

Understanding Local Perceptions of Quality Education in Kenyan Primary Schools: 812 Journeys of School Leadership for School Improvement



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Abstract

In Kenya, as in many parts of the developing world, school leaders face tremendous challenges in ensuring that schools deliver a good quality education for all children, including the most marginalized. This is of concern as the literature in the field of school improvement studies shows consistently that head teachers have a key role to play in enhancing the quality of learning and performance (Bush and Glover, 2014). The weight of these arguments seem to rest largely on the extent to which head teachers can create and sustain conducive physical environments and ‘school climates’ in which learning and teaching can thrive.

Sensitive to these arguments, UNICEF-Kenya and the Kenyan Ministry of Education, Science and Technology (MOEST) introduced in 2003, the ‘Child Friendly Schools’ (CFS) initiative to encourage head teachers to look at ways to describe, measure and improve the quality of primary education, beyond pupils’ test scores. To this end, Senior Kenyan education policy makers developed the ‘Child-Friendly Schools Monitoring Toolkit’ (CMT). The CMT contained 50 indicators for local education stakeholders to use as a school-based monitoring framework for measuring a school’s level of child friendliness (i.e. issues related to health, nutrition, safety, protection, equality, equity, family engagement, community participation, effective teaching and quality learning). In 2009, Kenyan government officials distributed the CMT across all 26,000 public primary schools, promoting it as an exercise in school self-evaluation for educational quality.

Yet, some eight years after the distribution of the CMT, little is understood about CFS. Kenyan school leaders appear to (i) still lack an understanding of the key factors that do or do not make their schools child-friendly (ii) lack usable diagnostic tools to assess levels of child-friendliness in their schools and (iii) remain ill-prepared to design evidence-based school improvement strategies that address the holistic dimensions of a child-friendly school. In other words, the conceptualization of school leadership for holistic school improvement in Kenya remains unclear and underdeveloped.

This study examines why this is so. In simple terms, it investigates why the national efforts to improve the quality of education through the CFS approach appear to have stalled. It uses a three-pronged research design to study what Gray et al. (1999), Jackson (2000), Fullan (2002) and Hallinger and Heck (2011) describe as ‘school improvement journeys’ of 812 Kenyan head teachers, all of whom were selected from a purposive national sample of rural, low-performing, low-income government-run public primary schools across ten Kenyan counties.

The study starts out by comparing and contrasting the local perceptions of Kenyan school leaders of quality education, and their efforts towards school improvement with national CFS policy frameworks and tools to tease out the key differences between policy and practice. Finding that these are significant, the study proceeds in three investigative phases:

First, the study collects and codes 8,353 unique responses from 100 focus group discussions with 812 Kenyan school leaders to co-construct a more contextually relevant conceptual model and diagnostic tool for measuring child-friendliness levels in Kenya. This new model and diagnostic tool is called the ‘Enhanced Child-Friendly School Monitoring Toolkit’ (ECMT). The findings show that 97.0% of Kenyan head teachers’ local perceptions of quality education can be captured by the ECMT with just *half* of the number of indicators originally proposed by UNICEF-Kenya and the Kenyan government in the CMT.

Second, the study collects empirical data from 431 Kenyan school leaders, 533 teachers, 467 parents, and 426 pupils through a newly designed mobile phone, SMS-based ECMT diagnostic action research tool. 1,857 diagnostic ECMT surveys were completed on mobile phones, generating 46,425 local rankings of current levels of perceived evidence of factors making their schools child-friendly or not. The study interrogates the dataset to offer new insights into key variables of school improvement that either constrain or enhance quality education in Kenya.

Finally, the study collects and codes 1,559 school improvement strategies from 436 head teachers who completed the school-based ECMT diagnostic assessment. The study found that 58% of the school improvement strategies related to the ECMT indicators that received the *lowest* levels of perceived evidence by school teachers, pupils, and parents. The data suggests promising new evidence about how to promote more data-driven school leadership for school improvement in Kenya.

These three findings, together with the study's critical discussion and reflection, offer new scientific understanding for the fields of school improvement and school leadership in Kenya. The study explores how a new school-based monitoring framework (ECMT) can better enable Kenyan school leaders to conceptualize, assess and respond to key factors that either enhance or inhibit quality education in their local contexts. In the end, the study's findings call for a renewed dialogue between top-down and bottom-up perspectives of quality education in determining future criteria and methods for measuring and improving levels of child friendliness in Kenyan public primary schools.

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List of Abbreviations

CFS: Child Friendly Schools
CIPO: ‘Contexts, Inputs, Processes and Outcomes’ based on Heneveld and Craig’s (1996) conceptual framework for school effectiveness.
CMT: Child Friendly Schools Monitoring Toolkit
CUREC: Central University Research Ethics Committee
DFATD: Department of Foreign Affairs, Trade and Development Canada (GAC)
DFID: Department for International Development (UK)
DQ: Discussion Question
ECMT: Enhanced Child Friendly School Monitoring Toolkit
ECD: Early Childhood Development
EDPCG: Education Development Partners Coordination Group
EEIR: Educational effectiveness and improvement research
EFA: Education for All
EMIS-Light: Education Management Information System - Light
FGD: Focus Group Discussion
FPE: Free Primary Education
GER: Gross Enrolment Rate
GPE: Global Partnership in Education
INSET: In-Service Education and Training
IPA: Interpretative Phenomenological Analysis
IRA: Indigenous Research Assistant
KEPSHA: Kenyan Primary School Head Teachers Association
KCPE: Kenyan Certificate of Primary Education
KNEC: Kenyan National Examinations Council
MDG: Millennium Development Goal
MOEST: Ministry of Education, Science and Technology in Kenya
MSc.: Masters in Science
NER: Net Enrolment Rate
NESP: National Education Sector Plan
OOSC: Out of School Children
PLA: Participatory Learning and Action
PR: Principal Researcher
PRIMR: Primary Maths and Reading Initiative
RCMT: Regrouped Child-Friendly Schools Monitoring Toolkit Indicators
RFP: Request for Proposals
RISE: Research in Systems Education
SER: School Effectiveness Research
SIR: School Improvement Research
SL: School Leader (referring to anonymous school leader respondent)
SMS: Short Messaging Service
TOR: Terms of Reference
UIS: UNESCO Institute of Statistics
UNICEF: United Nations Children’s Fund (formerly United Nations International Children’s Emergency Fund)
UNESCO: United Nations Education, Science, and Culture Organization
UNFPA: United Nations Population Fund
USAID: United States Agency for International Development
WISER: Women’s Institute for Secondary Education and Research

Chapter 1 – Context, Rationale and Research Aims

1.1 Context

Nine out of ten children in the world live in a developing country (UNFPA, 2017). According to UNICEF (2017), one billion children now live in poverty – one out of every two children. For education policy makers, this creates significant challenges and opportunities in providing better access to basic quality education for all. Currently, 263 million children and youth remain out-of-school; the equivalent to a quarter of the population of Europe (UNESCO, 2016). But this type of statistic only covers half the picture in describing how to achieve quality education for all: educational access rates. What about the second half? What happens in a school *after* a child arrives? In short, providing *quality* education for the world's children could have the potential to improve the welfare of more than 5 billion people living in the third world today (Glewwe and Kremer, 2006).

But *what* does quality education mean, and to *whom*? Announced at the Dakar World Conference on Education for All (EFA) in 2000, the international community made a number of commitments to improve education quality. In one of the six EFA goals that were adopted, leaders made it their priority to 'improve all aspects of quality education so that recognized and measurable learning outcomes are achieved by all' (UNESCO, 2005, p. 2). This commitment was reaffirmed by the adoption of the Millennium Development Goals (MDG), where two out of the eight goals made educational quality global priorities for development (UNGA, 2000). Then, in 2015, the global community again reaffirmed its commitment to improving the quality of education through the adoption of the seventeen United Nations Sustainable Development Goals (SDGs) that now guide international development efforts until the year 2030. SDG's fourth goal, specifically, calls on the global education community to 'ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. SDG target 4.1 challenges us, that 'by 2030, [we] ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes' (UNGA, 2015).

But disparities in resource allocation, low numbers of qualified teachers, and poverty continue to provide quality education for some, but not for all (Glewwe and Muralidharan, 2015). Today, more than 617 million children and adolescents (or more than half of the world's children and adolescents) are not achieving minimum proficiency levels in reading

and mathematics (UNESCO, 2016). There is a wide consensus that poor quality of education will continue to have a negative multiplier effect across all sectors of development, including the potential to prolong inter-generational poverty (Chapman and Adams, 2002). Low levels of educational quality have also been shown to influence social and economic factors in a country's development strategy, including, but not limited to, economic growth, health, and innovation (Hanusheck and Woessmann, 2007).

In Kenya, the problems of educational quality remain overwhelming. Although the last decade has marked an overall increase in the number of Kenyan pupils accessing education (80.3% NER in 2003 to 95.3% NER in 2012), levels of quality learning conditions and outcomes have remained alarmingly low (Sifuna, 2007; Mugo et al., 2012). For example, only 76% of Kenyan pupils complete their full eight years of primary education (UNESCO, 2012). Of those who finish, only 51% qualify for entry into secondary school (Republic of Kenya, 2014a). Even among the pupils who enrol, the quality of learning remains low. For example, in 2010, 86% of class 3 pupils could not read even a single word of English (Piper, 2010). Furthermore, regional and socio-economic factors create disparities in delivering quality education throughout Kenya. For example, only 8% of pupils in rural north eastern Kenya have access to a mathematics textbook, compared to 44% of pupils living in Nairobi (Onsomu et al., 2005). A child living in a Kenyan arid district is three times more likely to be out-of-school than a child residing in an urban district (Mugo et al., 2012). In short, social, geographic, and economic inequalities have only served to exacerbate inequalities in educational access throughout Kenya (Wasanga et al., 2012).

The crisis in delivering quality education throughout Kenya stems from both 'push' and 'pull' factors in the sector (Ngware et al., 2012). The following sections provide a more detailed contextual overview of the supply and demand issues stalling the advancement of quality education in Kenya. This background provides the context and rationale of the present study's research aims and questions.

1.1.1 Understanding System Bottlenecks to Quality Education in Kenya

The study employs Tanahashi's (1979) model for effective social service coverage to help visualize and describe the bottlenecks in delivering quality education for all in Kenya. The model suggests five determinants about why an intended public service either succeeds or fails to meet its target audience and level of intended quality of provision that includes: levels of (i) Availability Coverage (ii) Accessibility Coverage (iii) Acceptability Coverage (iv) Contact Coverage and (v) Effectiveness Coverage of service delivery. Tanahashi's (1979) model initially emerged as a response to the need to simplify and compare contextual bottlenecks in healthcare service delivery across multiple communities. For example, the first determinant (Availability Coverage) was defined as the extent to which physical commodities and human resources of the intended service were made available to a target population (i.e. clinics and trained nurses/doctors). The second determinant (Accessibility Coverage) was defined as the 'reachability' of a public service to the extent that a target population could access the intended service (i.e. how far the clinics were to the target communities). The third determinant (Acceptability Coverage) was defined as the quality of demand by the target population for the intended public service (i.e. whether patients actually wanted to visit the clinic). The fourth determinant (Contact Coverage) was defined as the number of people from the target population who made 'contact' with the intended service (i.e. the number of patients admitted into the clinics). And the fifth and final determinant (Effectiveness Coverage) was defined as the number of people from the target population who received satisfactory service (i.e. the number of patients with improved health).

The power of the model, however, lies in the simplicity of visualizing and comparing bottlenecks between these determinants of effective service coverage in relationship to the target population. Recreated on the next page are three examples of how this model helps outsiders to visualize and understand the types of bottlenecks hindering effective social service delivery levels. Figure 1 (next page) visualizes bottlenecks in the **availability and accessibility** of an intended service because of poor allocation and deployment of resources; Figure 2 (next page) represents bottlenecks in the **acceptability levels** of service because of perhaps poor appreciation of the service by the target population; and Figure 3 (next page) represents bottlenecks in effectiveness of service delivery because of **poor levels of quality of the service provided** (Tanahashi, 1979). The horizontal axis represents the target population (0% - 100%) while the vertical axis marks the varying levels of coverage across the **five determinants** of effective social service delivery.

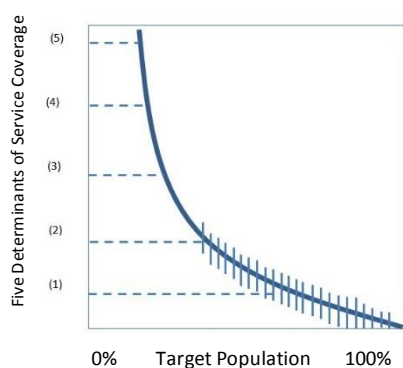


Figure 1: Bottlenecks in availability and accessibility of services (the shaded part of the line). Source: Tanahashi (1979, p. 300).

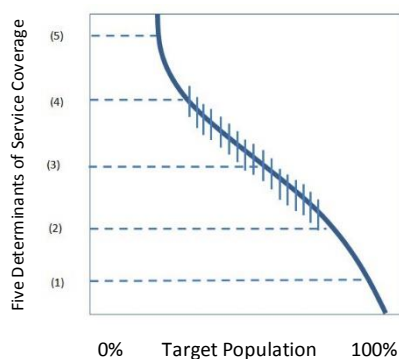


Figure 2: Bottlenecks in acceptability of service (the shaded part of the line). Source: Tanahashi (1979, p. 300).

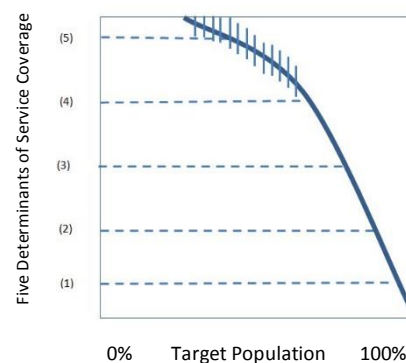


Figure 3: Bottlenecks in effectiveness of service (the shaded part of the line). Source: Tanahashi (1979, p. 300).

Key for Vertical Axes: (1 = Availability Coverage; 2 = Accessibility Coverage; 3 = Acceptability Coverage; 4 = Contact Coverage; 5 = Effectiveness Coverage).

Originally used to describe deficiencies in the healthcare sector in 1979, Tanahashi's model provides a helpful lens to visualize and understand where the key bottlenecks are within very complex social service delivery systems. What does the picture, therefore, look like for the education sector in Kenya? Where are the key bottlenecks? The current study employs Tanahashi's (1979) analytical framework to clearly identify the important gaps in education service delivery within Kenya, thereby providing the rationale for the present study's research aims and questions related to the role of school leadership for school improvement.

1.1.1.1 Educational Availability Coverage in Kenya

As previously stated, the first determinant of Tanahashi's (1979) model of effective service coverage is the extent to which physical commodities and trained human resources of the intended service are made available to a target population. For the present study, 'availability coverage' will be used to describe the degree to which educational commodities and personnel are in adequate supply.

One of the greatest challenges to realizing quality education in Kenya is the inadequate provision of physical school inputs (Hungu and Thuku, 2010). While the number of Kenyan primary schools increased from 26,206 to 29,161 from 2008 to 2012, the national classroom to pupil ratio still remains well above the government's policy of 1:40; it stands at 1:64 (Republic of Kenya, 2014a). The government estimates that only 62% of Kenyan pupils in primary schools are learning in classrooms with a 1:40 classroom to pupil ratio (Republic

of Kenya, 2014a). Within these classrooms, Kenyan children often share one book for every three pupils (Mugo et al., 2012). The quality of an average school's learning environment in Kenya also remains low. Only 64% of schools have access to drinking water, 47% to school feeding, and 34% to library facilities (Mugo et al., 2012). Regional disparities exacerbate inequities in the provision of educational inputs (Nishimura and Byamugisha, 2011). For example, 47% of children in schools in the north east regions of Kenya sit on dirt floors to learn (because they have no desks), compared to only 1% in Nairobi (Mugo et al., 2012). Furthermore, only 9% of permanent schools in arid and semi-arid regions of Kenya have access to hygienic facilities, compared to the national average of 91% (Mugo et al., 2012).

Coupled with a low supply of physical commodities, the shortage of trained teachers also remains a critical challenge in Kenya's education sector (Odhiambo, 2008; Orodho et al., 2013). According to the government, 173,388 public primary school teachers were registered in 2012 to serve 8.9 million enrolled primary school pupils, creating an overall ratio of only one teacher for fifty-one students (Republic of Kenya, 2014b). Teachers in rural areas are often responsible for upwards to 150 pupils per class and supervise more than one classroom at a time during the day (Hungu and Thuku, 2010). It would not be unusual to see one teacher responsible for three to five lower primary grade classrooms with hundreds of children in each grade level (Republic of Kenya, 2014b).

The main problem with the supply of teachers, however, is their rate of absenteeism. According to the World Bank's (2013) Social Service Delivery Indicator report, on any given school day, 16% of Kenyan teachers are absent, 27% are in school but not teaching, and 2% are in class but not teaching (Martin and Pimhidzai, 2013). The government estimates that only 50% of Kenyan pupils in primary schools are learning with teachers regularly attending class on a daily basis (Republic of Kenya, 2014a). Teachers often have to engage in other income generating activities to compensate for low wages; thereby resulting in teachers either arriving late to class or leaving early (Orodho et al., 2013). Although many schools employ 'contract' teachers to serve as temporary substitutes, (Bold, et al., 2013), the majority of Kenyan pupils are left alone in crowded classrooms with few educational resources and teachers from which to learn. The levels of educational 'availability coverage' in Kenya, therefore, remain very low and reveal a key bottleneck in the sector's ability to operationalize ambitious and inspiring 'quality for all' education policies into effective educational practices at the community, school and classroom levels.

1.1.1.2 Educational Accessibility Coverage in Kenya

The second determinant of Tanahashi's (1979) model of effective service coverage measures the 'reachability' of a public service to the extent that a target population can access the intended service. For the present study, 'accessibility coverage' will be used to describe the degree to which students can physically access schooling and learning opportunities.

The accessibility of Kenyan schools by most Kenyan pupils has been deemed satisfactory, if measured simply by physical distance between a child's home and the closest school (Glennister et al., 2010). The government estimates that 95% of Kenyan pupils in primary school are within one kilometre of walking distance between their home and government-run school (Republic of Kenya, 2014a). However, Warrington and Kiragu (2012) argue that many times it is not the distance to a *school* that matters, but rather it is the distance to a *good* school. In their study of Kenyan female students attending schools, for example, one participant reports moving twenty kilometres away from her home to stay with a relative because the quality of the school within distance of her home was too low (Warrington and Kiragu, 2012). Mugo et al. (2012) also describe hidden inequities in current statistics describing physical access to schooling. They report that the average distance to school for children living in the North Eastern provinces of Kenya are almost triple the distances that pupils have to walk in the Central provinces of Kenya, thereby revealing significant geographical variances in levels of educational accessibility. According to the available national data, however, the overall levels of 'accessibility coverage' for the provision of Kenyan education remain high, though more up-to-date data is needed.

1.1.1.3 Educational Acceptability Coverage in Kenya

Tanahashi's (1979) third determinant of effective service coverage describes the quality of demand by the target population for the intended public service. In the present study, the term 'acceptability coverage' will be used to describe the rate by which parents 'accept' the value of education and enrol their children into school. Ever since the Kenyan government instituted its policy for free primary education (FPE) in 2003, primary school net enrolment rates have soared from 80% in 2003 to 95% in 2012, providing evidence to suggest increased demand of educational services by the general Kenyan public (UNESCO, 2012). Since the FPE policy has had no age restrictions on its admissions policy, the gross enrolment rate (GER) has also risen to 115.8% over the last decade (Republic of Kenya, 2014a).

However, Kenya still ranks as having the *eighth* highest number of primary school-

aged out-of-school children in the world (UIS, 2013). UNICEF-Kenya (2014) calculated that 2,987,647 children were out-of-school in 2014. Regional and gender disparities, again, exacerbate inequities where a child living in an arid county in Kenya is three times more likely to be out of school than a child living in an urban county (Mugo et al., 2012). Even more alarming is that UNESCO (2012) estimated that 45% of adolescent girls living in the Northeast regions of Kenya have never attended a day of schooling in their young adult life. Alongside gender inequities, children's mental and physical disabilities also constrain levels of educational 'acceptability coverage' in the Kenyan context. According to the Kenyan government, only 30% of the expected number of learners with special needs are currently enrolled (Republic of Kenya, 2014a). Furthermore, most education data for marginalized children remains out-of-date, speculative, and inconsistent. UNICEF's (2013) *State of the World's Children Report* cautions us about statistics related to children with disabilities, as most reported figures reflect outdated or incomplete datasets.

One of the most commonly cited reasons for out-of-school children in Kenya remains the affordability of schooling. The lack of adjustment in Kenya's free primary education yearly school capitation grant has created hidden school fees for Kenyan pupils (Oketch and Somerset, 2010). The capitation grant of 1,020 Kenyan shillings (USD 11.50) per pupil per year has remained *unchanged* since 2003 (Republic of Kenya, 2014a). The Kenyan Parliament passed a resolution in 2011 to double the FPE capitation grant to 3,060 per child (USD \$23.00), but no actions have been taken by the national government to implement the policy changes. This has significant consequences for a country of 44 million people, with 42% reportedly living below the poverty line (UNICEF-Kenya, 2017). In February 2014, the Kenyan National Association of Parents filed a lawsuit against the government for its 'doublespeak' when officials often ask why anyone would pay to send their child to school and yet illicit fees are implicitly expected by school administrators for admission into primary education (Howden, 2014). Little to no progress has been made to date in the lawsuit. Hidden fees for schooling, therefore, remain the norm for most Kenyan families enrolling children in government schooling systems. Therefore, although net enrolment rates and gross enrolment rates have grown exponentially over the years, high levels of educational 'acceptability coverage' actually hide the social inequities that many Kenyan families and their children continue to experience in practice.

