.

I: Don't you feel like you strain the children?

H/T: These children were born in water. To them it is not strange, they find it normal.

I: In other words, floods are not the reason for poor performance?

H/T: It is part of the cause of poor performance but there are other many factors.

[23] Well-wishers referred to here are the school old boys and girls, politicians, donors and other friends of the school

I: Do you believe floods affect learning?

H/T: Yes, they affect learning, but there is a way learners can be motivated by things like feeding programmes and others.

- School C

Principals also pointed out that the quality of education is affected because of a very big number of complete, and half orphans whose parents died mainly of HIV/AIDS. Other common causes of parental death are drowning and Malaria. The principal in School D talked of support from government in the provision of anti-malaria drugs and medicines to treat water. He pointed out, however, that there is evidently more donor than government support, where the government either delays in responding or completely ignores calls for help.

2. Senior Teachers (S/Ts)

Floods generally reduce the time pupils have in their subjects. Can you tell me something about floods and the issue of repetition and dropouts? How do you deal with this?

Most S/Ts talked of poor performance and low standards as a result of non-school attendance during and after floods, partly because of incomplete syllabus, or due to a lack of concentration in class. Transfer to new schools and loss of learning material also distracts pupils from learning, resulting in poor performance. Relating to poor performance are cases of repetition and dropouts. Transition to the next class is based on merit. Following poor performance, which is mostly caused by a lack of learning resources and lost learning time, pupils may be asked to repeat classes. Usually some parents and pupils are hesitant to do so. Furthermore, those that repeat get demoralised and eventually drop out. Dropouts are also characterised by the disrupted socio-economic way of life, where learners forget school and decide to go fishing to get quicker money.

> When children in impoverished environments learn to make money at an early age, they tend to believe education is not as beneficial.
>
> \- S/Ts School B

The many immoral activities happening at the camps distract learners mostly leading to dropouts, early pregnancies and marriages. All S/Ts agreed that there is hardly quality time for learning before, and after floods. When the river bank burst, learning stops, as the society prioritises other issues.

3. Parents

Floods disrupt the learning of your child? What measures are discussed at the BoM meetings to compensate for lost learning time? Are they implemented?

Parents on the BoM plan with teachers about how to cover the syllabus and provide extra teaching hours. Together they replace teaching staff and find a mode of payment for non-TSC teachers. The BoM works with the school on how to motivate teachers to go the extra mile, usually through small tokens and feeding programmes. The BoM also contacts CDF and well-wishers to donate learning material or money to buy food, including paying teachers for extra lessons.

4. Sub-county Quality Assurance Officer

Floods generally reduce the time pupils have in their subjects. How have the floods impacted on the quality of education in flood-prone schools? What does your office do to improve the quality of education in these schools?

Floods affect the coverage of the syllabus, teacher delivery time and the environment for quality teaching and learning, because teachers do not prepare well for lessons. To remedy these problems, QASO office organises workshops to help teachers prepare adequately and efficiently for floods and to strategise on how to cover the syllabus in a short period. The QASO mentioned 100% monitoring and assessment of teaching in schools. Besides, he added, exam panels need not only be based on experience, but in a place he can easily access

for supervision. He suggested adequate resources for both the people on the ground and for his office for efficient quality assurance.

> The government should do the same as they do to county governments. Counties that experience hardships get more funding so such schools should also get more.

5. Sub-county District Education Officer

Floods generally reduce the time pupils have in their subjects. Can you tell me how you ensure that learning time lost during flooding is recovered?

The DEO admitted that there was no doubt that fixed calendar dates affected results in flood-prone schools:

> It is so obvious, even if I gave you the rankings and results, you will find out that those schools perform averagely but if they were in normal conditions, am sure they could have exemplary performance, ending up among top schools in Kenya.

He confirmed, however, that some schools perform well, despite the challenges. He mentioned three such schools that are sandwiched by swamps, but do perform well. About learner-time-on task he said:

> The government has set the ideal time but due to the conditions we face, the head teachers find a way of dealing with it especially during the 3rd term. There are boarding programmes in some schools for Class Sevens and Eights. The extra hours created help to improve the teacher-pupil contact hours to deal with pupils academic problems individually and this improves performances.

Question 3. Teaching Methodology

What is it that you do to enhance the teaching methodology and capability of teachers?

1. Principals

While principals acknowledged that there were no specific teaching methodologies they used in their schools, they also acknowledged that they took care of weaker students through

specific methods. While Schools A and C employed *class ability groups*, where a stronger pupil guided weaker ones through peer discussions, schools B and D had special/remedial classes after school. The most common teaching methodologies are the lecture method and the question-and-answer method, to allow interaction between teachers and students. School C talked of peer learning from teachers, where they share what works and what does not. Through CATs, they discovered learning trends, rated them and devised teaching methods to specific areas of weakness. On the other hand, monthly examinations help teachers to gauge general performance and to plan ahead effectively.

Though data revealed that teachers are exposed to in-service training, school A's principal confirmed that he has to go around classrooms to monitor teachers and correct any mistakes that are made. Though this is not taken positively by some teachers, it works well for him. In schools B and D, principals felt that, in order to improve teaching methodologies, practical teaching (learning aids, charts, real objects cards etc.) should be enhanced to allow learners to take part in learning in order to understand better. In these schools, teachers use teaching aids sometimes improvised by subject teachers. For instance, the principal availed a convectional box designed by one of the teachers to teach the movement of currency (refer to appendix O). All principals affirmed that teaching aids do not only make learning very interesting but real. There were notable effects on learning in schools where teaching aids were not used.

When asked how teaching methodologies would be improved to increase the quality of learning, principals talked of in-service training and benchmarking/exchange programmes (visiting other schools, especially those performing better, perhaps once a month to see what

they did differently). The principals of schools C and D advocated for learning resources, especially text books and retreats to motivate teachers. School C Principal said,

> The ratio of textbooks to the pupils is unrealistic. The ministry gives kshs.40 per pupil for textbooks. Accumulating Kshs.40s to come up with one textbook makes the ratio to be imbalanced.

Two out of five principals talked about conducting INSETS (In-Service Education and Training) for teachers to improve teaching methodology, normally done within working time. This is achieved through the help of subject service heads and workshops for teaching methodologies, facilitated by TAC tutors. There is also SSMASE[24], at times partnering with NGOs, a government-sponsored workshop where teachers are brought to speed on result-orientated methods of teaching.

2. Senior Teachers

What are some of the decisions that the teachers and yourself have taken in terms of the teaching methodology to cover up for the time lost?

S/Ts across the schools agreed that peer group discussions, where learners are put in discussion groups to discuss various topics, identify areas of weaknesses and strengths are key. This, coupled with extra teaching lessons, helps to bring about specific methods of teaching and saves time as well. In schools C and E, the S/Ts said that, other than the commonly used question-and-answer methods coupled with practical learning and teaching aids, tests and homework are also used to improve learning to cover for lost time, and identify areas of weakness. The S/T in school A stated that there is a big challenge in terms of teaching methodology when schools host affected pupils. He defined it as confusion when teachers try various methods to suit levels of the syllabus covered and the different learners in the classroom.

[24] SSMASE: Strengthening of Science and Mathematics in Secondary Education

3. Sub-county Quality Assurance Officer

To what extent do you engage with school head teachers on issues to enhance teaching methodology and capability of teachers in flood-prone schools? What is it that you do? How can these be improved?

Regarding the level of engagement, QASO said,

> We fully engage them, I can rate it at 100% and the response is about 90% from most of them but you know politics are everywhere.

On teaching methodology, the QASO said:

> The lecture method is the best and the one that is mostly used because it is less strenuous. The methods are not pupil friendly but teacher friendly. You can imagine just giving notes to a class 3 pupil then when you are done you walk out of class….it completely doesn't work and that is what we are fighting, pupils do not benefit from this method especially the weak ones, books are not marked, weaker pupils just don't feel part of the class.

What is it that you do?

> Do you know how we do the teacher assessment based on our subject areas? We walk with you to class, I sit behind as you teach. What you need to do is to give me your schemes of work for previous lessons, lesson plan, record of work covered book and your notes. Those four are mandatory. We confirm with random pupils from their books and if the sequence does not match, we question the teachers.
>
> We ask the head teacher to check the quality of learning inside the classes, with or without inspection from us.
>
> At times I inform them that I will be visiting their schools within a period of 6 months. Within this period they will work very hard then I might fail to show up knowing very well they have worked. Other times I just show up at schools without notifying them.

How else can you improve the teaching methodology?

> We have workshops and seminars where we bring experts to teach the teachers. These seminars are funded by the parents who contribute about 200 shillings per child to the teachers that goes to the Education Improving Fund that was started by Prof. Kaimenyi[25].
>
> There should be more bench marking among schools.

[25] Prof. Jacob Kaimenyi was Kenya's Cabinet Secretary for Education from May 2013 to 2015 paving way to Dr. Fred Matiang'i the current Education CS.

4. Sub-county District Education Officer

Responding to the same question posed to the sub county QASO, the DEO said:

> My office calls the principals at least once a term; we meet time to time to update them on current issues and to update them on the teaching methods. There are various teaching methodologies that teachers in this region use one being the lecture method, use of demonstrations (teaching aid) among others.

What is it that you do?

> There are teaching trainings and seminars to inform them on how best to improve their teaching methodology. SSMASE programmes are funded by the ministries. The teachers who attend these programmes are identified by a policy guideline from the ministry.

'The DEO also stated that evacuation of pupils to safer schools is done by his office. This is usually during the third term of the school year (from September to mid-November), but could go up to December. These schools are usually identified by the District Officer (DO), based on size and facilities. I was interested in knowing if the syllabus was considered during evacuation and choice of school for learners.

> No, that is the work of teachers who move with them to those schools. It is like we move the whole school with some of the resources. However, they don't lose much teaching.

Question 4. Instructional Leadership

1. Principals

Floods definitely affect school effectiveness. As a principal, how do you deal with the management of the curriculum and instruction of the school? How do you share school empowerment among staff?

Principals explained in many ways that they indeed deal with the curriculum and instruction of the school. They talked of strategies from good planning, togetherness, extra lessons, teacher motivation, boarding facilitates, mobilising resources from the government, CDF

and donor support. Regarding instructional leadership and empowerment of staff, principals said:

> Yes, the school will move normally under the deputy and the senior teacher. The deputy does everything I do in my absence while the senior teacher deals with guiding & counselling and discipline. Generally we have disseminated duties among teachers (i.e. sports, health clubs among others).

Most principals agreed that they oversee activities in schools, but have people in charge. They said that the deputy sits in for them in cases when they are absent, while the S/T supervises learning in classes and school attendance for both learners and teachers. Some have executive panels made up of a few teachers that act as their *'cabinet'.* They advise, and even go, to classrooms to oversee and report on learning and teaching. In short, they delegate work to staff, who constantly keep them informed; therefore school runs normally whether they are there or not. They were also quick to mention that they rotate teachers to have them learn different responsibilities, but still acknowledged the challenges that come with managing adults.

Despite empowering staff, head teachers said they were an overburdened lot.

> Heads are normally strained. I don't know when they are going to come up with what we call job descriptions but we have a lot. A head is the chair of the staff meeting, the secretary to the school board of management, like in our situation we are the clerks/secretaries/receptionists/keep books of account/we teach in class/we supervise and still don't earn more.

It sounded like an overlap with the BoM responsibilities, but I was told:

> The BoM ensures school resources are properly utilised, I have to be in the BoM meetings as secretary. For instance, keeping books of account could easily be given to clerks like in secondary schools, yet in primary schools, the head teacher is expected to be in control of everything.

2. Senior Teachers

Tell me about staffing in the school? How do you motivate teachers and administrative staff to promote learning? What challenges do you get in managing both teaching and non-teaching staff?

S/Ts confidently related teacher-motivation to positive learning. They said teachers are commonly motivated through interventions, like providing free or subsidised lunch, rewarding performance at the end of every year, benchmarking with other schools, participating in decision-making, a teachers' welfare scheme for loans, team-building visits in different parts of the country etc. Some schools (e.g. school D) reward teachers through an external process (e.g. promotions). There was not much said on motivation of non-administrative staff, other than providing meals at school and paying salaries promptly.

S/Ts confessed that it was not easy to manage teachers and non-teaching staff. They deal with complicated issues like absenteeism, re-staffing during leave periods, like maternity leave, motivating staff and, at times, payment of non-TSC teachers. If non-teaching staff are not paid on time, they simply abandon duty. Two out of the five S/Ts interviewed mentioned that maternity issue is a problem in terms of replacing staff, especially when it is taken by more than one female teacher at the same time. This perhaps explains why most leadership positions in and out of school are held by men. The question on instructional leadership was only relevant to principals and senior teacher categories.

Question 5. School resources

Can you tell me a little about the issue of resources in the school? What immediate resources are available (internal and external) to put the school back on track in terms of infrastructure and learning materials?

1. Principals

Principals across the board agreed that a lack of school resources/funds/learning materials were related to both quality learning and achievement. The FPE funds allocated by the government were not enough:

> For example this term, we only gave each learner four exercise books, for the whole term. Putting in mind that we have seven subjects that means they have to buy the rest of the exercise books. If by any chance a parent fails to buy the books, definitely the pupil is going to be affected academically. Some might even give up and drop out.
>
> - School B

One principal recalls that, in 2011, the school lost almost the entire stock of books. These books were stored in a higher place, but still got destroyed due to the dampness of the room.

> Money is given according to the school population. Not because you are affected or not. Our population is low so we get money according to the number of pupils we have.
>
> - School E

Principals agree that, though the government supplements FPE funds, the major source of extra income in this community remains parents who endeavour to bring food to school, hire extra teachers through the BoM and donate property (e.g. pieces of land) to schools to ensure that their children learn. Data revealed that 90% of parents in the locality were poor and mainly relied on farming rice, where most of the produce was consumed at home. Occasionally, the CDF[26] would come in to put up classrooms or latrines after being consulted. Principals also said that they would have bigger chances in the provision of quality education if they were not heading schools in flood-prone areas, where most of their time is spent looking for resources.

> It appears we are not giving them the right direction because the little money I get, I concentrate on how to maintain what I have but not to put up something new.
>
> - School C

[26] The Kenya Constituency development Funds was introduced in 2003 and was designed to support constituency-level, grass-root development projects.

> Poor performance in my school is majorly caused by floods not attitude or laziness. If we were not affected by floods, we would do well.
>
> - School D

On the other hand, destroyed classrooms with cracks and potholes bring about other challenges - jiggers being the most recent problem experienced in School B. This forces the principal to seek assistance, which he says distracts him from his normal responsibilities.

> I went to the Ministry of Health in the county and got some drugs. We used pesticides that we sprayed but they (pupils) still carried them (the jiggers) home. We clear them here then when they come from home, they come with them.

Linked to jiggers was the issue of toilets or latrines. Principals across the five schools described the situation as one of the biggest sanitation challenges they faced.

> If you go to the latrines that we have, you will see maggots coming out. If by any chance they contract diseases due to that, the time the pupil will use to seek medication, that time they would be studying.
>
> - School D

> If the latrines are in that condition, the pupils will avoid going there and it affects learning. In short, poor sanitation affects results.
>
> - School B

School principals stated with certainty that the government does not consult on needs, but strictly allocates funds per policy. It would be better to give slightly more to flood-prone schools to mediate the relationship between equal opportunity, quality learning and capability.

> When parents come to take refuge in school during floods, they destroy desks, they even damage the classrooms because they cook inside the classes. It would be good to get more resources for repairs.
>
> - School C

> Most resources are misplaced. For example if you had money for constructing the library then it floods when you still have that money, it might be directed to something else that was not meant for it i.e. food.
>
> - School D

2. Senior Teachers

Can you tell me about the issue of resources in the school? What internal and external resources does the school have available for preparation and reconstruction after floods?

S/T's responses on resources were in tandem with those of principals. Schools lacked enough resources and did not get help from the government. They, however, had to deal with other extra duties before floods. For example, for the preparation and reconstruction after floods, S/Ts worked with the government and NGOs (Red Cross, UNICEF) to co-ordinate provision of relief food, medicine and nets to the people in school and camps during flooding. They also oversaw the rebuilding and reconstruction of school infrastructures.

3. Parents

Can you tell me a little about the issue of resources in the school? What immediate resources are available (internal and external) to put the school back on track in terms of infrastructure and learning materials*?*

All parents from the five schools agreed that they organise and squeeze funds to address immediate needs the schools may be facing. One parent said,

> The BoM assists in partitioning off classrooms into two so that it can create space for another class because of the high populations following destruction of classrooms during floods.
>
> - School A

If understaffing occurs after floods, the BoM takes the responsibility to employ additional teachers, who are paid by parents. Though this has its challenges, it is more advantageous to hire to avoid overworking of teachers, given that they have to teach extra lessons. This

usually calls for a good working relationship between the BoM, parents and the school. Parents on the BoM acknowledge that they receive funds from the government and CDF, but think they can do better if funds were planned better and came often and predictably to allow for better planning.

7. Local Leaders

Other than providing security to the community, local leaders have a role to play regarding school resources. They authorise the process of bursary allocation to needy pupils. They also work with the government, donors, CDF and NGOs to identify needy pupils and to co-ordinate resources after floods. Local chiefs also work with the Sub-county administration office to co-ordinate boat transport and to ensure that rates are within the normal range.

> We deal with security; we sensitize people on what they are supposed to do so that they can be safe and also take safety precautions on them. We also provide a place for them to camp during floods and also co-ordinate all NGOs and government facilities for flood mitigation purposes.

Local leaders also work with politicians through political rallies to sensitise the public to the importance of learning. They confessed that politicians do not abandon them during floods, but work with them all through when sourcing NGO and CDF resources and the lobbying of relief food to be delivered on time. The chiefs confirmed that people in the society were allowed to mine sand for construction and engage in fishing and farming to sustain their families. Local chiefs agree that all the concerned parties (i.e. the government, CDF, NGOs, donors, politicians, the community, school communities etc.) have put in a significant effort to reduce the impact of floods on learning. They, however, still feel the effort is not enough. One Chief said,

> We may not do enough because we only lack resources. If we had enough resources, we could have done quite a lot.

8. Sub-county Quality Assurance Officer

Can you tell me a little about the issue of resources? As far as floods are concerned, are there extra resources allocated to schools to prone to increase access?

When asked if there were extra resources allocated to schools after flooding to improve the quality of learning, the QASO said,

> No, there are not. The ones that we have are meagre. It is equal for everybody, nothing special for schools in flood-prone areas. The government gives each child money annually for the FPE to all school. The amount is inclusive of books, repairs, electricity and everything else. The government does not consider the fact that schools in flood-prone areas do a lot of repairs.

This money is in the custody of the BoM, who, it is believed should manage the funds well. I, however, enquired about the competency of these BoM members with regard to management of resources. QASO said:

> In the older days we used to have people in the board that were not qualified due to illiteracy but that has changed. The least level one should have acquired to be on that board is the Form four certificate[27].

What then is the role of the quality assurance officer as far as quality learning and school resources are concerned in flood-prone areas?

> I can access schools and if I feel repair needs to be done, I will come up with a budget and give the head of the board to approve for the repair to start. There are specific protocols that are followed before withdrawing the money. Therefore, inspection and follow up becomes a problem because we can't do that to more than 30 schools.

9. Sub-county District Education Officer

Can you tell me a little about the issue of resources? As far as floods are concerned, are there extra resources allocated to schools prone to floods?

The DEO's responses contradicted those from other respondents regarding school resources.

[27] Kenya Certificate of Secondary Education (KCSE) attained at the end of secondary school learning.

Yes we have enough resources. Bunyala is well endowed with teaching-learning resources like books, chalks, desks and teachers. At some places there is shortage of teachers but it is not acute. There are even some schools with electricity, in fact quite a number of schools have power.

I: Are there extra resources allocated to schools prone to floods?

The resources here are okay since the year 2003 when the FPE was introduced, in fact textbook, student ratio is approaching 1:1, and that alone explains that we are not badly off when it comes to resources.

As the DEO, I ensure that the head teachers buy the required text books. That is an exercise I closely monitor when the government sends the FPE funds in terms of how it is managed and if the money is used for the required work.

These statements contradicted responses from principals, S/Ts, parents, pupils, local leaders and even the QASO, who worked closely with him at the sub county education office. Earlier evidence suggested negative effects on learning related to inequitable distribution of resources. However, the DEO is privy to donor support from World Vision, among others that caters for basics needs like clothing and shoes to counter problems like jiggers. Donor support related to floods is co-ordinated by the Sub-county office in liaison with the DEO.

Question 6. Parental Involvement

Can you tell me about parental involvement in the learning of their children in your school? What do you to increase this?

1. Principals

Principals mentioned that, though parental involvement exists in their schools, it is mostly affected by the education levels of parents and poverty. Those with a low education level do not care much about what their children are doing at school. They, however, attend school meetings, however, perhaps because the principal insists that it is important to understand how their children are progressing. One-on-one interactions with parents are not common,

unless they are for planning purposes or disciplinary cases. Though parents do not follow up much on what pupils do at school, they are interested in the performance of the school in national examinations. This finding raises questions on whether parents attach importance to education achievement, or embrace the competitive nature of national examinations in Kenya. Principals, however, do take advantage of the BoM to influence other parents to attend meetings. The principals of Schools B and D noticed that parents do attend meetings after a positive result, because they like to be part of success. Most importantly, the principals involve parents in decision-making (e.g. involving them in school projects, like rice farming), so as to win their trust, as a way to motivate them towards embracing school-family partnerships. In School C, 65% of parents value education, yet a whopping 90% do not participate in school activities. The obvious strategy here would be to carve a relationship between participating in school activities and participating in their children's learning progress. School E (the worst performing school), however, posted a very, very low contribution of parents, which the principal rated at below 50%. The principal said:

> Their contribution is very, very low. Sometimes we have to involve the local administration to bring them to attend school matters.
>
> Most parents don't value education. During planting, harvesting and even fishing season we will experience a lot of absenteeism because pupils will be involved in those kinds of jobs.

Principals hope to take advantage of parents' meetings at class levels to increase interaction with the school. Sometimes they would need the intervention of the Sub-county administration to reinforce the importance of school-family partnerships.

2. Senior Teachers

How involved are parents in the learning of their children your school?