1.1.1.4 Educational Contact Coverage in Kenya

Tanahashi's (1979) fourth determinant of effective service coverage describes the number of people from the target population who have made 'contact' with the intended service. For the present study, the term 'contact coverage' will be used to describe the degree to which pupils *attend* school in Kenya.

According to Mugo et al. (2012), 89% of Kenyan pupils in primary schools are attending school on a regular basis. However, children in lower primary classes are two times more likely to be absent from school than those in upper primary classes. While issues of educational supply (i.e. classrooms, textbooks, and teachers) often contribute to varying levels of educational demand, structural inequalities across gender, disability, religion, and tribe also prevent parents and community members from sending their children to school (Orodho et al., 2013). For example, girls in the North Eastern provinces in Kenya are *seven* times more likely to miss a day of school than girls in Central province, due to differences in communal cultural values of education (Mugo et al., 2012).

In addition, public primary schools are having to adapt to the emerging presence of and competition posed by the private provision of education in Kenya (Tooley et al., 2008; Caerus Capital, 2017). According to a recently published report at the 2017 World Economic Forum called, *The Business of Education in Africa*, one in five pupils within Sub-Saharan Africa is educated by private schooling (Caerus Capital, 2017). Private education in Africa is estimated to offer a US \$16-18 billion investment opportunity over the next five years (Caerus Capital, 2017). In Kenya, the number of private primary schools has increased rapidly from just 1,441 in 2002 to 8,719 schools in 2011 (UNESCO, 2012). The odds for a pupil from a private school to have better learning outcomes are *twice* than those of a pupil from a government school (UWEZO, 2016). Net enrolment rates in private primary schools has also increased from 3.8% to 8.9% between 1997 and 2006, respectively (Bold et al., 2013). The number of low-cost private schools (LCPS) in Kenya is also on the rise (Day et al., 2014). Specifically, Bridge International Academies (BIA) claims that one out of every ten Kenyan pupils attends one of their 359 private schools nationwide, with plans to open a new academy every 2.5 days in years to come (BIA, 2014). As a result, school leaders of public primary schools in Kenya are struggling not only with gaps in the availability, acceptability, and accessibility coverage of education service delivery, but also in levels of 'contact coverage', or school attendance levels by pupils on a day-to-day basis.

1.1.1.5 Educational Effectiveness Coverage in Kenya

Tanahashi's (1979) fifth and final determinant of effective service coverage describes the number of people from the target population who receive satisfactory, quality service. For the present study, the term 'effectiveness coverage' will be used to describe the number of pupils who complete primary schooling *and* pass their end-of-primary school leaving certificate, the Kenyan Certificate of Primary Education (KCPE).

According to recent analyses of completion rates of standard 8 pupils, however, only 76% of pupils who began primary school in 2004 completed primary school in 2012 (Republic of Kenya, 2014a). Kenyan schools seem to maintain a high retention rate for pupils up to Standard 6, but experience significant drop-out rates in Standards 7 and 8 (Mugo et al., 2012). One reason for this may be that Kenyan head teachers who wish to perform well on their school's average KCPE often pressure low-performing pupils to drop-out by Standard 6 to avoid being 'counted' in the school's overall level of performance in Standard 8 when the end-of-primary school exam is administered (Republic of Kenya, 2014b).

Among the 76% of Kenyan pupils who complete their full cycle of primary education, only 51% qualify for secondary education by receiving a score of 250 points (50%) or above on their KCPE (Republic of Kenya, 2014a). Cumulatively, this wastage has led to a remarkable loss of potential human resources in the country, a cautionary sign of an inefficient education sector (Republic of Kenya, 2014b). Beyond KCPE scores, recent studies also show tremendous gaps in learning outcomes at lower primary grades in Kenya. For example, only 19% of pupils in class 3 were able to read a *single* word in Kiswahili (Piper, 2010). Internationally, Kenya's overall reading proficiency has dropped from second to fifth highest among the 15 African countries participating in the Standard 6 examinations administered by the third Southern Africa Consortium for Monitoring Educational Quality (SACMEQ) assessment (Wasanga et al., 2012). Even after multi-million dollar interventions, levels of learning have remained low. For example, after five years of co-implementing a US \$31 million quality education improvement programme called, 'Strengthening Education Systems in East Africa from 2012-2016', the Kenyan government and development partners demonstrated *no growth* in improving learning outcome scores in the target schools (Ecorys, 2017). Geographic disparities, again, continue to exacerbate the problem. While 41% of Class 3 Kenyan pupils living in urban areas can do Class 2-level work; in rural areas, the learning rate plummets where only 25% of Class 3 pupils can do Class 2-level work (UWEZO, 2016).

Whether measured by the low levels of completion rates or alarmingly low levels of learning outcomes, the levels of educational ‘effectiveness coverage’ in Kenya remain extremely concerning to all stakeholders.

1.1.2 Visualizing Key System Bottlenecks to Quality Education in Kenya

Reviewing the different levels of ‘availability coverage’, ‘accessibility coverage’, ‘acceptability coverage’, ‘contact coverage’, and ‘effectiveness coverage’ of the provision of quality of education in Kenya, two key bottlenecks emerge (see red bars in Figure 4 below). There appears to be a significant bottleneck in the levels of ‘availability coverage’ of Kenyan physical education inputs and trained human resources as the government estimates that only 50% of Kenyan pupils in primary school attend schools where teachers are both present *and* teaching on a regular basis (Martin and Pimhidzai, 2013). The second key bottleneck in Kenyan education service delivery seems to occur at the level of educational ‘effectiveness coverage’, as the government estimates that only 51% of Kenyan pupils in primary school pass their end-of-primary school KCPE exams. Below, Figure 4 illustrates the low levels of ‘**availability coverage**’ and ‘**effectiveness coverage**’ of quality education service delivery in Kenya, today. As one can see, key bottlenecks in the educational sector are less related to the quality of *demand* issues (Determinants 2 and 3) and more related to issues related to the quality of educational *supply* (i.e. Determinant 1).

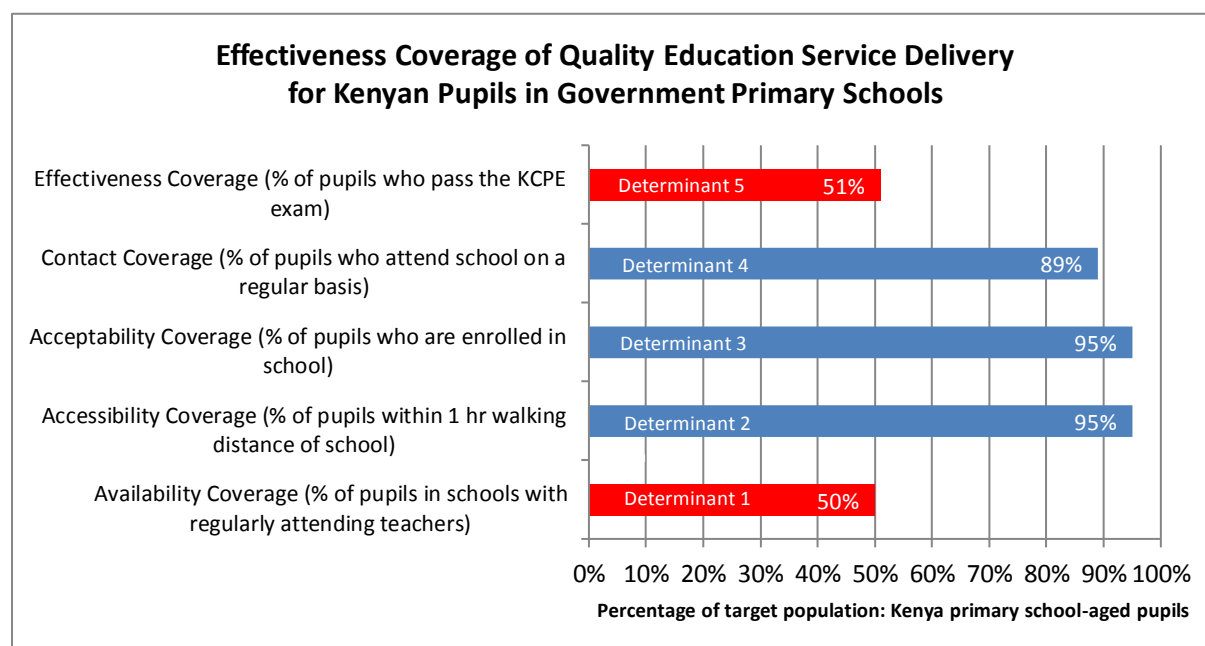


Figure 4: Effectiveness coverage of quality education service delivery for Kenyan pupils in government primary schools: Illustrating two key sector bottlenecks for improving quality education in Kenya. Source: Author (2014).

Unlike the three models that Tanahashi (1979) provided to analyse constraints of the quality of social service delivery, the factors that seem to be stalling educational quality in Kenya represent **a double bottleneck**, rather than just one, to effective social service provision. This double bottleneck is illustrated below in Figure 5.

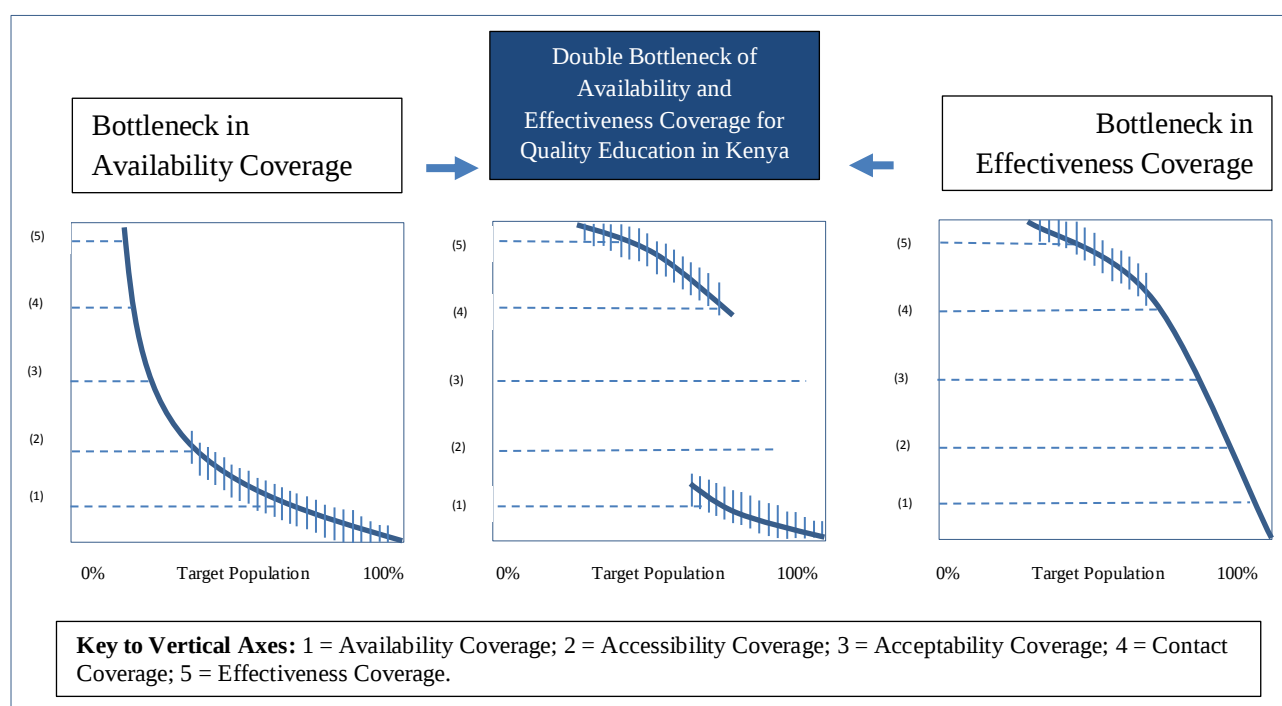


Figure 5: Double bottlenecks of availability coverage and effectiveness coverage for quality education in Kenya. Inspired by Tanahashi (1979). Source: Author (2014).

The picture becomes unfortunately clear in Kenya: quality education is *not* for all Kenyan children. Geographic disparities, gender inequalities, and socio-economic inequities continue to prevent Kenyan children from realizing their inalienable rights to accessing basic, quality education for all. While many efforts in international education development have focused on improving educational access rates, it is evident from the data that in Kenya, much more effort needs to be dedicated to improving what happens *after* children arrive at school. School leaders must do more to move beyond providing Kenyan pupils with more options for *schooling* and instead create transformative environments for *learning*. Dramatic and sweeping school improvement strategies, therefore, need to be designed and implemented at scale, and as soon as possible in the Kenyan context. Otherwise, we risk losing *generations* of Kenyan children who ‘attend’ school, but learn next to nothing useful for their lives ahead.

1.1.3 Responding to Key System Bottlenecks to Quality Education in Kenya

Kenyan government officials have recognized that they cannot afford an uneducated generation of future leaders. As the sixteenth country to ratify the UN Convention on the Rights of the Child in 1990, Kenyan officials have remained committed to fulfilling its role in meeting global education targets set by the Education for All goals (EFA), the Millennium Development Goals (MDGs) and the Sustainable Development Goals (SDGs) (UNGA, 1990; UNESCO, 1990; UNESCO, 2000; UNGA, 2000; UNGA, 2015). Nationally, Articles 43, 53, and 55 in Chapter 4 of Kenya's new Constitution (Republic of Kenya, 2010) and the recently passed Basic Education Act (Republic of Kenya, 2013a) now obligate both state officials and parents to facilitate 'quality basic education for all children' (p. 34). The Kenyan government also announced *Kenya Vision 2030* as the national plan to transform Kenya into a 'middle-income country and provide a high quality of life to all of its citizens by year 2030' (Republic of Kenya, 2007, p. 16). The vision for its educational aims is 'to have a globally competitive quality education [...] for all Kenyans by 2030' (Republic of Kenya, 2007, p. 17).

As the literature review will demonstrate in Chapter 2, the role of school leadership for school improvement remains one of the most important factors in responding to key education system bottlenecks (Bush and Glover, 2014). In particular, the role of school leadership for improving the quality of the school climate has been repeatedly shown to be an essential factor in addressing key constraints to dysfunctional education system service delivery (Woods and Martin, 2016). It is within this context that the United Nations Children's Fund (UNICEF), together with other partners, entered into a close collaboration with the Kenyan Ministry of Education, Science and Technology (MOEST) to localize a UNICEF global initiative, 'Child Friendly Schools' (CFS), into the Kenyan context. In other words, UNICEF and other development partners recognize that one of the key bottlenecks to realizing quality education for all within Kenya still lies with improving the levels of quality learning environments, or school climates, in order to address the multi-dimensional set of factors that continue to constrain efforts to improve quality education throughout the country.

Based on the Convention on the Rights of the Child, the CFS concept was initially adopted by global leaders in UNICEF, Save the Children, and the World Health Organization as an educational equivalent to the 'baby-friendly hospital' initiative that improved quality standards in global health (UNICEF, 2009a, p. 7). In 1995, UNICEF held a worldwide

workshop on, ‘What is a child-friendly school?’ from which an informal summary of ‘multi-dimensional’ rather than ‘single-factor’ approaches to improving educational quality emerged (UNICEF, 2009a, p. 5).

The impetus for CFS was to move ‘beyond pedagogic excellence and performance outcomes’ and instead, focus ‘on the needs of the child as a whole, not just on the ‘school bits’ for which educators traditionally felt responsible’ (UNICEF, 2009a, p. 7). Dr. Cream Wright, the former global chief of education for UNICEF, defines the term ‘child friendly schools’ as ‘a multidimensional concept of *quality* that addresses the total needs of the child as a learner’ (UNICEF, 2009a, p.4, emphasis added). At the heart of the child friendly schools initiative, therefore, is the question of not only improving access to education, but finding ways to increase the *quality* of education that is being provided. Using UNICEF’s global reach, the initiative has expanded its operations from 33 countries in 2004 to 93 countries in 2009 (UNICEF, 2009b).

Among these 93 countries, Kenya is cited as one of the most successful in managing to mainstream the concept of CFS into its national education policies (UNICEF, 2009b, p. 9). Before the study problematizes the CFS concept, it will first trace its development and perceived success by current policy reviews within the Kenyan context. Fushimi (2014) suggests that a series of unique contexts and mechanisms within Kenya’s education sector positively facilitated this policy transfer, including, but not limited to active government leadership, new international funding resources, and internal dissatisfaction with the culture of high-stakes testing as the means of measuring school quality. In short, the CFS conceptual framework received wide-spread support from both national and local actors in the Kenyan education sector. In 2005, the MOEST, in collaboration with education donors, created the Kenyan Education Sector Support Programme-2005-2010, which became the first national strategy specifically aimed at delivering quality and equitable education for all Kenyans (Republic of Kenya, 2005). Although the term ‘child friendly’ did not appear in the plan, the policy’s broad concern with multidimensional aspects of educational quality reflected the priorities of the CFS concept (Nakulo, 2011). As a more tangible example illustrating the impact of CFS in Kenya’s education policy sector, the Kenyan national deputy director of educational quality assurance and standards hangs a large poster next to his desk that greets every visitor to office with the question: ‘*Is your school child-friendly?*’ Pictured on the poster are both a smiling Kenyan pupil and a half-page government logo that says—

‘Supported by the Kenyan Ministry of Education, Science and Technology’. In short, CFS is the face of the government’s efforts to improve quality education throughout the country.

Since 2003, education officials in Kenya have sought numerous ways to operationalize the CFS concept into practice. Figure 6, below, summarizes the four main strategies and two strands of operationalization that are currently being used to translate the CFS ‘manifesto’ into actionable procedures and partnerships on the ground.

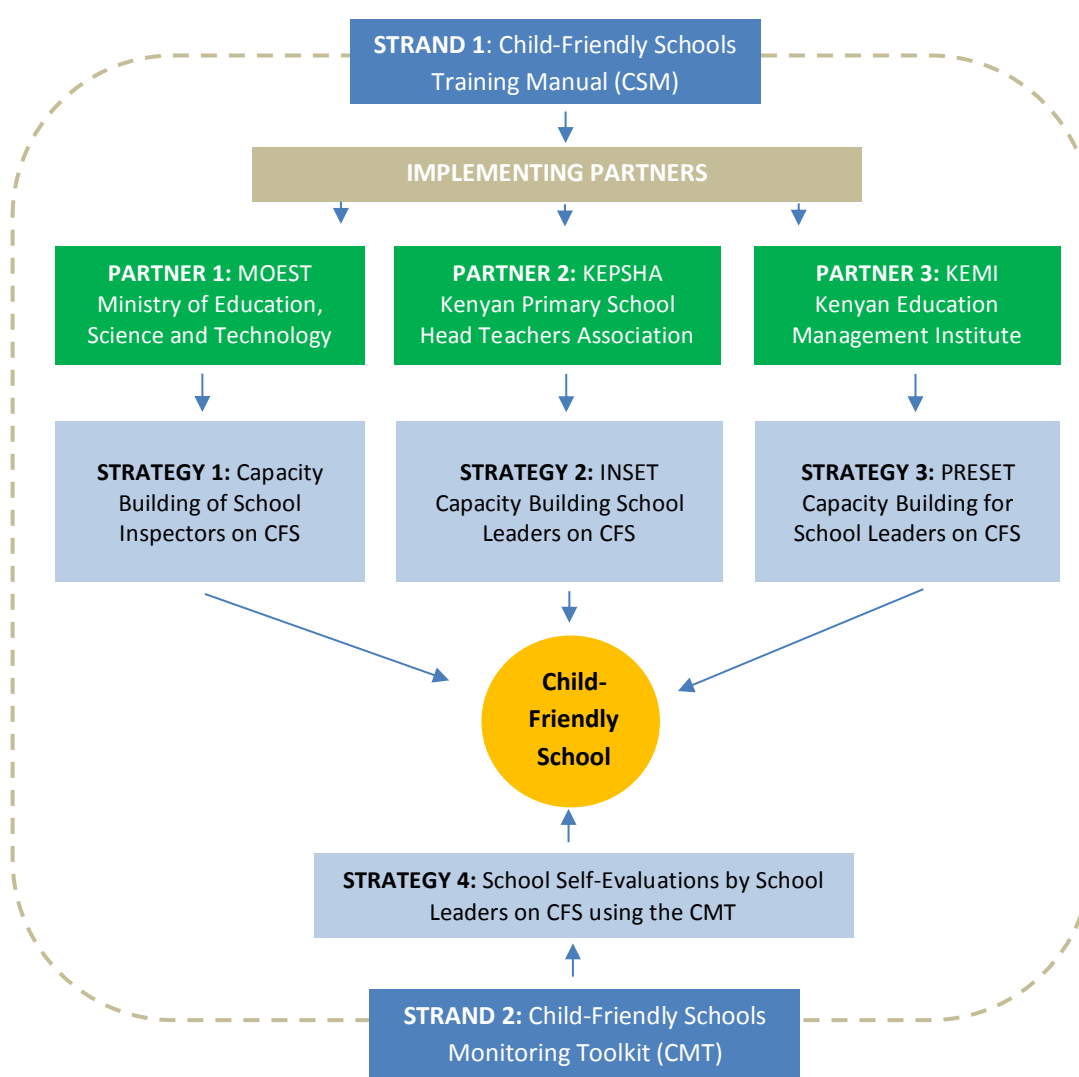


Figure 6: Tracing the Operationalization of the Child-Friendly Schools programme in Kenya as inspired by Fushimi (2009). Source: Author (2017).

The present study is mainly concerned with STRAND 2 in Figure 6 (above), the CFS Monitoring Toolkit (CMT) and its relationship to local realities of school leadership for school improvement on the ground. Kenyan MOEST and UNICEF-Kenya officials promote

the CMT as a tool for ‘school self-evaluation to be used by *anyone* who cares about quality education in Kenya’ (Fushimi, 2009, p. 16, emphasis added). In 2009, the government of Kenya distributed the CMT to all 26,000 public primary schools. The CMT measures 50 indicators across five main themes of CFS: i.) Inclusive classrooms; ii.) Equity and equality; iii.) Safety and protection; iv.) Health and nutrition; and v.) Community linkages and involvement (UNICEF-Kenya, 2009, p. 3-5). School stakeholders are invited to use the CMT to rate their school’s child friendliness levels out of a total of 250 points, using a questionnaire with 50 indicators. In the original CMT, responses to the 50 indicators were made against the following four-level scale (UNICEF-Kenya, 2009, p. 19):

- 0 = Poor** – There were major weaknesses/very little/almost never/insufficient.
- 1 = Unsatisfactory** – While there were strengths, there were some important weaknesses/sometimes/about half satisfactory.
- 3 = Satisfactory** – On balance, strengths outweighed any weaknesses/sufficient/most of the time/nearly all good but more can be done.
- 5 = Excellent** – There were major strengths/very good/excellent/all expected indicators are there.

The CMT is reproduced in Table 1 (see next page).

Table 1: Child Friendly Schools Monitoring Toolkit. Source: UNICEF-Kenya (2009). Reformatted by Author (2017).

	THEME 1: INCLUSIVE CLASSROOMS
CFS 1	School has functioning children's government which addresses problems affecting them (including peace).
CFS 2	Effective supervision of curriculum in place.
CFS 3	Proper record-keeping (administrative, academic, finance, and stores).
CFS 4	Percentage of boys and girls actively participating in lessons.
CFS 5	Interactive pupil-centred methods used in teaching/facilitation and learning.
CFS 6	Textbook-pupil ratio in all subjects.
CFS 7	Availability and use of Teaching/Learning Using Locally Available Resources (TALULAR).
CFS 8	Competence/dedication of teachers.
CFS 9	Proportion of teachers who had in-service training in the last 12 months.
CFS 10	Quality of school assessment and feedback.
CFS 11	Proportion of pupils who started class one eight years ago completing school and sitting KCPE.
CFS 12	Teacher-pupil ratio (how many pupils study with one teacher).
	THEME 2: SAFETY AND PROTECTION
CFS 13	Peace, citizenship, guidance and counselling are promoted.
CFS 14	School enforces a policy on prevention of violence and corporal punishment through positive disciplining.
CFS 15	Safety measures in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, etc.).
CFS 16	School has environment/compound free from hazardous/risky materials/buildings.
CFS 17	School has emergency preparedness and response plan and measures.
CFS 18	School enforces policy on protection of girls/disadvantaged against sexual and other abuse or exploitation.
CFS 19	School is free from addictive substances, violence, and pornography.
CFS 20	School has policy against discrimination with regards to gender, cultural origin, social status, religious beliefs, and other differences.
CFS 21	School has duly assigned personnel in charge of securing its premises, properties, and those of pupils and teachers.
	THEME 3: EQUITY AND EQUALITY
CFS 22	Detailed pupil profile available (by name, age, sex, home background, other information about a child, etc.).
CFS 23	School development plan in place addressing the child's needs holistically.
CFS 24	Proportion of teachers trained in special education.
CFS 25	Availability of disability-friendly facilities and equipment (e.g. ramps, toilets, braille materials, hearing aids, clearly defined paths, etc.).
CFS 26	All out-of-school children identified in the community and efforts made to enrol and retain them in the school.
CFS 27	Girls and boys treated equally in teaching, seating, assignment, access to materials, asking questions/feedback.
CFS 28	Gender awareness clubs operational in school.
CFS 29	Instructional materials reflect and promote gender balance in roles of males versus females.
CFS 30	School enforces a policy on dropouts (pregnancy/truancy/child labour).
	THEME 4: HEALTH AND NUTRITION
CFS 31	Ratio of latrines for girls and boys.
CFS 32	Toilets properly used and well maintained.
CFS 33	Provision of nutrition services in school (e.g. school feeding, deworming, vitamin A supplementation).
CFS 34	Access to safe clean water for drinking and washing.
CFS 35	Health, hygiene and life skills education is part of the curriculum and is regularly taught.
CFS 36	School has easy access to health services/sickbay/first aid (immunization/vaccination, reasonable distance to health centre).
CFS 37	Number of outreach activities done by school to prevent HIV/AIDS per term.
CFS 38	Number of classrooms with proper ventilation, lighting and adequate learning space for children.
CFS 39	Appropriate use of available resources.
CFS 40	School compound is clean and well maintained.
CFS 41	Availability and use of well-defined play areas with recreation time allocated on timetable.
	THEME 5: COMMUNITY LINKAGES AND INVOLVEMENT
CFS 42	Functional School Management and Child-Friendly School team.
CFS 43	School management committee and CFS team equally represented by males and females.
CFS 44	Linkages with community-based ECD centres.
CFS 45	Income-generating projects in place, effective and benefiting children's welfare.
CFS 46	Percentage of parents participating in meetings.
CFS 47	Evidence of community participation in the school development plan implementation.
CFS 48	Child-to-child activities promoted for school community linkages.
CFS 49	Parents are interested in and support pupils' learning at home and discuss pupils' work with teachers.
CFS 50	Outreach activities done by school in the community.

As the literature review in Chapter 2 will discuss in further detail, research in the field of school improvement studies shows consistently that head teachers have a key role to play in enhancing the quality of learning and performance (Bush and Glover, 2014). The weight of these arguments seem to rest largely on the extent to which head teachers can create and sustain conducive ‘school climates’ in which learning and teaching can thrive (Woods and Martin, 2016). But of course, the term ‘school climate’ still remains quite ambiguous and unclear in practice. The aims of the CFS initiative, therefore, have been to offer Kenyan head teachers a more explicit framework for evaluating levels of quality within school climates. Yet, some eight years after the CMT was distributed to all 26,000 Kenyan head teachers, little is understood about its impact. Kenyan school leaders still appear to (i) lack an understanding of the key factors that do or do not make their schools child-friendly (ii) lack usable diagnostic tools to assess levels of child-friendliness in their schools and (iii) remain ill-prepared to design evidence-based school improvement strategies that address the holistic dimensions of a child-friendly school (i.e. issues related to health, nutrition, safety, protection, equality, equity, family engagement, community participation, effective teaching and quality learning).

As a nationally endorsed and widely distributed tool for monitoring quality education in Kenya, there is surprisingly little to no documentation about how the CMT was developed or its reception by Kenyan officials and practitioners. The only information available about the CMT in the Kenyan context stems from two unpublished desktop reviews and a doctoral dissertation by Akihiro Fushimi (2009, 2010, and 2014). Akihiro Fushimi was a UNICEF regional education specialist based in Nairobi working in the Eastern and Southern Africa Regional UNICEF Office. His two unpublished desktop reviews were shared among UNICEF-Kenya education officials as a means to better understand the CMT as a tool and conceptual framework for school self-evaluations for school improvement in the Kenyan context. Fushimi’s (2014) doctoral thesis was recently defended and endorsed by the University of Sussex’s department of education. The present study treats each of the three documents as the most current insider’s perspective and only scholarly attempt to describe the CFS concept and CMT tool within the Kenyan context in theory and in practice.

Fushimi (2009) attempts to identify the origins of the CMT. In one of his interviews with a top government official, Fushimi (2009) describes the actors involved in the development of the CMT: ‘a government informant proudly talked about the success of how

19 senior directors of the Kenyan MOEST were involved in the review of the CFS tools’ (p. 22). The current researcher of this study triangulated Fushimi’s (2009) finding by e-mailing various UNICEF-Kenya officials, executive officers at the Kenyan Primary School Head Teachers Association (KEPSHA), and MOEST officials to confirm or challenge his claims (Cunningham, 2012). Elias Noor, the UNICEF-Kenya program officer in charge of CFS, responded in an e-mail that said ‘nineteen senior MOEST directors were involved in the review of CFS tools, after which provincial directors of education met for a three-day retreat in 2009 to validate the criteria for the child friendly schools monitoring toolkit’ (Noor, 2011). Beyond the MOEST and UNICEF officials, the available evidence suggests that no other parties were involved in the process of creating or rolling out the CMT in Kenyan government schools.

The question that arises, then, is the extent to which the intended *users* of the CMT have been able to translate promising new education policy (CFS) into practice. Fushimi (2014) suggests that there is a considerable gap between the policy expectations of the CFS initiative and school improvement realities on the ground. In his doctoral thesis, Fushimi (2014) concludes that the ‘Kenyan policy assumption of evidence-based school development [through the CFS initiative] remains largely theoretical, schools tending to engage in ad-hoc improvement through unsophisticated planning in the absence of systematic school self-evaluations [i.e. the use of the CMT]’ (p. 10). Fushimi (2014) reflects that while stakeholders at all education levels have largely ‘accepted the *idea* of participatory, inclusive and democratic school self-evaluations [through the CFS initiative], they have *not yet embraced it practically*’ (Fushimi, 2014, p. 11, emphases added). In the end, Fushimi (2014) calls for future research studies that ‘tackle the Kenyan education authority’s monopoly on the criteria and processes of school self-evaluations so that an integrated system for quality education improvement can be realised in Kenya’ (p. 84). In other words, how can we contextualize the top-down developed CMT through exploring and understanding more bottom-up realities of quality education from local Kenyan school stakeholders?

The next section outlines the significance of this question in relationship to the gaps that exist between current and future educational policy and practice within the Kenyan context, providing the rationale for the current study’s research aims.

1.2 Rationale

Far too often, the critical voices of school stakeholders are absent in the design of school evaluations [...] thus the regimes of truth about school effectiveness and improvement are managerial and totalizing – more in line with the needs of government and policy makers, than with others closer to the everyday life of schools (Weiner, 2002, p. 800).

The study first situates itself within a well-established tradition of studies concerned with factors that enhance or constrain the quality of education in developing countries (Delors et al., 1996; Heneveld and Craig, 1996; Riddell, 1999; Glewwe and Kremer, 2006; Snilstveit et al., 2016; and Masino and Nino-Zarazua, 2016). For a long time, the field was plagued by debates that sought to separate the concepts of ‘educational quality’ from ‘school effectiveness’ (see Riddell, 1999). While conceptual distinctions were dictated by methodological differences, fierce debates arose between school effectiveness research (SER) and school improvement research (SIR) traditions (Alexander, 2001; Teddlie and Reynolds, 2001). Hopkins and Reynolds (2001) describe a ‘third age’ of school improvement research where both traditions appeared to experience a convergence. During this time, numerous explanatory models were developed to illustrate which school factors enhance or constrain the quality of education in developing country contexts (Lockeed and Verspoor, 1991; Fuller and Clark, 1994; Heneveld and Craig, 1996). The entire 2005 edition of the UNESCO *Global Monitoring Report* for education was dedicated to unpacking ‘the education quality imperative’ and sought numerous ways to conceptualize, assess, and improve quality learning environments for teaching and learning in the developing world (UNESCO, 2005). Dalin et al. (1994) also developed a qualitative approach to look at educational quality within and through schooling in developing country contexts. The main concern of the discourse was diagnosing factors that impeded teaching, learning and the environments in which teaching and learning took place. It is within this movement when the UNICEF global concept of a ‘child-friendly school’ emerged (UNICEF, 2009a). Over the last eight years, the Kenyan government, with support from development partners, have adopted the *notion* of a child-friendly school and the resultant *tools* (CMT) employed to monitor and improve educational quality at scale (UNICEF-Kenya, 2009).

The study sources its inspiration from the interest in better understanding the *local realities* of quality education in Kenya. Since no local school stakeholders were substantially involved in the development of the CFS concept and accompanying tools, the study viewed the conceptual framing of CFS in Kenya and the tools offered to Kenya head teachers as severely limited, and to a large degree, inoperable.

Applying Weiner's (2002) insight (the opening quote of this chapter) to the criteria of the current CMT, the study questions the absence of the 'school's voice' in the development of the CFS conceptual model and resultant school-based monitoring framework. According to Greenwood and Levin (2007), a 'more advanced form of participative evaluation is needed to involve participants in the process of designing *what* to evaluate from the *beginning*' (p. 190, emphasis added). Robert Chambers (1997) contextualizes what Greenwood and Levin (2007) describe in the context of international development initiatives, arguing there is an absence of 'lower' voices among 'upper' conversations in policy decision making. In his book, *Whose Reality Counts?*, Chambers (1997) describes one of the greatest challenges in international development is finding 'ways to empower others, lowers, the weak, poor and vulnerable, to express their realities and make them count' (p. 237). In the context of the present study, this would mean finding the intended *users* of the CMT (school leaders) and making their local realities of quality education count in policy decisions being made by the *makers* of the CMT (education officials from UNICEF-Kenya and the MOEST).

Without input from local school stakeholders, makers of the CMT may risk forcing local school stakeholders to care about *what* they can measure, rather than measure what they *care* about. For example, when communities try to measure whether or not their school is child friendly, the CMT already provides a pre-defined set of indicators for measuring educational quality. But are these indicators a reflection of what local practitioners really care about in regard to child friendliness, or are these the priorities defined *for* them from the top-down? Is the CMT tool that UNICEF-Kenya and the Kenyan government promote as an exercise in school self-evaluation at risk of either: a.) measuring the wrong priorities of child friendly schools or b.) introducing a top-down policy initiative, similar to the many that have gone before it, that still ignores local expertise (Kanbur and Squire, 2001)? This is the impetus for the present study: to understand how local realities of quality education, as defined by Kenyan school leaders, complement or supplement the set of 50 indicators established by the CMT.

Beyond the intellectual exercise of addressing apparent contextual and theoretical gaps in the Kenyan literature about elevating local realities of school leadership for school improvement, the study's search for local voices in educational reform has significant implications for future policy influence and impact. Two Kenyan education policy planning documents provide reasons why.

First, the *National Education Sector Plan* (NESP) for 2014-2018 (Republic of Kenya, 2014a) is the Kenyan government's official blueprint for operationalizing the educational reforms required by *Kenya Vision 2030* (Republic of Kenya, 2007), the *Kenyan Constitution* (Republic of Kenya, 2010), the *Policy Framework for Reforming Education and Training* (Republic of Kenya, 2012), the *Basic Education Act* (Republic of Kenya, 2013a), the *Harmonised Jubilee Coalition Manifesto for 2013-2017* (Kenyatta, 2013), and the *National Medium Term Plan II for Kenya Vision 2030* (Republic of Kenya, 2013b). Developed over the course of two years by twenty Kenyan government education officials and endorsed by the national Education Development Partners Coordination Group (EDPCG), the final NESP emphasizes the need for the sector to focus on improving the 'quality of education to address challenges arising from the introduction of the free primary education initiative in 2003' (Republic of Kenya, 2014a, p. xi, emphasis added). One of NESP's four guiding principles calls for the creation of 'an equitable school environment to provide safe, stimulating, and innovative learning spaces of modern pedagogy for all of Kenya's children and young people' (Republic of Kenya, 2014a, p. xxi). One of the twelve investment priorities of NESP is to 'make basic education learning institutions more *learner friendly*' (Republic of Kenya, 2014a, p. 59, emphasis added). In NESP, the Kenyan government states that the MOEST has embraced UNICEF's global Child-Friendly School (CFS) model as the most appropriate vehicle for improving the quality of education in Kenya today' (Republic of Kenya, 2014a, p. 60).

According to NESP (Republic of Kenya, 2014a), the CFS initiative will be implemented through three strategies: (i) Developing and implementing a national quality education strategy about CFS, (ii) Sensitizing senior MOEST officials on CFS concepts and (iii) Supporting the Kenyan Primary School Head Teachers Association (KEPSHA) in their role as implementing partners of CFS on the ground. KEPSHA is the national, professional association of all government Kenyan primary school head teachers, with the mission to promote effective management for conducive learning for all (KEPSHA, 2012). It is

important to note that while KEPSHA has 26,000 members, nationwide, its purpose is *apolitical* in that it is *not* to compete with the authority or influence of the Kenyan National Union of Teachers (Karuga, 2012). However, the researcher attended three of their national KEPSHA delegate conferences during the scope of the study and saw characteristics of a *very* political organization, where more than 13,000 head teachers gathered every year in Mombasa, Kenya, having audience with top Kenyan government officials such as the Kenyan President, Kenyan Governors, and the entire staff of the MOEST. The inclusion of KEPSHA in NESP, therefore, is significant in that a professional association of head teachers, rather than a department within the MOEST, was given the main responsibility of implementation of the CFS programme on the ground.

The roll-out of the CFS initiative is also significant in terms of financial resources supporting the future of the Kenyan education sector. The Education Development Partners Coordination Group, representing the interests of large bi-lateral and multi-lateral donors in Kenya such as the United States, Canada, the United Kingdom, Japan, the African Development Bank, the United Nations and others have agreed to align its 79 projects (approximately worth more than USD \$375 million per year) with the 2014-2018 NESP stated priorities (EDPCG, 2014). The World Bank also led the Kenyan government and development partners in the process of drafting the first *Kenya GPE (Global Partnership in Education) Primary Education Development Project* worth USD 88 million to fund four years of national quality education programming from 2015 to 2018 (Republic of Kenya, 2014b). Similar to NESP (Republic of Kenya, 2014a), the GPE application prioritizes CFS as a promising model for school improvement, nationwide.

Kenya's unpublished application to the GPE reveals that Kenyan government officials propose to provide millions of dollars in school-block grants to 2,500 Kenyan public primary school leaders to 'develop action plans [...] that build on Kenya's prior experience on school improvement through CFS' (Republic of Kenya, 2014b, p. 87). The World Bank's co-application to the GPE with the Kenyan government focuses much of its activities on 'effective school leadership strategies' for creating 'more conducive learning environments for pupils', thereby mirroring the priorities of Kenya's NESP in working with school leaders to make schools more child-friendly (Republic of Kenya, 2014b, p. 90). But what does it mean by 'prior experience'? Although the GPE application refers to the evidence about how the government and development partners are engaging in meaningful school improvement

through CFS, little to no evidence of such experience exists in policy documents, news media, or development partner reports. In other words, there is little to no evidence on which to build and guide future educational policy and practice for CFS. And yet millions of development aid dollars have been dedicated to scaling CFS, nationwide.

With governmental and international donor endorsement of CFS as a model for improving quality education, and the clear identification of KEPSHA as its implementing partner, the question that naturally arises is *how well*, if at all, can Kenyan school leaders conceptualize, assess, and improve levels of *child-friendliness* in their schools? Similar to many development manifestos that have come before it, is the CFS initiative more promising in rhetoric than in practice? How is it understood from the *bottom-up* rather than the *top-down*?

This lack of evidence demonstrates a clear need for further research into how Kenyan school leaders can better conceptualize, assess, and improve levels of quality education in their schools. The term child-friendliness is simply a proxy for the larger policy and theoretical question that urgently faces Kenyan educational decision-makers: how can the sector better understand and respond to the most pressing constraints preventing Kenyan children from accessing basic quality education for all? The policy implications of such research can influence not only hundreds of millions of dollars of future development aid to the Kenyan education sector, but most importantly the quality of learning environments and experiences offered to millions of Kenyan pupils, nationwide.

This chapter has outlined a number of key education system bottlenecks and gaps between policy and practice for Kenyan students, teachers, and school leaders. Specifically, three significant policy gaps have provided impetus for the current study.

First, the policy documents about CFS lack the input of local realities of quality education, as experienced by Kenyan school leaders, *themselves*. Without more localized understandings of CFS, it seems that school leaders will continue to struggle in understanding top-down, non-contextualized factors of CFS being promoted by UNICEF-Kenya and MOEST government officials. How can school leaders be expected to make their schools child-friendly if the criteria by which a school is defined as ‘child-friendly’ was developed in their absence?

Second, Kenyan school leaders lack proper diagnostic tools to self-assess levels of child-friendliness in their schools and thereby develop, as proposed by the Kenyan government, evidence-based school improvement plans; making it difficult for Kenyan school leaders to initiate school change towards a new concept such as a ‘child-friendly school’, which arguably still cannot be adequately measured. Although the CMT was distributed to 26,000 Kenyan government schools in 2009, they were provided paper-based brochures that, if used once, could not be easily used again. Furthermore, there was little to no effort to enable local stakeholders to compare and contrast results of their school self-evaluations with results from other schools. As a result, little to no evidence about current levels of child-friendliness in Kenyan government schools exists, even eight years after the initial ‘roll-out’ of the programme. A new, useable, affordable, and comparable diagnostic tool is needed to re-equip school leaders with the means to measure and improve levels of child-friendliness in their schools.