Since S/Ts are more involved in the co-ordination of school activities, including extra

lessons, their responses on parental involvement were in that regard. In school B, parents are very involved and are willing to pay for extra lessons, for exams and for teachers employed on the BoM. They generally participate in their children's education, as well as in the development of the school. After harvest, these parents usually provide food (rice) for their children at school. Besides, they take care of fish and tomato farms in turns and manage the harvest programme. In Schools C and D, S/Ts also talked of very supportive parents in terms of providing learning material and resources. It was slightly different in School E where:

> They have a perception that once a child comes to school, it is completely the teacher's business and the fact that there is the FPE, parents believe that is enough.
>
> - S/T School E

In school E, parental involvement remains a serious issue where teachers have been fully left to be in charge of pupils. The S/T pointed out that the less involved parents are, the higher the rate of absenteeism, which affects learning. He made a resounding call for civic education in this area.

3. Parents

How involved are parents in the learning of their children in your school?

Parents on the BoM took the lead on advising parents about the importance of attending meetings at schools and providing learning material to their children. They talked of very involved parents who go an extra mile, helping their children to wade to school during flooding. However, consistent with principals and S/Ts, parents still remain less involved in school academics and tend to ignore key responsibility (e.g. provision of learning materials for learners). In line with the S/T in school E, a BoM parent said,

> It could easily be argued that the availability of FPE funds implies provision of resources by the school at the start of term.

4. Local Leaders

What do parents say to you about the quality of learning of their children? How involved are they in the day to day activities of the school?

Relating to the BoM responses, local leaders described parents as somehow difficult and not very involved in school activities. While very few are good and consistent, most leave their children's education to teachers. At the very least, some parents would contribute positively through food stuffs and attending compulsory school meetings. In as much as there is a 65-70 % parental involvement in school activities, it is not directly linked to achievement. Local leaders proposed a need for more aggressive strategies for parental involvement.

5. Sub-county District Education Officer

Can you tell me about parental involvement in the learning of their children in your school? What do you do to increase this?

> Generally parents from Bunyala have a negative attitude towards child education. They need to be sensitized properly. There is a department in the ministry called Adult & Continual Education that mounts sensitisation of the importance of education to parents. The personnel handling the department seem not to be active.

The DEO attributes his statement to illiteracy, culture and attitude of the society. He says that both his office and the local government contribute significantly to ensure children are fit to benefit from education.

Question 7. School Communities[28], Community, Culture and Environment

1. Principals

Tell me about the various school communities and the strategies they use towards promoting learning. How do you they perceive these strategies?

[28] **School communities** comprise groups of people with direct working relationships or interested in work done by the school internally and externally.

i) School Communities: Principals agreed that indeed school communities were helpful. For instance, the local government assisted in putting up buildings, like the ECDE classroom, while the CDF did build some other facilities (e.g. toilets and supported electrification). School A principal said:

> They are my strength! (Exited). The people partnership I have around here is very helpful and the strategies they bring are amazing.
>
> We also have the church. Theirs is to give spiritual nourishment and instill good morals to the learners. This one is a catholic sponsored school, so the priest comes to do that work.

Regarding donor and NGO support, USAID provides clean drinking water and disaster mini structures for shelter. *Life Straw* provides small water tanks, while the county government provides sanitary towels for girls, as well as tents during floods. Local leaders enforce school attendance with parents. According to principals, school communities have a strong impact in this area; they do, however, need to co-operate with each other to ensure the achievement of uniform goals.

ii) **Community Support**

How involved is this community towards learning? What challenges do you face working with the community? What can be done better?

There was agreement from principals regarding the minimal assistance from the community, partly attributed to an impoverished community with low financial status. Principals acknowledged that, though the community encourages and gives moral support, it is simply based on the principals' strength. The community does pull resources to support orphans or to buy equipment for schools. Though they destroy property during floods when they take refuge in schools, the community is generally very supportive.

iii) Culture and Environment

What are some of the beliefs, cultures or attitudes that affect children's learning in this community?

> In my school there is a tree that is used as a shrine (refer to appendix O). Pupils go there and they feel like they are part of the school. I can't fully explain what happens but I found it here (laughing).
>
> - Principal School B

Regarding gender, though findings did not reveal a considerable gap between enrolment and performance of boys and girls, principals said that there was still a strong cultural notion about the value of educating boys. Educational opportunities for girls may have increased, perhaps because of the FPE and not due to a change of cultural norms and practices. I say this because, getting into a deeper understanding, the community maintains the superiority aspect of boys over girls. This results in marrying off young girls, or to a lack of concentration in class, pregnancies and dropouts. This community also practises child labour, where children are asked to fish for money. Children have been made to believe that, during floods, they should leave to find food. Other cultures, like wife inheritance and discrimination against children born out of wedlock, do affect learning. *Disco matanga*[29], where children engage in night dances till the burial ceremony of a relative is accomplished, was mentioned by three principals as distracting learning and predominantly resulting in early pregnancies. Though not culturally inclined, the belief that FPE is supposed to be free is a negative one. Parents sit and wait for full support from the government, they do not value education and do not support their children in any way.

[29] Over-night dances

2. Senior Teachers

Tell me about the various school communities and the strategies they use towards promoting learning. How do they perceive these strategies?

i) School Communities

S/Ts hailed the community for being disciplinarians, assisting in instilling good morals and always handing over all pupils loitering aimlessly, among other responsibilities.

> I have talked in general about the community within (teachers, pupils) and the outside, the parents, the donors, the politicians and even the government. Plus the Catholic Church that provides spiritual nourishment. They all have the interest of the school at heart.
>
> - S/T, School B

ii) Community Livelihood

Tell me about the socio-economic background of this community. How have floods altered the community's source of livelihood?

The major economic activities in the locality are small-scale fishing and farming rice. Though land in the locality is very fertile for farming, there is no harvest when it floods, leading to famine and poverty. During floods, fishing is also affected, where there is a high demand for fish and low production. It means there is hardly enough food to survive on, not to mention the destroyed houses and property. Due to poor infrastructure, transportation and communication is also affected; and the little proceeds there are, are not easily sold. While families with a high socio-economic status invest more in their children's education, those from impoverished homes lack adequate learning materials and parental care at school. In this community, socio-economic causal linkages have led to a high rate of school dropouts and spread of HIV/AIDS, leaving the community more impoverished.

3. Parents

Tell me about the various school communities and the strategies they use towards promoting learning. How do they perceive these strategies?

i) School Communities

The community is indeed helpful, agrees one parent. However poor, they always strive to collect money to pay for teachers as well as foodstuff

> The relationship of teachers, pupils and the board is good and putting in mind that most teachers are parents, they work extra hard to ensure that the kids perform.
>
> - BoM parent

ii) Community Support

How do members of the BoM work with the community to promote learning during flooding? In your view, what more can be done to reduce the impact of flooding on learning in the school?

BoM creates awareness for parents about the importance of education and encourages parents to send their children to school. BoM works with the community to put up tents, to provide a higher ground for candidates and to sustain teachers on the BoM.

> What we normally do, during floods, we identify a safe area near the school where we can take our candidates. They are the ones who are the most affected. We don't want them to lag behind, so we attach few teachers so that they continue teaching them.
>
> Any matter involving the wellbeing of the school, we involve the parents and the local leaders. We discuss the way forward and come to an agreement as one.
>
> - BoM parent

iii) Culture and Perception

Tell me about the community's perception of BoMs. As a parent, to what extent are your needs represented at the school's BoM?

Parents elect BoM members who they believe are responsible people. While the community indeed respects the BoM as its link with the school, the BoM in return works competently to win parents' trust. One parent acknowledges that, through this association, needs are always met through amicable discussions with stakeholders. The BoM's inefficiency, according to the parents, was due to a lack of funds to execute per the community's expectation. There are huge delays sometimes, because the required protocol has to be followed.

4. Local Leaders

To what extent does the school community value education in this area?

i) School Communities

Local Leaders agreed that the society presently values education more than before, especially after experiencing the respect educated people in the community command. Despite the many challenges, local leaders acknowledge the significant role education has played in a number of children in the society. Successful learners have become role models for younger children and have contributed in *harambees*[30], attended school education days, donated books, identified donors like World Vision and other authorities to promote education through bursaries. Local leaders are ex-officio in most school meetings, where they attend school committee meetings, annual meetings and mid-term meetings:

> As a leader you cannot always wait to be called, you sometimes just go to see how the school is going on and that is when you get to know what the meetings are all about.

[30] All pull together spirit

They work hand-in-hand with the Disaster Management Committee that comprises village elders, assistant chiefs and other heads of the community to set up strategies about how to deal with floods.

ii) Community Support

In what ways have you used the community to help schools during and after floods?

One local leader said,

> Communities have come up and formed farming groups, where they help one another to do farming. We organise them, help them to form these groups, help them to apply for loans from the government, like 'women fund', 'youth fund,' 'CDF fund.'

iii) Culture

What are some of the beliefs, cultures or attitudes that affects children learning in this community?

Like principals and the other respondents, local chiefs also faulted *disco matangas* for having a very negative effect on learning.

> We arrest the owner of the home plus the owner of the (music) machine.

Local leaders are aware of child labour, where children work to supplement income at home. Through public *barazas*[31], local leaders announce aggressive strategies to warn/arrest parents whose farms are attended by school children. Practices like wife inheritance or desertion, where young mothers desert their children for a better life elsewhere, have been frowned upon for negatively impacting learning.

[31] a place where public meetings are held

5. Sub-county Quality Assurance Officer

The QASO felt that education is still not taken seriously in this community. He rated support from community and parents at 40%. He did, however, acknowledge support from parents for the Education Improvement Fund, but pointed out a non-supportive CDF in his area. The QASO observed that most of the learners in flood-prone schools improve when they advance to high schools. This was an important finding for my study. Could it be because most high schools in Kenya have boarding facilities?

6. Sub-county District Education Officer

To what extent are school communities empowered to introduce new strategies to mitigate the flooding issue? Do you get updates when this is done? How effective are they?

i) School Communities

The DEO confirmed that many activities exist courtesy of the school communities, the BoM and teachers. For example:

> The idea of boarding and going to school over the weekends is made by the parents, the assistant chief and the Area Educational Officer. The head teacher informs me by sending the minutes to me. As long as there is no complain raised, they manage themselves properly and they are in line with the educational policy, I always support the idea.

ii) Community support

How involved is the community towards learning? What challenges do you face working with the community? What can be done better?

The community, according to the DEO, is very supportive.

> They even assist in the rescue and evacuation process and boats that ferry pupils to schools.
>
> The main challenge is the negative attitude towards education.

iii) Culture

Generally what are some of the beliefs, cultures or attitudes towards education that may affect learning in this community?

> This thing (disco matanga) should be completely banned because in as much as we complain about it, NEMA (National Environmental Management) is also compromised through bribes and they allow them to take place despite the noise pollution and distracting our pupils.

Question 8. Mitigating Strategies

1. Principals and Senior Teachers

In your view, what needs to be done to increase both the physical and epistemological (quality) access to knowledge as far as floods are concerned?

Funds: Principals acknowledge support from donors, CDF etc., but would like state funds and grants to be channeled, based on specific needs. Schools require instructional materials and other infrastructure to make schools accessible. These include standard boarding facilities, raised classrooms and sanitation facilities with concrete foundations and steel cupboards to keep learning materials in during floods. Training from experts to construct proper latrines would be essential to avoid toilets sinking, due to poor construction.

Allowance: A special hardship allowance to be given to teachers for taking on extra lessons and hours, especially those that are overworked when a host school takes on pupils from other schools. Having qualified teachers from TSC would save the little funds that go into payment of their salaries, as well as reduce the extensive teaching workload. In as much as learning is an individual responsibility by all stakeholders, data reveals that teachers need to be motivated in many other ways.

Dykes: Building permanent dykes, dams and bridges would be helpful. Waterways like canals need to be created to lead out excessive water during floods. Also, widening of the

river course would be essential to contain excessive water. It was revealed that permanent dykes had still not been constructed as promised by the government twelve years ago.

Feeding programmes and food security: Most of the pupils do not have enough food as a result of the negative impact of floods. In some circumstances, pupils are orphans living with elderly or sick grandparents. School feeding programmes would be valuable. District Education Officers emphasised the importance of educating parents about how to store enough food for the flooding period. The government should empower parents through projects to eradicate poverty and, through the department of Adult & Continual Education (ACE), encourage exposure to programmes that promote sensitisation to the importance of education to parents.

Disaster management: Meteorological predictions need to be emphasised and simplified for people who are mostly affected so they will be able to understand them better. This also allows the community to respond in good time and move to safer areas early enough.

2. Local Leaders and Parents

Education days: There is usually an education day once a year to discuss education matters for all locations and sub-locations in the Sub-county. Local leaders propose an education day for each sub-location to adequately address specific needs of that area, involving a good representation from the community, and not only school heads and/or teachers.

3. Sub County District Education and Quality Assurance Officers

Flood resistant facilities: These are required to easily contain floods and boarding facilities to save time for learning. The Sub-county DEO proposes (BCC) behavioural change

communication for good morals to be instilled in the camps, as there tend to be immoralities, transactional sex, leading to STDs and other sexually-related ills.

Disaster management training: The community should also be educated on approaches to disaster management (preparedness, response, recovery and mitigation). There are enough books on preparedness and response as early as Standard 1; what needs to be expanded on are the recovery and mitigation approaches. Though there are response and recovery mitigations (e.g. boats, CDF funds, plus donor support to help resettle the population), a lot more needs to take place (e.g. counselling psychology for affected families).

7.3 Additional Participants

Having spoken to all the participants, I found it necessary to visit the offices responsible for disaster management and donor support, as well as public health, to build on some responses on disaster management and public health. I formulated questions based on the interviews I had carried out and sought responses as follows:

1. Disaster Management Office

What challenges does your office face in mitigating the flooding disaster
Key responses were captured:

> One of the major challenges we have in the education sector is that majority of the donors come in when an emergency has already occurred and during that period, there are schools that need help in evacuation to a certain area and well-wishers that come to help the school.

> I would rate them (government and donors) at 50% because they wait till it is late, after the damage has taken place for them to start responding. After the floods, they don't bother to help people to go back to their normal lives.

What would you do better in relation to donor support in partnership with the government?

Pre-disaster assessment:

I would ensure there is proper assessment before the disaster particularly involving people who are likely to be affected to know their crucial needs, because most times the government talks on their behalf and maybe that is not what they want. The donors might provide the means of transport for children to go to schools yet there are no schools for them to join.

Aspect of commitment:

I will ensure that these organisations respect and respond to their obligations especially if they have assured us of their help. Some promise to help and once disaster occurs; they are nowhere to be seen. In simple words, there should be an aspect of commitment and execution of pleas during floods.

Registering the affected population:

To monitor distribution of resources to affected groups, donors have to counter-check that the people registered for donor funding in the locality are the ones benefitting. This also helps with proper organisation in the camp.

Needy learners:

When it comes to the issue of education, we need to identify the number of a) pupils affected, b) the classes they are in, and c) if there are available teachers, to see if we can come up with class like structures so that they can continue with their studies while in camps; in a conducive environment, near their parents.

What can you say about schools that are performing and those that are under-performing in these areas?

I am not an educationist, but what I can say is that, when it comes to performance of some institutions, the administration plays a very big role whether they have the facilities or not. It is all about the school community of that particular institution.

2. The Public Health Office

I learnt that the role of the Public Health office is mainly to prevent the outbreak of diseases within camps, especially when dealing with vulnerable groups like children. In so doing, they:

i. Provide medication in the camp.
ii. Conduct sensitisation on hygiene and sanitation.
iii. Provide sanitary facilities within camps and mobile toilets.
iv. Provide mosquito nets and WASH.[32]

7.8 Summary

In this chapter, I have presented and analysed interviews based on the nine EA indicators. The findings in this study clearly support the claim about the importance of the nine factors, as contributing to the attainment of EA. In general, schools, parents and school communities have worked together for one common goal. The little divergence regarding communities may be attributed to the different perceptions of pupils and the communities around them. Besides, this community does not have significant cultural practices that negatively affect learning. Overall, it is evident that schools, together with other key partners, have put in a lot of effort to promote both the physical and EA, despite the prevailing circumstances. Where gaps exist, schools, school communities and other stakeholders provide mitigating strategies on how EA can be improved.

In the next chapter, I present the final analysis of data from FGDs and documents.

[32] Water, Sanitation and Hygiene

Chapter 8: Presentation and Analysis of Focus Group Discussions

8.1 Introduction

In the previous chapter, I presented and analysed qualitative data. In this chapter I present and analyse data obtained from FGDs. It is important to highlight that focus groups have been widely used in the behavioural and social sciences for many years, however, this methodology is now being used more frequently with the increased popularity of mixed-methods research designs (Galliott & Graham, 2014).

The purpose of this chapter is to add a layer of data to support the mixed-methods approach I have adopted for this study. In addition, the data will allow me obtain a broad sample of the voice of pupils' experiences on the flooding phenomena, since the questionnaire did not provide a chance to express themselves. I begin the chapter with a brief outline of the preparation and characteristics of the FGDs. I then discuss my analysis process before analysing the responses in relation to my research questions. From the responses, I developed themes to be interpreted together with those from Chapters 6 and 7. Before concluding, I provide a brief analysis of the documents that I used in the study. I have chosen to analyse documents with FGDs in the same chapter, because both of these data-gathering methods have a comparatively shorter analysis. I now turn to the data analysis process

8.2 The Data Analysis Process

Before embarking on the actual analysis, I provide a brief summary and my approach with regard to FGDs. I conducted focus group discussions over a six-week period during the

third term of the 2015 school year (September – December) in Kenya. I collected data in a school environment from a group of Standard Eight pupils from each of the five primary schools, using six semi-structured group interviews that lasted from ten minutes to half-an-hour. Each group comprised of ten students: five males and five females – a deliberate effort to balance gender. I have discussed the selection of these focus groups in detail in Chapter 5. I used coding to identify new themes that I related to the already existing ones from previous data collection methods. Table 8.1 below illustrates participating schools and their characteristics, which include the level of performance, intensity of flooding, number of participants and their genders. I believed these variables would bring more meaning during FGDs.

Table 8.1. Participating schools by performance, flooding levels and gender of pupils

School code	Performance	Flooding level	Total number of participants	Male	Female
School A	low	mildly affected	**10**	**5**	**5**
School B	Good	affected	**10**	**5**	**5**
School C	average	affected	**10**	**5**	**5**
School D	Fluctuates	affected	**10**	**5**	**5**
School E	Below average	severely affected	**10**	**5**	**5**

Through an open-coded process, the focus group data analysis revealed several themes linked to pupil experiences during floods. I generated themes based on topics of discussion that I carved out by way of grouping responses. From these, I identified similarities and differences between units of data (Ryan & Russell, 2003), as well as employing 'metacoding' to evaluate the relationship between previously identified themes to identify

new overarching themes. The six key points were: importance of education, school support, flood disruptions, parents and the community support, and other general responses. On each question, I included a bar graph indicating the percentage of pupil responses on the topic. This not only allowed me to assess the importance of the questions, but also to compare responses at a glance. Two key aspects to highlight are that, firstly, I did not edit the language of the pupils in order to familiarise myself and other readers with the language level and competency of pupils. Secondly, as already mentioned in my methodological chapter in Section 5.5.4, I guided the FGDs, together with my research assistants, because after piloting the study, I realised that pupils could not sustain a conversation on their own for more than ten minutes, as is expected of a FGD. To obtain information, we probed the discussion, but we were careful not to influence their thinking (refer to Appendix M). In so doing, I was able to capture the views and feelings of pupils and plunge myself into their world by using a particular vocabulary and possibly combining, where appropriate, verbal and visual languages (Galliott & Graham, 2014), which explains the effects of language and expressions on pupils. Below are the questions I formulated.

8.2.1 FGD Questions

1 Why is education so important to you?

2 How well does this school help you to achieve your goals?

3 In what way/s do floods hinder your progress?

4 What does the school do to ameliorate the effects of floods?

5 Do your parents and the community help to reduce the effects of floods?

6 What else can you say about the issue of flooding and its impact on your learning?

I now present data that I obtained and an initial analysis in relation to my research questions.

Question 1: Why is education so important to you?

I framed this question from a capability approach lens to gauge the value these children placed on education and especially coming from such a background.

Some of the learners' responses were:

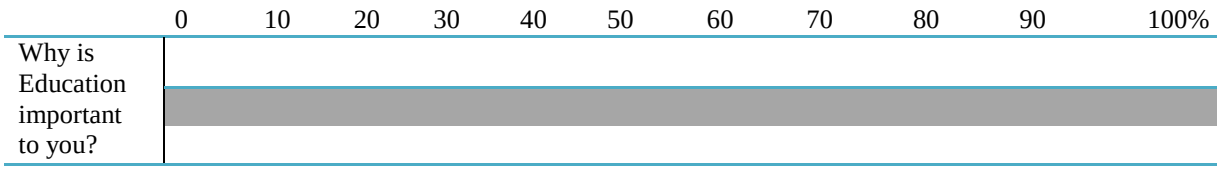
> If you give both a learned and a non-learned person a thousand shillings, the one who is educated will use it well while the one who is not educated will misuse it.
>
> - Boy, School B

> Education helps you to be who you want, for example to be a professor you need to pass through education, you need to be schooled. Now when you go to school and get the skills it is when you will achieve your goals and you will be separated from those who have not learned, now you can learn more and even build schools to help your siblings.
>
> - Boy, School C

> Education not only helps us to know how to read and write but also living in a society to behave well and also putting up projects in the village that can develop that village.
>
> - Girl, School, C

Responses demonstrated that pupils understood that educated people are better thinkers and planners all round. All children stated that education would better their lives and make them valuable participants in their societies. It was interesting that, out of the five focus groups from the five schools, no one child said education had no value, despite the environment they came from. I tried to sway their minds in many ways, but they remained focused. The response pattern was 100% as depicted in Table 8.2 below.

Table 8.2 Importance of Education



From the above question, I asked what the children thought was happening to those that were not educated and if at all they were any different. They said that such people are suffering because they are unemployed and cannot sustain a family. This prompted my question, 'Were there no uneducated people that were doing better?' The pupils agreed that there were, but they were not happy and often fell prey to peer pressure, instead of making better decisions. They unanimously agreed that the uneducated do not know how to read and write, are susceptible to drugs and fights, lack good reasoning and generally behave badly. What emerged around the question on the importance of education were six key areas related to: A good future, better life, good reasoning, providing for family, fitting into the modern society, positively participating in the society, among other positive responses.

Question 2. School support

The question on school support was discussed under two topics.

Question 2: How well does this school help you achieve your goals?

Question 3: What does the school do to ameliorate the effects of floods?