Third, Kenyan school leaders appear ill-prepared to design evidence-based school improvement strategies that address the holistic dimensions of a child-friendly school (i.e. issues related to health, nutrition, safety, protection, equality, equity, family engagement, community participation, effective teaching and quality learning). In other words, the conceptualization of school leadership for holistic school improvement in Kenya remains unclear and underdeveloped. School leaders still lack the means to understand the key constraints in providing educational quality learning environments, and as a result, as Fushimi (2014) notes, ‘school improvement initiatives remain ad-hoc and not based on any real source of local, up-to-date or reliable evidence’ (p. 45). There has been very little previous research about Kenya’s decade-long program of rolling out child-friendly schools since 2003. While scholarly works done by both Fushimi (2009, 2010, 2014) and Cunningham (2012) have been helpful in describing the background and type of users of the CFS initiatives, current education policy recommendations for the way forward still lack any substantial evidence or direction. In other words, Kenyan school leaders and education policy officials still lack a robust conceptual model and procedure to meaningfully assess and actively respond to key constraints plaguing the provision of quality education in Kenya.

1.3 Research Aims and Questions

With national education policy decisions on the horizon and millions of Kenyan children still left without access to quality education, this study has five aims:

1. To **analyze and critique** the models and tools (CFS and CMT) employed by the Kenyan government for monitoring educational quality and school improvement;
2. To **discover** neglected voices of hard-to-reach populations of school leaders from rural, poor, and underperforming Kenyan government primary schools to understand what factors negatively or positively make their schools child friendly or not;
3. To **co-construct** a more contextually relevant conceptual model and diagnostic tool for understanding local perceptions of quality education in Kenya, from the bottom-up, rather than the top-down, using what Kenyan school leaders **understand** to be factors that either enhance or constrain quality education in Kenyan schools;
4. To **empirically test** the new conceptual model and diagnostic tool for understanding local perceptions of quality education in Kenya, through the development of a new mobile phone, SMS-based diagnostic action research tool; exploring its levels of efficacy in better enabling Kenyan school leaders to **measure and assess** key bottlenecks that prevent quality education from being realized in their schools;
5. To **empirically evaluate** the new conceptual model for understanding local realities of quality education in Kenya, by interrogating its levels of robustness and applicability in generating useful data with which Kenyan school leaders can better **develop and design** new thinking and evidence-based strategies for school improvement.

With these aims in mind, the study attempts to answer **one overall research question**:

1. How far does a school-based monitoring framework allow Kenyan school leaders to better conceptualize, assess, and respond to key factors that enhance or constrain the quality of education (CFS) in Kenyan primary schools?

To help answer this question, the study explores **three inter-related sub-questions**:

- 1A. When asked, do Kenyan school leaders' perceptions of key factors that enhance and constrain the quality of education align with the Kenyan government's national CFS monitoring toolkit (CMT)?
- 1B. When Kenyan school leaders and other school stakeholders (i.e. teachers, parents, and pupils) employ a more bottom-up, co-constructed conceptual framework and diagnostic tool for CFS, what new data and insights emerge about the quality of education in Kenya?
- 1C. When asked to consider the new data and insights about quality education levels in their schools (CFS), what new strategies do Kenyan school leaders develop for evidence-based school improvement?

The research questions are explored through the operational and activity-based research paradigm (Cole and Engestrom, 2007).

In order to achieve the five research aims, answer the overall research question and generate explanatory data that answer each of the three research sub-questions, the study designed a three-pronged, mixed methods research approach (Mingers and Gill, 1997), illustrated below in Figure 7. This serves as a map for the overall research design.

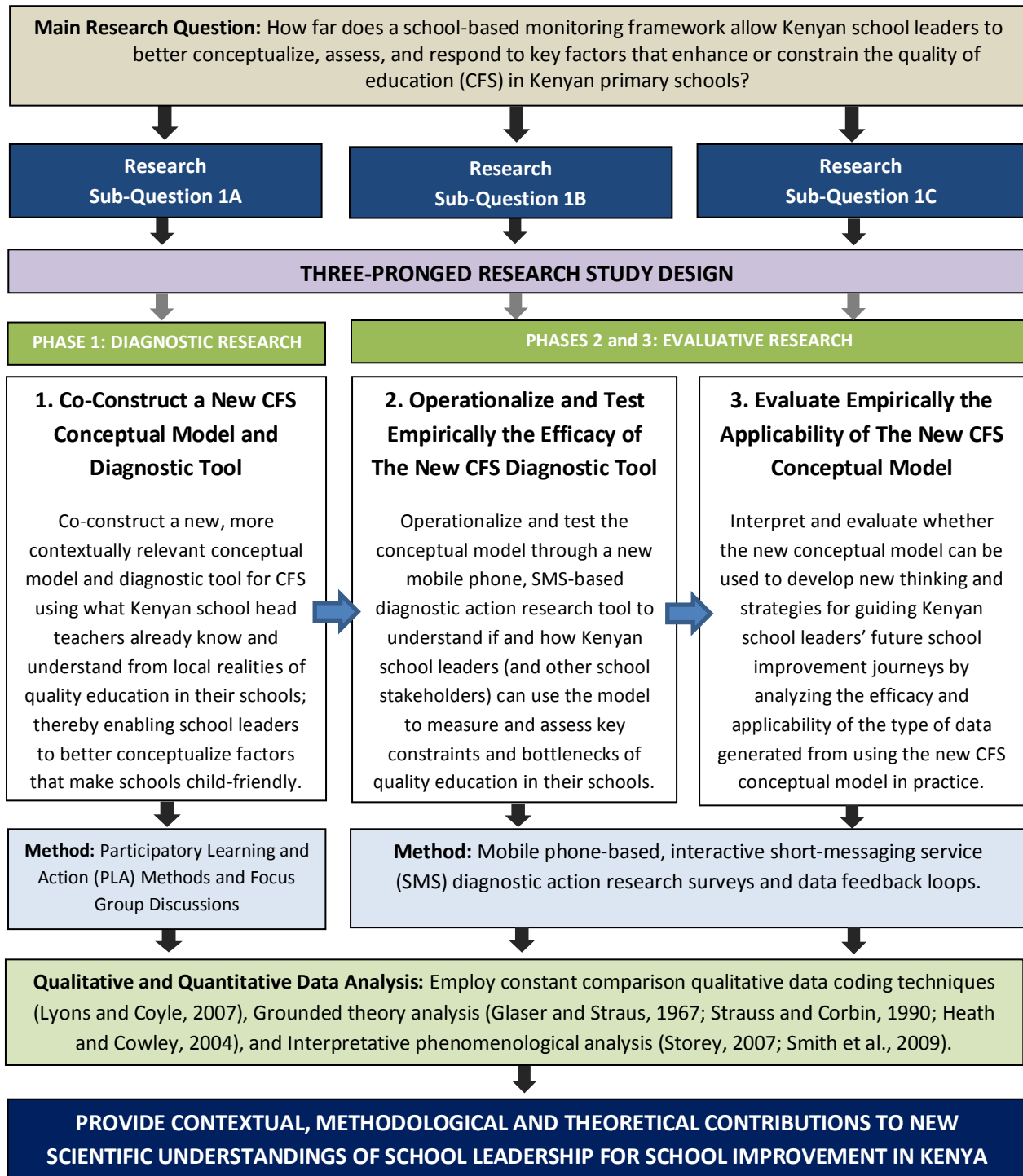


Figure 7: Three-pronged research study design. Source: Author (2017).

The first phase of research is diagnostic, where the study seeks to compare and contrast Kenyan school leaders' local perceptions of quality education against the government and UNICEF-Kenya's CMT to co-construct a more contextually relevant and usable conceptual model and diagnostic tool for understanding quality education in Kenya.

The second and third phases of research are more evaluative, where the study designs and deploys a new online, cloud-based, interactive education information management system technology platform called EMIS-Light. The study uses EMIS-Light to deploy thousands of mobile phone, SMS-based diagnostic action research surveys to the sampled Kenyan pupils, parents, teachers, and head teachers across 812 Kenyan public schools. Data from phases two and three are meant to enable the study to empirically test and evaluate levels of relevance, efficacy, robustness, and applicability of the new conceptual model and diagnostic tool (called the ***Enhanced** Child-Friendly Schools Monitoring Toolkit, or ECMT*) in helping Kenyan school leaders to better develop new thinking and evidence-based strategies for school improvement.

The study is presented in six chapters. After this introduction, Chapter 2 examines the relevant literature to reveal contextual, methodological and theoretical gaps within existing School Improvement Research (SIR) and Education Improvement Research (EIR) about our current scientific understanding of effective school leadership strategies for school improvement in Kenya. To do so, the chapter (i) compares Western and Non-Western conceptual models of school leadership for school improvement, (ii) analyses existing and new ways of assessing factors that constrain or enhance quality education in Kenya, and (iii) reviews old and new theoretical frameworks of school leadership for school improvement within existing SIR and EIR. The review also places the current study firmly within the contemporary international education research community, linking its findings to modern-day research consortia including, but not limited to, the United Kingdom's Department for International Development (DFID)'s funded *Research in Systems Education* (RISE) programme and the Economic Social Research Council and DFID jointly funded programme called *Raising Learning Outcomes in Education Systems*.

Chapter 3 provides an overview of the study's methodology including its choice to employ a community-based operations and mixed methods research approach. The section discusses the procedures of gaining access to Kenyan public primary schools, including a critical reflection on the researcher's implicit and explicit power dynamics as an Oxford

doctoral researcher in search of understanding local realities of quality education in Kenya. The chapter then reviews the study's methods of (i) recruiting and training indigenous research assistants, (ii) designing the mobile phone, SMS-based diagnostic action research tool and education management information system (EMIS-Light), (iii) employing purposive sampling procedures, and (iv) wrestling with key ethical considerations.

Chapter 4 outlines key findings of the study in three parts to provide data to answer the study's overall research question and three inter-related sub-questions. First, the study compares and contrasts 8,353 data points from 100 focus group discussions with 812 Kenyan school leaders to co-construct a new model of conceptualizing factors that either constrain or enhance quality learning environments in Kenya. Second, the study tests the new conceptual model by designing and deploying a new mobile phone, SMS-based diagnostic action research tool to enable school leaders and school stakeholders from 581 of the original 812 schools to measure and assess levels of child-friendliness in their schools. The study collects 46,425 answered questions from 1,857 completed mobile phone, SMS-based diagnostic action research surveys and produces the first national dataset of perceived levels of evidence about child-friendliness in Kenyan schools. Lastly, in order to evaluate the conceptual model, the study analyzes the data to empirically test and evaluate its levels of efficacy and applicability in helping Kenyan school leaders adopt more evidence-based strategies for holistic school improvement. Through a review of 1,559 school improvement strategies, developed by school leaders from 436 of the 581 schools who had completed the mobile phone, SMS-based diagnostic action research survey, the study finds that 58% of school leaders' school improvement strategies related to factors of child-friendliness that had been rated with the *lowest* levels of evidence by their schools' stakeholders. The data provides promising evidence about how to encourage more data-driven, evidence-based school leadership strategies for school improvement in Kenya.

Chapter 5 discusses the limitations of the study's methods and lessons for future research, while reflecting on preliminary claims to the study's research aims and questions. In particular, Chapter 5 reflects on how the study fulfilled its aim as a mixed methods research study in (i) co-constructing a new model for understanding factors that either constrain or enhance quality learning environments in Kenya, (ii) testing this model in terms of its usability and efficacy in the field and (iii) evaluating the model's robustness and applicability in enabling Kenyan school leaders to generate data-driven strategies for school improvement.

Chapter 6 then concludes with a discussion about ‘Whose Reality [Really] Counts’ (Chambers, 1997) in developing school-based monitoring frameworks for quality education in Kenya. The conclusion outlines how findings from the present study offer important contextual, methodological, and theoretical contributions to our current scientific understandings (and misunderstandings) of cultivating data-driven, evidence-based school leadership strategies for holistic quality education improvement in Kenya.

In the end, the study’s findings offer a new scientific understanding for the fields of school improvement and school leadership in the Kenyan context. The study explores how a new school-based monitoring framework (ECMT) can better enable Kenyan school leaders to *conceptualize, assess and respond* to key factors that either enhance or inhibit quality education in their local contexts. In the end, the study’s findings call for a renewed dialogue between top-down and bottom-up perspectives of quality education in determining future criteria and methods for measuring and improving levels of child friendliness in Kenyan public primary schools.

Chapter 2 - Literature Review

Good theory and practice intertwine and coevolve. Theory can exist as an intellectual abstraction without practice, but practice cannot exist without implicit theory (Ludema and Fry, 2008, p. 305).

After four decades of school effectiveness research (SER), school improvement research (SIR), and education effectiveness and improvement research (EEIR), questions still exist about what factors make schools ‘good’ and what strategies are needed to make schools ‘better’ (Scheerens, 2014). What we do know, however, is that school leaders – whether they are ‘**outstanding**’ (Levine and Lezotte, 1990), ‘**strong**’ (Creemers, 1996), ‘**professional**’ (Gray, 1990; Sammons et al., 1995) or ‘**effective**’ (Lockheed and Verspoor, 1991; Heneveld and Craig, 1996; Bush and Jackson, 2002) – play key roles in initiating and maintaining school improvement processes for increasing quality education (Sammons, 1994; Heck and Hallinger, 2005; Day et al., 2010; Huber and Muijs, 2010). However, Bolman and Deal (1997) describe the evidence about school leadership for school improvement as ‘conceptual pluralism [...], a jangling discord of multiple voices’ that seem to confuse rather than clarify school leaders’ roles and responsibilities (p.11). Hence, there is a critical need for a more nuanced, contextualized understanding of how school leadership strategies for school improvement can be better conceptualized, measured and implemented.

The following literature review is presented in two parts as a means to reveal two main gaps in the current scientific understanding of school leadership and school improvement in Kenya. First, the literature review will outline significant **contextual gaps** in SER, SIR and EEIR related to school leadership for school improvement in Kenya (Lockheed and Verspoor, 1991; Dalin et al., 1994; Fuller and Clarke, 1994; Jansen 1995; Riddell, 1999; Slee et al., 1998; Harber and Muthukrishna, 2000; Scheerens, 2001; Crossley and Watson, 2003; Harber and Davies, 2005; Yu, 2007; Masino and Nino-Zarazua, 2016). Second, the literature review will outline significant **methodological and theoretical gaps** in SER, SIR, and EEIR that seem to be preventing local realities of Kenyan school leadership for school improvement from influencing national education policy and practice (Heneveld, 1994; Teddlie and Reynolds, 2001a; Filmer, 2007; Stringfield et al., 2008; Creemers and Kyriakides 2008; 2010; Teddlie and Sammons, 2010; Muijs, 2012; Sammons, 2012; Chapman et al., 2012; Scheerens, 2013; Hopkins et al., 2014; Reynolds et al., 2014; and Scheerens, 2015).

2.1 School Leadership for School Improvement in Kenya: Contextual Gaps in Conceptualizing Quality Education

This sub-section provides an overview of how school leadership for school improvement has been *conceptualized* in the global SER, SIR and EEIR literature and what *contextual* gaps exist, related to our understanding of school leadership for school improvement in Kenya.

2.1.1 Western Models of School Leadership for School Improvement

For decades, education scholars have demonstrated the key role of school leadership in initiating and maintaining school improvement processes (Sammons, 1994; Fullan, 2010; Woods and Martin, 2016; Touchton et al., 2017). Findings from Bush (2003), Bush and Oduro (2006), and Bush and Glover (2014) provide the most relevant and critical review of key theories of educational leadership for school improvement related to the aims and research questions of the present study.

Bush and Glover (2014) provide an in-depth review of school leadership models and ‘what we know’ from the current research. They illustrate the strengths and weaknesses of ten key domains of school leadership for school improvement that include: (i) **‘managerial’** school leadership (Caldwell, 1992; Leithwood and Jantzi, 1999; Bush, 2007), (ii) **‘participative’** school leadership (Sammons et al., 1995; Hallinger and Heck, 2011), (iii) **‘transactional’** school leadership (Miller and Miller, 2001), (iv) **‘moral and authentic’** school leadership (Sergiovanni, 2000; Begley and Johansson, 2003; Hallinger, 2003; Starratt, 2007; Day et al., 2010; Day and Sammons, 2013), (v) **‘instructional’** school leadership (Barth, 1990; Heck et al., 1990; Hallinger et al., 1996; Robinson, 2006; Day and Sammons, 2013) or what other scholars have deemed as **‘shared’** school leadership (Marks and Printy, 2003; Heck and Hallinger, 2009; Hallinger and Heck, 2010) and school leadership **‘for learning’** (Hallinger, 2011), (vi) **‘transformational’** school leadership (Leithwood, 1994, 1995; Leithwood et al., 1996; Leithwood and Jantzi, 1999, 2000; Hallinger, 1992, 2003; Day and Sammons, 2013), (vii) **‘distributed’** school leadership (Spillane, 2006; Bush and Jackson, 2002; Hartley, 2010; Harris, 2004, 2006, 2010; Crawford, 2012; and Lumby, 2013), (viii) **‘teacher-led’** school leadership (Muijs and Harris, 2007; Frost, 2008), (ix) **‘contingent’** school leadership (Morgan, 1997; Leithwood et al., 1999; and Bush, 2007) and (x) **‘systems’** school leadership (Barber et al., 2010; Hargreaves, 2010; Coleman, 2011).

These competing conceptualizations of school leadership for school improvement ultimately echo what Bush (2003) argues as ‘artificial distinctions’ that often ‘dwell excessively on some aspects of leadership to the virtual exclusion of others’ (p. 6). The question arises, then, as to which, if any, scholarly insights can be drawn from a seemingly fractured literature describing ‘what works best in school leadership for school improvement’? The present study argues that five key insights emerge from the Western-based literature about effective school leadership for school improvement that provide relevant insights for the current study.

First, according to Woods and Martin (2016, p. 3), school leaders must assume more diversified roles. These include, but are not limited to: thinker, believer, resource acquirer, leader, supporter, delegator, and information provider. According to Yukl (2013), leadership within organizations that is intended to lead change creates a viable vision and works with the stakeholders to establish and work toward a shared vision by building leadership capacity within all the stakeholders.

Second, overall, effective leaders in high achieving, low-resourced schools do not implement one or two things and obtain the results, but they focus on a number of things simultaneously. This is what Fullan (2010) calls the ‘skinny of change’ – focusing on a small number of key things for school improvement, but done with relentless consistency (p. 24).

Third, Jenson (2009) emphasises the importance of school leadership for strengthening the quality of relationships between learners and their teachers. As Jensen (2009) writes, this focus on relationship-building within school leadership roles is a ‘make it or break it factor in leading effective school improvement efforts’ (p. 93). Jensen (2009) elaborates on this critical point, arguing, ‘Many schools rely on power and authority rather than positive relationships to get students to behave or perform well. The problem with the coercion approach is simple: the weaker the relationships, the more resources and authority you need to get the same job done. People will do more, and do it more willingly, for people they respect and enjoy being around’ (p. 96). As Jensen (2009) argues, the quality of the relationship between the school leader and other stakeholders can also lead to improved learning outcomes. Disadvantaged elementary school students who felt better connected with their teachers and school leaders showed significant improvements in their reading and vocabulary abilities (Pianta and Stuhlman, 2004).

Fourth, effective school leaders for school improvement remove children's 'real-world concerns' about issues such as poverty and instead create nurturing school environments that enable children to learn and thrive; a crucial factor for leading educational change. Woods and Martin's (2016) study about school leadership for school improvement captures a powerful quote from a school leader that illustrates this point: 'Our kids have so many things lacking in their home life, but they know when they walk through the doors of the school, they walk into a caring environment that has the most considerate adults they will ever know' (p. 13). Leithwood et al. (2010) argue that school leadership can influence student learning through four different paths: rational, emotional, organizational and familial. A key implication of this evidence is that successful school leaders improve student achievement and the quality of learning environments not only by their instructional leadership, but through alternative and more indirect channels such as family and community engagement (Bellei et al., 2015).

Fifth, while there are debates about school leadership models for school improvement, Hermosilla et al. (2014) argue that there is convergence in the literature around five key school leadership practices associated with successful school improvement: (i) developing consensus on school goals focused on student learning (ii) developing teacher knowledge and skills to effectively teach (iii) creating workplace conditions and relationships that support teaching and learning (iv) managing the instructional program to support the pursuit of school goals and (v) using academic and non-academic educational assessment data for decisions about school improvement in teaching and learning.

It is clear from this brief summary of recent research that school leadership plays a central role in the school improvement narrative. Murphy (2012) 'sees a deeper pattern of leadership in the school improvement tapestry, and a more central location for that pattern', calling for researchers to better understand how 'school leaders provide the dynamism to make all the components of a school improvement framework function' (p. 261). However, according to Hargreaves and Fullan (1998), 'There is no ready answer to the 'how' question in school improvement [...and] singular recipes for school improvement *oversimplify* what it will take to bring about change in different contexts' (p. 106, emphasis added). Then which, if any, scholarly conceptualizations of school leadership for school improvement can accurately reflect or describe the type of school leadership that is needed to address the unique challenges of achieving quality education for all in the Kenyan context?

2.1.2 Non-Western Models of School Leadership for School Improvement

The previously discussed models of school leadership for school improvement mainly emerge from research findings from highly Westernized country contexts (Bush, 2007). Teddlie (2003) argues that ‘while SER has enjoyed international acceptance and participation, much of the extant research has been the product of five countries with lengthy traditions in the area: the USA, the UK, the Netherlands, Australia and Canada’. Scholars of school leadership in SER and SIR have expressed the *critical need* for future research in non-English speaking and developing countries to either confirm or challenge current EEIR findings, policies and practices (Hallinger, 2003; Witziers et al., 2003; Dimmock and Walker, 2005; Hallinger, 2011; Hallinger and Huber, 2012; Day and Sammons, 2013).

Hallinger (2003) argues that it is ‘virtually meaningless to study school leadership for school improvement without reference to the school context’ (p. 132) and in a later journal article claims that one of the ‘key limitations in school improvement research lies in the difficulty in linking school leadership to context’ (Hallinger, 2011, p. 125). Hallinger and Huber (2012) contend that ‘in a globalized world of education [...], it is the responsibility of new scholars to convey the relevance of research *beyond* the traditional domains of academic activity located in North America and Europe’ (p. 365, emphasis added). As a doctoral thesis, the current study attempts to respond to Hallinger’s (2011) contextual challenge and investigate realities of educational quality with both underserved and under-represented educational stakeholders in remote, rural geographies within the Kenyan context. In order to situate the present study about school leaders’ understandings of factors influencing child-friendliness levels of Kenyan schools, the next section of the literature review seeks to contextualize the Child-Friendly Schools initiative in Kenya within the broader, though limited, SER, SIR, and EEIR literature that exists within the Sub-Saharan African context.

Many education policy-makers, researchers and practitioners within the Sub-Saharan African context often design school improvement strategies from models developed in globally decontextualized theories rather than locally, contextually relevant realities.

In one of the few contextually relevant systematic reviews of school effectiveness and school improvement research in Sub-Saharan Africa, Yu (2007) cites Heneveld and Craig’s (1996) school effectiveness and school improvement theoretical model as a globally informed, and locally rooted scholarly framework to understanding factors of quality

education throughout Sub-Saharan African primary schools. In Heneveld and Craig's (1996) seminal piece, *Schools Count: World Bank Project Designs and Quality of Primary Education in Sub-Saharan Africa*, they compared and contrasted the designs of forty-five World Bank-funded projects in education quality improvement throughout Sub-Saharan Africa and synthesized their findings into twenty-seven variables that they argue are 'main determinants for improving quality education in Sub-Saharan African primary schools' (p. 30). These twenty-seven variables are illustrated in Figure 8 below.

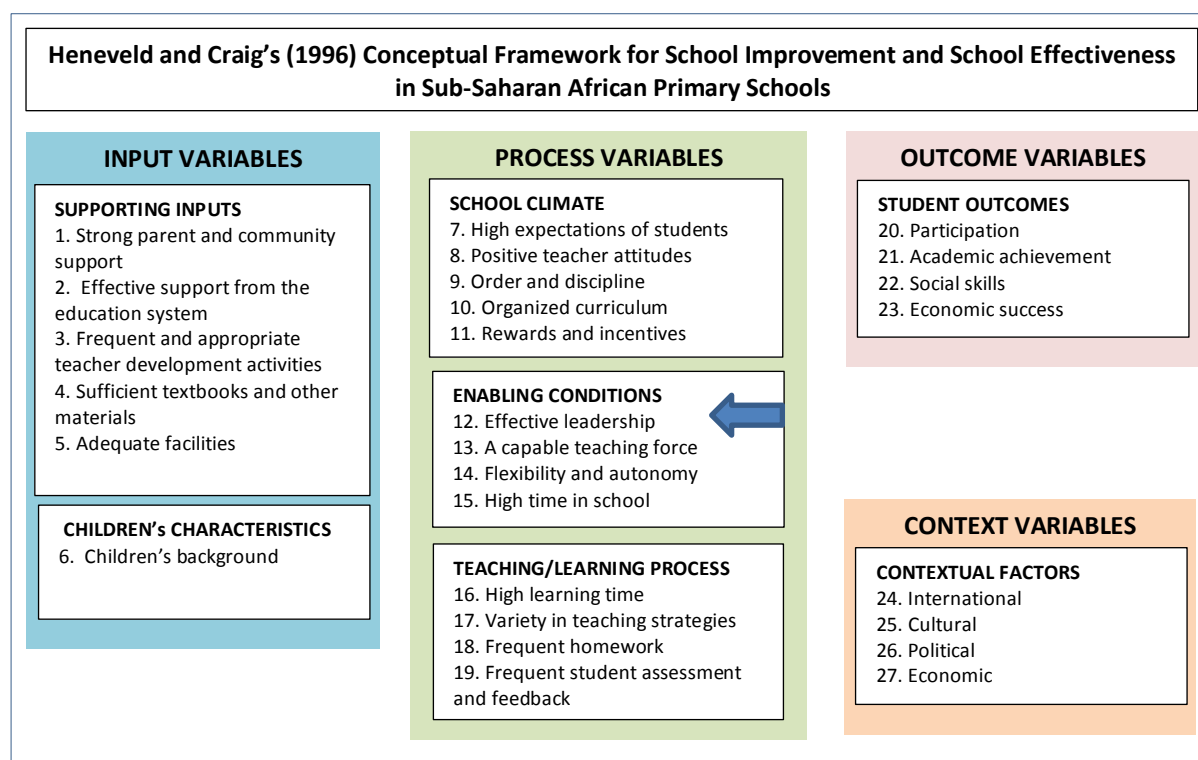


Figure 8: Conceptual Framework for School Improvement and School Effectiveness in Sub-Saharan African Primary Schools. Source: Heneveld and Craig (1996, p. 12). Reformatted by Author (2017).

As one can see from Figure 8 (above), Heneveld and Craig's (1996) framework categorizes school elements into four categories: context variables, input variables, process variables, and outcome variables, or 'CIPO', for short (Fushimi, 2009, p. 7). In particular, 'Effective leadership' is highlighted as one of the key enabling conditions of Heneveld and Craig's (1996) model for quality primary education in Sub-Saharan Africa. It remains unclear, however, *how* effective leadership is meant to be operationalized into successfully managing the other context, input, process and outcome variables depicted in Heneveld and Craig's (1996) model. In order to try to understand the inter-related role of the 'effective

leadership' variable within Heneveld and Craig's model (1996), it is important to first review the SER and SIR camps from which the CIPO model was developed.

SER emerged after Coleman's (1966) report claiming that schools make no difference in levelling social inequities for pupils. Since the report, however, scholars have argued that schools do, in fact, make a difference in this regard (Baker et al., 2002; Glewwe and Kremer, 2006; Zhang, 2006). The SER approach looks at the effect of inputs on educational outcomes, adopting a conceptual framework that many economists describe as 'education production function' (Ladd and Walsh, 2002, p. 3). Scholars have criticized the SER approach as promoting a set of indicators that are just too narrow in theory and suggest SIR as a more holistic approach (Teddle and Reynolds, 2001).

SIR, as defined by Teddle and Reynolds (2001), 'examines the process whereby schools can improve their quality by utilizing increasingly sophisticated models that go beyond simple applications of SER to more sophisticated multiple layer models' (p. 3). In other words, there is less emphasis on quantifiable outcomes as they relate to inputs, and more on understanding the complicated teaching and learning *processes* and *contexts* involved in educational quality reform. As Fushimi (2010) writes, factors of SIR often enhance outcomes 'that are broader than mere academic achievement', such as citizenship, entrepreneurship, and leadership (p. 8). In a way, the CFS framework and the CMT indicators may better be understood within this framework since it tries to place less emphasis on test scores and more emphasis on the quality of the teaching and learning environment.

A wide range of models, promoted by multiple development agencies, have tried to combine elements from both research camps and create what Hopkins and Reynolds (2001) describe as a 'third age' for school improvement research. Some of the most frequently cited frameworks for understanding 'what' quality education means in practice include the following: Heneveld and Craig's (1996) CIPO model; Delors et al.'s (1996) definition of educational quality as 'learning to know', 'learning to do', 'learning together' and 'learning to be'; Lockheed and Verspoor's (1991) framework for improving primary schools in the developing world; and UNICEF's (2009a) global CFS framework for advocating child-friendliness. Although many others exist, this short list is illustrative of the variety of ways scholars and policy makers have tried to infuse both SER and SIR camps of research into frameworks of quality education on global and local levels. What evidence is there, though, to suggest that the current CFS model in Kenya is also rooted in SER and SIR evidence?

For this study's purpose of comparing and synthesizing school leaders' understandings of child-friendly schools, the study builds off of Fushimi's (2009) initial analysis of the CMT using Heneveld and Craig's (1996) CIPO model. To visualize how the 50 indicators of the CMT map onto the CIPO framework, Fushimi's (2009) diagram is recreated on the next page in Figure 9, for reference. One can see from Figure 9 that makers of the CMT must have had previous knowledge of SER and SIR camps as the indicators reflect the various types of input, context, process, and outcome variables one would expect from an approach to school improvement and school effectiveness in a developing world context (Fushimi, 2009). However, as one can see from Fushimi's (2009) mapping of the 50 CMT indicators onto the CIPO framework, the role of school leadership actually becomes implicitly *assumed*, rather than explicitly *stated* or recognized as a key variable in school improvement and school effectiveness (see Figure 9). While scholars like Leithwood et al. (2008) and Bush and Glover (2014) highlight the key role of school leaders in school improvement, 'effective leadership' remains visibly absent from the CMT. Using evidence from the school improvement and school effectiveness literature (Leithwood et al., 2008; Byrk et al., 2010, Bush and Glover, 2014), this study argues that all fifty indicators of the CMT, to some degree, fall under the responsibility of the school leader.

But when one reads through each of the various 50 CMT indicators within the CIPO framework, are these externally driven expectations for holistic school improvement fair or even realistic for local school leaders to fulfil? Although Fushimi's (2009) re-conceptualization of the CMT through the CIPO model is rooted in localized Kenyan education *policy* (i.e. UNICEF-Kenya and the Kenyan government), does it actually help Kenyan school leaders in *practice*? According to an interview with the National Chairman of KEPSHA, 'While I love CFS, I can never remember all the indicators – I leave that detailed work to my Deputy' (Karuga, 2012). Based on the research literature, though, this study would argue that what Karuga (2012) refers to as the 'detailed work' is actually the head teacher's main responsibility – to be able to conceptualize, monitor, and act on the core factors of quality education in their school contexts. The CFS framework, therefore, seems to offer too many indicators for Kenyan school leaders to reliably and usefully operationalize on the ground. The question is, what is the alternative?

**The Child Friendly School Monitoring Toolkit Indicators through the lens of
Heneveld and Craig's (1996) Conceptual Framework for School Effectiveness and
Improvement for Sub-Saharan African Primary Schools**

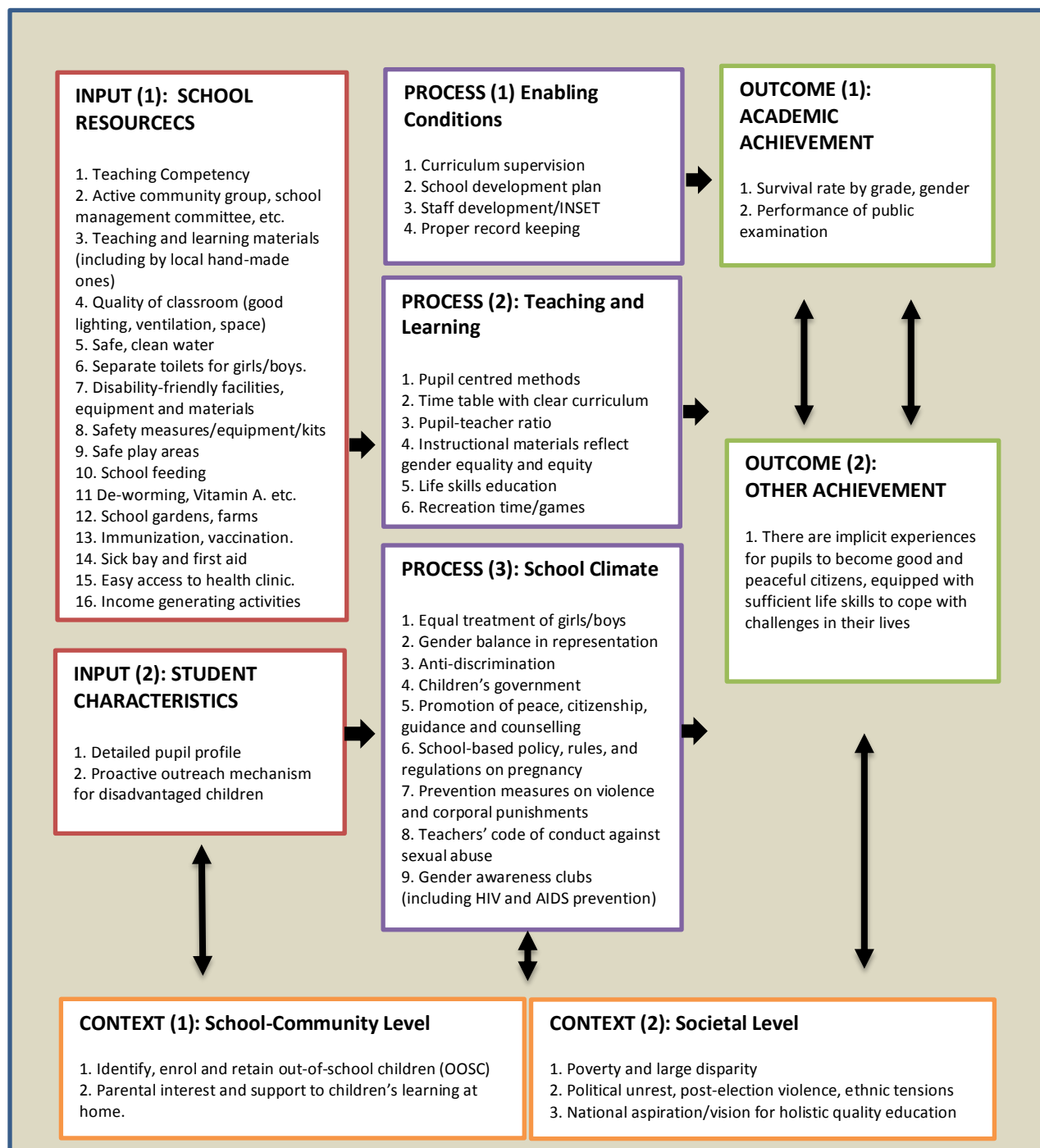


Figure 9: Mapping the CFS indicators within the Heneveld and Craig (1996) Conceptual Framework for School Effectiveness and School Improvement. Fushimi (2009, p. 8, reformatted by author).

While Bernard (1999) praises the CFS model as a comprehensive approach to defining educational quality, one begins to understand that when operationalized in a country-specific, school monitoring toolkit such as the CMT, the holistic global concept of CFS may not be so holistic or feasible after all. For example, when one looks at the CMT factors through the CIPO framework (Figure 9 above), the CMT seems to place more emphasis on ‘input’ and ‘process’ variables than on ‘outcome’ or ‘context’ variables. As a result, are Kenyan school leaders at risk of prioritizing *what* they can measure through the CMT, rather than measure what *they* care about?

Furthermore, to date, there has been no formal evaluation of the CFS model in relationship to enhancing school leadership strategies for school improvement across any of the 93 countries in which UNICEF and government partners claim CFS operates (UNICEF, 2009b). Therefore, how helpful is the CFS conceptualization of quality education in Kenya in guiding future, holistic school leadership efforts for school improvement?

According to the only desktop global review of the effectiveness of the global CFS initiative, authors conclude, ‘These evaluations do provide some evidence that CFS bolsters student learning and improves teaching practices; [but] the inconsistencies of the findings, however, warrant future research that investigate the relationship between the CFS approach, teaching and school leadership practices, and improved learning conditions and outcomes’ (UNICEF, 2009b, p. xiv). Chapman et al. (2012) argues that educational ‘policy debates in many countries are often conducted with insufficient empirical evidence and policy claims are often made on the basis of tradition, aspiration, or ideology’ (p. 171). Is the CFS model, therefore, more of a tradition and political aspiration by government and development aid officials for improving school leadership and school improvement, rather than an evidence-based approach to improving quality education for Kenyan pupils? Few studies have sought to bring a critical research lens to the conceptualization of ‘child-friendliness in schools’. More empirical research about local realities of quality education in the Sub-Saharan African and Kenyan contexts is therefore needed to confirm or challenge the relevance of the CMT’s 50 indicators *and* overall CFS approach to education improvement.

Current research about school leadership for school improvement in Kenya mainly focuses on evaluation studies about either head teacher **pre-service** preparation programs (Eshiwani, 1993; Kitavi, 1995; Kitavi and Westhuizen, 1997; Onguko et al., 2008; Jwan et al., 2010; Okoko et al., 2014) or head teacher **in-service** professional development

programmes (Waudu et al., 2002; Teddlie 2003; Crossley et al., 2005; and Onguku et al., 2012). However, little to no current research investigates school leaders' **ongoing** strategies and challenges of leading school improvement in Kenya. There is a clear need, therefore, to study Kenyan school leaders' school improvement journeys over time to understand how local rather than global strategies of effective school leadership play out in practice (Gray et al., 1996; Jackson, 2000; Fullan, 2002).

Riddell (1997) suggests that rather than assume, as does much of the literature, that a particular set of factors make for effective schools, the initial stage for educational effectiveness research should be to 'produce a rich, multi-level baseline study that identifies the factors, contexts, and processes that contribute to effective learning conditions' (p. 203). Although Riddell (1997) argues that most of the findings 'would be confirmatory in nature; it would be grounded in the *actual context* of the country' and therefore assist practitioners in their capacity to understand factors of quality education they are expected to change (p. 203, emphasis added). Furthermore, MacBeath (2008) argues that the criteria used by school leaders to evaluate and promote quality education within their schools should ultimately be left up to the schools, themselves, and meet the needs and priorities of local contexts. Kyriakides and Campbell (2004), however, warn that gathering community input for building evaluation tools and leadership models carries a significant 'disadvantage of being labour intensive and time consuming' (p. 28). As a result, 'local priorities are rarely reflected' in externally-driven frameworks that define, measure and improve quality education levels for the most marginalized school populations (UNICEF, 2009b, p. 20). Is this the case for CFS?

This section of the literature review was meant to help to illustrate the contextual gaps that exist in the SER, SIR and EEIR about school leadership for school improvement, emphasizing the need for more empirical data and theoretical development about what constitutes meaningful dimensions of school leadership for school improvement in non-Westernized countries, especially in contexts like Kenya. Because head teachers play such an active role in monitoring and improving quality education in their schools (Leithwood et al., 2008; Bush and Glover, 2014; Woods and Martin, 2016), their local realities of how they conceptualize factors that either constrain or enhance quality education should be more represented in national quality education policy initiatives and measurement frameworks such as CFS. Without their inclusion, the child-friendly schools initiative risks what Kanbur and Squire (2001) warn as a tyranny of externally driven education policy priorities without any localized versions of educational realities.

2.2 School Leadership for School Improvement in Kenya: Methodological and Theoretical Gaps in Measuring and Improving Quality Education

The second sub-section of the literature review is presented in two parts. First, the review provides an analysis of the methodological gaps that exist within SER and SIR about measuring quality education in Kenya and outlines reasons why the current study has employed a new mobile phone, SMS-based diagnostic action research tool to search for local realities of quality education in Kenya. Second, the review provides a critical analysis of how school leadership for school improvement is currently *theorized* in the literature and identifies areas where the present study's findings may be able to contribute new thinking and scientific knowledge to the field.

2.2.1 Measuring Quality in Kenya

De Grauwe and Naidoo (2004) describe three mechanisms that currently characterize evaluation methods for assessing the quality of school leadership for school improvement in the Kenyan context. These include: high-stakes academic examinations, external school inspections and school self-evaluations. The following section will review these three mechanisms within the current literature and situate why the current study has employed a new mobile phone, SMS-based diagnostic action research method as the means for better understanding Kenyan school leaders' perceptions of child-friendliness in their schools. Figure 10 provides a visual representation that serves as a map to this section of the review.

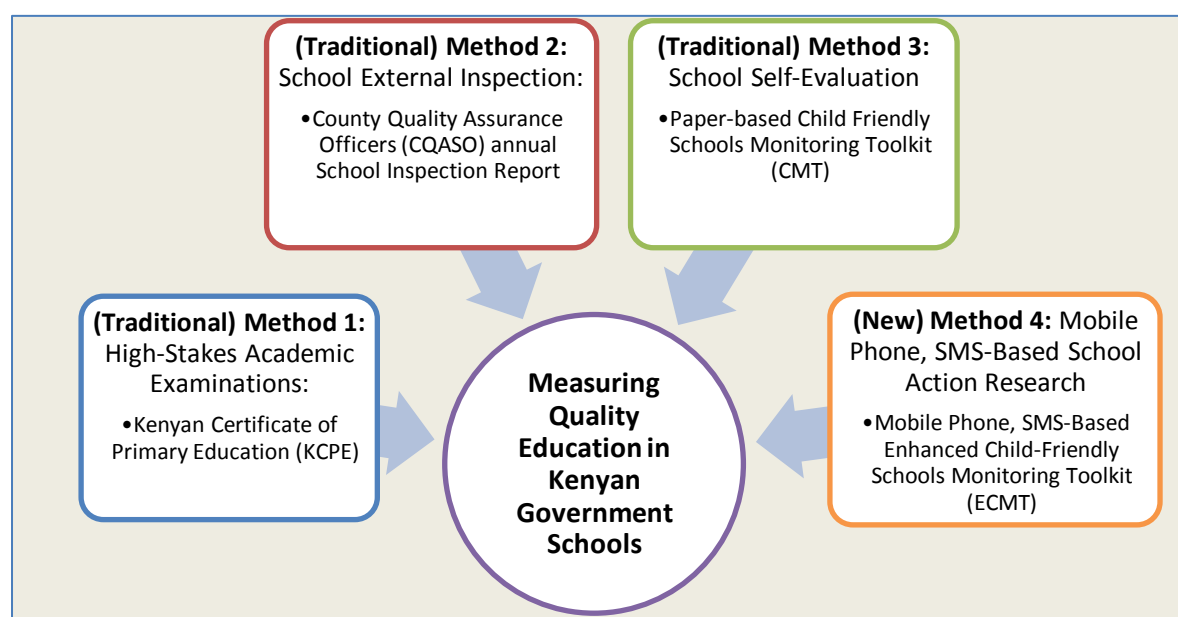


Figure 10: Methods of assessing quality education in Kenyan Public Primary Schools. Source: Author (2017).