The aim for question two was to discuss school support in terms of teaching and learning, while question three aimed at strategies the school employs to curb the effects of floods. I designed it so that these topics work together to enable me to answer my first research sub-questions on how schools promote physical access. From their responses, I partly got answers for sub-question four about what needed to be done to increase the physical and EA in schools. I then analysed pupils' responses under one topic – school support. It was interesting how pupils responded to these topics. An example of a good response on **question two on how well the school helped achieve goals** was:

> Education is life, you cannot succeed without education and the only place to get that education is in a school, and this school helps us to do that through teaching us.
>
> - Boy, School D

Other responses on how well the school helped achieve learner goals were:

> Our head teacher calls the school community and discuss and he understands that the fact that we are from flooding, there is no adequate funds so teachers at times volunteer to teach during those extra hours and what we can do to respond is to come on time for those extra lessons.
>
> - Girl, School B

> Some times when teachers are not able to come to school, some parents and the head teachers talk to learned people who have just cleared form four and university to come and teach us and we contribute something for them.
>
> - Girl, School B

From the above responses, I noted that there is a very strong relationship between the school, the school community and parents. Furthermore, the BoM worked with the school to bring in untrained teachers to support learning. However, there was a different view from Schools C, D, and E that, if they do not pay teachers for extra learning, they do not attend extra classes and nobody looked for them.

> We pay 400 (meaning KES. 400) per term and come with 2 tins (meaning a 2 kg container) of maize and also 2 tins of beans per pupil.
>
> - Boy, school C

These responses prompted me to ask the following questions:

'Have you ever been sent home to get money for extra classes? How long did it take and did it affect you?'

> Yes, it took a day and I felt bad because it makes a big difference putting in mind we are preparing for the final exams. If I miss the extra lessons, I might end up losing everything.
>
> - Boy, School D

'Who has missed remedial classes for more than 2 days?'

> Me, I had refused to come during the weekend because my parents had not paid and I missed a lot.
>
> - Boy, School D

'When you stay away from school, does the school look for you?'

Pupils: (In unison) No!

I was away for one month and nobody looked for me.

- Boy, School D

However, there was a mixed reaction when I asked pupils if indeed the school asked them to stay at home when they did not pay. Pupils said that their teachers were very dedicated and followed up on learning through homework. Over all, pupils agreed that indeed the school helped them achieve their goals which they are well aware of from topic 1 discussions.

Question 3: Regarding the discussion on how the school ameliorated the effects of floods, Pupils found themselves talking more on the effects of floods, before stating how the school ameliorated the effects. The following were some of the quotes from pupils:

When we come back after floods we find that our properties at home are destroyed, we have to start from scratch. The classes are also in poor conditions, at times we don't have books, no toilets, it even makes it hard to concentrate in class and listen to what teachers are saying.

- Girl, School B

When we do exams and you compare with the last one that we did before the floods, you will see that we have dropped.

- Girl, School C

After floods, many people are normally sick. The floods cause diseases like bilharzia, cholera, malaria and many other diseases.

- Boy, School B

Time goes while we are out and when we come back it is the time you can do end of term exams and maybe we have not finished the syllabus because of floods and those who are in class, you don't have your notes that you write before so you will still be affected.

- Boy, school C

> Our head teacher calls the school community and discuss and he understands that the fact that we are from flooding, there is no adequate funds so teachers at times volunteer to teach during those extra hours and what we can do to respond is to come on time for those extra lessons.
>
> - Girl, School B

About the shortage of teachers, learners said they did not run short of capacity:

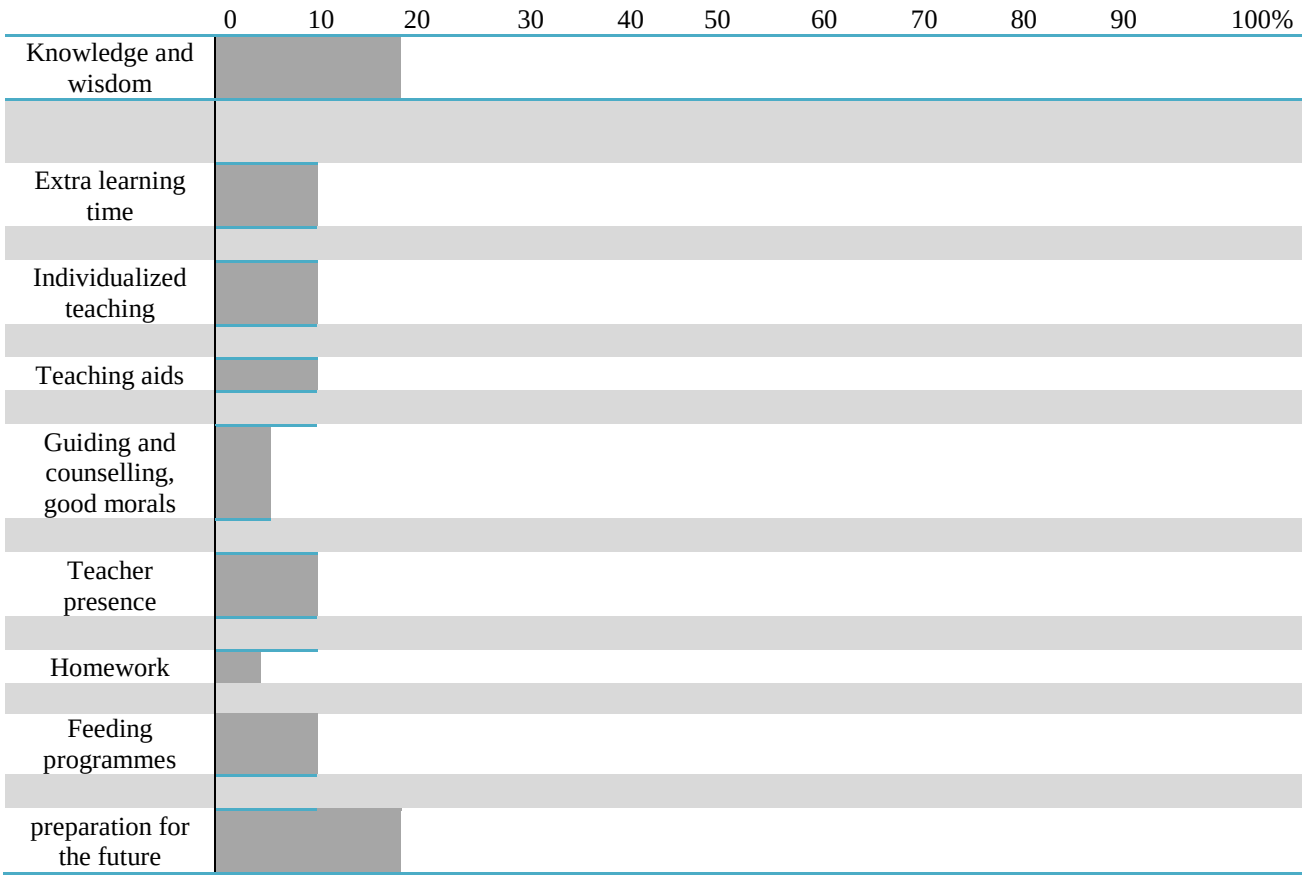
> Sometimes when teachers are not able to come to school, some parents and the head teachers talk to learned people who have just cleared form four and university to come and teach us and we contribute something for them.
>
> - Girl, School B

The school also worked with other communities to help pupils learn as much as possible and to try and rebuild school facilities ready for learning again.

> After floods, like the 2011 floods our toilets sank so the school management met with teachers and parents. They agreed to ask the CDF (Constituency Development Funds) to help which they did and constructed new toilets for us.
>
> - Boy, school B

The variety of responses for the two questions on 'school support' is depicted in Table 8.3 below. My observation was that most of the responses on this topic came from school B, affected by floods, but a well-performing school. The fact that pupils began with highlighting effects of floods before discussing how the school ameliorated the effects could either mean: that the impact of floods remains in their memory and is released at any given opportunity, or that what the schools do to militate against these effects is not as significant; or both.

Table 8.3 How well does this school help you achieve your goals?



Question 4: In what ways do floods hinder your progress in learning?

I formulated this question to answer my sub-question two on how schools promote EA. When pupils were asked in what ways floods hindered their learning progress, they all had interesting things to say about how negatively floods impacted on their knowledge attainment.

> It destroys our books (Text books) then during floods we are forced to move from these low areas to high areas. It wastes a lot of time especially settling in the high areas and finding suitable schools in those areas.
>
> - Boy, School B

When I asked this pupil what it was like to combine schools, another boy interjected:

> We are combined with other students but there is no serious learning because teachers are not always there and the classes are conducted outside because the classrooms are used as people's homes.
>
> - Boy, School B

This example demonstrates that floods do disrupt and hinder learning progress. For instance, it came up in the discussions that, during floods, some pupils go fishing along dykes and once they get money, they forget school, leading to dropouts. This prompted me to enquire how many in the group had sold fish and how much it was.

> Yes, a big one goes for KES 500. Many find it a good business and don't want to continue with education but for me, I decided to come back to school.
>
> - Boy, School B

The pupils reported that teachers did not prepare well, due to floods. They also felt that because of floods, learning was not equal to that of their counterparts in non-flood-prone schools.

> When floods came here, it came over these buildings and entered these classes so we are not able to sit here so we are forced to go to high areas that are not affected and there you will be idle and those that are not affected will still be learning,
>
> - Girl, School E

Pupils talked of poor school infrastructure as a result of the destruction of some of their semi-permanent classes during floods. They also talked of floods destroying their homes, forcing their families to migrate to higher areas. In some cases, they would go with their parents, which meant transfers to nearby schools, or absence altogether. This prompted me to ask how they got to school and if they used boats during this time.

> You only use the boat while carrying your property from one place to another, not the normal movements to school.
>
> - Boy, School C

In fact, when floods came, the entire community camped at schools, and there was no movement at all. This meant the pupils camping in schools would automatically attend school there. If one was lucky, it would be their regular school; and even if it was, learning would still be disrupted. This has its consequences, the major being dropouts, repetition and sometimes teenage pregnancies and marriages. Those who sift through progress remained weak academically due to not finishing the syllabus:

> The last massive floods were in the year 2011 while we were in class 4 third term. We had to close school and when we came back in January we joined class 5.
>
> - Pupils in all schools, except School A

School A is among the schools that host pupils from other schools. Though these pupils did not have bad experiences from floods, they too had their challenges:

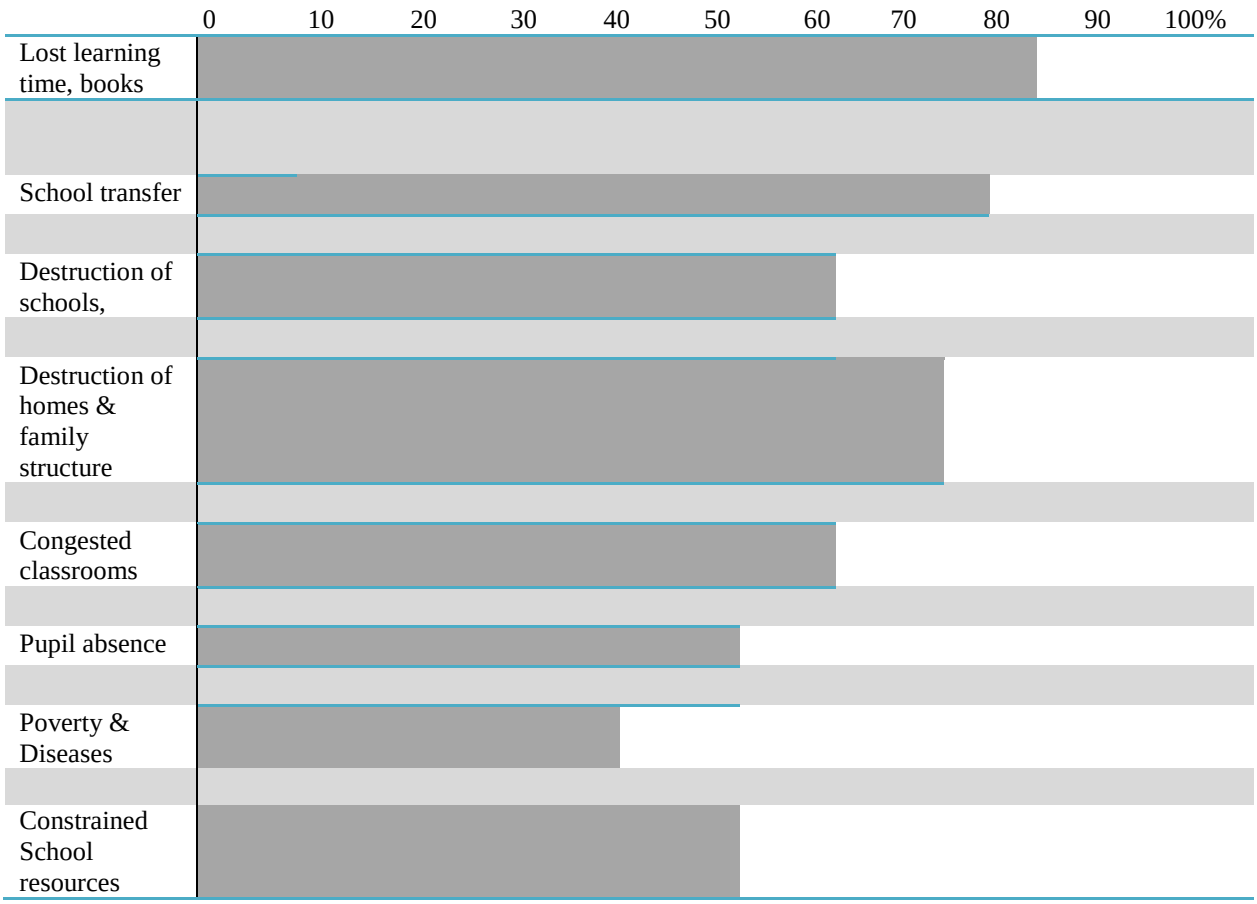
> Floods can affect our learning by flooding in some areas where we have schools, so when people learning there can transfer to schools that are high where floods can't reach. They will be there, many congestions in classes so people cannot learn well.
>
> - Girl, School A

When asked if they felt they could not compete with these other schools at the same level, they all disagreed. This is what they one girl said,

> No. Because when our teachers come to class for one lesson, he taught us many things to pay for the time lost. We won't write full notes but he would give us a summary that we will understand.
>
> - Girl, School C

What the children are confident about is that, yes, floods are a hindrance to their progress, but should not be the major reason as to why they do not do well. Floods have become a part of them and they have learnt to live with them. For them, there are other needs that, if put in place, will result in proper learning. Table 9.4 below highlights the main hindrances to pupils' progress, as discussed.

Table 8.4 In what ways do floods hinder your progress?



Question 5 Do Parents and the community help to reduce the effects of floods?

I formulated this question to partly answer my sub-question three about how school communities perceive strategies to be effective in promoting EA. When pupils were asked about the role their parents and the community played to reduce the effects of floods, all of them agreed that their parents really supported them as well as the school. Some of the common answers were:

They give us examination fees
They give us food that we cook in school
They co-operate with the teachers
They ensure we come to school

Specifically, pupils said the following:

> Parents ensure pupils arrive at school safely by bringing them to school every morning.
>
> - Boy, School D

> Parents pay extra money for extra classes and those with money take their children to relatives in towns, or higher areas, for safety.
>
> - Girl, School C

Transfer to other schools sounds desirable, but when asked if pupils liked to be taken to other schools in case their parents had money, they unanimously said no. It means that these children just love being in their schools: it is not about going to towns or cities to learn, but being comfortable in their schools. It is also evident that parents do not only support activities towards school but also do community related work.

> Parents can help us to put some sand dyke so that water does not move to this side. Even they can dig a big hole where water will come and stagnant (meaning stagnate) there and not destroying people's plants and shelters,
>
> - Boy, School A

Most pupils agreed that the community had a positive contribution towards reducing the effect of floods.

> The community helps us to construct dams so that when floods occurred, that water is stagnant in the dam and the force of the water will be reduced and they will not go to destroy schemes. Those are the positive things the community is doing.
>
> - Boy, School A

> They (community) minimize the flow of water by making smaller streams.
>
> - Boy, School D

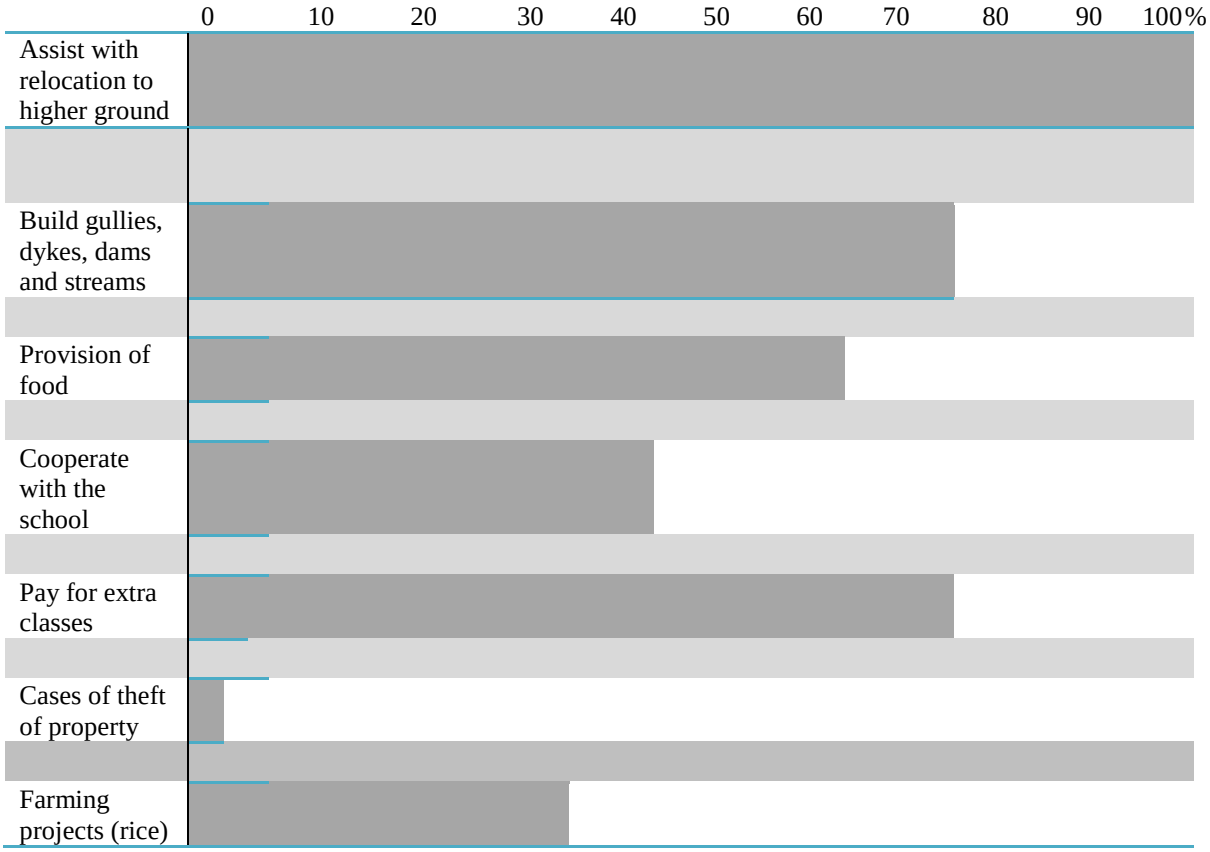
> They construct gullies to prevent soil erosion.
>
> - Boy, School D

Out of all the five schools, only school E (the worst performing) had negative comments about the community. They agreed that parents supported them very much, but the community did not value them being at school:

> The community destroys and steals school property when it floods
>
> \- Girl, School E

It appears that there is a significant relationship between the community, culture and the school, with a gap in school E, where children feel that they are not part of the community as far as learning is concerned. Would it be the reason for their dismal performance compared to their counterparts experiencing floods in the same measure? Table 8.5 shows responses raised by learners by percentage.

Table 8.5 Do your parents and the community help to reduce the effects of floods?



Questions 6: What else can you say about flooding and its impact on your learning?

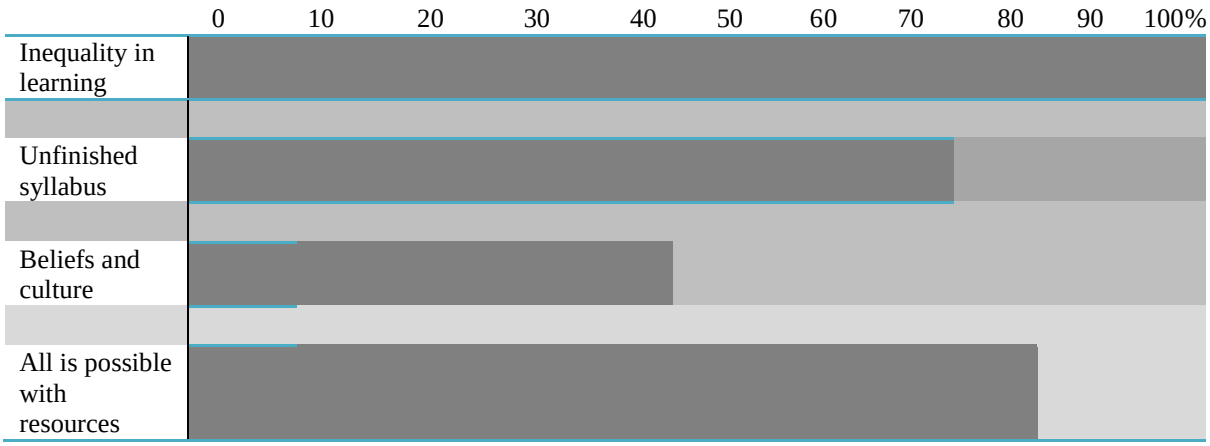
Other than the five guiding topics pupils were asked, I asked them if they had any other issues on the impact of flooding they wanted to share. Pupils in School B (good performing) agreed that indeed floods destroyed their school infrastructure, homes and books, but they were very sure they worked hard when time allowed and would make it to national schools[33]. However, when asked if they believed that learning was equal with other schools, they all disagreed:

> When floods come we normally stay at home while other schools in Kenya are learning. When we do the same exams, we cannot perform very well because we spend most of the time at home doing nothing as people are learning.
>
> - Boy, School A

> During floods, we cannot come to school fully because the school plays host to affected families. Because of those circumstances, we cannot finish the syllabus early.
>
> - Boy, School A

> Like I had earlier said, floods affect our education. At times, we are forced to stay at home while those in urban won't be disturbed by those things. They will be in school learning and they will have a peaceful mind but for us we will be disturbed.
>
> - Girl, School A

Table 8.6 What else can you say about flooding and its impact on your learning?



[33] The top-notch category of secondary schools in Kenya where best performing pupils in KCPE examination are admitted

Focus group discussions were the last data gathering method in my field research. Findings were interpreted together with questionnaire responses and interviews. In the next section, I briefly present and analyse the documents used in this study.

8.3 Documentary Analysis

Documents are written records (McMillan, 2012, p. 294), the process of analysis of which involves reading.

Table 8.7 Document Analysis

Documents	**Purpose** Explore documents and themes without bias; study topics at a distance, to corroborate other data	**Analysis Approach** Manually analyse documents of interest through:
Bunyala Sub-county annual reports	To see education personnel, staff, education strategies and meeting agendas of education concern in the Sub-county	Extensive reading of documents gathered Identifying key themes and relationships Determining a concept for each document
Teaching methods	To see the kinds of teaching methodologies used by teachers, and their effects on learning	Identifying methods used at different points in recent history Identifying trends in communication
School board reports	To see leadership styles, school population, school demographics in gender (learners and teachers) school mean-scores -Identify messages that were difficult to see with casual observation - For consistency	Establishing a unit of analysis i.e. -Gender of teachers -Instructional leadership -Performance at a glance
Photographs	To show specific school structures and cultural patterns	Examining differences in school buildings, Establishing cultural differences or cultural change
Statistical data	To obtain demographic information about staff and pupils, dropout rates, enrolment rates, gender disparity, attendance records, achievement records, continuous assessments and national examination scores. Also for consistency	Determining trends and patterns of performance, enrolment, attendance, funding

For me to locate relevant data from the documents, I took time to read the documents listed in Table 8.7 carefully, since document analysis (Leedy & Ormrod, 2010, p. 156) involves the greatest amount of time at the front end of the project. In line with McMillan and Schumacher (2010, p. 360), I endeavoured to interact with individuals in the field during this time, because in school settings one must interact with individuals, even if only nonverbally and, to some degree, become a participant.

I read and analysed official documents together with Sub-county education officers, principals, teachers, Sub-county health and donor support officials and, to some extent, the pupils. Table 8.7 below illustrates the type of documents I used and what purpose they served, as well as my analytical approach. This was very useful, as it allowed me to further draw interview questions on the flooding situation from this analysis.

8.4 Summary

In the previous chapters, I engaged with the presentation and analysis of quantitative and qualitative data. In this chapter, I have presented and analysed data from FGDs based on the six key points: Importance of education, school support, flood disruptions, parents and the community support, and other general issues affecting learning. I have also analysed documents in form of reports and teaching methods, where several themes related to the impact of flooding and attainment of knowledge have emerged. This chapter concludes the data analysis and interpretation phase of my study. In the chapter that follows, I use the analysis to answer my research questions.

Chapter 9: Going back to the Research Questions

9.1 Introduction

In Chapters 6, 7 and 8, I presented and analysed both the quantitative and qualitative data I gathered for this research study. The main purpose of this chapter is to use the analysis to answer the research questions, which will set the scene for the answer to my broad research question. I started off this thesis by asking how EEA might be achieved in flood-prone schools in western Kenya. My main argument was that learning goes beyond the physical access, and that it is one thing to access school and another to access quality knowledge. In summary, I considered exploring nine indicators to assess EA in flood-prone schools of western Kenya. Drawing on Amatyr Sen's capability approach, Nancy Fraser's social justice and Bhaskar's critical realist theory, I problematised issues of attainment of knowledge in relation to the extent to which it fostered key individual capabilities within the Kenya context. I applied the convergent mixed-methods research design to interpret both qualitative and quantitative data to determine whether pupils in flood-prone schools are distinctly disadvantaged as far as EA was concerned. I now present the results of the study and their implications for my research questions.

9.2 Results and their Implications

The study sought to answer the principal question:

How might equitable epistemological access be achieved in flood-prone schools in Kenya?

To respond to the principal question, I formulated 3 sub-questions:

a) How do schools in flood-prone areas promote epistemological access?

b) How do schools in flood-prone areas promote physical access?

c) In what ways do different school communities perceive strategies to be effective in promoting epistemological access?

The first step towards answering my research questions is for me to reflect more analytically on the findings in Chapters 6, 7 and 8. To do this, I return to the nine common indicators of EA: time-on-task, resources, teaching methodology, instructional leadership, teacher motivation, parental involvement, school communities, the community/environment and culture. Based on the data drawn from the multiple data collection methods, I now begin to answer the sub-research questions as follows:

9.2.1 Sub-question 1

How do schools in flood-prone areas promote physical access?

Data gathered from different sources shows several ways in which schools promote physical access. The data seems to suggest that schools promote physical access through the following four main ways: a) availability of school resources b) school-driven teacher motivation c) instructional leadership and d) parental involvement. What follows is a discussion of each of the ways.

a) Availability of school resources

Learning resources are a major factor and have consistently been associated with high achievement in schools, without which pupils' academic performance is affected, leading to a decreased interest in education and eventual dropouts (Abagi & Odipo, 1997). In my analysis, I categorise school resources into two: a) availability and b) the management and utilisation of resources. From data, it emerged that availability of resources is a major factor contributing to the promotion of physical access. Principals, pupils and other respondents clearly established that educational resources were important ingredients for academic

achievement in their schools (Zuze, 2008). Schools endeavoured to promote the availability of resources to support infrastructure and basic meals for teachers and pupils, using FPE and other supplementary funds. From data it was clear that some schools had a few permanent structures and could access learning materials and basic meals to support learning. However, findings suggested a lack of adequate and appropriate conventional, as well as school, organisation resources in both measures. Conventional resource measures refer to the availability of textbooks, furniture, technology, electricity, blackboards, a library and other basic infrastructure like school buildings. Though schools received funding and tried to supplement their income through mobilising resources and other income generation activities, it was not enough. Findings revealed inadequate facilities and learning materials as a major and direct problem confronting flood-prone schools.

Out of the 191 pupils participating in this research, a total 58.2 % indicated a lack of basic facilities, like toilets in schools. Schools lacked learning-specific facilities (library, laboratory, and other resources) and also concentrated less on co-curricular activities (sports, cultural events) normally related to good performance (Chudgar, *et al.*, 2015, p. 529). There was not enough furniture, as it was partly damaged by parents who used schools as homes during floods. Cases of overcrowding were evident in most schools, not necessarily due to high populations, but due to inadequate infrastructure due to floods. As a result, there was a high grade repetition linked to poor performance in these schools. Traditionally, schools with higher levels of grade repetition would experience overcrowding in (Zuze, 2008) classrooms, ultimately leading to lower achievement.

Measures of school organisation, particularly the provision of meals, was also key. Evidence from data pointed to an impoverished society with widespread poverty, largely attributed to

flood effects. Findings across all respondents revealed a lack of feeding programmes in most schools. From data, it emerged that 68.6% of pupils did not receive meals at school. The remaining percentage implied that either there was no such arrangement in their schools, or that pupils had to pay for their meals at school, without which they missed meals. Results further showed that schools that provided free meals (School B) to both teachers and pupils, performed much better because learning always improved with the introduction of feeding programmes, however meagre. In fact, data revealed that there was a close link between meals and performance, which was not necessarily related to the socio-economic background of pupils.

Though recent efforts to increase resource availability to support infrastructure and meals were slowly gaining ground in this area, an interesting result in this study revealed that FPE funds in every school were allocated per pupil and not per needs. It is not surprising that the least funds were allocated to flood-prone schools, obviously because their population was comparatively lower, yet, as evidenced, these pupils needed more resources to learn better. In principle, these schools received funding calculated on the basis of per capita (per child) unit cost per year, which stretched beyond purchasing learning material to wages for non-teaching staff and school maintenance (Alubisia, 2005, p. 46). Firstly, following a recent study and documents available in schools and the Sub-county education office, the unit cost allocated (KES 5,134) was way below the actual cost of educating one child in a year (ibid). Secondly, given the small population in these schools, the allocation may not be channeled to the development of infrastructure, as schools have other pressing needs (e.g. instructional materials) to deal with, as a result of destruction by floods. Data revealed that flood-prone schools largely depended on donor support, politicians, parents and, occasionally, CDF as supplemental funding for policy-based FPE funds. The truth is, not only are these funds

unpredictable, but do not also allow schools and the county administration to plan according to priorities. These schools have resorted to parents supplementing the school financial obligation, yet the local community remains largely impoverished and strains to meet any basic financial demands. Despite this challenge, schools have still worked towards promoting physical access with the few resources at hand. The second indicator under school mediated factors is teacher motivation initiated by the school.

b) Teacher Motivation (School Driven Incentives)

Teachers' attitudes towards their work and to pupils, classroom management and their interaction with pupils have a great impact on academic achievement (Abagi & Odipo, 1997, p. 16). In my analysis, I look at teacher motivation in two ways: motivation from the school, which I refer to as 'school driven teacher motivation' and internal teacher motivation, that comes from within the teacher, who is orientated towards job satisfaction. Findings indicated that, to promote physical access, schools had incentives in place as a way to promote their teachers. They had introduced gains, both monetary and non-monetary, to motivate teachers. Non-monetary gains included basic meals for teachers and food stuff from parents, plus other minor forms of rewards. Schools also had allowances, training and seminars as platforms to share ideas (e.g. on how to complete the syllabus in a short time). The BoM endeavoured to hire extra teachers to reduce extensive workloads teachers carry due to extra learning time. The biggest challenge with this has been that schools tend to work on their own to find resources to motivate teachers. It emerged that parents occasionally supplemented by the school BoM were burdened to financially support incentives related to teachers' increased workloads. It was evident that schools endeavoured to provide incentives like meals and rewards that eventually became unsustainable, due to inadequate funds.

Instructional Leadership

In an effective school, the principal acts as an instructional leader and effectively and persistently communicates that mission to the staff, parents and students (Lezotte, 1999). From findings, it was evident that principals understood and applied this practice to promote instructional effectiveness. Schools had, and continued to manage, the instructional programme through the principal as the instructional leader. Through this practice, schools in this study understood and embraced this spirit to build the capacity and confidence of their teachers towards their schools. Throughout the interviews, teachers in the five schools were generally happy with the status quo and appeared to be satisfied with leadership in their schools, mostly because they participated in decision-making and the running of the school. The school climate seemed to be just fine in most schools, as every teacher got a chance to lead in respective areas. Three out of the five principals interviewed rotated responsibility amongst their teachers to build their capacity in different departments, which I found positive. However, findings revealed that the standards for instructional leadership focused primarily on the principal and teachers only (ibid). I now turn to parental involvement as the last indicator under this category.

Parental Involvement

In the effective school, parents understand and support the school's basic mission and are given the opportunity to play an important role in helping the school to achieve this mission (Lezotte, 1999). There is evidence that aspects of family involvement in education do help more students succeed. In fact, parental involvement (Epstein, 2005) has short, and long-term benefits in, and after early childhood education programmes. Data indicated that teachers and pupils in flood-prone areas generally embraced parental involvement in school work, but it appeared that parents did not prioritise this. It is evidenced from data that

schools with the support of the Sub-county education office and local leaders, to a larger extent, endeavoured to promote physical access through parental participation. Data further revealed that a majority of pupils believed that parental participation in their school work would make them succeed more. Of interest was that most parents understood the importance of parental involvement at school and were willing to participate, but did not. Some participated at school, but the participation was not academically related. Rather, these parents dedicated their time towards school farming and other activities they were familiar and comfortable with. These parents volunteered to do this work, but could not attend a single meeting with teachers on their children's progress at the same school. It appeared that some parents got involved in other school activities (e.g. farming), partly because it was prestigious to be associated with the principal. One principal said that the participation was just to be in 'good books' with the school administration. However, when I asked the principal and senior teachers further questions, I got the sense that schools did not know how to deal with parental involvement in school matters effectively, let alone increased levels of parental participation. When I asked parents about their involvement at school, some said they were too illiterate to participate in anything academic for their children and therefore preferred to stay away. Others were too preoccupied with family commitments to attend any school matters and, therefore, did not prioritise school activities. A further result indicated that, when aggressive strategies were used on parents to attend progress meetings of their children, they complied. Of interest was the fact that parents got more interested in participating in school activities of their children in the candidate class. They provided support like meals and learning material. They also attended meetings as required, probably to support their children to excel in an education system that is traditionally examination-orientated. This is an area that requires further attention, perhaps more encouragement on school-family collaboration.

9.2.2 Sub-question 2

How do schools in flood-prone areas promote epistemological access?

Findings showed that schools used four main ways to promote EA in their schools. These were mainly factors that directly relate to learning and teaching in the classroom. They included: time-on-task, resources (management and utilisation), pedagogy and teacher motivation (internal) - as follows:

a) Time-on-task

In Chapter 4, I emphasised the positive impact learner time has on EA, where the length of instructional time is a matter of considerable significance and a strong indicator of students' access to learning opportunities (Leyendecker *et al.*, 2008, p. 48). This study revealed a distinct disadvantage for pupils in flood-prone schools, with regard to the time they spent actually learning. Both quantitative and qualitative data indicated that there is little engaged time spent on learning in flood-prone schools. Following Karweit (1984), it is evident that a significant amount of learning time, close to three months in a year, is lost due to floods. It means that the time pupils are engaged in class is less compared to that in normal schools. This has resulted to repetition for about 65.4% of pupils across the five participating schools, primarily due to poor performance as a result of a lack of concentration, lost interest in school, demotivation or attention to other matters on the part of pupils, teachers and parents. This is hardly surprising, because people would naturally turn to more pressing emergencies when under pressure (e.g. protecting property or fending for means of survival), rather than prioritise education. Forced repetition has led to many cases of dropouts, according to 53.4% of pupils.

Data revealed that, with a tight policy on the school calendar, schools toiled to ensure that the syllabus is completed in standard time through extra learning. Results further revealed a significant effort from schools to enhance time-on-task to promote EA where principals, senior teachers and Sub-county education officers agreed to extra learning hours to compensate for lost time during floods. A further result revealed that this was a workable strategy, where teachers committed to teaching extra hours early or late in the day, including weekends. It appeared that schools, pupils and parents felt they had successfully met the set criteria on extra learning time. Some had even constructed basic dormitories, or turned classrooms into dormitories in the evenings, to allow pupils to cover the syllabus. Unfortunately, the Sub-county education office did not co-ordinate the extra learning in schools; it was fully managed by the school under their own terms. The biggest challenge in this strategy lay in the compensation of teachers' effort, where schools were forced to turn to the already burdened parents for financial support. This, perhaps, explains the reason for the mixed reaction from pupils with regard to extra time received to compensate for lost learning time. It was, however, revealed that some schools (Schools B and C) still performed better, despite the loss of learning time. This should motivate further research on what it is that these schools did to perform better.

b) Resources (management and utilisation)

Good management and utilisation of resources promotes EA in schools (Chudgar *et al*., 2015). Data suggested that schools put the few resources available to them to good use. In so doing, they managed to provide basic learning materials and school meals to their teachers and pupils. They also put up basic dormitory facilities for Standard Eight pupils to allow more learning time in the morning and later after school. Teachers, on the other hand, put every resource towards promoting their teaching methods. They went as far as improvising

teaching aids (see Figure 2 in Appendix O) to support their teaching, as well as mobilising resources to help buy text books and other learning facilities to support their pupils. Some schools even had school income generating activities (e.g. rice farming) to supplement resources, the most common being meals at school. What I learned was that it is one thing to avail resources to schools and another matter to manage and utilise the resources appropriately. Data from the BoM further indicated misappropriation of school resources, especially cash, by some schools where resources were not utilised for the purpose for which they were allocated. This not only resulted in bad blood between the BoM and the school administration, but also in the reduction of resources, which affected pedagogy among other learning practices. Alternatively, there were cases where schools misappropriated funds, while others had learning materials, like books - specifically those on disaster management, lying in the school stores without use.

Pedagogy

Appropriate teaching methods embrace both the general teaching methods and practical learning. Teachers need to know general theories and philosophies of teaching and learning, as grounding to a more precise understanding of how specific subjects can be effectively taught (Maringe, 2017). Schools, together with the Sub-county administration, have put in significant effort to improve teaching methodologies. There are TAC tutors who organise seminars and workshops on pedagogy to train teachers on how to complete the syllabus in a short time, among other skills. Teachers are exposed to SSMASE and funding seminars to strengthen their capacity. They also do benchmarking and exchange programmes to learn from each other about how to improve their teaching skills. In addition, INSETs (In-Service Education and Training) are conducted for teachers to generally improve on the teaching methodology.

It emerged that practical teaching in flood-prone schools (learning aids, charts, real objects, cards etc.) enhanced learning and made it real. Findings further revealed the willingness of teachers to employ proper teaching methodology, but discouraged by a lack of teaching aids for instruction. Currently, there are neither teaching aids, nor libraries to support practical learning. In order not to be held accountable for failure, they improvised teaching aids and, through concerted efforts, came up with practical ways of teaching. Of interest was that most of the improvised teaching aids worked well, but were foreign[34]. It was also not surprising that there were notable negative learning effects in schools where teaching aids were not used.

Children's participation in education is closely linked to improved teachers' classroom methods (Alubisia, 2005, p. 89), therefore the key to success lies in the adequate preparation of teachers with regard to methodologies and practical learning (ibid). Data indicates that teachers commonly used the lecture method as the only practical teaching method, which they all agreed was not appropriate for children. If time allowed, they supported the lecture method, with the question-and-answer teaching style to allow for interactive learning to understand the learning levels of learners. When confronted with time constraints to cover curricular content, they resorted to giving notes, homework and further reading to pupils. Findings also indicated that teachers could not cope with individualised learning, as they were already overstretched teaching extra time. Individualised class teaching is the combination of class and individual teaching methods (Steyn *et al*., 1981). Instead, they applied peer learning and what they referred to as 'class *ability groups',* where a stronger pupil would guide the weaker ones. In addition, teachers employed remedial teaching for

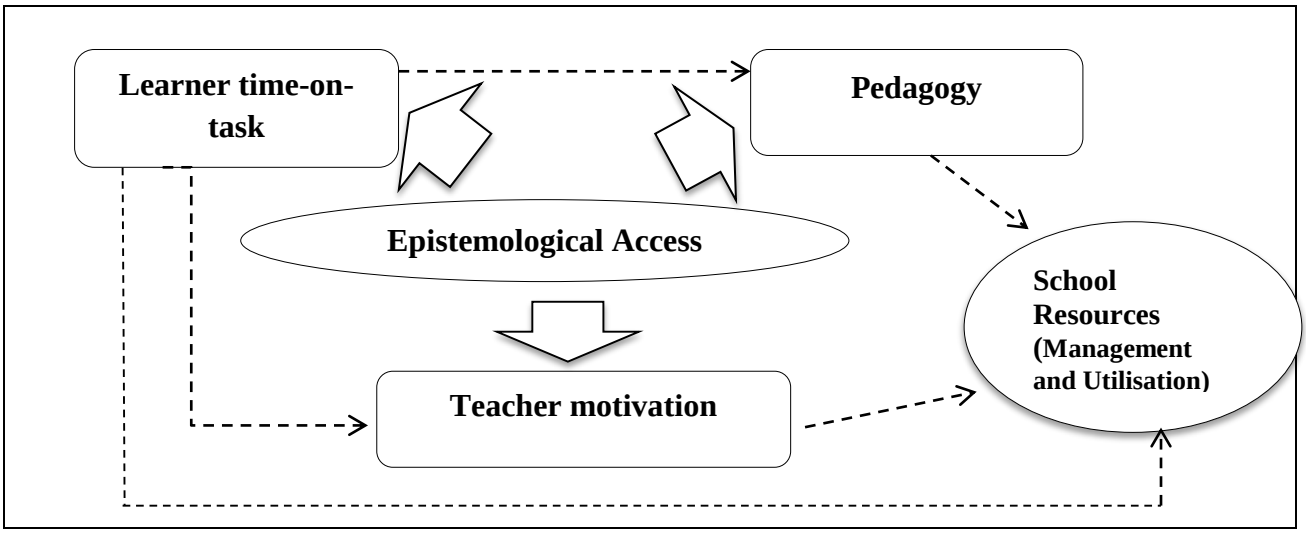
[34] often not related to the pupil's environment

those who fell short of the required abilities. Overall, it emerged that teachers' workloads had a significant impact on pedagogy.

Teacher Motivation (internal)

Data indicated that schools did motivate their teachers in all sorts of manners. As discussed in Sub-question one section b, schools put in the required effort to motivate teachers, who they hoped would naturally get internally motivated. Though the incentives provided were not sufficient, schools had the conviction that teachers would be self-motivated through the few available. Though principals advocated for individual responsibility, where stakeholders (e.g. parents, teachers and the community) acknowledged their roles in improving learning, they all agreed that teacher motivation was key. There were also other factors, beyond the school mandate, that were said to demotivate teachers. Findings revealed that teachers got demoralised when the number of working hours, coupled with overcrowded classrooms with little or no learning materials, moved from reduced instructional processes to common undemanding outdated methodologies, and doubled-up classes, some of which were not attended at all (Leyendecker *et al*., 2008). Besides, it emerged that, due to floods and extensive workloads, teachers did not prepare well for classes - and yet took the blame for poor results. As had already mentioned in Chapter 4, teachers' readiness to invest time and efforts positively correlates with motivation, (Leyendecker *et al.*, 2008, p. 85). If teachers are set to fail and, equally, made responsible for any failure, they get demoralised from the onset. More importantly, teachers in flood-prone areas worked extra hours with meagre compensation. The discussed teacher-mediated factors are summarised in Figure 9.1 below.

Figure 9. 1: Teacher mediated factors that promote EA



Source: Own

9.2.3 Sub-Question 3

In what ways do different school communities perceive strategies to be effective in promoting epistemological access?

a) School Communities

Findings showed that school communities are an integral part in promoting EA. To answer this research question, I drew on three of the EA indicators: school communities, the community, culture and the environment. As emphasised in literature (Chapter 4), school communities, families and communities share (Laosa, 2005, p. 77) major responsibilities for children. When working collaboratively, they can play important roles in fostering cross-cultural understanding and intergroup co-operation.