2.2.1.1 High-Stakes Academic Examinations

Within Kenya, one of the most common indicators used to measure the quality of a school leader's performance in school improvement is by his/her school's overall average performance on the Kenyan Certificate of Primary Education (KCPE); an end-of-year primary school exam for all class eight pupils. The KCPE has five examinable subjects: Maths, English, Social Studies, Kiswahili, and Science¹. Each pupil can earn up to 100 points on each subject exam. A perfect score is 500 points. Among the 76% of Kenyan pupils who complete their full cycle of primary education, only 51% pass their KCPE and qualify for secondary school (Republic of Kenya, 2014a).

While some scholars argue that high stakes academic testing positively contributes to raising quality education standards and increasing overall learning achievement scores in schools (Braun, 2004; Murimba, 2005), others raise concerns about its potential to incentivize school leaders to fixate on new ways of 'teaching to the test' rather than equipping pupils with higher order reasoning and problem solving skills (Kellaghan et al., 2009). Longitudinal research has confirmed that personal qualities, rather than solely academic performance, can powerfully predict economic, social, psychological, and physical well-being (Almlund et al., 2011). Other scholars argue that social and emotional learning competencies are underdeveloped if only high-stakes testing are prioritized in educational settings (Durlak et al. (2015). Scholars have also shown that 'naming and shaming' based on test scores can often lead to increased disparities in quality education across competing schools (Goldstein and Leckie, 2008). In short, it becomes clear that examination rankings, alone, are limited in their scope in enabling school leaders to design and measure relevant, child-centred, holistic strategies for school improvement (McNamara and O'Hara, 2008).

According to UNICEF-Kenya and MOEST officials, the CFS model offers an alternative model to measuring quality education and 'transform the current exam-oriented system' into one that is more 'inclusive for holistic student development' (Fushimi, 2009, p. 14). It becomes difficult to foresee, though, how a national education system so deeply entrenched in high-stakes testing can begin to measure quality education levels based on child friendliness factors, rather than end-of-year examination scores.

¹ In 2018, Kenyan education officials introduced a new curriculum that will supposedly abolish the high-stakes tests and encourage multidisciplinary teaching and learning with automatic admission into secondary education after completion of primary education. However, the current program is only its pilot stages across 400 primary schools (Nyamori, 2018).

2.2.1.2 External School Inspections

In addition to a school's KCPE scores, the Kenyan County Quality Assurance and Standards Officer (CQASO) school inspection report provides a second method of assessing the quality of school leadership for school improvement. Janssens and van Amelsvoort (2008) describe the process of schools' external inspections as independent reviews of how well a school abides by national, legislative standards of quality education while also accommodating local needs of parents and students. Using a government questionnaire with 29 indicators, the Kenyan CQASO visits all schools within his/her county for an average of four hours each and creates a report of his/her findings over the next three months (Republic of Kenya, 2010). In many counties, however, there is only one CQASO per 90 or more primary schools, thereby making the goal of visiting every school nearly impossible to achieve (Nakulo, 2011). When the CQASO does manage to visit a school, he/she has two main functions: to 'judge, control, [and] audit' and to 'support, advise, [and] guide' (Fushimi, 2010, p. 15).

While external school inspections are seen as necessary processes for ensuring educational accountability and comparability across schools in a national context (Nevo, 1995), local school leaders often find them insulting and demeaning (De Grauwe and Naidoo, 2004). One Kenyan head teacher described, 'They might as well do their assessment from the car' (Cunningham, 2012). This seems to match Hall and Noyes' (2009) findings that internal school actors often do not find external school inspections useful or accurate. Fushimi (2010) describes five main deficiencies of external school inspections within the Kenyan context, noting how external government inspections of schools are often perceived as 'too expensive, superficial, authoritarian, de-professionalizing and ineffective' (p. 29).

This internal dissatisfaction resembles what Phillips and Ochs (2004) refer to as a localized 'impulse' for looking outwards for alternative means to assess quality education (p. 779). The opportunity for school self-evaluations using UNICEF's child-friendly schools framework, therefore, provides a promising new method in this regard, seeking to address one of the greatest concerns of external school inspections: the exclusion of local practitioners' voices and perspectives (MacBeath, 2008).

2.2.1.3 School Self-Evaluations and School Self-Inspections

According to Fushimi (2009), ‘school self-evaluation, through the CFS framework, is perhaps the *key ingredient* to the process of mainstreaming CFS in Kenya’ (Fushimi, 2009, p. 18, emphasis added). Seen through these lens, the CFS framework encourages Kenyan school leaders to become more focused on self-improvement, accountability, and greater transparency from *within* rather than being told to do so from the *outside* (Bubbs et al., 2007).

Often cited as a scholarly expert in school self-evaluation, MacBeath (2008) repeatedly advocates for school self-evaluations to provide practitioners with the opportunity to ‘speak for themselves’ in assessments of educational quality and school effectiveness (p.395). Some studies suggest ways that ‘school self-evaluations’ and ‘external school inspections’ could actually merge together (Nevo, 2001; MacBeath and McGlynn, 2002). Yet others argue that school self-evaluations would become counterproductive if external assessors were seen controlling the process and criteria of assessment from the outside (Nuttal, 1981; Janssens and Amelsvoort, 2008). Building on previous work by Foucault (1977), Perryman (2007) explains this contradiction by using the familiar Bentham ‘panopticon’ prison metaphor to describe the invisible, but omnipresent eye of the school inspector on local school practitioners in school self-inspections:

In the panopticon, [a model prison], individual cells [are] arranged around a central tower. By use of backlighting, a supervisor could observe every cell without the inmate knowing if they were being watched or not [...] thus institutional authority is invisible, but the objects of power, which in a school are the teachers, and pupils, are visible and supervised (p. 176).

Is this the case for Kenyan school leaders using the current child friendly schools monitoring toolkit (CMT)? Are UNICEF-Kenya and MOEST officials promoting exercises in school self-evaluation, when in fact, school leaders are being asked to engage in exercises of school self-inspection for the benefit of others rather than their own school communities?

In sum, the CFS initiative was meant to enable Kenyan head teachers to better describe, measure and improve the quality of primary education, beyond pupils’ test scores. But as one can see from the review of the literature, the CMT actually resembles more of an exercise in school self-inspection. This approach has yet to produce any meaningful data about CFS, nor trigger any new evidence-based school leadership strategies for school improvement since the launch of the

CMT in 2009. A new approach, therefore, is needed to better enable Kenyan school leaders to assess and respond to factors that continue to impede the quality of education in their schools.

2.2.1.4 School-Based Action Research

In one of the few external evaluative studies about Kenya's government-sponsored school leadership training programs, Ongoku et al. (2008) notes that 'these programmes need to better equip principals with self-learning skills and problem-solving skills, among them more reflective skills and action research skills' (p.724). Carr and Kemmis (1986) define action research as 'self-reflective inquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understandings of these practices, and the situations in which the practices are carried out' (p. 162).

In Kenya's National Education Sector Plan, 'action research' has also been allocated millions of Kenyan shillings from the MOEST budget to 'improve the quality of school-based improvement planning processes' (Republic of Kenya, 2014a, p. 34). However, current policies promoting action research within Kenya seem to lack a set of corresponding, easy-to-use, affordable, and accurate measurement instruments that head teachers can use for school improvement planning purposes on a regular basis. According to the National Chairman of the Kenyan Primary School Head Teachers Association, without the right tools, action research easily becomes another example of 'government-sponsored busy work' for school leaders rather than meaningful exercises in school self-evaluations (Karuga, 2012). Within the field of action research more broadly, scholars have illustrated gaps between theory and practice, noting that a number of action research projects have tended to be more extractive rather than instructive in their processes of data collection and analysis (Lewin, 1946; Corey, 1953; Stenhouse, 1975; Carr and Kemmis, 1986; Elliott, 1991; Adelman, 1993; Dahl, 2014). In addition, even if the action research results are adequately shared with local educational stakeholders, evidence has shown that school leaders often do not use the data from action research to its best effect, if at all (Schildkamp et al., 2016).

Dunlap and Piro (2016) describe the need for more professional development in data literacy within the discourse of action research— or the ability of school leaders and other educational stakeholders to better understand and *use* data effectively to inform decision-making about evidence-based, data-driven school improvement efforts. In other words, how can school leaders better transform data into information and information into actionable school improvement strategies, at scale?

Interestingly, Dunlap and Piro (2016) note that educators expressed a higher confidence level when analysing data if they were allowed to do so with their colleagues – in effect, if they were permitted to socially construct knowledge. Dunlap and Piro (2016) argue that data literacy for action research should incorporate more adult learning theory that purports that adults are more apt to effect sustainable change if they garner the support of other adults, rather than trying to go it alone (p. 5). This is crucially important to the theory of change underlying the Child-Friendly Schools initiative, where school leaders are meant to engage in multi-stakeholder school self-evaluations to assess and respond to levels of child-friendliness in their schools. The question then arises as to what new tools and technologies could better equip Kenyan school leaders with the means to engage in more social exercises in diagnostic action research? What is the one thing that every Kenyan school leader already has and knows how to operate in their schools? Answer: a mobile phone that can send SMS messages. How could Kenyan head teachers' mobile phones be better utilized in operationalizing the promising tenets of school-based action research?

We now turn to the next section of the literature review to discuss the potential methodological opportunities of using mobile phone, SMS-based diagnostic action research tools to enable Kenyan school leaders to better conceptualize, assess and respond to deficits in quality education levels in their school contexts.

2.2.2 Using Mobile Phones for Education Improvement in Kenya

UNICEF-Kenya and MOEST's paper-based system of CFS school self-evaluations has been costly to print, labour intensive to complete, and viewed by some Kenyan school leaders as too long in length to be deemed operable (Karuga, 2012). The data that is collected from these reflective exercises are also often of little to no value to informing school leadership decision-making for effective school improvement (Republic of Kenya, 2014b). In addition, the MOEST's out-dated, dysfunctional, and largely inaccessible Kenyan education management information system (EMIS) inhibits school leaders from easily collecting, analysing, comparing and using quantitative or qualitative educational data for evidence-based school improvement planning (Republic of Kenya, 2014a; UNICEF-Kenya, 2014).

Data-based decision making in school improvement requires a more 'non-linear, complex process that involves several feedback loops' (Dunlap and Piro, 2016, p. 231). Currently, few to no easy-to-use data feedback loops are available to Kenyan school leaders. Recognizing the methodological constraints of previous studies using action research, the

present study proposes the use of a new, mobile phone, SMS-based exercise in diagnostic action research to better equip Kenyan school leaders with the means to more accurately collect, analyse, and use self-reported data about their schools' levels of child-friendliness in the design and assessment of effective school leadership strategies for school improvement.

2.2.2.1 Why Use SMS Technology for Education Improvement?

While a number of systematic reviews have been conducted by international health scholars about the use of SMS technology in research methods (Wei et al., 2010; Deglise et al., 2012; Gurman et al., 2012; Vodopivec-Jamsek et al., 2012; and Lunny et al., 2014), only a handful of similar reviews have been conducted within the field of international education. Sripriya and Thomas (2014) provide a brief overview of how SMS can be seen as 'an evolving culture for learning', highlighting how SMS-learning can be characterized as economical (Visser and West, 2005), learner-centric (Sharples et al., 2007), portable (Cavus and Ibrahim, 2009), ubiquitous (Lim et al., 2011), convenient (Zhang et al., 2011), and personalized (Hayati et al., 2013). On the other hand, Ting (2012) outlines the pitfalls of using mobile phone devices for learning, noting that small screens, limited user input options, and low computational power prevent sustained, meaningful opportunities for effective teaching and learning. The present study reviews a number of recent educational studies using SMS as a methodological tool to understand its different capacities to collect, analyse, compare and disseminate educational data to local, national, and international education stakeholders. Yengin et al. (2010) describes three models of using SMS in educational studies – 'push' models, 'pull' models and 'interactive' models. Each model is discussed briefly to contextualize the present study's choice of the 'interactive' model of using SMS for school-based diagnostic action research.

2.2.2.1.1 SMS 'Push' Models for Education Improvement

The SMS 'push' model allows school educators, administrators and researchers to send out 'broadcast' messages to learners, parents, or other important educational stakeholders as reminders, alerts, or announcements (Yengin et al., 2010). A number of studies have used the SMS 'push' model to study how SMS text message reminders have influenced students' behavioural changes such as student eating disorders (Bauer et al., 2012), student weight loss (Shaw et al., 2013), school bullying (Sticca and Perren, 2013), student nutrition (Brown et al., 2014), HIV/AIDS education and awareness (Ybarra et al., 2014), student substance abuse recovery (Gonzales et al., 2014) and overall effectiveness of

school guidance and counselling services (Joyce and Weibelzahl, 2011). Ting (2012) argues that it is difficult to generate convincing evidence, however, that illustrates the levels of influence that the type of communication (SMS) has on changes in pupils' behaviours rather than from the content of the messages that are being sent.

2.2.2.1.2 SMS 'Pull' Models for Education Improvement

The SMS 'pull' model enables educators and learners to retrieve information using a menu system of SMS options (Yengin et al., 2010). The online encyclopaedia giant, *Wikipedia*, recently launched a project in Kenya called *Wikipedia Zero* that enables basic mobiles phone users to literally 'pull' any online *Wikipedia* article content from the *Wikipedia* database to their phone by SMS connection (Wikipedia Foundation, 2013). For example, a teacher in rural Kenya can simply SMS the word 'cholera' to *515#, after which the full *Wikipedia* article will be sent to the user's mobile phone via SMS messages for free. This 'pull' model has been particularly useful for promoting and operationalizing distance education, as evidenced in educational research studies in South Africa (Viljoen et al., 2005), India (Balasubramanian and Ramadoss, 2007), Bangladesh (Islam and Doyle, 2008), Kenya (Maraviglia, 2012) and Namibia and Tanzania (Semali and Asino, 2014). In Latin America, SMS 'push' models for education have provided underserved indigenous children with a 'pocket school' through easily retrievable SMS-based literacy content 'even while on the move' (Miranda and Olaciregui, 2008, p. 439). Two useful systematic reviews of mobile learning in developing countries have been conducted by Moura and Carvalho (2010) and Wu et al. (2012) that highlight the surging interest in the field of education of using basic SMS technologies for advanced opportunities in learning for all.

2.2.2.1.3 SMS 'Interactive' Models for Education Improvement

Yengin et al.'s (2010) 'interactive model' of using SMS describes the capacity of SMS to enable learners to retrieve quiz-like questions, answer the questions via SMS, and receive immediate, accurate, and personalized feedback. This model appears to be the most common method used in educational studies and interventions using SMS. A number of studies have used the 'interactive model of SMS' to measure the effect of using SMS in building students' capacities to learn English as a second language (Cavus and Ibrahim, 2009; Zhang et al., 2011; Hayati, et al., 2013; Ziden et al., 2013), engaging pupils in mathematics review lessons (Baya'a and Daher, 2010), improving science laboratory instruction quality (Martinez-Torres, et al., 2007), advancing teacher professional development (Kaleebu, et al.,

2013; Royle et al., 2014), improving literacy skills for pupils in developing countries (Wagner et al., 2014), increasing interactivity between pupils and teachers in primary school classrooms (Broinowski, 2006; Markett et al., 2006; Goh and Hooper, 2007), engaging learners in large lecture courses, (Voelkel and Bennett, 2014), improving learning communities in higher education (Premadasa et. al, 2013; Naughton, 2014) and advancing assistive educational services for pupils with hearing and other disability impairments (Power et al., 2007; Summet, 2010).

However, within the research looking at the use of interactive SMS models in education, there are few to no studies investigating how SMS can be used as a means of enabling school leaders to engage in multi-stakeholder exercises of diagnostic action research for school improvement. In a recent review of innovative uses of mobile phone SMS systems, Hellstrom (2010) highlights how Ugandan, Kenyan, and Tanzanian governments initially developed plans to use SMS technologies to enhance their educational information management systems (EMIS). But when the present researcher asked Kenyan government leaders about Hellstrom's (2010) discussion of Kenya's SMS-Educational Management System (SEMA), the Chief Economist of Kenya's MOEST reported that the program was only piloted in 2005, but abruptly ended in 2008 because of the lack of back-end system management capacity (Kamande, 2014).

As one can see, the present study's use of an interactive, SMS-based methodology provides a promising opportunity to significantly contribute to the growing literature of using SMS for enabling school leadership to not only assess, but also act on levels of child-friendliness through data-driven school improvement strategies. More details of how the study designs the mobile phone, SMS-based diagnostic action research tool are outlined in Chapter 3.

2.2.2.2 Why Use SMS Technology for Educational Research in Kenya?

In the context of the present study, it is important to understand how far Kenyans have come in their innovative uses of SMS in health, agriculture, business and education and why the present study's choice of SMS is an appropriate use of technology for data collection, analysis and dissemination in the Kenyan context.

According to the Communications Commission of Kenya, approximately 38.5 million Kenyans own a mobile phone, equating to 88.2% of the total population (CCK, 2017).

Between July and September of 2017, alone, 19.3 billion SMS messages were sent by Kenyan mobile subscribers (Mumo, 2017). According to Mutuku (2012), among Kenyans living on less than USD \$2.50 a day, 60.5% already own a mobile phone. And according to a recent World Bank (2012) study, *Uses of Mobile Phones at the Bottom of the Pyramid in Kenya*, approximately 53% of all Kenyan mobile phone users have a basic phone with no Internet capacity. Researchers have also found that even among the 47% of users with an Internet enabled phone, most users only use the calling and SMS functions on their devices (Mutuku, 2012). As one can see, the use of SMS in Kenya appears to be more common than using the Internet for communication on a mobile phone.

Kenyans use SMS for more than communication, however. For example, in banking, of the 38.5 million Kenyan mobile phone subscribers, 82.4% are subscribed to mobile money (CCK, 2017). Yearly mobile money deposits in Kenya are worth an estimated USD \$2.2 billion (World Bank, 2012). *M-PESA* (M standing for ‘mobile’ and ‘pesa’ meaning ‘money’ in Swahili) provides customers with a mobile-phone, SMS-based money transfer and micro-financing service. *M-PESA* has more than 15 million Kenyan subscribers using its features to make daily financial transactions such as paying rent or checking one’s electricity bills on a daily basis (World Bank, 2012). In farming, *m-Farm* allows Kenyan farmers to send an SMS message to get the most up-to-date wholesale price for their products (Mutuku, 2012).

In health, *BabyMonitor* uses SMS to support Kenyan pregnant women before, during and after their babies are born to integrate registration services, health advice, and reminders for clinic visits via a mother’s basic mobile phone (Mutuku, 2012). A number of other applications of SMS applications in mobile health have been developed and scaled in Kenya, including reminder SMS messages for increasing adherence to HIV/AIDS treatment regimens (Lester et al., 2010) and increasing awareness of sexual health information through a program called *SMS STI* (sexually transmitted diseases) (Lim et al., 2008).

In emergencies, *Kenyans for Kenya* marked Kenya’s largest fundraising effort to date in response to severe drought conditions in 2012, raising more than USD \$8 million through SMS-based donations, alone (Mutuku, 2012). In security, SMS was used by the United Nations during the 2013 Westgate Mall Terrorist attacks in Nairobi to warn its staff to avoid the area and seek safety, arguably saving many lives through real-time information sharing channels (UNICEF-Kenya, 2013).

In education, school leaders, pupils, parents and teachers use SMS to access end-of year scores on the *Kenyan Certificate of Primary Education* (KCPE) in partnership with the Kenyan National Examinations Council. *ENEZA Education*, one of many start-up technology companies in Nairobi's so-called 'Silicon Savannah', provides more than 1.2 million Kenyan pupils with SMS-based review quizzes across thirteen different subjects. Although there are promising new technological start-ups in the Kenyan education sector, few are concentrating on how SMS can be used for monitoring quality education and thereby enabling local school stakeholders with the means to engage in meaningful school improvement self-evaluations and action planning. This proverbial gap illustrates the importance of the present study's research design to potentially provide a key methodological contribution to the way we look at school improvement strategies from the bottom-up rather than the top-down.

2.2.2.3 Why Use SMS Technology for Understanding Kenyan School Leaders' Local Realities of School Improvement?

While the general Kenyan public continues to use SMS for reporting road safety violations, engaging in voter registration, searching job vacancies, managing blood bank supplies, and accessing higher education loan management along with many other public services (Hellstrom, 2010), Kenyan school leaders are using SMS to receive their monthly salaries through M-PESA and send official monthly enrolment numbers to headquarters that determine the per-school capitation grants from central government funds. Therefore, almost every Kenyan head teacher is guaranteed to have a working mobile phone. One main challenge, however, is Kenya's mobile phone network coverage. While 89% of Kenya's population is covered with an existing mobile phone network provider, only 39% of Kenya's geography is within range of a cell phone tower (World Bank, 2012). However, all school leaders within the present study reported being able to access a mobile phone network on a daily basis, even if it required walking into town. Therefore, the reach of the present study represents an unprecedented opportunity for tracking journeys of school improvement, even in some of the most remote, poor, and rural schools throughout Kenya. This section of the literature review was meant to provide a brief background around the potential that SMS technology, particularly within Kenya, holds to better equipping Kenyan school leaders with a means to self-assess and manage data about child-friendliness levels in their schools.

2.2.3 Theorizing about School Leadership for School Improvement in Kenya

The final sub-section of the literature review provides an overview of how school leadership for school improvement has been theorized in SIR, SER and EEIR and what theoretical gaps and opportunities exist for the present study.

While many scholarly studies have commented on school leadership **principles** for school improvement (i.e. Lessem, 1991; Heneveld and Craig, 1996; Marzano et al., 2005; Yammerino et al., 2005; Leithwood et al., 2010; Day et al., 2010; Day and Sammons, 2013), fewer have dedicated time to investigating commonly used effective **strategies** of school leadership for school improvement, especially in the Kenyan context. Bush and Glover (2014) call for more research about the actual practice of school leadership to inform future policy and practice. Rather than accept externally-driven foreign models of school leadership strategies for school improvement in Kenya (i.e. the CFS manifesto), this section argues that more research needs to follow what Hopkins et al. (2014) describe as the development of ‘boundary breaking thinking’ (p. 770) for reconceptualising how school leaders can better understand, assess and respond to key educational constraints in their local contexts. In other words, why must local school leaders continue to care about what they can measure in quality education, rather than measure what they care about?

The common conceptualization of school leadership responsibilities for improving school improvement within SER and SIR still resembles what Fitz-Gibbon (1996) calls the ‘old hope model’ of SIR and SER– the hope that finding the ‘correlates of effectiveness’, or features common to ‘effective schools’, will enable education researchers to prescribe school improvement strategies for school leaders of ‘ineffective schools’ and thereby improve their levels of quality education (Fitz-Gibbon, 1996, p. 74). Riddell (1999), however, argues that after a baseline study of confirmatory local realities of quality education is collected, ‘one could [instead] pursue different school-based monitoring and evaluation techniques and constructs’ for school effectiveness studies that relate to more relevant factors of school improvement, ‘as defined by the educational practitioners, *themselves*’ (p. 204, emphasis added). How can we better shift the theory of designing school leadership for school improvement efforts from an ‘old hope model’ of searching for correlates of school effectiveness to inform school improvement, to a ‘better science model’ where school improvement research informs school effectiveness efforts (Fitz-Gibbon, 1996). The two contrasting theoretical models are illustrated in Figures 11 and 12 below for reference.

Figure 11 (below) illustrates the traditional model of applying findings of school effectiveness research to strategies of school improvement. Figure 12 illustrates what the present study intends to do by applying research findings from school improvement journeys to inform future research directions in *both* school improvement and school effectiveness.

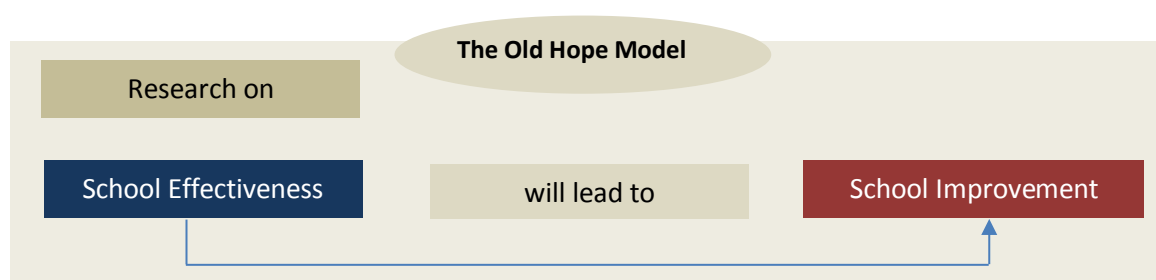


Figure 11: 'The Old Hope Model'. Adapted from Fitz-Gibbon (1996, p. 74).

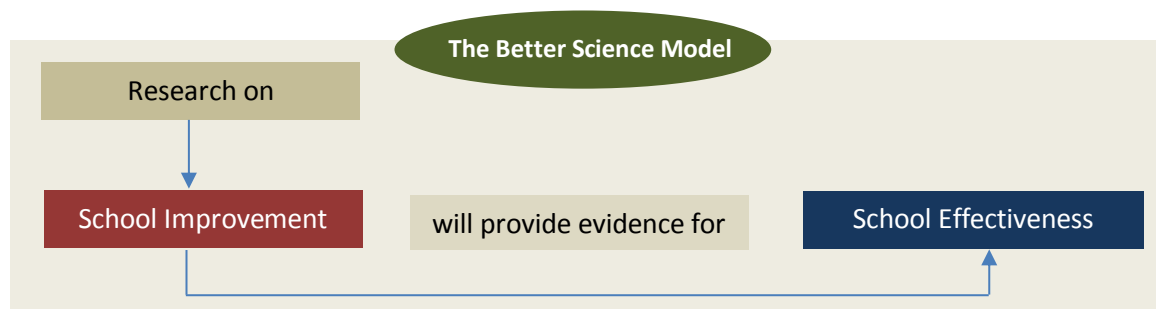


Figure 12: 'The Better Science Model'. Adapted from Fitz-Gibbon (1996, p. 75).

In the context of this study, Fitz-Gibbon's (1996) model is essential in illustrating the theory that is driving the study's research design and approach. Rather than accept a set of top-down, decontextualized, and untested indicators of quality education in Kenya (i.e. the CMT indicators), how can the study instead create a more contextually relevant conceptual model of CFS using Kenyan school leaders' existing knowledge and *local realities* of quality education? How can new empirical research about the current constraints of educational quality within the Kenyan context provide sufficient evidence for informing new approaches to school effectiveness research, policy and practice?

Put another way, how can the study's intervention better enable Kenyan school leaders to 'mediate or buffer their schools from *unhelpful change agents*, to *challenge* and even *violate externally-set guidelines*' by the government and other external stakeholders (Hopkins et al., 1994, p. 770, emphasis added)? The study therefore aspires to co-construct a new conceptual model of what Kenyan school leaders understand quality education to mean, thereby empowering head teachers to adopt a '*boundary breaking attitude* – or the capacity to

better ‘*possibilize*’ about school improvement by challenging external standards of quality education’ (i.e. CFS) (Hopkins et al. 1994, p. 770, emphasis added).

The study’s reoriented view of theorizing about school leadership for school improvement relates to an ever-growing global movement of educational research studies that seek to discover ‘what works’ *and* ‘what does *not* work’ in improving learning outcomes and quality education for all (Glewwe and Muralidharan, 2015; Snilstveit et al., 2016; Masino and Nino-Zarazua, 2016). The study shares the aims of a variety of contemporary research consortia, including, but not limited to the Department for International Development (DFID)’s funded USD \$78.1 million *Research in Systems Education (RISE)* programme and the Economic and Social Research Council (UK) and DFID’s funded USD \$27.1 million *Raising Learning Outcomes in Education Systems Programme*. Similar to the current study’s aims, both programmes seek to build new evidence on critical policy areas which are currently *constraining* education systems in developing countries from translating resources into better learning for all’ (Johnson et al., 2018). In particular, scholars from these consortia are employing a variety of research methods to better understand ‘*key contextual local factors* inhibiting learning conditions for children in developing countries’ (Johnson et al. 2018, p. 18, emphasis added). But despite widespread agreement that education systems need to focus more on improving learning outcomes (World Bank, 2018), there remains ‘no consensus on which policies and interventions specifically lead to quality education improvement’ (Johnson et al., 2018, p. 2). The study’s research aims, therefore, could make significant contributions within both these research consortia. As a result, the study situates itself within current education improvement research traditions that seek to inform and influence future international education system policies and practices through a more participatory, action research-based approach.

2.3 Conclusion of the Literature Review

As one can see, the quality of education in Kenya, like many developing countries, is constrained by complex interactions between elements of the education system, the context in which these interactions are embedded and the dynamics that operate within those systems. This study seeks to discover which factors, in particular, are enabling or inhibiting schools from becoming child-friendly, or put another way, from offering quality education for all.

This brief review of relevant SER, SIR and EEIR literature reveals a series of contextual, methodological and theoretical gaps in our current knowledge about how Kenyan school leaders understand factors that make schools more child-friendly. Three key insights emerge. First, although a number of scholars have engaged in seeking to understand effective school leadership within SER, SIR and EEIR, a paucity of systematic research still exists in understanding context-specific challenges school leaders face when trying to improve levels of quality education for the most marginalized children in Sub-Saharan Africa and specifically, within Kenya.

Second, current SIR methods using qualitative approaches such as case studies and expert interviews are constantly limited in their capacity to collect large scale data due to logistical and financial constraints (Hallinger and Heck, 2011). Rather than remain limited within the field's traditional means of conducting school improvement research in one or two dozen schools in the developing world, the Kenyan context offers a unique opportunity to test new research methodologies that involve using what every school leader already has – a mobile phone with basic SMS texting features.

Third, the 'old hope model' described by Fitz-Gibbon (1996) characterizes the rift that still exists between most school effectiveness research findings and the inability for practitioners to translate this research into school improvement practice (Hopkins et al., 2014).

The study's three-pronged research approach attempts to address these important contextual, methodological, and theoretical gaps in the current literature. The next section provides an overview of how it proposes to do so by providing an overview of its methodology.

Chapter 3 - Methods

Where methodologies become too standardised, the further growth of the field may be limited, as the methods we use constrain our thinking and in part determine our findings and designs (Chapman et al., 2012, p. 62).

3.1 Overview

The present research study seeks to engage in what Chambers (1997) describes as a ‘reversal of learning’, where the selected mixed-methods research approach is meant to enable the researcher to better ‘learn *from the people* rather than learn *about the people* from policy makers’ in identifying which indicators of quality education matter most to Kenyan school stakeholders in making their schools more child-friendly (p. 157, emphasis added). In other words, the study’s research methodology seeks to ‘tangibly reverse power relations in international development and research and [thereby] form new knowledge from the bottom-up rather than the top-down’ (p. 21). As a result, the study borrows methods and design principles from the community-based operations research approach (Johnson and Smilowitz, 2007) throughout the research journey, while employing particular research strategies for qualitative and quantitative data collection and analysis from both the action research tradition (Lewin, 1946; Corey, 1953; Carr and Kemmis, 1986; Elliott, 1991; Adelman, 1993) and participatory and learning action research (PLA) approaches in phases one, two and three of the research project (Chambers 1983; 1994; 1997; 2007; 2010).

As outlined in Table 2 and Figure 13 in the following pages, community-based operations research underpins the entire research design as it places a strong emphasis on ‘stakeholder participation in problem definition, solution, and implementation’ (Taket and White, 1994), thereby making it relevant to the current study’s interest in eliciting local perceptions of quality education from Kenyan school leaders and other school stakeholders. In research phase one, the study employs the PLA method of group notecard writing to elicit local knowledge (Chamber 1983; 1994; 1997; 2007; 2010; Cornwall, 2011) followed by focus group discussions for follow-up clarifications (Hennink, 2010) led by indigenous research assistants (Benoit et al., 2005). In research phases two and three, the study guides Kenyan school leaders in diagnostic action research exercises through the deployment of mobile phone, SMS-based multi-stakeholder school self-evaluation surveys to produce data

feedback loops to inform school leadership strategies for school improvement (Lewin, 1946; Corey, 1953; Stenhouse, 1975; Carr and Kemmis, 1986; Elliott, 1991; Dahl, 2014). The selected methodology adopts what Chambers (1997) recommends in PLA research as a constant triangulation of meaningful learning from several types of information datasets.

Furthermore, the study's methods seek to enable Kenyan school leaders to operationalize the positive tenets of action research where 'self-reflective inquiry [...] [can] improve the rationality and justice of their own practices, their understandings of these practices, and the situations in which the practices are carried out' (Carr and Kemmis, 1986; p. 162). In other words, the methods seek to generate data to answer the overarching research question, 'How far does a school-based monitoring framework allow Kenyan school leaders to better **conceptualize, assess, and respond** to key factors that enhance or constrain the quality of education (CFS) in Kenyan primary schools?' In sum, the study's three-pronged research design seeks to realize what Chambers (2007) describes as a new 'paradigmatic shift from things to people, from top-down to bottom-up, from standard to diverse, from control to empowerment' (p. 26). As a result, the reasoning underlying the study's chosen methodology reflects the findings from a desktop review of failed projects in international development, where Kanbur and Squire (2001) argue, 'The poor often have better knowledge of *their* situations and *their* needs [than policy-makers], and can therefore better contribute to the *design* of policies and projects intended to improve their lots' (p. 204, emphasis added). The next section provides details about the study's adoption of the community-based operations research approach and use of mixed-method research strategies (for both qualitative and quantitative data collection and analysis), rooted in shared traditions and principles of action research and PLA methods.

3.1.1 Community-based Operations Research (OR)

The present research study engages in what Johnson and Smilowitz (2007) refer to as community-based operational research (OR) by focusing its methods of data collection and analysis around the needs and concerns of 'underrepresented populations [...] that are less able to use political influence to adapt public policies to their own needs' (p. 103). In the case of the current study, the underrepresented population is defined as Kenyan school leaders hailing from poor, low-income, low-performing public primary schools. As an underdeveloped field within the public-sector operations research tradition, applications of the community-based operations research approach remain limited to case studies within the

United States and United Kingdom. However, its emphasis on ‘stakeholder participation in problem definition, solution, and implementation’ (Taket and White, 1994) make the community-based operations research approach applicable to the current study’s interest in eliciting local realities of quality education from Kenyan school leaders and trigger what Appadurai (2001) refers to as ‘new forms of dialogue’ between education policy-makers, practitioners and researchers (p. 16).

Operational research scholars argue that the long-term impact of community-based OR is likely to be greatest if ‘emphasis is placed on models that provide specific, theory-based guidance to local decision makers that can be easily replicated in different application contexts’ (Johnson and Smilowitz, 2007, p. 105). In the context of the present study, this relates to the study’s aims of exploring Kenyan school leaders’ understandings of school improvement through the CFS initiative, based on bottom-up perceptions of local educational realities rather than top-down policy guidelines or directives. The community-based operations research approach has been applied in a number of areas of social science research including, but not limited to food security, humanitarian logistics, public health and public education (Johnson and Smilowitz, 2007). Never, however, has it been applied within a Sub-Saharan African context or in response to gaps within the SER, SIR, or EEIR literature as previously discussed.

3.1.2 Mixed Methods Research

The OR approach reflects what Sammons (2012), a lead methodologist in SER, SIR and EEIR fields, describes as the need for a ‘third paradigm’ of mixed-method approaches to SER, SIR, and EEIR (qualitative *and* quantitative) to ‘rival the dominant post-positivist and constructivist traditions of social research and [...] [offer] the potential to enhance theory development as well as provid[e] new knowledge or relevance to practitioners’ (p. 18). She argues for greater emphasis on ‘to and fro’ processes of SER, SIR and EEIR research that use ‘inductive and deductive reasoning for ongoing theory generation and testing that represents a *cyclical* rather than [a] *linear* approach to enquiry’ (Sammons, 2012, p. 19, emphasis added). In short, Chapman et al. (2012) argue that a mixed methods approach to SER and SIR will produce ‘more robust and interesting findings than either approach (quantitative or qualitative) could do in isolation’ (Chapman et al., 2012, p. 20). The need for a mixed-methods approach relates well with the study’s aims of eliciting local knowledge of and strategies for improving characteristics of child-friendly schools throughout Kenya.

Parry and Mingers (1991) illustrate how researchers conducting community-based operation research often employ a variety of research methods that reflect what Mingers and Gill (1997) describe as a ‘multi-methodology’. The study’s research approach draws inspiration from scholarly research using mixed methods intervention approaches (Tashakkori and Teddlie, 2010). The present study’s choice of using a mixed methods research design was done out of necessity since no existing quantitative or qualitative methodological tools or processes were available in the Kenyan context to (a) effectively explore, assess, and track a purposive stratified nationwide sample of Kenyan school leaders’ local perceptions of child-friendliness levels in their schools and (b) remain as an affordable, accurate, and manageable research design for a single doctoral researcher student to implement at scale.

The present study is delivered through three phases of research. Phase 1 is designed to co-construct a new conceptual framework about how Kenyan school leaders understand key factors that either constrain or enhance levels of child-friendliness in their contexts. Phase 2 is designed to test this new conceptual framework through the deployment of a new, innovative, mobile phone, SMS-based diagnostic action research tool. Phase 3 is then meant to evaluate the efficacy and applicability levels of the model and tool, by analysing whether or not Kenyan school leaders are able to *use* the data about child-friendliness in their schools to produce more meaningful, relevant, and evidence-based school leadership strategies in school improvement for the future.

Table 2 (next page) provides an overview of the choice of data collection and methods of analysis in relationship to the gaps in Kenyan education policy and SER, SIR, and EEIR literature, as discussed in Chapters 1 and 2. Table 2 also describes the study’s anticipated contributions to both the scientific understanding of school leadership for school improvement in Kenya and future Kenyan education policy as they relate to each of the study’s sub-research questions. The timing of each research phase is also indicated, thereby illustrating what Gray et al. (1999) describe as journeys of school improvement through sustained school leadership. Following Table 2, Figure 13 also provides an explanatory illustration of how the different research phases and outputs connect with one another. Both Table 2 and Figure 13 are meant to illustrate the study’s iterative approach to research design and implementation.

Following Table 2 and Figure 13, the study then presents the study's methodology in six sections: (i) Gaining access as an embedded doctoral research student, (ii) Designing, developing, and piloting a new mobile phone, SMS-based diagnostic action research tool for enabling school leaders to assess levels of child-friendliness in their schools, (iii) Recruiting and training indigenous research assistants (IRAs), (iv) Developing sampling procedures and reviewing the nature of the sample, (v) Conducting three research phases of qualitative and quantitative data collection and, (vi) Considering and wrestling with key ethical issues of the research design and approach throughout the study.

Table 2: Three research phases of data collection in the study's three-pronged research design. Source: Author (2017).

Main Research Question: How far does a school-based monitoring framework allow Kenyan school leaders to better conceptualize, assess, and respond to key factors that enhance or constrain the quality of education (CFS) in Kenyan primary schools?					
Phase	Research Sub-Questions	Rationale	Data Collection Methods	Methods of Analysis	Contributions to Knowledge/Policy
Data Collection Phase 1: February 2013 – May 2013	Sub-Question 1A: When asked, do Kenyan school leaders' perceptions of key factors that enhance and constrain the quality of education align with the Kenyan government's national CFS monitoring toolkit?	Policy Gaps: The Kenyan Child-Friendly School Monitoring Toolkit with 50 indicators was developed from the top-down without input from bottom-up local realities of local school stakeholders. Research Literature Gaps: Contextual gaps: There is a paucity of SIR studies that stem from empirical data from the Sub-Saharan African context, and local realities of Kenyan school leadership.	Participatory learning and action (PLA) group notecard writing activities to elicit local knowledge (Chambers 1983; 1994; 1997; 2007; 2010; Cornwall, 2011) followed by focus group discussions for follow-up clarifications (Hennink, 2010) led by indigenous research assistants (Benoit et al., 2005).	Constant comparison qualitative data coding techniques (Lyons and Coyle, 2007), Grounded theory analysis (Glaser and Strauss, 1967; Strauss and Corbin, 1990; Heath and Cowley, 2004), and interpretative phenomenological analysis (IPA) (Storey, 2007; Smith et al., 2009).	Contribution to Policy: The creation of a more relevant, useable, and meaningful conceptual model and diagnostic tool for CFS to enable evidence-based Kenyan school leadership for school improvement. Contribution to Research: Address the contextual gap in the literature by developing a new measurement instrument for school improvement for the Kenyan context, through which school leaders can better conceptualize factors that make their schools more child-friendly.
Data Collection Phase 2 and Phase 3: July-October 2013	Sub-Question 1B: When Kenyan school leaders and other school stakeholders (i.e. teachers, parents, and pupils) employ a more bottom-up, co-constructed conceptual framework and diagnostic tool for CFS, what new data and insights emerge about the quality of education in Kenya? Sub-Question 1C: When asked to consider the new data and insights about quality education levels in their schools (CFS), what new strategies do Kenyan school leaders develop for evidence-based school improvement?	Policy Gaps: Since the CMT was distributed to all 26,000 Kenyan primary schools in 2009, school leaders have lacked the tools to assess, compare and act with improvement strategies to increase levels of child-friendliness in their schools. No data has been gained from the CFS initiative since its start in 2003. Research Literature Gaps: Methodological and theoretical gaps: There are few SIR studies in Kenya that enable school leaders to self-assess quality learning environments (CFS) at scale and develop data-driven school improvement plans for action.	Guiding school leaders in diagnostic action research through mobile phone, SMS-based multi-stakeholder school evaluation surveys to produce virtual feedback reports to inform school leadership for school improvement action planning (Lewin, 1946; Corey, 1953; Stenhouse, 1975; Carr and Kemmis, 1986; Elliott, 1991; Dahl, 2014, Cunningham et al., 2013).		Contribution to Policy: The design and testing of a new mobile, SMS-based technology platform to evaluate the efficacy, robustness, and applicability of the new CFS conceptual model and diagnostic tool (ECMT) in better enabling school leaders to better conceptualize, assess and respond with data-driven leadership for school improvement. Contribution to Knowledge: New SIR study in Kenya that equips school leaders with the means to engage in diagnostic action research and employ data-driven decision-making in whole-school improvement planning, at scale.

Figure 13: Diagram of Research Activities for Phases 1, 2, and 3 of the Research Design. Continued onto the next page. Source: Author (2017).