I framed the response to this question by closely linking school communities to culture, the community, the environment and the school; as schools tend to mirror the culture and environment they are in. There was convergence from all categories of respondents on the positive perception of school communities towards schools' strategies and their support towards promoting EA. This support was closely linked to positive aspects of the

community culture and the environment. Respondents listed school communities as teachers, parents, the national and county administration, CDF, donors, development partners, the church, politicians, local government etc. Schools received a range of input, from funding (CDF, donors) and general advice, to spiritual nourishment (the church) in support of learning. Well-wishers (politicians, successful members of the community, school alumni) donated school equipment; and exposed bright learners to bursaries and possibilities of funding from donors and other organisations. The community joined hands in building dykes and gabions to deflect the impact of floods. This was an important finding, as it demonstrated that the wider community valued education. Principals acknowledged the out-of-school disciplinary role parents, the community and the local government played, as well as practical and cultural solutions they offered to particular problems. It also emerged that the only school (School E) that did not value community effort, did not perform well. However, positive school community strategies and perceptions were impeded by some cultural practices in the locality. According to Abagi and Odipo (1997), culture and beliefs that developed into socio-cultural factors, such as initiation ceremonies and gender socialisation, were some of the cultural factors responsible for pupils' failure to complete primary school education, as explained below.

b) Culture

Results illustrated a dislike for less useful cultures (e.g. *disco matanga*[35]) by a number of the respondents. These along with gender stereotypes, associated with immoral behavior, should be eradicated to enhance both the physical and EA in this locality. I learned that there was already a joint effort from the county and school administrations, coupled with local leaders, to find a way to eradicate bad culture that negatively impacted on learning, even if it called

[35] Disco night dances

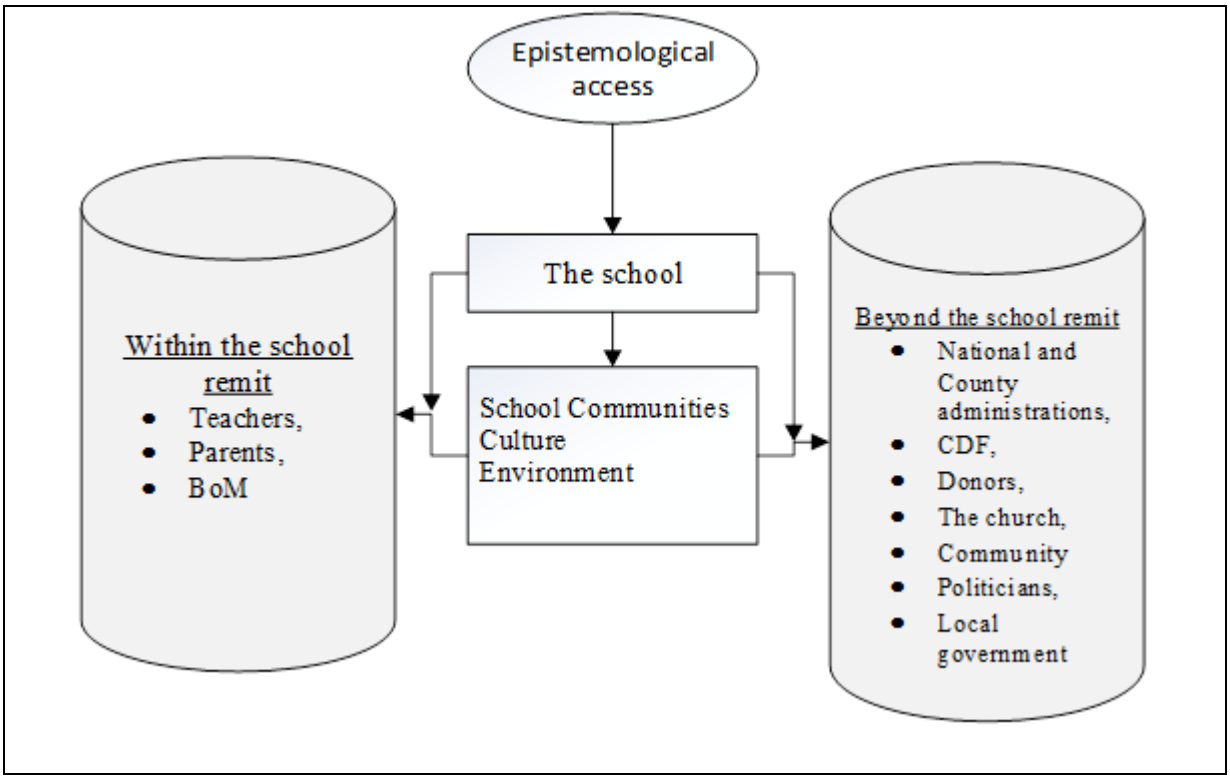
for aggressive strategies. Related to culture and beliefs, was the issue of child labour. In Budalang'i, the community's measure of success lies in the socio-economic activities: farming and fishing. The community and parental influence was evident, where parents asked their children to take care of crops on rice farms, or to go fishing to supplement food for the family, often resulting in absenteeism and poor performance. There were also cases of pupils, particularly boys, going fishing to obtain money during and after flooding. This was usually to provide for the family, or to supplement food destroyed during floods. At times, boys just wanted to take advantage of floods to make some money from fish sales, which proved to be detrimental, because they eventually got disinterested in school after obtaining the proceeds from the fish. Girls, on the other hand, would stay away from school to help with household chores. The community also dealt with several cases where mothers abandoned their children to get married elsewhere, which, to an extent, affected their children's learning. In general, socio-economic causal linkages in this community have led to a high rate of school dropouts and the spread of HIV/AIDS, leaving the community socially, economically and educationally impoverished. I acknowledge that cultural beliefs may, at times, supersede school, but only if they are useful. Less useful cultures that may stifle learning need to be eradicated as flood-prone schools strive to achieve EA. I, however, want to say that, from my interaction with respondents, cultural aspects were minimal and did not affect learning significantly.

c) Community/Environment

Findings showed that, generally, the community embraced the importance of education, as evidenced by the interviews I conducted and the FGDs. Firstly, regarding gender, there was no significant variance in gender enrolment, which is a positive aspect of EA in this community. In the five schools under study, participation stood at 49.2% male and 50.8%

female, conforming to enrolment documents in the Sub-county office. However, getting into a deeper understanding, the community seemed to maintain the superiority aspect of boys over girls. Educational opportunities for girls may have increased, perhaps because of the FPE and not due to a change of cultural norms and practices. Either way, an opportunity for the education of the girl child is a great leap forward towards promoting EA. Though more girls dropped out in the course of learning, due to gender stereotypes and other reasons, boys also interacted with some challenges in the camps, which distracted them from learning. According to school principals, both genders were affected during floods. I have illustrated school communities and their inter-relationship with the community and culture in Figure 9.2.

Figure 9.2: School communities interacting with community culture and environment



Source: Own

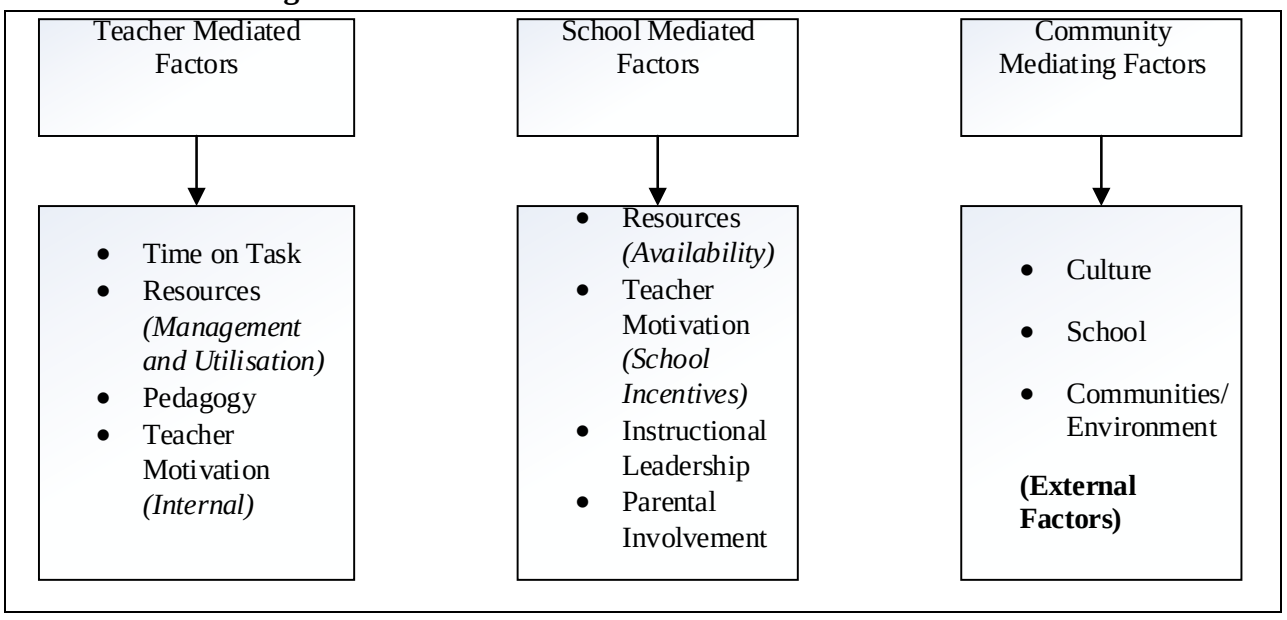
Reflecting on the responses in sub-questions one, two and three, findings suggest that, though school resources and teacher motivation are necessary intervening variables to achieve EEA, the schools under study have put in a reasonable effort towards promoting

EEA. What strikes me is, if schools have met the required criteria with some success, why would pupils still perform less well despite the significant effort? Again, to what extent would these variables influence learning in these schools? This probes a further analysis of my findings.

9.3 A Further Analysis

Looking at my responses in sub-questions one, two and three, it appears that there are three broad categories of indicators that flood-prone schools use in promoting the physical and EA towards achieving EEA. Some are mediated at school level; some at teacher or classroom level; and some at community level - henceforth referred to as: school-mediated factors, teacher-mediated factors and community-mediated factors, as illustrated in Table 9.1 below:

Table 9.1 Categories of EA indicators



Source: Own

I refer to school-mediated factors as the availability of quality teaching and learning materials (school facilities/resources) (Alubisia 2005, Abagi & Odipo, 1997). Teacher-mediated factors, in my view, are mainly factors that directly relate to learning and teaching in the classroom, while community-mediated factors are an integral part of the school in promoting both the physical access and EA. Based on Table 9.1 above and supported by my

responses in the three sub-questions, my sense is that what is happening in schools is simply not enough, despite the challenges. This, therefore, requires substantial re-analysis of data that I have gathered, which has led to that discovery. The question for me is: What else needs to be done to promote EEA in these schools? This leads me to my broad research question to which I now turn.

9.4 The Main Research Question

The broad research question for my study is:

How might equitable epistemological access be achieved in flood-prone schools in Kenya?

Having brought findings into the limelight, there is wide confirmation about the importance of EA factors from literature, which my research, to a very large extent seems to confirm. What data in this research seems to be suggesting about EA is that schools and teachers in these schools are doing most of the things that are essential towards promoting EA. When I asked teachers questions with regard to the nine indicators, it appeared that they did all that was important towards learning. This was corroborated in the questionnaire (Chapter 6) and FGDs (Chapter 8), where pupils strongly agreed on the existence of good EA practices in their schools. When I engaged further with pupils, parents and teachers about the implementation of these indicators, it appeared that there is a next step beyond the existing standards that needs to be accomplished to bring these schools closer to achieving EEA. This research demonstrates that, although a lot of what is done in flood-prone schools in relation to the nine EA indicators seems to be effective, these activities, perhaps, just promote more of the physical access to learning than they do EA. The question remains, 'What else can be done to increase EEA in flood-prone schools?' Answers to this question are related to those of the broad research question, 'How might EEA be achieved in flood–prone schools of

western Kenya?' I apply Lezotte's 1999 framework on the first generation and second generation processes to reflect on how flood-prone schools might achieve EEA.

9.4 The first and Second Generation Factors

Lezotte (1999) states,

> a number of schools have been relying on effective schools research as the framework for their school improvement programme. After three or four years, many claim that they have successfully met the criteria described in the research on the correlates of effective schools. These educators ask if there is anything that comes after, or goes beyond, these standards.

Guided by Lezotte (1999), I define the first and second generation factors as below.

9.4.1 First Generation Factors

The concept of first generation correlates describes the criteria schools have put in place towards their school improvement programmes. Many times, schools seem to have successfully met the required standards, without much improvement in performance. Despite some challenges, is there anything that needs to go beyond the standards these schools have set? My responses in sub-questions one, two and three portray schools' strategies as being in the first generation.

9.4.2 Second Generation Factors

The concept of the second generation correlates represents a developmental stage beyond the first generation correlates, to which schools committed to learning ought to aspire (Lezotte, 1999). However, Lezotte clarifies that the second generation correlates cannot be implemented successfully, unless the first generation correlate standards are present in the school. When second generation correlates are successfully accomplished, the school moves closer to quality learning for all. Based on this backdrop, I suggest that, to promote EA and

EEA in flood-prone schools, it is important to look beyond the school-, teacher- and community-mediated factors implemented by schools, as discussed below.

9.5 Promoting EEA - School Mediated Factors

As discussed in section 9.2.1 sub-question one, schools apply school-mediated factors to promote physical access. I revisit the school mediated-factors I identified earlier: availability of resources, school driven teacher motivation, instructional leadership and parental involvement. I discuss their implementation (first generation) and provide suggestions about how schools can move beyond these standards (second generation), if EEA has to be achieved.

9.5.1 Availability of Resources

The First Generation: My response in the sub-question suggests that the school-mediated factors implemented by schools are still at the physical access level. However, to achieve EEA, schools need to go beyond the set standards, towards the second generation phase.

Second Generation: From the schools' perspective, it appears that, to move things beyond what they are, resources remain a factor to be targeted quite strongly. More serious efforts and strategies should be devised (e.g. reviewing fund allocation based on needs and not per capita rates), considering these schools have very few children per class. There also needs to be flexibility in policy reforms and a measured approach towards equitable resource distribution, as well as strict policy around a plan on the development of infrastructure in schools in the locality. Recruiting teachers from the TSC, as well as school internal income generation, should be encouraged and supported to free up FPE (Alubisia, 2005, ANPPCAN, 2005) resources for other purposes. As earlier observed, due to needs, these schools have become very entrepreneurial (rice farming), and are open to income-generating

initiatives from both the national and county administrations to supplement funds. The only challenge is ensuring these income-generating activities do not compromise education standards, or open up space for the exploitation of pupils and their parents (ibid).

Data further indicated that, whereas support from the government, donors, CDF etc., was acknowledged and appreciated, schools would appreciate it more if state funds and grants were channeled, based on specific needs and specific policies, informed by a priority-based pre-disaster needs assessment, and in consultation with principals. Schools strongly felt that flood resistant facilities[36] and boarding facilities, as well as standardisation of boat transport for pupils to schools, are key needs that schools would invest in. Most importantly, schools would appreciate working closely with the relevant stakeholders (i.e. Sub-county administration, teachers and other key stakeholders) to provide insight on how available resources would promote EEA to education. However, using Alubisia's words. (2005, p. 86), I caution that,

> increased funding allocations do not automatically lead to improved outcomes. The allocation and spending on primary education in particular are important factors, but it is not the country that spends the most money on education that has the best learning outcomes.

Increased funding and the other second generation processes in this regard need to be supported by other variables to achieve EEA; which brings me to a discussion about the next indicator on school-driven teacher-motivation.

9.5.2 Teacher Motivation (School-Driven Incentives)

The First Generation: The reality is that teachers will always be held responsible for poor educational outcomes. In that regard, teachers, as the main players in any school learning, let alone disadvantaged schools, need to be motivated if any meaningful learning has to take

[36] Permanent dykes, permanent classrooms, sanitation facilities e.g. raised and permanent toilets.

place. It is evidenced by data that the schools under study do incentivise teachers, which I would say still remains at the first generation, or physical access, level. How do we go beyond this level?

The Second Generation: In the second generation, school-driven teacher motivation will be judged not only from what the school does/does not do to motivate, but also by the performance of pupils. Findings revealed that, with floods as a hindrance to learning, schools were well aware that teachers required a level of motivation to be more productive. First and foremost, the government needs to pay teachers in flood-prone schools a special allowance in addition to their salaries to compensate them for the extensive workloads. Secondly, there need to be innovative schemes of service, which promote and reward teachers' creativity, motivation and commitment to (Alubisia, 2005) teaching in these areas. In addition, incentive programmes (e.g. selective salary increments specific to work conditions, recognition & promotions and enough teachers to reduce extensive workloads) would raise motivational levels. Thirdly, teachers also need a continuous professional development through in-service training and retreats to review their teaching skills. In line with this, a major review of current teacher management, development and practice in flood-prone schools ought to be undertaken to facilitate development of attractive/competitive terms and conditions, as well as projection of future needs (Alubisia, 2005) for these teachers. Finally, policymakers also need to ensure compulsory feeding programmes in schools, for both pupils and teachers. Relieving learners and teachers of short-term hunger increases enrolment, stabilises attendance and improves the attention of leaners (ANPPCAN, 2005).

Results further revealed that the existing basic school-feeding programmes had significantly sustained attendance and school participation. One principal, sharing his experience,

mentioned that hungry children would never concentrate in class. If feeding programmes to accommodate both teachers and pupils could be well developed in schools through the government and the BoM, enrolment, retention and learning would improve tremendously (ANPPCAN, 2005; Abagi & Odipo, 1997). Overall, I believe it is almost impractical to apply uniform policies across the board, while disregarding work environments. It calls on policy makers to acknowledge that teachers in flood-prone schools work in special environments. Therefore, good enough policies, specific to disadvantaged areas, need to be in place to motivate these teachers to promote EA in hostile environments. School-driven teacher motivation is largely managed by the principal who acts as an instructional leader. I now turn to instructional leadership as an indicator schools use to promote the physical access.

9.5.3 Instructional Leadership

The First Generation: Instructional leadership seemed to work well in schools, as explained in sub-question one section C. However, I noticed that the instructional effectiveness practice stopped at the principal and the teachers. The following are my suggestions:

The Second Generation: You will see that, in the first generation, I have pointed out that the focus of instructional leadership focused primarily on the principal and the teachers in the school (Lezotte, 1999). The second generation broadens the concept of instructional leadership, where leadership is viewed as a dispersed concept that includes all adults (the school community), especially teachers (ibid). This means that the leadership function embraces a community of shared values, thus identifying what the school community cares about. In flood-prone schools, though the principal delegated responsibility, he remained the leader to be followed. He directed the school academics, school meetings and even budgets,

with his teachers assisting to a certain extent. Following Lezotte, the principal needs to be a leader of leaders and not a leader of followers, because expertise is generally distributed among many, not concentrated in a single person. Instructional leadership should therefore include teachers, the administrative staff and all adults in the school. In addition, those delegated to should carry sufficient authority to act for the principal. My next discussion is about parental involvement.

9.5.4 Parental Involvement

The First Generation: Parental involvement was appreciated across the schools, but it was not prioritised. Based on data, I would suggest the following:

The Second Generation: From the first generation it appears that parental involvement at school is not still clear. To use Lezotte's words, schools still pay lip service to having parents get more involved in their children's learning. Schools still embrace the traditional aspect, where parental involvement was approved, but not quite needed in the running of the school. As explained in Chapter 4, parental involvement at school is faced with many challenges, which require a solid school family partnership in terms of communication and trust to achieve the set goal. I was made aware of a department of Adult & Continual Education in the Sub-county to determine selective parental interest in school matters; and to determine what would motivate more parental involvement in education matters. This department has remained docile for a while. I suggest that schools create more space and allowance for parental involvement; where teachers are more accommodating – to make parents feel more welcome at school (Davis-Kean & Eccles, 2005, p. 61). The relationship between parents and the school should be an authentic partnership between the school and home (refer to Fig. 10.1). In addition, teachers need to be trained through exchange programmes on how to involve parents at all levels in school activities, how to build trust

and improve communication with parents, with an aim to inspire children to learn. It is not just enough that parents attend school meetings, their involvement must support the school and learning.

I have discussed how schools promote physical access and how they can go beyond this step. Having discussed school-mediated factors and their relation to the physical access, I next discuss ways in which schools in flood-prone areas promote EA and how we can go beyond these set standards.

9.6 Promoting EEA – Teacher Mediated Factors

Following my response of sub-question in section 9.2.2, schools prone to floods use teacher-mediated factors to promote EA. Like the physical access, schools are doing all they can to ensure EA in these schools. Where have they fallen short in achieving EEA? I revisit the teacher-mediated factors: time-on-task, management and utilisation of resources, pedagogy and teacher motivation (internal). I provide a critical review of these factors; and identify gaps and possible solutions towards achieving EEA in flood-prone schools.

1. Time-on-task

The First Generation: First, I asked myself if extra classes and teaching indeed improved learning in these schools. If it did, why did we still not see good results?

The Second Generation: Though there are challenges that these schools seem to be battling with, my first thought is how these schools implement the extra learning time, because extra learning time may not necessarily mean EA. The fact that teachers teach extra lessons does not mean that pupils will have learnt, just because they have completed the syllabus. Schools under study, supported by both the national and county administrations,

need to devise strategies to ensure that extra learning time is not just for the sake of it, but needs to be meaningful to pupils. Pupils need to master the content through planned learning activities (e.g. group discussions, group work, study groups and proper remedial learning) to cater for learners falling behind. I also learned from the Sub-county education office that schools manage their own terms on extra teaching time. Schools should not be left to manage extra learning, the Sub-county education office needs to co-ordinate this aspect with clear planned activities to ensure quality learning, which partly points to available resources and how they are managed.

9.6.2 Resource Management and Utilisation

The First Generation: From my response in sub-question 2 section B, I discovered that it is one thing to avail resources and yet another to manage the resources well.

The Second Generation: In the second generation, schools need to implement proper use of available resources to avoid wastage. Such resources can be converted or re-directed to other meaningful use. Secondly, the school administration and BoM need to provide proper budgeting and monitoring reports on the usage of resources in schools. Special attention should be given to the development of M&E of resources, with training programmes put in place for key staff - including policy developers, education managers and financial accounting people at various levels (ANPPCAN, 2005, p. 56). We need to strengthen the Management Information Systems (MIS) for the education sector at both the national and decentralised levels. Besides, there needs to be public education on FPE at all levels to sensitise and empower parents and communities about FPE, as far as cost and financing of the programme is concerned (ibid). This will reduce the confusion of what the government provides and what parents provide. It should also be known that embezzlement of school resources is criminal and should be punished. Though most people would agree that budgets

promote access to public services, it is less clear whether they are capable of facilitating access to quality education (Wildeman, 2008). The next indicator that schools use to promote EA is pedagogy.

9.6.3 Pedagogy

The First Generation: In line with what EA could mean in teaching and learning is the issue of meaningful systematic learning (Pendlebury, 2008/9). Data showed that teachers in the schools made significant effort in their teaching methods to ensure pupils master content. In the first generation, teachers made effort to apply individualised teaching, coupled with extra learning time to promote learning. These teachers improvised teaching strategies to make learning real, but examination grades reveal that these pupils still did not actually learn.

Second Generation: Pedagogical Content Knowledge (PCK) refers to knowledge of content of a specific discipline and the ways in which that content can best be taught to learners in schools (Maringe, 2017). Firstly, in line with Maringe, we need trained and competent teachers with knowledge in their subject areas to teach children in schools. Secondly, teaching aids should mirror the society where the school is located and ensure they are tailored to be responsive to the needs of children and the community. This way, teaching and learning areas will be informed by the environment the school is in. Thirdly, teachers in these schools need to implement additional strategies, such as re-teaching and regrouping (Lezotte, 1999) to ensure pupils master content which, in line with Pendlebury (2008/9), will lead to meaningful systematic learning. In addition, if teachers implement class *ability groups*, or any other form of individualised teaching, it should be planned by the school, because most of the teaching strategies need the co-operation of the school and not teachers working alone in classrooms (ibid) to promote EA. Again, though programmes that provide

remedial education for pupils that are falling behind are effective, these programmes can be even more effective if the remedial educators are accountable to local school communities (Glennerster, Kremer, Mbiti & Takavarasha, 2011). Though class *ability groups* encourage peer learning, it is a method that is not often very effective, because pupils are not trained to do remedial teaching. Finally, teachers in flood-prone schools do require more resources and learning materials to access additional tools in order to develop areas such as attitudes, values and life skills to promote EA. More importantly, to teach effectively, teachers require high self-expectation driven by self-motivation, per my discussion below.

9.6.4 Teacher Motivation (Individual)

The First Generation: It is evidenced in various research studies that teachers are not motivated by the need to achieve ideal-oriented goals, but much more by attention needs being directed at what precisely motivates, rather than at why it motivates (Evans, 1998). In flood-prone schools, data seems to suggest that teachers tend to be rewarded based on examination results, as opposed to their needs.

The Second Generation:

According to Evans (1998, p. 32),

> very often, the concepts, teacher motivation, teacher morale and job satisfaction go together as these factors may often be equated to job fulfilment or job comfort or even both.

Following Evans (1998), it is important to note that what motivates in a work context is the desire for job satisfaction; and individuals are motivated to participate in activities that appear to them to be orientated towards job satisfaction. Teachers' individual demotivation may be as a result of a lack of job satisfaction, where they perceive their job-related needs as not being met (see Chapter 4). From data, teachers' individual morale was raised to an extent

where they anticipated that the needs affecting their total work situation would be addressed by the school or the government. When this did not happen per their expectation, they slid into demotivation. According to Smith (1966), high morale may exist in a situation where many job dissatisfactions exist. This probably explains the enthusiastic hardworking teachers I met in the schools under study. It may be that, though teachers volunteered to teach extra lessons to cover for lost time and carried heavy workloads, they did so as a form of individual responsibility, or out of a human nature.

There is a commonly held assumption that teacher-motivation is pay-related, which is assumed to improve job performance (Leyendecker *et al*., 2008). Teacher motivation involves aspects other than pay, which may cut across job satisfaction, morale and motivation. Individual teacher motivation needs to start at the job satisfaction level to raise morale before teachers actually feel motivated to work. Employees' attitudes to their work and, more specifically, to job satisfaction, and what makes people happy or unhappy with their jobs (Evans, 1998, p. 3), links to self-motivation. Generally, it has to do with work attitudes, work ethics, levels of determination and levels of motivation. My sense is that external and internal teacher motivation are intertwined. Teacher self-motivation can rarely happen without school driven incentives, which provide a platform for teacher internal motivation. As mentioned under school-driven teacher motivation in section 10.3.1.1, allowances, increased resources, effective leadership, recognition of effort/talent, reduced workloads, exchange programmes, retreats, work ethics, collaboration in learning activities etc. would raise teacher morale and job satisfaction. This would then raise their attitudes, levels of determination and levels of motivation. However, these would only partly motivate teachers. Some secondary factors, according to data and aligned to literature, pointed to efficient and transparent use of resources (or a lack of) in schools and the head teacher-teacher relationship

among other factors (Leyendecker *et al*., 2008; Evans, 1998; ANPPCAN, 2003). Ideally, individual teacher motivation needs should be met, especially if teachers find themselves having to juggle between teaching extra lessons and going home to supplement their income through economic activities like farming, fishing etc. However, it should be cautioned that improved school conditions will not, on their own, increase levels of teacher motivation or instructional quality. Rather, improved school conditions need to be implemented with other EA indicators outside the school, a discussion to which I now turn my attention.

9.7 Promoting EEA – Community-Mediated Factors

The First Generation: Going back to my research sub-question three, I engage with aspects of community and culture, as well as school communities that perceive strategies by schools to promote EA to be effective.

The Second Generation: Findings showed that flood-prone schools largely depend on school community support, ranging from donors to politicians, parents and, occasionally, CDF funds that are allocated based on policy. Though results revealed school communities as significant players with a role to play towards EA, I suggest that first, decision-makers should ensure partnership-building with all these actors. All stakeholders involved in providing assistance to flood-prone schools need to work together for one purpose, to avoid duplication of efforts and/or competition.

Secondly, with regards to partnership with donors, it would be more meaningful if the government worked with the community to identify priority needs. At times, donors provide services that have no immediate use e.g. provision of means of transport for children to go to school, yet there exists no schools for them to join. It was also suggested that donor support be predictable and reliable, because most times it was neither guaranteed nor

automatic (ANPPCAN, 2005). Besides, donors came in too late and pulled away immediately the disaster ended; yet the community needed them more during the mitigation and recovery processes.

Thirdly, the community's limited knowledge about disaster management approaches (preparedness, response, recovery and mitigation) was evident. The community relied on meteorological predictions via the local radio and traditional early warning systems. Though principals and the education office did confirm the availability of books and other knowledge on preparedness and response in schools as early as Standard One, it is likely they were not used appropriately. What emerged was that, of the four disaster management elements, the recovery and mitigation approaches needed to be expanded on more.

Fourthly, strategies need to be supported by sufficient resources, nationally, regionally and internationally (Alubisia, 2005). Too many policy frameworks on education (ANPPCAN, 2005) from different actors have had an impact on education and, when summed up, have turned out not to be well-structured. In addition, consultations with concerned groups would be key, as governments have, at times, been blamed for limited consultations with communities (Alubisia, 2005, p.13), where children, women and other marginalised groups are excluded from any consultations and planning processes that concerns them.

Fifthly, the government needs to support needy, but brilliant, children through other initiatives to allow them to go through school. Bursaries operated by MoEST intended for pupils from poor socio-economic backgrounds (ANPPCAN, 2005) should be developed to support those in the Sub-county. These include: a) National Government Bursary (constituency bursary), b) School Constituency Bursary and c) Children Development

Bursary. From existing documents in schools and the Sub-county office, there were children that excelled in performance and qualified to join national and county schools[37] in the country. In addition, it was thought that such pupils would also benefit from the quota system[38] of admission, where 85% of school places in each county were reserved for learners from within the county; and 15 % for the rest of learners out of the county (ibid).

Finally, it emerged that the government had a difficult choice in providing funding mechanisms and living up to their promises. Findings revealed that, among other promises, permanent dykes that the government promised to construct twelve years earlier had not been constructed to date. The much talked about TVET (Technical and Vocational Education) to tap in to the skills of pupils who may not go beyond high school in this area, has not been fruitful.

If all these second generation processes are effected, schools supported by school communities and the community would effectively achieve EEA.

9.4 Summary

I started this study with an aim to understand how EEA could be achieved in flood-prone schools. The key purpose of this chapter was to answer the broad research question, 'How might equitable epistemological access be achieved in flood-prone schools of western Kenya?' In response to this question, I formulated three specific sub-questions, whose answers I have provided in section 9.2. In so doing, I identified ways in which schools promote both the physical access and EA according to the EA indicators. In a further analysis, I categorised the indicators into three broad categories: school-, teacher- and

[37] Top notch secondary schools in Kenya whose admissions is purely on performance
[38] Admission system that gives preference to disadvantaged learners; introduced in Kenya in 1985.

community- factors, in order to answer the broad research question. Based on the school improvement framework, data seemed to suggest that schools were doing all they could to promote learning, but performance was not improving. Using Lezotte's (1999) framework on the first and second generation and the three broad categories of EA I identified, I suggested ways in which schools could go beyond the set standards to achieve EA and EEA. With the research questions answered, what follows is the concluding chapter of this thesis.

Chapter 10: Conclusions and Implications for Educational Policy and Practice

10.1 Introduction

In the previous chapter, I suggested ways in which EEA could be promoted in flood-prone schools. The main purpose of this final chapter is to provide a central contribution and conclusion for this study. This concluding chapter has four sections. First, I reflect on my PhD journey and personal learning. Then, I reflect on each of the chapters of my study. Thirdly, I give a critical review of the findings, guided by Lezotte's (1999) first and second generational correlates, where I develop two critical contributions of my study. Finally, I reflect on their implications and relevance to policy, practice, theory and methodology, which paves the way to a discussion of the limitations of this study, recommendations and areas of further research.

10.2 Reflections on my personal learning

In reflecting on the findings of this study, I have learnt some lessons on EA in flood-prone areas, which may be extrapolated to other disadvantaged schools. When I set out to explore my research problem, I purposed to learn about the impact of floods on EA with the assumption that indeed floods were the likely and major cause of a lack of EA in flood-prone schools. From the study, it has emerged that, other than the existing vulnerability (floods), disadvantaged schools may have other underlying factors as likely causes for poor performance (Bhaskar's stratified reality, 1998),[39] which then depresses EA. Though the impact of floods on EA in the area of study is multifaceted (Chapter 4), evidence points to a

[39] See Chapter 2, section 2.2..1

significant relationship between EA and how the dynamics of the first and second generation education processes surround it. From this revelation, I have now learnt more about the gaps that exist between how these schools set and implement standards of EA and what they could do better. Schools may accomplish these standards, yet it may not reflect in their performance, which requires them to look beyond the standards. Teachers do attach emotions to their work and obviously rejoice at success, but also frown at failure in equal measure. So, if a teacher's effort is frustrated by other factors beyond the school, yet they have to accept responsibility for learners' failure, they get demotivated, which may negatively impact learning. A happy teacher is considered a better teacher (Gruenert, 2008) and this attitude influences the quality of instruction. What I also took away was that educational resources were important ingredients for academic achievement (Zuze, 2008) and that they need to be distributed equitably. However, depending on the context, increasing funds may not always lead to improved outcomes (Alubisia, 2005). I have also learnt that learners, however young, would add a useful layer to data on research that concerns them, because children have been regarded as the 'best sources' of information about themselves (Cohen *et al.*, 2011).

These insights have taken me a few years back regarding assumptions I came with when I enrolled into this PhD programme, with several research topics on issues of education quality. When I finally settled on this research topic, I imagined I would solve all the problems related to EEA in flood-prone schools. My expectations were wrong. I have now realised that, in general, PhDs are not meant to solve problems anywhere. They are meant to explore existing problems analytically and critically and provide an evidence base for making decisions in and around a particular study. The contribution to research that I make remains limited; in fact leaving me with more questions than answers. A lot of further

research[40] is required to adequately tackle the problem of EA and EEA in flood-prone schools of western Kenya. In the next section, I provide a summary of the chapters of my study:

In Chapter 1, I discussed the necessity of the study, the nature of the problem and how the research was conceptualised in broad terms. The aim of this chapter was to advance the argument of a commitment to the ideal of quality public education for everyone as a right; and to suggest steps to improve school conditions among disadvantaged children (ANPPCAN, 2005). I began by discussing the role of education in development, with specific emphasis on Kenya; and what it meant for the future progression of pupils in flood-prone schools. I then provided a background to the educational development of Kenya, from the colonial era to the present. This was to provide an understanding of the effects of historical evidence on education in Kenya till today. I also provided preliminary literature on key concepts that are related to EA. The purpose of this section was to discuss the concepts that have always been central to educational issues, as precursors to a better understanding of both the notions of EA and EEA. In this chapter, I also highlighted education as a public or private investment and why education should be considered as a public good. What seemed to emerge from the chapter was the fact that pupils in flood-prone areas consistently did less well than pupils in non-flood-prone areas, leading to a foundational argument to suggest that epistemological access (EA) for these pupils was an issue that required investigation.

In Chapter 2, I set out the theoretical approach for conceptualising the relationship between capabilities and the level of EA experienced by disadvantaged pupils in flood-prone

[40] See section 10.5 on Recommendations for further research.

environments. My argument was that, at the centre of EA is the whole question of schools ensuring the development of capabilities among all pupils. In this sense, there are pupils who are subjected to deprivations, bringing about both a social justice and a capabilities argument. Drawing principally on the ideas of Nancy Fraser and Amartya Sen, under the umbrella of Bhaskar's critical realism, I engaged with the debate on the development of individual capabilities with the backdrop of a socially just approach. The chapter revealed that, while a focus on capabilities could assist in thinking through what it meant to be educated in the global era and how this related to notions of 'human development', a social justice approach could provide a new way of thinking about EA (Tikly and Barrett, 2009) for deprived pupils.

EA, referring to access to quality knowledge, may not be measured directly, but through indicators where assessment and learner outcomes become the best proxy of measurement. In Chapter 3, I used the concepts of assessment and learner outcomes to gauge the extent of learning in the Kenyan education system. I began by highlighting dimensions and modes of assessment, followed by a discussion on learner outcomes, how they are measured and the extent to which they gauge learning. The aim of Chapter 3 was therefore to define the role of assessment and learner outcomes within the Kenyan context and what this meant for progression and the future of pupils in Kenya.

In Chapter 4, I contextualised EA through an in-depth analysis of nine EA indicators I identified from literature that provide the essential rationale for EA. The importance of this chapter was to provide an in-depth understanding of the concept of EA, by exposing its uniqueness within the context of schooling in flood-prone areas. In so doing, I problematised and exposed the intended meaning and argument of this study, by delineating EA from

education quality through the nine indicators of EA. Using the indicators, I presented the conceptual framework of the study that informed the subsequent data gathering, analysis and discussions for the remaining chapters of the thesis.

In Chapter 5, the methodological chapter, I discussed the relevance and centrality of using a mixed-methods approach. I chose to engage with this approach as I realised that a mixed-methods approach provides strengths that offset the weaknesses of both qualitative and quantitative research. Hence, it provides more evidence for studying a research problem than when either a quantitative or a qualitative approach is used alone (Mcmillan & Shumacher, 2010, p. 395; Creswell & Plano Clark, 2011, p.5). Furthermore, I detailed sampling strategies, the pilot study, research quality and ethical considerations of the study.

In Chapters 6, 7 and 8, I presented the data and analyses. I started off with the quantitative data in Chapter 6, followed by qualitative data in Chapter 7 and FGDs in Chapter 8. I presented results based on interview questions I posed, while linking them to research questions. I also considered analysing the few documents I had referred to in this study and presented these results in Chapter 8, together with those of focus group discussions. There is no particular reason for the merge, other than the two methods having comparatively shorter analyses that could comfortably fit into one chapter.

In Chapter 9, I grouped preliminary findings from the three chapters into themes to answer the research questions. I also provided further analysis by categorising indicators into three main categories: the school-, teacher- and community mediated factors. I further applied Lezotte's (1999) framework on the first and second generation correlates to suggest ways in

which schools can achieve EEA. In this final chapter, I provide a critical review of the findings and draw my conclusions.

10.3 A Reflection of the findings

From my discussion and response to my broad research question, it appears that all the nine indicators are essential strategies to enhance learning; and do play an important role towards achieving EA and EEA in flood-prone schools. There are three issues that have emerged out of the discussion. First, the study has demonstrated that floods do impact on learning in flood-prone schools of western Kenya; and that schools have put in considerable efforts to address six out of the nine indicators to promote EA. These indicators are: teaching methods, instructional leadership, school communities, parental involvement, the community/environment and culture. This is to say that, although there are resource, and other challenges they face, principals and teachers have remained committed to 'proper' teaching methodologies and instructional leadership. There is significant engagement with school communities, parental involvement, the community/environment and culture, which is likely to improve with relentless support from schools, the Sub-county education office and local leadership. Most importantly, schools in Budalang'i have survived floods with learning disruptions for decades. This has unfortunately become a 'way of life' to these pupils, their teachers and parents.

Secondly, the implementation of these six indicators has so far been at the physical level (i.e. the first generation) and I have suggested ways in which schools could move beyond this step. Finally, with regard to the three EA indicators, what emerged quite strongly from data was that these schools seemed to battle with the issue of resources and teacher motivation, over which schools seemed to have very little influence. As evidenced by data, all

respondents felt that increased resource availability and teacher self-motivation levels were necessary variables that would positively influence time-on-task to achieve EA. Based on data, findings and further suggestions, I now offer my perspective on how schools in flood-prone schools can achieve EEA. I caution, however, that this perspective should be considered in light of the limitations of this study.

10.4 Limitations of the study

I feel it is important to highlight the following limitations to this study before making my contribution. Firstly, the study isolates and focuses on EA in flood-prone schools. One limitation may be that, in as much as there is no guarantee of the acquisition of better aggregates from pupils from secure schools, this study assumed that pupils from flood-prone areas are severely affected with regard to access, quality and educational opportunities - compared to their counterparts in non-flood-prone areas. This isolation may undermine other learning-related concerns in other areas.

A second limitation is that the thesis did not focus on EA of children beyond primary school level. Pupil attitudes and parental involvement may change as pupils' progress to higher levels of learning. Because of the FPE programme launched in 2003, congestion is evident in primary schools as opposed to secondary schools, where the cost-sharing policy is embraced (ANPPCAN, 2005) with more boarding facilities. Transition and education progress of pupils may therefore play out differently in secondary schools.

A final limitation to this study may be on the choice of EA indicators I used. In this thesis, I contextualised EA in flood-prone schools through pre-determined indicators from literature, and did not look beyond for other factors affecting learning in these schools. Therefore, the

EA indicators that I used in the thesis may not be exhaustive, but those that provide the essential rationale for EA in this particular situation. As a consequence, findings and the implementation of the first generation factors (FGF) and second generation factors (SGF) models will be generalised only to an extent, as they have considered specific EA indicators and location of the schools based on a specific time period. What follows is my contribution to this study.

10.5 A Critical Evaluation of the First and Second Generation Factors (FGF) models

Beyond the findings, I have identified two critical contributions to the discussions around EA, specifically for schools in flood-prone areas in western Kenya. The first one is a first generation factors (FGF) model, which situates the physical access kinds of strategies with which schools seem to be engaged already (Figure 10.1); and the second generation factors (SGF) model, which seems to point to moving towards increasing EA for these pupils. This is because, despite all the things that the teachers seem to be doing, results demonstrate less progression to secondary schools. We, therefore, need to move beyond the first generation correlates to those of the second generation to achieve equitable epistemological access in flood-prone schools of western Kenya.

In my introductory chapter, I provided my tentative definition of EA as,

> access to knowledge, skills and attitudes that enable learners to be successful in national examinations, promote progression to higher levels of learning and their persistence in any given cycle, without contributing to different forms of education wastage.

Based on the findings of this research, I now summarise EA in the first and second generation modules, as illustrated in Figure 10.2. Therefore, my expanded definition of EA is:

> EA is probably the attempt made by schools to achieve the second generation, or to achieve continuous improvement in the factors that promote learning in schools.

Figure 10.1 The First Generation Factors, which schools use to promote EA

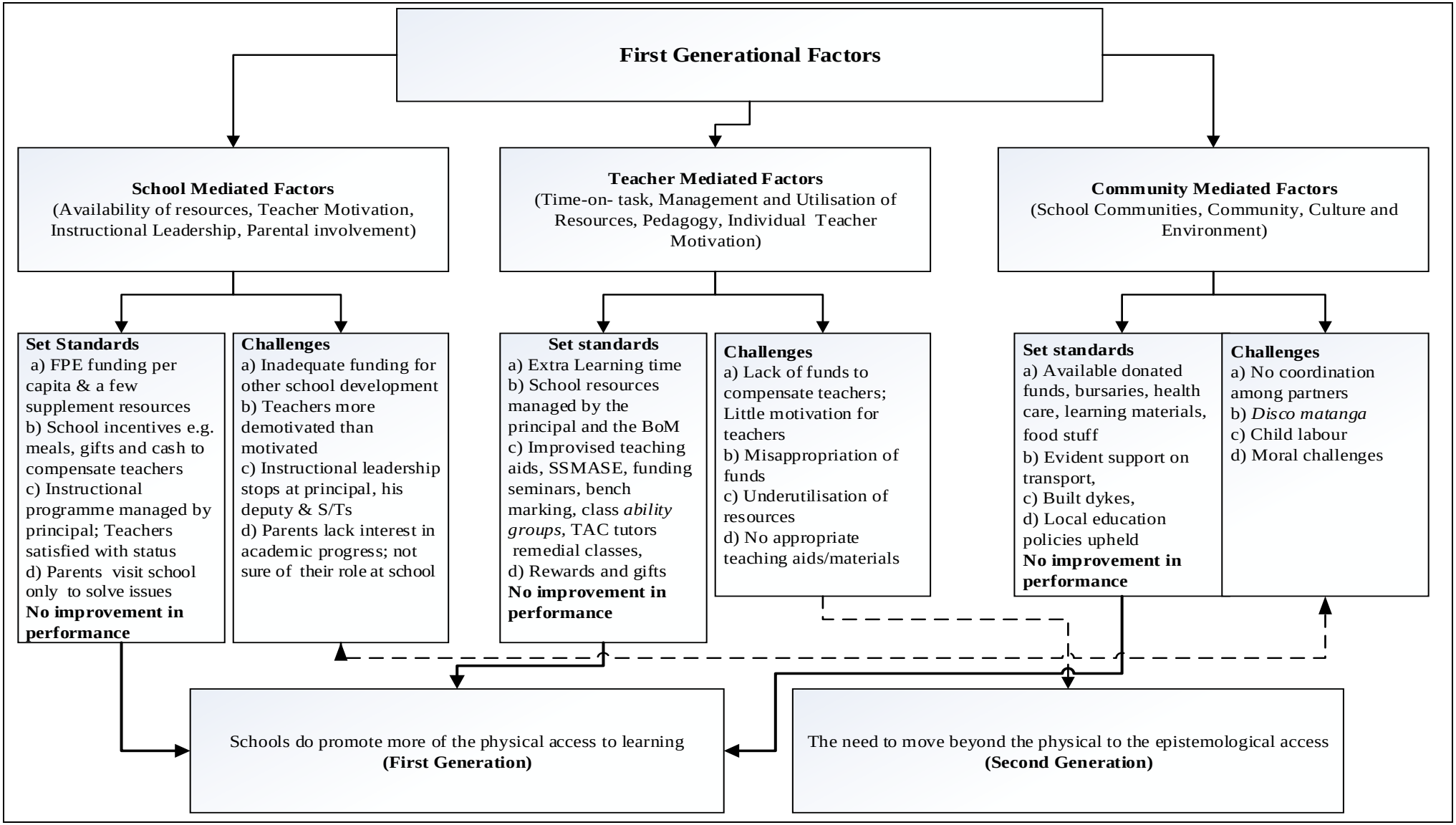
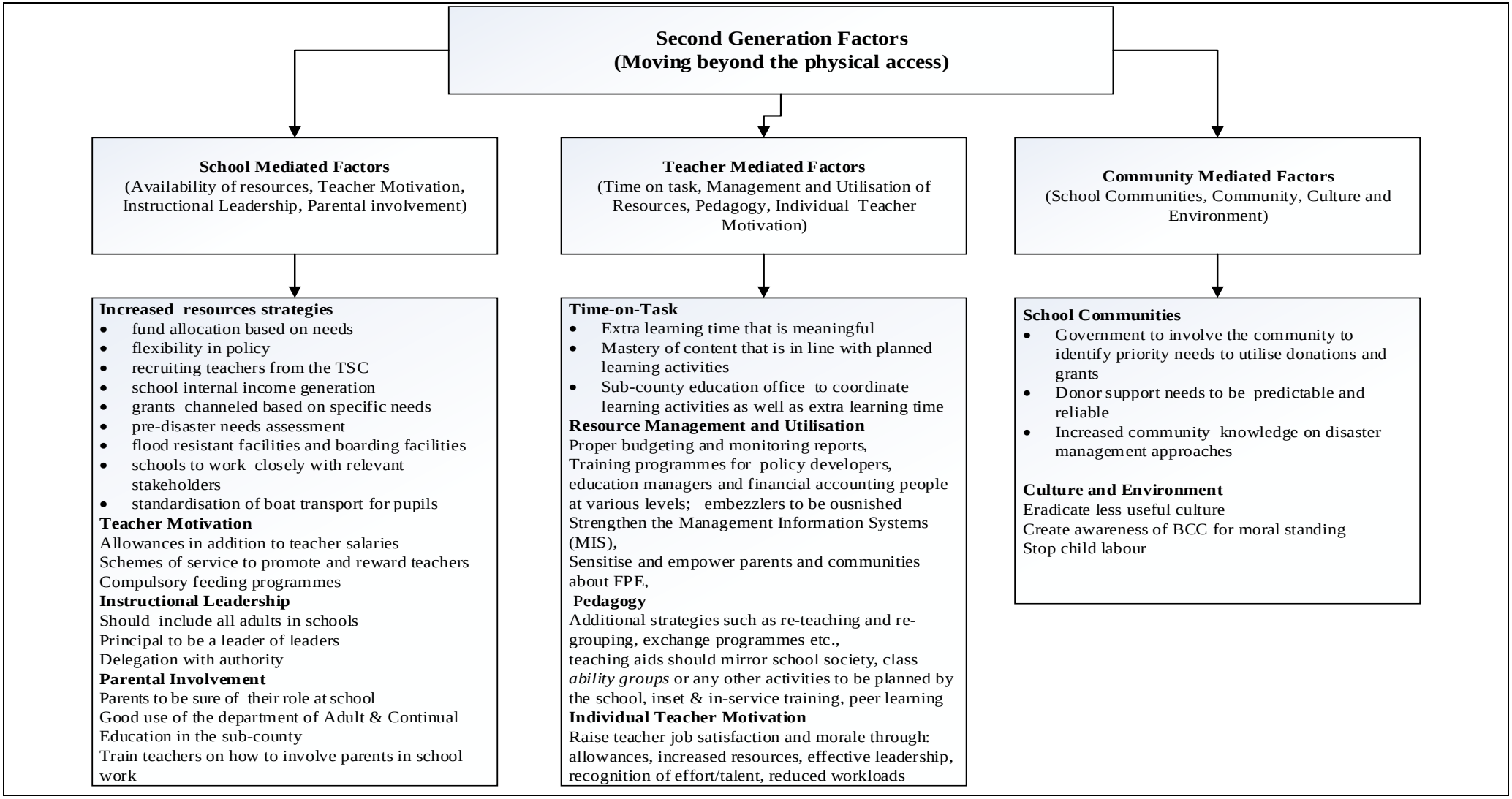


Figure 10.2 The Second Generation Factors Model: Going beyond standards set by schools



I recommend that the SGF model be tested further among schools in different disadvantaged locations, especially flood-prone, and a comparison on findings done. This will lead to a standardisation of EA factors and perhaps identify other key related factors that affect learning in disadvantaged areas.

What therefore are the implications of the study?

10.6 Implications of this study

10.6.1 Policy and Practice

Though the study has its limitations as listed above, there are four key implications to policy and research emerging from this study. Firstly, floods do impact on learning in flood-prone schools of western Kenya, but are not the direct cause of poor EA. Secondly, schools still apply the first generation processes and not those in the second generation to promote EA. Educators and policy makers need a more nuanced approach to move schools beyond the physical access level. Thirdly, learner time-on-task is important as an indicator, but cannot be mandated. The conditions that would promote this indicator are ensuring that resources are available and teachers are motivated to teach extra time. The usual practice of the Ministry of Education and Policy makers has been to increase school access and to teach how to manage time-on-task, which is not the appropriate remedy for the issue in this study. We tend to focus on the outputs (i.e. what we do and who we reach) when the fundamental question lies in what difference this makes - which is a question about outcomes. Finally, it is known that children in more educated and better-resourced schools tend to have better educational outcomes (Chudgar, *et al.,* 2015, p. 516), therefore school resources may be especially important for improving learning outcomes in poor and unequal environments. Quantitative data suggested that the level of agreement regarding resources was the same across the schools. The type of school, as far as the impact of floods was concerned, did not matter -

children seemed to have the same opinion about structures, textbooks, meals and other facilities. Policy makers therefore need to find space to review programmes related to equitable distribution of learning resources. However, the difference these resources make in learning would be an issue that requires more attention.

Beyond these findings, the proposed SGF model could be used as a conceptual framework in interrogating issues of EA in flood-prone schools, which may be useful when developing policy around (equitable) EA, based on bringing synergies between teachers, the schools and the communities.

10.6.2 Theory

The key contribution to this research from a theoretical perspective, as I envisaged EA in flood-prone schools, implies that what is believed to be the real cause of poor EA in disadvantaged schools may have other underlying factors as the real causes (Bhaskar's stratified reality). Drawing on the ideas of Nancy Fraser and Amartya Sen, the theoretical approach for conceptualising the relationship between capabilities and EA experienced by disadvantaged pupils in flood-prone environments is built on the assumption that the debate on capabilities and quality in education, from a social justice perspective, is fundamentally based on the 'vulnerability' surrounding learning - in this case, floods. Secondly, several empirical research works define physical access, its challenges and how it can be achieved in flood-prone schools in Kenya (Achoka & Maiyo, 2008; Masese *et al.,* 2012; Mutugi & Maingi 2011, Okuom *et al.,* 2012), but explores less about the EA (i.e. beyond the physical access). The study contributes to this relationship through specifying two models underpinned by the theoretical framework this study employed: to explore likely causes of a lack of EEA in marginalised areas; and how this can be achieved. This integrated approach

explains likely causes of poor EA in marginalised areas, other than the vulnerability in question.

10.6.3 Methodology

This research has considered methods deployed by researchers in both the national and local contexts, the problems usually investigated and what their findings and gaps appear to be. It appears that most research undertaken in this area often adopts single, rather than mixed, approaches in conceptualising the research and collecting data. Perhaps a more holistic way of looking at truth in this particular area would be to deploy a mixed-methodological approach in line with Mcmillan and Shumacher (2010, p. 395); Creswell and Plano Clark, (2011, p.5). In addition, the two models I have developed have methodological implications of research for studying EEA. Through mixed-methods and the developed models, the research is adding a layer of analysis to the problems of EA in flood-prone areas as a positive contribution to methodology.

10.7 Suggestions for Further Research

Based on the results and limitations above, I suggest further research on the first and second generation processes to determine how schools can move beyond the physical access to EA. Secondly, more research on school climate and culture should be undertaken to determine what it is that better performing schools in the same locality do and/or what their strategies to support EA are. Thirdly, it emerged that, in many cases, qualified teachers do resist teaching in flood-prone schools and other marginalised areas, regardless of allowances and basic facilities provided. Future studies need to consider specific strategies of teacher motivation and related factors in disadvantaged schools; and how these may directly contribute to learning. Fourthly, further research on parental involvement and exposure to programmes that mount sensitisation of the importance of education should be conducted, through the

department of Adult & Continual Education, to determine selective parental interest in school matters; and to determine what would motivate more parental involvement in education matters. Finally, a comparative study for schools in different regions would be a good step to consider data on factors promoting EA. In doing so, observation should be considered as a data collection method, probably for a period of say three to six months, to add a valuable layer of data analysis.

10.8 Summary

The key purpose of this section was to provide an overarching conclusion of the study. Based on my findings, my conclusions are that schools need to move beyond implementing EA indicators at the physical level, if they have to promote EA in flood-prone schools. Thinking about improving learner time-on-task independently is not sufficient to achieve equitable EA, because there is sufficient evidence that the schools under study have put in reasonable effort to make up for lost learning time. This thesis has demonstrated that, other than improving learner time-on-task, it appears that there are other intervening variables in the second generation that may be necessary to achieve equitable EA in these schools. Though data seems to strongly indicate that equitable EA may mostly be achieved through increased school resources, teacher motivation, and in close collaboration with school communities. These should be implemented alongside the other EA indicators at the second generation level. This conclusion led me to develop two critical contributions: the FGF and SGF models (see Figures 10.1 and 10.2), which, if properly implemented within the school environments, flood-prone schools may move schools closer to achieving EEA. As I end this research, I want to revisit Jansen's (2008/9) argument I began with - that it is one thing to access school and totally another to gain quality knowledge if learning has to remain meaningful. At this point, a lot more remains to be done by all stakeholders to realise this goal.

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APPENDICES

Appendix A Ethics Letter

27 St Andrews Road, Parkton, Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

30 July 2015

Student number: 682600

Protocol Number: **2015ECE001D**

Dear Mrs. Gloria Erima

Application for Ethics Clearance: Doctor of Philosophy

Thank you very much for your ethics application. The Ethics Committee in Education of the Faculty of Humanities, acting on behalf of the Senate, has considered your application for ethics clearance for your proposal entitled:

Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.

The committee recently met and I am pleased to inform you that clearance was granted.

Please use the above protocol number in all correspondence to the relevant research parties (schools, parents, learners etc.) and include it in your research report or project on the title page.

The Protocol Number above should be submitted to the Graduate Studies in Education Committee upon submission of your final research report.

All the best with your research project.

Yours sincerely,

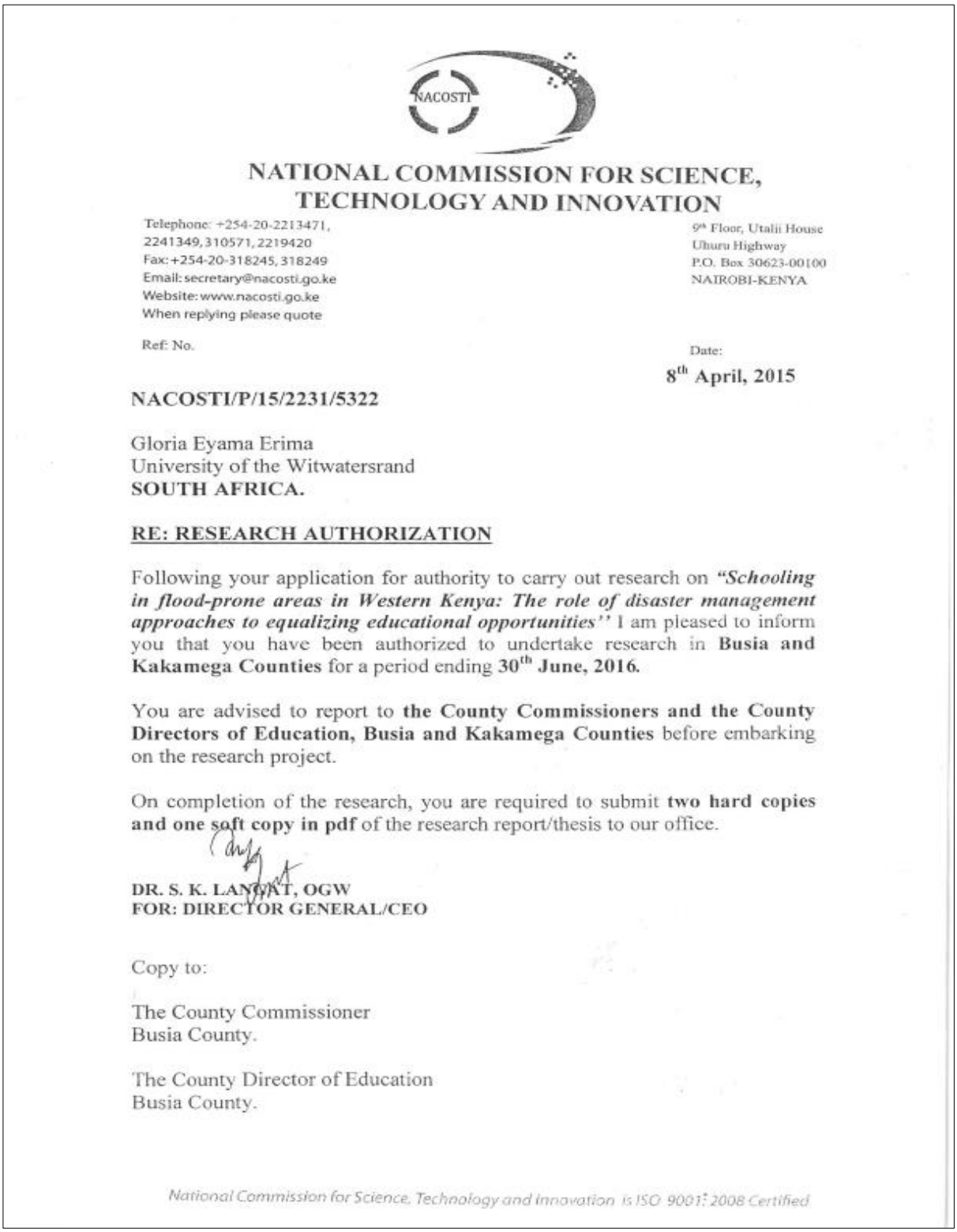


Wits School of Education

011 717-3416

cc Supervisor: Prof Felix Maringe

Appendix B NACOSTI Letter



NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471,
2241349,310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:
8th April, 2015

NACOSTI/P/15/2231/5322

Gloria Eyama Erima
University of the Witwatersrand
SOUTH AFRICA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Schooling in flood-prone areas in Western Kenya: The role of disaster management approaches to equalizing educational opportunities"*** I am pleased to inform you that you have been authorized to undertake research in **Busia and Kakamega Counties** for a period ending **30th June, 2016.**

You are advised to report to **the County Commissioners and the County Directors of Education, Busia and Kakamega Counties** before embarking on the research project.

On completion of the research, you are required to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR GENERAL/CEO

Copy to:

The County Commissioner
Busia County.

The County Director of Education
Busia County.

National Commission for Science, Technology and Innovation is ISO 9001: 2008 Certified

Appendix C County Commissioner Letter

REPUBLIC OF KENYA



THE PRESIDENCY

MINISTRY OF INTERIOR AND CO-ORDINATION OF NATIONAL GOVERNMENT

ccbusia@gmail.com
Telephone: 055 - 22598
Fax No: 055 - 22231
When replying please quote
REF. NO.T & V 3/2/24
and Date

COUNTY COMMISSIONER'S OFFICE
BUSIA COUNTY
P.O. BOX 14
BUSIA (K)
4th August, 2015

The Deputy County Commissioner
- BUNYALA

BUSIA COUNTY

RE: RESEARCH AUTHORIZATION - GLORIA EYAMA ERIMA

The above subject matter refers.

The purpose of this letter is to request you to give the researcher the necessary assistance that she may need in the course of the research period.

T. K. Tirop
FOR: COUNTY COMMISSIONER
BUSIA COUNTY

Appendix D Sub county Letter

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

REPUBLIC OF KENYA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY
STATE DEPARTMENT OF EDUCATION

Telephone: 020-2682438
Mobile: 0720914525
When replying please quote:

REF: BUN/EDU/GA/48/32

Sub County Education Office
Bunyala District
P. O. Box 169
PORT VICTORIA
16th October, 2015

To whom it may concern

RE: AUTHORITY TO CARRY OUT RESEARCH
GLORIA EYAMA ERIMA ID NO. A1884056

This is to confirm that Ms. Gloria Erima is a student at Wits School of Education currently pursuing her Phd course in Education Leadership and Policy Studies.

The purpose of this letter is to authorize her carry out research within the Sub County in the following schools as per the requirements of Ministry of Education, Science and Technology:

1. School A (mildly affected by floods)
2. School B (affected by floods and good performing)
3. School C (affected by floods and average performing
4. School D (affected by floods and poor performing)
5. School E (severely affected by floods)

Any assistance accorded to her will be highly appreciated.

Thank you.

BUNYALA

Edwin Argwings Ong'injo
Sub County ESQAC Officer
BUNYALA

C.C

Appendix E Letter to the Principal inviting the school

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

01 September 2015

Dear Sir/Madam,

My name is Gloria Erima. I am a PhD student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research on *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.*

My research involves an investigation on delivering equal educational opportunities to learners in Flood-prone schools. The research intends to use interviews and questionnaires to obtain data on the schooling experience in flood-prone areas. The reason why I have chosen your school is because it is located in an area where recurring flooding has been experienced over a period of time.

I am inviting your school to participate in this research. Should your school participate; the study will require that I conduct one-on-one interviews with you as the head of the school, the school's senior teacher and some parents serving on the school's Board of Governors (BOG). Each interview will last at least 45 minutes and will focus on equalizing educational opportunities in the school. I would also like to distribute a questionnaire to standard eight pupils to share with me their experience regarding schooling in flood-prone areas. With your permission, I will also take photographs of some of the school buildings for use in my research.

The names of the research participants and identity of the school will be kept confidential at all times and in all academic writing about the study. Your individual privacy will be maintained in all published and written data resulting from the study.

All research data will be destroyed between 3-5 years after completion of the project.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education, 27 St Andrews Street
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Principal consent slip for school

I, _____, as (position) _____on behalf of _____School, understand the nature, requirements and benefits of participating in the study. I consent to participate in the study / do not consent to participate in the study.

Signature _____

Date _____

Appendix F Letter to the Principal

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

01 September 2015

Dear Sir/Madam

My name is Gloria Erima. I am a PhD student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research on *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.*

My research involves an investigation on delivering equal educational opportunities to learners in Flood-prone schools. The research intends to use interviews and questionnaires to obtain data on the schooling experience in flood-prone areas. The reason why I have chosen your school is because it is located in an area where recurring flooding has been experienced over a period of time.

I am inviting you to participate in this research based on your position as head of the school and your experience in school management. I would like to assure you there are no foreseeable risks in participating in this study. Your participation is voluntary and refusal to participate will involve no penalty or loss of benefits to your future work with me the researcher or the University. You may therefore discontinue participation at any time. Please note that you will not be paid to participate in this study.

Your name and individual privacy will be kept confidential at all times and in all academic writing about the study. Should you wish to participate; the study will require that I conduct a one-on-one interview lasting at least 45 minutes with you as the principal of the school. The interview will focus on your leadership practices on equalizing educational opportunities in the school.

All research data will be destroyed between 3-5 years after completion of the project.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education, 27 St Andrews Street
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Principal Consent Form

I, _____, I am willing to participate / I am not willing to participate in this research study. I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

Please fill in the reply slip below if you agree to participate in my study on: *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.* The study focuses on *how to equalize educational opportunities in Flood-prone schools of Bunyala Sub-county in Western Kenya:*

My name is: _____

Permission to be audio taped

I agree to be audio taped during the interview.	YES/NO
I know that the audiotapes will be used for this project only.	YES/NO

Permission to be interview

I would like to be interviewed for this study.	YES/NO
I know that I can stop the interview at any time and don't have to answer all the questions asked.	YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio taped.
- I can ask that my school is not photographed.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

_____ Date: _____

Signed consent of participant

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Interview Questions - Principal

Brief introduction on leadership and teaching experience:
No. of years as head in the school:
No. of teachers in the school:
No. of pupils in the school:
No. of Std. 8 Pupils in the school in the last 3 years:
KCPE means score in 2014:
Ranking in Sub-county and county:

1. Floods generally affect learning. Can you tell me something about flooding and school access? What do you do to ensure children come to school?

2. Floods generally reduce the **time** learners have in their subjects. Can you tell me how you manage the issue of learning time? What are the challenges and what can be improved?

3. Can you tell me a little about the issue of **resources** in the school? How does flooding affect the issue of resources as far as learner outcome is concerned?

4. What is it that you do to enhance the **teaching methodology** and capability of teachers? How can they be improved to increase the quality of learning in your school?

5. Can you tell me about **parental involvement** in the learning of their children in your school? What do you to increase this?

6. Floods definitely affect school effectiveness. As principal, how do you deal with the management of the curriculum and instruction of the school? How do you share school empowerment among staff? **(Instructional leadership)**

7. Tell me about the various **school communities** and the strategies they use towards promoting learning. How do they perceive these strategies?

8. How involved is the **community** towards learning? What challenges do you face working with the community? What can be done better?

9. What are some of the beliefs, **cultures** or attitudes that affect children's learning in this community?

10. In your view, what needs to be done to increase both the physical and epistemological (quality) access to knowledge as far as floods are concerned?

Appendix G Letter to the Senior Teacher

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

9 October 2015

Dear Sir/Madam,

My name is Gloria Erima. I am a PhD student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research on *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.*

My research involves an investigation on delivering equal educational opportunities to learners in Flood-prone schools. The research intends to use interviews and questionnaires to obtain data on the schooling experience in flood-prone areas. The reason why I have chosen your school is because it is located in an area where recurring flooding has been experienced over a period of time.

I am inviting you to participate in this research based on your position as the senior teacher in the school. I would like to assure you there are no foreseeable risks in participating in this study. Your participation is voluntary and refusal to participate will involve no penalty or loss of benefits to your future work with me the researcher or the University. You may therefore discontinue participation at any time. Please note that you will not be paid to participate in this study.

Your name and individual privacy will be kept confidential at all times and in all academic writing about the study. Should you wish to participate; the study will require that I conduct a one-on-one interview lasting at least 45 minutes with you as the senior teacher in the school. The interview will focus on the leadership you have experienced as a senior teacher in the school.

All research data will be destroyed between 3-5 years after completion of the project.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education
27 St Andrews Street
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Senior Teacher Consent Form

I, _____am willing to participate / I am not willing to participate in this research study. I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

Please fill in the reply slip below if you agree to participate in my study on: *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.* The study focuses on *how to equalize educational opportunities in Flood-prone schools of Bunyala Sub-county in Western Kenya.*

My name is: _____

Permission to be audio taped

I agree to be audio taped during the interview.	YES/NO
I know that the audiotapes will be used for this project only.	YES/NO

Permission to be interview

I would like to be interviewed for this study.	YES/NO
I know that I can stop the interview at any time and don't have to answer all the questions asked.	YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio taped.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

_____ Date: _____

Signed consent of participant

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Interview Questions - Senior Teacher

Brief introduction; a word on School leadership and teaching experience.
Experience as Senior Teacher.
No. of years as Senior Teacher in the school.

1. Floods generally affect learning. What measures do you put in place to ensure that pupils attend school during and after floods? What are the challenges you face in doing this?

2. Floods generally reduce the **time** learners have in their subjects. Can you tell me something about floods and the issue of repetition and dropout? How do you deal with this?

3. Can you tell me a little about the issue of **resources** in the school? What internal and external resources does the school have available for preparation and reconstruction after floods?

4. Can you tell me about the **teaching methodology** used in the school? What are some of the decisions teachers and yourself have taken in terms of the teaching methodology to cover for time lost?

5. How involved are parents in the learning of their children in your school? How do you deal with parental demand on better performance of pupils after flooding?

6. Tell me about staffing in the school? How do you motivate teachers and administrative staff to promote learning? What are the challenges you face in managing both teaching and non-teaching staff? **(Instructional leadership)**

7. Tell me about the various **school communities** and the strategies they use towards promoting learning. How do they perceive these strategies?

8. Tell me a little about the socio-economic background of this **community.** How have floods altered the community's source of livelihood?

9. What is the community's **culture** like as far as floods and learning are concerned? How likely is it that children in your school would give up school during flooding to engage in tasks that bring home extra money?

10. What strategies does the school put in place in preparation and response to the flooding period? How effective are those strategies perceived to be? What can be done better?

Appendix H Letter to BoM Parent

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

9 October 2015

Dear Sir/Madam,

My name is Gloria Erima. I am a PhD student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research on *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.*

My research involves an investigation on delivering equal educational opportunities to learners in Flood-prone schools. The research intends to use interviews and questionnaires to obtain data on the schooling experience in flood-prone areas. The reason why I have chosen your school is because it is located in an area where recurring flooding has been experienced over a period of time.

I am inviting you to participate in this research as a parent serving on the School's Board of Management (BOM). I would like to assure you there are no foreseeable risks in participating in this study. Your participation is voluntary and refusal to participate will involve no penalty or loss of benefits to your future work with me the researcher or the University. You may therefore discontinue participation at any time. Please note that you will not be paid to participate in this study.

Your name and individual privacy will be kept confidential at all times and in all academic writing about the study. Should you wish to participate; the study will require that I conduct a one-on-one interview lasting at least 45 minutes with you as the principal of the school. The interview will focus on your experience as a parent serving on the School Board of Governors.

All research data will be destroyed between 3-5 years after completion of the project.
Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education
27 St Andrews Street
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Parent Consent Form

I, _____, I am willing to participate / I am not willing to participate in this research study. I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

Please fill in the reply slip below if you agree to participate in my study on: *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.* The study focuses on *how to equalize educational opportunities in Flood-prone schools of Bunyala Sub-county in Western Kenya.*

My name is: _____

Permission to be audio taped

I agree to be audio taped during the interview.	YES/NO
I know that the audiotapes will be used for this project only.	YES/NO

Permission to be interview

I would like to be interviewed for this study.	YES/NO
I know that I can stop the interview at any time and don't have to answer all the questions asked.	YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio taped.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

_____ Date: _____

Signed consent of parent

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
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Website: www.wits.ac.za

1. Brief intro about parent (who s/he is).
2. How long you have served in the BoM.
3. How many children have been in school?
4. Any children in other schools.
5. General comment on the School BoM.

Interview Questions - Parent on the Board of Management (BoM)

1. Floods generally affect the access to schools. What are the common challenges you and other parents face to ensure your children attend school during the flooding period? How do you deal with this?

2. Floods disrupt the learning of your child? What measures are discussed at the BoG meetings to compensate for lost learning **time**? Are they implemented?

3. Can you tell me a little about the issue of **resources** in the school? What immediate resources are available (internal and external) to put the school back on track in terms of infrastructure and learning materials?

4. If understaffing has occurred after flooding, what immediate measures do you put in place? What are the challenges you face in doing this?

5. How involved are parents in the learning of their children in your school? How do you deal with parental demand on better performance of pupils after flooding?

6. Tell me about staffing in the school? How do you motivate teachers and administrative staff to promote learning? What are the challenges you face in managing both teaching and non-teaching staff?

7. Tell me about the various school communities and the strategies they use towards promoting learning. How do they perceive these strategies?

8. How do members of the BoM work with the community to promote learning during flooding? In your view, what more can be done to reduce the impact of flooding on learning in the school?

9. Tell me about the community's perception of BoMs. As a parent, to what extent are your needs represented at the school's BoM?

10. What are some of the strategies the board uses to prepare the school for floods? Are they effective? What more can be done to reduce the impact of flooding on learning in the school?

Appendix I Letter to the Local Leader

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

9 October 2015

Dear Sir/Madam,

My name is Gloria Erima. I am a student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research that is required for my degree on *attaining knowledge in Flood-prone schools in Bunyala Sub-county.*

My investigation involves understanding if pupils in schools experiencing floods have equal chances of learning compared to those in schools that do not experience floods. I am doing this research to try and find ways of equalizing educational opportunities in flood-prone schools. The reason why I have chosen your area is because it is located where recurring flooding has been experienced over a period of time.

I am inviting you to participate in this research based on your position as the local leader in this area. I would like to assure you there are no foreseeable risks in participating in this study. Your participation is voluntary and refusal to participate will involve no penalty or loss of benefits to your future work with me the researcher or the University. You may therefore discontinue participation at any time. Please note that you will not be paid to participate in this study.

Your name and individual privacy will be kept confidential at all times and in all academic writing about the study. Should you wish to participate; the study will require that I conduct a one-on-one interview lasting at least 45 minutes with you as the senior teacher in the school. The interview will focus on the leadership you have experienced as a senior teacher in the school.

All research data will be destroyed between 3-5 years after completion of the project.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education, 27 St Andrews Street
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Local Leader's Consent Form

I, _____, I am willing to participate / I am not willing to participate in this research study. I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

Please fill in the reply slip below if you agree to participate in my study on: *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.* The study focuses on *how to equalize educational opportunities in Flood-prone schools of Bunyala Sub-county in Western Kenya.*

My name is: _____

Permission to be audio taped

I agree to be audio taped during the interview. YES/NO
I know that the audiotapes will be used for this project only. YES/NO

Permission to be interview

I would like to be interviewed for this study. YES/NO
I know that I can stop the interview at any time and don't have to answer all the questions asked. YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio taped.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

_____ Date: _____
Signed consent of participant

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Brief introduction and local leadership experience:
No of schools under jurisdiction:
General comment about school:

Interview Questions - Local Leader

1. Floods generally affect the access to schools. Are there policies at local level that ensure children go to school? Are they enforced?

2. Floods disrupt the learning of children in this locality? What effort is there from principals and teachers to ensure learning? Is it adequate?

3. Can you tell me a little about the issue of **resources** and flooding in this locality? What role does the local government /politicians play to help schools in flooded areas?

4. Tell me something about the value of education in this community? What have successful children done to give back to the community?

5. What do parents say to you about the quality of learning of their children? How involved are they in the day to day activities of the school?

6. Can you tell me in what ways children in this locality benefit from education? How have the successful children in this area given back to the community?

7. Which school meetings are you invited to? How often are you invited to these school meetings and other events?

8. To what extent does the community value education in this area? In what ways have you used the community to help schools during and after flooding?

How do children in your area compare in education achievement with others outside?

9. What are some of the beliefs, **cultures** or attitudes that affect children's learning in this community?

10. What role does the local government play to help schools in flooded areas? What role do politicians play in ensuring quality learning in schools?

What generally needs to be done to improve learning in flood-prone schools?

Appendix J Letter to the education officer

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

9 October 2015

Dear Sir/Madam,

My name is Gloria Erima. I am a PhD student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research on *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.*

My research involves an investigation on delivering equal educational opportunities to learners in Flood-prone schools. The research intends to use interviews and questionnaires to obtain data on the schooling experience in flood-prone areas. The reason why I have chosen a school in your area is because it is located in an area where recurring flooding has been experienced over a period of time.

I am inviting you to participate in this research as the Education Officer in the area and your experience in the education department. I would like to assure you there are no foreseeable risks in participating in this study. Your participation is voluntary and refusal to participate will involve no penalty or loss of benefits to your future work with me the researcher or the University. You may therefore discontinue participation at any time. Please note that you will not be paid to participate in this study.

Your name and individual privacy will be kept confidential at all times and in all academic writing about the study. Should you wish to participate; the study will require that I conduct a one-on-one interview with you lasting at least 45 minutes. The interview will focus on the government's leadership practices on equalizing educational opportunities in the school.

All research data will be destroyed between 3-5 years after completion of the project.
Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education
27 St Andrews Street
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Education Officer Consent Form

I, _____, I am willing to participate / I am not willing to participate in this research study. I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

Please fill in the reply slip below if you agree to participate in my study on: *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.* The study focuses on *how to equalize educational opportunities in Flood-prone schools of Bunyala Sub-county in Western Kenya.*

My name is: _____

Permission to be audio taped

I agree to be audio taped during the interview. YES/NO
I know that the audiotapes will be used for this project only. YES/NO

Permission to be interview

I would like to be interviewed for this study. YES/NO
I know that I can stop the interview at any time and don't have to answer all the questions asked. YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio taped.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

_____ Date: _____
Signed consent of Officer

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Interview Questions - Sub - county Education officer (DEO)

1. Floods generally affect learning. What are some of the strategies your office employs to promote access to schools prone to floods in your area? How effective are these strategies? What are the challenges?
2. Floods generally reduce the **time** learners have in their subjects. Can you tell me how you ensure that learning time lost during flooding is recovered?

3. Can you tell me a little about the issue of **resources**? As far as floods are concerned, are their extra resources allocated to schools prone to floods?

4. To what extent do you engage with school principals on education issues to enhance the **teaching methodology** and capability of teachers in flood-prone schools? What is it that you do? How can these be improved?

5. Can you tell me about **parental involvement** in the learning of their children in your school? What do you to increase this?

6. Floods definitely affect school effectiveness. Can you tell me something about floods and performance in your area and how flood-prone schools compare in performance with other schools?

What effects does the flooding situation have on the neighbouring schools? How can these effects be minimized?

7. To what extent are school communities empowered to introduce new strategies to mitigate the flooding issue? Do you get updates when this is done? How effective are they?

You experience learning and other challenges during flooding. How is staffing generally affected? How do you mitigate this?

8. How involved is the **community** towards learning? What challenges do you face working with the community? What can be done better?

9. Generally, what are some of the beliefs, **cultures** or attitudes towards education that may affect learning in this community?

10. In your view, what needs to be done to increase both the physical and epistemological (quality) access to knowledge as far as floods are concerned?

What disaster management approaches can be used to better mitigate the flooding issue? (Preparedness, Response, Recovery, Mitigation)

Appendix K Letter to the Quality Assurance officer

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

9 October 2015

Dear Sir/Madam,

My name is Gloria Erima. I am a PhD student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research on *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.*

My research involves an investigation on delivering equal educational opportunities to learners in Flood-prone schools. The research intends to use interviews and questionnaires to obtain data on the schooling experience in flood-prone areas. The reason why I have chosen a school in your area is because it is located in an area where recurring flooding has been experienced over a period of time.

I am inviting you to participate in this research as the Education Quality Assurance Officer in this locality with experience in school quality assurance. I would like to assure you there are no foreseeable risks in participating in this study. Your participation is voluntary and refusal to participate will involve no penalty or loss of benefits to your future work with me the researcher or the University. You may therefore discontinue participation at any time. Please note that you will not be paid to participate in this study.

Your name and individual privacy will be kept confidential at all times and in all academic writing about the study. Should you wish to participate; the study will require that I conduct a one-on-one interview with you lasting at least 45 minutes. The interview will focus on the government's leadership practices on equalizing educational opportunities in the school.

All research data will be destroyed between 3-5 years after completion of the project.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

NAME Gloria Erima
ADDRESS University of Witwatersrand
School of Education
27 St Andrews Streets
Parktown, Johannesburg, 2193
EMAIL erimaglo@gmail.com.

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Quality Assurance Officer Consent Form

I, _____, I am willing to participate / I am not willing to participate in this research study. I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

Please fill in the reply slip below if you agree to participate in my study on: *Schooling in Flood-prone areas in Western Kenya: Applying a Disaster Management model to equalizing educational opportunities.* The study focuses on *how to equalize educational opportunities in Flood-prone schools of Bunyala Sub-county in Western Kenya.*

My name is: _____

Permission to be audio taped

I agree to be audio taped during the interview. YES/NO
I know that the audiotapes will be used for this project only. YES/NO

Permission to be interview

I would like to be interviewed for this study. YES/NO
I know that I can stop the interview at any time and don't have to answer all the questions asked. YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio taped.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

_____ Date: _____
Signed consent of Officer

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

Interview Questions - Quality Assurance officer (QASO)

1. Floods generally affect learning. Tell me about flooding and school access? How often does your office visit schools prone to floods?
What challenges do you face in accessing these schools?

2. Floods generally reduce the **time** learners have in their subjects. How have floods impacted on the quality of education in flood-prone schools? What does your office do to improve the quality of education in these schools?

3. Can you tell me a little about the issue of **resources**? As far as floods are concerned, are their extra resources allocated to schools prone to floods to increase access?

4. To what extent do you engage with school principals on education issues to enhance the **teaching methodology** and capability of teachers in flood-prone schools? What is it that you do? How can these be improved?

5. Can you tell me about **assessment for** learning in schools? How important is this? What assessment methods do you tend to use? What are the challenges your office faces in ensuring quality education in flood-prone schools?

6. Floods definitely affect school effectiveness. Can you tell me something about floods and learner outcomes in your area? How can you compare the performance of flood-prone schools with those in non-flood-prone schools in the same area?

7. What strategies has the school community put in place to improve your access to their schools? Are these strategies effective? How effective are they?

You experience learning and other challenges during flooding. Tell me about staffing and teacher motivation in flood-prone schools in this area.

8. How involved is the **community** towards learning? What challenges do you face working with the community? Can you compare the quality of education in flood-prone schools with that from other schools in the Sub-county? Comment on the future of children in flood-prone schools

9. Generally, what are some of the beliefs, **cultures** or attitude towards education that may affect learning in this community?

10. In your view, what needs to be done to increase both the physical and epistemological (quality) access to knowledge as far as floods are concerned?

Appendix L Letter to Pupil

27 St Andrews Road, Parktown,
Johannesburg, 2193 •
Private Bag 3, Wits 2050, South Africa
Tel: +27 11 717-3007 • Fax: 011 707 3009 •
Website: www.wits.ac.za

9 October 2015

Dear Pupil,

My name is Gloria Erima. I am a student in the School of Education at the University of the Witwatersrand in South Africa. I am conducting research that is required for my degree on *attaining knowledge in Flood-prone schools in Bunyala Sub-county.*

My investigation involves understanding if pupils in schools experiencing floods have equal chances of learning compared to those in schools that do not experience floods. I am doing this research to try and find ways of equalizing educational opportunities in flood-prone schools. The reason why I have chosen your school is because it is one of the schools that experience recurrent flooding over a period of time.

I was wondering whether you would mind if I asked you to participate in my research. I need your help with completing a questionnaire of about 10 questions to help me find answers to my research. This will take only 15 minutes of your time. After the questionnaire, you may participate in a group discussion with me to discuss the flooding issue if you are requested to do so by your teacher.

Remember, this is not a test, it is not for marks and it is voluntary, which means that you don't have to do it. Also, if you decide halfway through that you prefer to stop, it is completely your choice and will not affect you negatively in any way. I will not be using your own name but I will make one up so no one can identify you. All information about you will be kept confidential in all my writing about the study. Also, all collected information will be stored safely and destroyed between 3-5 years after I have completed my project.

Your parents have also been given an information sheet and consent form to allow me to work with you; but remember that at the end of the day it is your decision to join us in the research.

I look forward to working with you!

Please feel free to contact me if you have any questions.

Yours sincerely,

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Consent slip of Learner

I, _____, am willing to participate / I am not willing to participate in this research study.

I understand the nature, requirements and benefits of participating in this study. I understand that I may discontinue participation at any time.

_____ Date: _____

Signed consent of participant

Pupil Questionnaire

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17 October 2015

Key: SA=Strongly Agree, A=Agree, UD=Undecided, D=Disagree, SD=Strongly Disagree

TICK ONLY ONE BOX PER QUESTION

Indicate how well the school does the following:

A	Pedagogy	SA	A	UD	D	SD
1	Teachers are always on time for the lessons					
2	Teachers keep us meaningfully busy during each lesson					
3	Teachers help us individually when we do not understand subjects					
4	We have enough teachers for each subject in my school					
5	Teachers are capable of using different teaching methods to increase the quality of learning					
B	**Time-on-task**					
1	There is extra learning before and after flooding					
2	There is frequent pupil absenteeism during flooding due to unfavourable environments.					
3	There is forced repetition due to poor performance in my school.					
4	There is significant learning time lost during and after flooding					
5	I would achieve more if I had more learning time at school					
C	**Resources**					
1	There are enough toilet facilities at school					
2	There are enough text books in my school					
3	There are enough classrooms in my school					
4	There are enough pupils' desks in the school					
5	The classrooms are permanent structures to counter floods					

D	**Parental Involvement**					
1	My parent's involvement in my school work helps me succeed more					
2	School and family interactions are very important towards education achievement					
3	We have several parents meetings at school					
4	My parent ensures I get to school during floods					
5	My parent prepares well with me before floods					
E	**Culture**					
1	Flooding affects the continuation of learning on some of my colleagues due to poor learning environment. Quite often, they drop out.					
2	Pupils engage in activities (e.g. fishing) unrelated to learning during floods.					
3	Some of the beliefs in my community as far as floods are concerned negatively affect my learning					
4	Attitudes towards learning in this community affect learning					
5	My community's culture as far as floods are concerned affects my learning					
F	**School Communities/Community/Environment**					
1	Teachers at school really help us to cope after floods					
2	There is lunch at school during and after flooding					
3	Very few teachers stay in the school for two years before transferring to other schools					
4	The community is very helpful and assists us to attend school during flooding					
5	During flooding, the environment is hostile for learning					
G	**Please write a paragraph of your own personal experience with floods and learning**					

Appendix M Focus Group Discussion

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Standard 8 Pupils **9 October 2015**

Interview Questions	
1.	**Why is education so important to you?** • Do you think those without educations are different? • Aren't there educated people that are unemployed? • What happens to those not educated in this community? • Are there successful people out there that are not educated?
2.	**How well does this school help you to achieve your goals?** • What do you learn while in class and how do teachers teach? • Do they walk around to find out what you are doing and explain to those who don't understand? • Are the teachers concerned with the students that they teach by going around the class to see who has not understood and helping those who were absent to catch up? • What does the school do after floods? • Do you think you get equal education with people that are not affected by floods? • Are teachers paid for that extra time?
3.	**In what way/s do floods hinder your progress?** • Have you all experienced floods? • Have you ever been relocated? • Did you learn together with other students combined in classes? • Have you ever sold fish? • Do you mean the time that you could have come to school you are forced to go and fish because of hunger? • Do you think it is fair for your studies to be stopped by floods yet those you are competing with are still learning while you are in camps? • Do those others perform better than you? • Do you ever use boats? • When you stay away from school, does the school look for you?

	WSoE Wits School of Education
4	**What does the school do to ameliorate the effects of floods?** • How does this affect your results? • What if you have books and teachers after floods, how else are you affected that makes you not to pass? • What does the school do about this, does the school and the teacher try to talk and counsel you so that you try and forget the floods and its effects? • How do they ensure you cover the syllabus? • Who pays teacher for that extra time? • When you are sent home to get money, do parents always have money? • Does the school tell you not to come when you don't have the money? • The school tries to provide resources, right? • What do the parents provide? • What does the community do? • What does this school do when it comes to food, to cater for the ones who have joined you?
5	**Do your parents and the community help to reduce the effects of floods?** • How do parents support you? • How about the community? • Do they value you being in school? • Does taking you to other schools during floods help? • When it floods, do your parents escort you to school? • Other than escorting, how else do parents ensure you get to school?
6	**What else can you say about the issue of flooding and its impact on your learning?** • What else can you say about the issue of flooding and its impact on your learning? • What are your beliefs about flood and education in this community? • Do some of your friends dropout of school due to flooding? • Can you compare yourself with those schools that are not affected by floods, is your learning normally the same? • Do you cover the syllabus on time? ***(The questions below were asked to one school B performing well in the flooding environment)*** • Despite the floods, due you think you can find a way and learn so that you go to national schools? • What is it that you do that other children don't, what makes you different?

Appendix N Pupil's demographic data

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Name	
Age	
Class	
Gender	
Any case of repetition?	
If yes a, state the reason	

Pupil's name: _____ Date: _____

Appendix O Photographs



Figure 1 Tree in School B that is used as a shrine. When pupils go there, they feel like they are part of the school.



Figure 2 A convectional Box improvised in School B to teach the movement of currency



Figure 3 Permanent door structures in School E



Figure 4 Raised latrines in School C, a GoK/UNICEF project