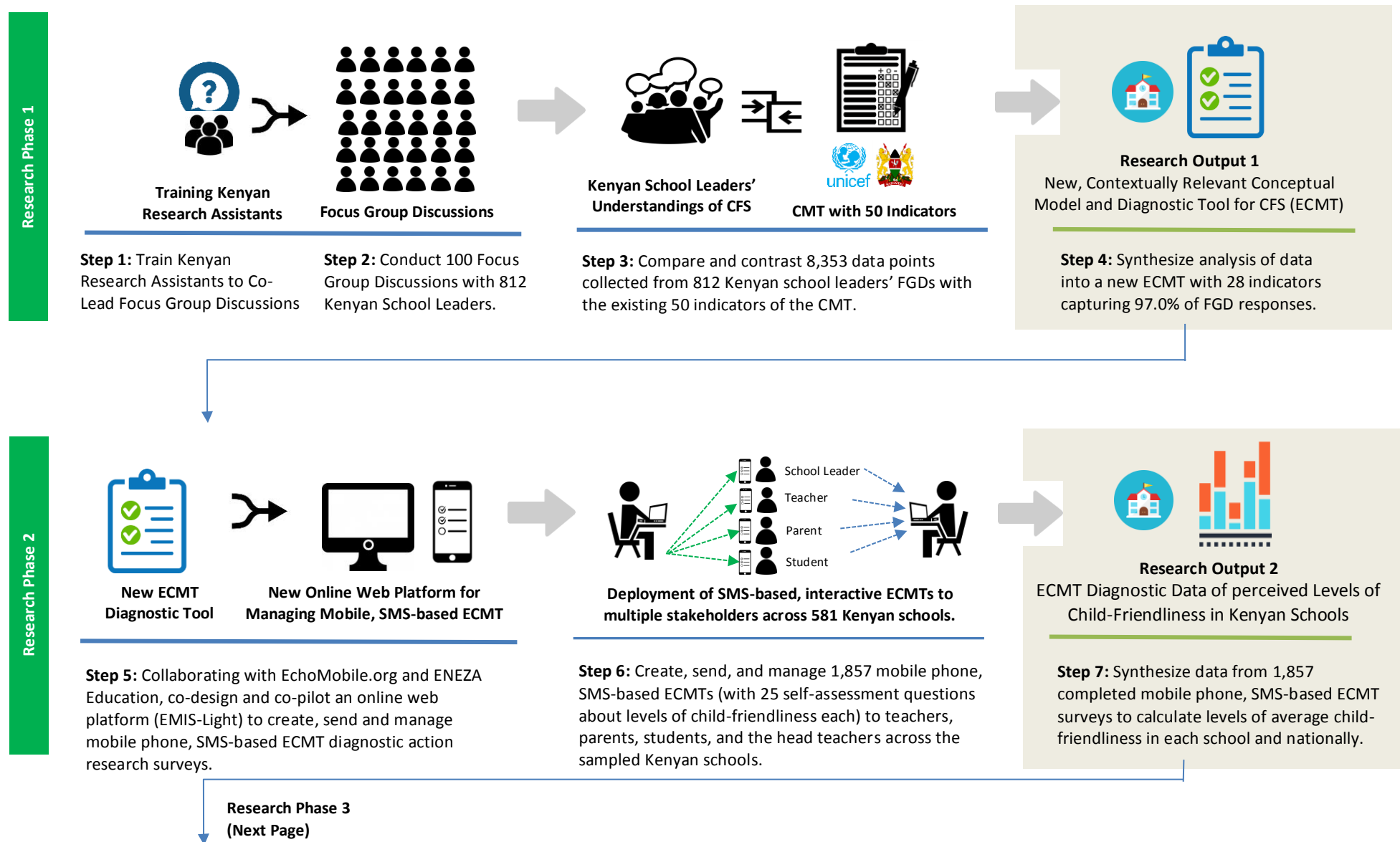
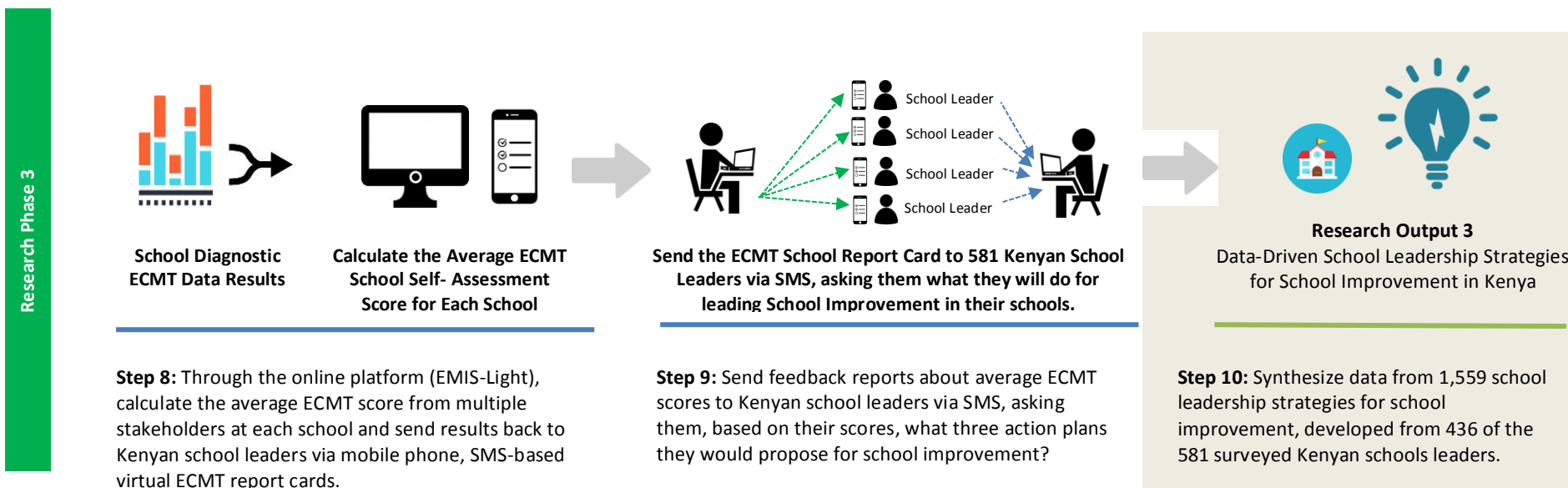


Figure 13 (continued from previous page)



These ten research steps (as illustrated in Figure 13) outline how the present study deploys methods consistent within the educational mixed methods research traditions (Mingers and Gill, 1997; Tashakkori and Teddlie, 2010). The study's research design also seeks to co-construct, test and evaluate the proposed new conceptual model of understanding local realities of quality education both *with* and *for* Kenyan school head teachers, thereby fulfilling what Chambers (1997, p. 157, emphasis added) describes as five key methodological characteristics of a participatory learning and action research approach:

- (i) A ***reversal of learning*** where there [is] a need to learn from ***local people*** rather than policy makers.
- (ii) ***Learning rapidly and progressively*** through ***innovative, cross-checking*** measures.
- (iii) ***Offsetting biases*** [...] by ***seeking out those who are marginalized***.
- (iv) ***Triangulating*** meaningful learning from ***several types*** of information sets.
- (v) Complexity and diversity; seeking ***variability*** [rather than absolute truths].

In sum, the study's mixed methods research design attempts to better enable the often neglected voices in educational reform (i.e. local Kenyan school leaders) to produce new knowledge in policy decision making by using their *own* concepts of reality and ways of understanding their *own* social realities (Chambers, 2007). As a result, the study's research design remains consistent with historical and contemporary uses of participatory and learning action research approaches (Chambers, 1997). The study attempts to employ local, accessible, and cost-effective methods for collecting data from multiple perspectives of various subjects from Kenyan educational stakeholders and practitioners who would have otherwise been excluded.

3.2 Gaining Access

Put simply, we need a recalibration of relationships, maintaining relationships with politicians, policymakers, and re-engaging schools and school networks to improve the quality of education (Chapman et al., 2012, p. 37).

3.2.1 The Embedded Doctoral Research Student

As Hopkins et al. (2014) and other SIR scholars have emphasised, there is a need for researchers to study local realities of school improvement in real-world scenarios and as close to the classrooms and places of learning as possible. The present study draws inspiration from the University of Manchester's 'Coalition of Research Schools Scheme' that sends educational doctoral students as 'embedded doctoral researchers' into local schools to reconnect 'school improvement research' with 'in-school practice' (Chapman, 2012). Leaders of the program cite seven specific benefits of the embedded doctoral research student design. These include: (i) the host organization provides unlimited access for research purposes, (ii) researchers focus on a program of work of mutual benefit to them and to the host organization, (iii) the researcher generates outputs of relevance to the host organization, (iv) the researcher successfully completes a PhD, (v) there is a joint agreement concerning operational and strategic arrangements, (vi) the host organization provides some form of sponsorship for the student and, (vii) the university linkage provides supervision for the student and critical friendship to the host organization (Chapman, 2012). What seems to be most important in this arrangement is the recognition of the researcher as a 'critical friend' and the necessary distance that is needed between the *researcher* and the *researched*.

The present study takes a similar approach and adopts the 'embedded doctoral researcher' design by becoming a long-term research consultant with UNICEF-Kenya from December 2012 to June 2014 with offsite and onsite fieldwork involving the Kenyan Primary School Head Teacher Association (KEPSHA), the Kenyan Ministry of Education, Science and Technology (MOEST) and UNICEF-Kenya education officials. Before describing the benefits and limitations of such a design, it is important to understand how the researcher's prior eight years of in-country experience has developed important linguistic, cultural and professional competencies that have also been helpful in planning and implementing the study's research design.

3.2.2 Developing Linguistic, Cultural and Professional Research Competencies

The present study's researcher lived and volunteered out of a mud hut in rural, southwest Kenya from 2006-2010 as a co-founder and executive director of a seven-acre, fully funded, all girls' secondary boarding school whose mission is to generate a pipeline of educational opportunities for impoverished, at-risk girls in partnership with the surrounding fourteen primary schools in a rural fishing village known as Muhuru Bay, Kenya (details are provided in Appendix 1). The researcher was responsible for all of the school's fundraising, construction plans, relationships with local, regional and national educational government officials, community partnership building, personnel hiring (and firing), pupils' admission policies, pedagogical designs, donor relations, and monitoring and evaluation programmes. During this formative time, the researcher developed extensive linguistic competencies (fluency in Luo tribal language and Kiswahili) and cultural competencies that have proven helpful in approaching the present study's research aims and questions.

Furthermore, from 2010-2011, the researcher joined Oxford University as a masters candidate in Comparative International Education and was accepted as a UNICEF-Kenya research intern from May to July 2011 to design and implement a study about the origins of child-friendly schools. The study involved collecting, analysing and presenting data about pupils', parents' and teachers' local realities of quality education in comparison to national policies of child-friendly schools (Cunningham, 2012). During this period, the researcher developed the necessary professional networks and local research personnel needed to implement the present study's research design about *school leaders'* local realities of quality education in comparison to national policies of child-friendly schools.

In 2012, the researcher returned to Kenya (July – September 2012) to present his masters research findings to MOEST, KEPSHA and UNICEF officials, addressing what Reeves et al. (2011) describe as the all-too-common 'disconnect between educational research papers published in professional journals [...] and any form of benefit to students, teachers or other stakeholders in educational systems' (p. 57). The researcher gained critical feedback from Kenyan officials and strengthened what Vanderlinde and Braak (2010) describe as the need for trusted feedback loops between the educational practitioners and researchers of educational effectiveness and improvement. The feedback from Kenyan educational stakeholders highlighted the need to better enable Kenyan school leaders with better tools and processes to more clearly and easily conceptualize, assess, and *act* on self-

assessment data in order to inform and inspire future school improvement efforts. This critical feedback helped guide and inform the rationale for the present study's research aims to focus on understanding *school leaders'* local realities of quality education; a critical missing constituency in the original study by Cunningham (2012).

3.2.3 Establishing Political, Financial, Logistical and Technical Support Mechanisms

Reynolds et al. (2014), argue that the future of EEIR depends on a closer relationship between the educational researcher and the educational practitioner. From January to October 2013, the researcher became what Chapman et al. (2012) describes as an embedded doctoral research student in Kenya by agreeing to work as an independent education research consultant with UNICEF-Kenya to gain the necessary political, logistical, financial and technical support necessary for the present study's design.

Politically, the researcher gained what Elliott (1988) describes as insider's access to key informants of the research topic at hand. These informants included, but were not limited to, UNICEF-Kenya senior education personnel, KEPSHA national executive officers, KEPSHA national members, the members of the Education Donor Coordinator Group, and all bi-lateral and multi-lateral education donor partners in Kenya who were currently funding CFS initiatives, including USAID (USA), DFID (UK), and DFATD (Canada). The researcher also gained the trust of and access to national, regional and local Kenyan education policy makers (including multiple audiences with the Kenyan Cabinet Secretary of Education, Kenyan Permanent Secretary of Education, and MOEST Director of Quality Assurance and Standards who also serves as the National Coordinator for the CFS initiative). The researcher also had access to high-level Kenyan government politicians as they made public commitments to CFS through UNICEF-sponsored forums, including having audience with the Kenyan President, the Kenyan Vice President, and the Majority Speaker of Kenya's National Parliament. Developing these relationships was essential to gaining access to the study's large sample of government-run public primary schools and understanding the significant gaps between national education policy and local practice.

Logistically, the researcher benefited from the fact that UNICEF-Kenya and MOEST had scheduled ten CFS capacity building workshops for 1,000 Kenyan school leaders between February 2013 and May 2013. After being approached with the study's research questions, UNICEF-Kenya provided the researcher with the opportunity to independently

design and lead two sessions at each of the ten week-long workshops – one session at the beginning of the week and one at the end of the week to initiate phase 1 of the research.

The first session employed the participatory learning and action research approach (Chambers, 1997; 2007) where workshop participants (Kenyan school leaders) participated in guided focus group discussions about their local understandings of what factors make schools child-friendly or not child-friendly. These understandings were collected *before* they were exposed to the UNICEF-Kenya's 'official' conceptualization of a child-friendly school. It is important to note that although the government had distributed the CMT to all public primary schools, few to no Kenyan school leaders were trained on how to use the toolkit or understand what was meant by a child-friendly school.

The second session at the end of the workshop involved training school leaders on the basic principles of diagnostic action research and how they could use their mobile phones to assess and analyse levels of child-friendly schools in order to develop school improvement strategies through an evidence-based approach. All training materials, accommodations, food and transport were covered by UNICEF-Kenya funding. All aspects of the research design, research assistant training, data collection, data analysis and findings were strictly controlled and funded independently by the researcher and do not reflect any opinions or policies of the Kenyan government, UNICEF-Kenya or KEPSHA.

Financially, the researcher also benefited from UNICEF-Kenya, MOEST and KEPSHA's mutual interest in developing a new mobile phone-based, online information data management system for measuring levels of child-friendliness in schools and managing tens of thousands of data entries from the field about school leadership strategies for school improvement; a first of its kind in Kenya. As a result, all research and development costs associated with developing the mobile phone, SMS-based diagnostic action research tool and online information management system were covered by UNICEF-Kenya, though independently managed and designed by the researcher. Furthermore, all expenses related to mobile phone-based text messages sent and received by research participants during the study were covered by UNICEF-Kenya and therefore did not create a financial burden or any equity concerns for the study's research participants. The administration and management of all data (totalling an estimated 190,000 data points) was strictly controlled by the study's researcher. More details about permissions and assurances of anonymity are discussed later in this chapter.

Technically, the researcher benefited from his position as a UNICEF-Kenya education research consultant to engage the services of two Kenyan mobile phone-based survey design companies (*Echomobile* and *ENEZA Education*) to co-design, pilot, test, and deploy the first interactive mobile phone, SMS-based education diagnostic action research survey at scale. The new system enabled the researcher to collect, analyse and disseminate data about school stakeholders' self-reported levels of CFS, in real-time, across a sample of more than 800 schools, nationwide. The researcher garnered the necessary technical digital design support from *ENEZA Education* and *Echomobile* to develop the system's coding, platform development and aggregation between Kenyan mobile phone text messaging services (i.e. *Safaricom* and *Airtel*) and the purchase of bulk mobile phone text messaging packages from the regional SMS provider, *Africa's Talking*. Although the researcher gained advanced skills in SMS-based research design, data management, and innovative visual dashboard analysis, he depended on the technical coding expertise of both Nairobi-based companies to ensure proper maintenance and operability of the technology platform throughout the study.

3.2.4 Power, Participation and Reflexivity of the Researcher

Although the researcher developed a number of linguistic, cultural and professional competencies needed for the research study, issues of 'power' and 'participation' called for the study to 'reflect on the way research is carried out to understand how the process of doing research [can] shape its outcomes' (Hardy et al., 2001, p. 533). As an embedded doctoral researcher (Chapman et al., 2012), within the apparatus of an organization like UNICEF-Kenya, it is critical to *explicitly* recognize the *implicit* theoretical and conceptual limitations of the researcher's identity and positionality as they relate to the research process and findings (Long, 1992). Clegg (2007) argues that 'questions of epistemology are [...] always related to questions of power and identity' and cites Apple's (2000) critique of education as a political project in terms of 'who has the right to ask and answer questions within a culture' (p. 418). Therefore, this brief section challenges the researcher's 'right' to ask and answer questions about local realities of Kenyan school leaders while being an American, doctoral research student from the University of Oxford and affiliated with UNICEF-Kenya as an independent research consultant.

First, there is an explicit limitation of being an 'outsider' conducting 'participatory' research in the Kenyan context (Kothari, 2001). This is particularly relevant when trying to elicit local knowledge from a traditionally disenfranchised population such as Kenyan public

primary school head teachers from rural, low performing, and low-income schools. Spivak's (1988) work, *Can the subaltern speak?*, argues that the only true subaltern is the one who cannot speak; thereby attempting to recover their voice as an outsider is pointless. A number of scholars, however, have responded to Spivak's (1988) pivotal work, including Chambers' (1997) *Whose Reality Really Counts?* and Morris' (2010) collection of edited essays on *Reflections on the History of an Idea: Can the Subaltern Speak*, both arguing for a renewed commitment to recovering the 'marginal voices', especially in regard to including 'bottom-up local realities' to counter 'top-down policies' of international development (Chambers, 1997, p. 43). In short, postcolonial studies alert the present study to the potential, but also the difficulty that comes with recovering the voices of the marginalized as an outsider. The present study does attempt to distance the main researcher (who is a white, English-speaking Caucasian) from the Kenyan research participants as much as possible by (a) employing local Kenyan research assistants to facilitate focus group discussions and (b) using mobile phone, SMS-based diagnostic action research tools; both of which arguably better enable research participants to express their local realities without the potential biases or negative influences of the physical presence of an outsider.

Second, there is the explicit limitation of being associated with UNICEF-Kenya and how 'participatory research' is often exploited by large development institutions to maintain the status quo and promote their own agendas in the name of 'participatory learning' (Greenwood and Levin, 2007; Morrison and Singer, 2007). Henkel and Stirrat (2001) argue that one of the reasons why large development institutions endorse research like that of the present study is that 'it shifts responsibility for the consequences of projects away from development workers onto the participating people' (p. 183). Craig and Porter (1997) argue that participation in the hands of development officials can be a way of controlling the agenda of development and becoming merely another level of donor conditionality. Hildyard et al. (2001) argue that 'local people become a ghostly presence within the planning process – visible, heard even, but ultimately only there because their involvement lends credibility and legitimacy to decisions that have already been made' (p. 60).

Furthermore, Chapman et al. (2012) argue that educational policy makers, such as UNICEF-Kenya, often operate within a short-term, donor-driven, time-sensitive orientation to 'fix things' and then move on, rather than allow for a more long-term investigation and

critique of the tensions, contradictions, and conceptual misrepresentations of reality that educational research often provides (p. 208).

Gray et al. (1996) describe how research findings from school effectiveness and school improvement researchers are often ignored or even rejected by policy makers as they are ‘inconvenient, complicated, and often require a significant shift in policy that is not easy to explain to the public’ (p. 34). As a result, the present study requires its ‘embedded doctoral research student’ to actively challenge the ‘short-term culture’ of its host organization, UNICEF-Kenya, with a more long-term, independent, contextually sensitive research approach. To do so, the researcher made efforts to ensure that the study’s aims, research questions, data collection methods, processes of data analysis, and publication of findings remained independent from the host organization of UNICEF-Kenya and co-signed a Memorandum of Understanding with UNICEF, MOEST and KEPSHA to reflect this important distanced research approach (see Appendix 18).

Recognizing the inherent limitations of the researcher’s identity and positionality as an embedded doctoral researcher within UNICEF-Kenya, the practice of constant reflexivity is also employed throughout the study (Hardy et al., 2001). Cooke and Kothari (2001) suggest that one way of moving beyond participation as currently practiced is to overcome the dualistic notion of knowledge-generation (i.e. upper versus lower) by instead ‘studying up, down and sideways’ (Schrijvers, 1995). In short, the researcher needs to (i) counter the notion that his ‘disadvantaged’ research participants are *not* powerless – they simply have different degrees of power within different contexts (Kothari, 2001), (ii) follow Fine’s (1994) advice to ‘work the hyphen’ between dualisms to unlock problematized meanings and versions of knowledge, and (iii) allow one’s self to become an object of the research itself. Therefore, through *explicit* recognition of his personal and professional biases, the researcher can make the *implicit* more transparent and meaningful components to the present study’s findings and discussions.

3.3 Designing and Piloting a New Cloud-Based Education Management Information System (EMIS-Light) to deploy Mobile Phone, SMS-based Diagnostic Action Research Surveys to Kenyan School Stakeholders

As a methodological strategy to both mitigate the influence of the researcher's positionality and identity, and respond to the comparative advantages of using SMS-based approaches to educational research within the Kenyan context (see discussion in Section 2.2.2 in Chapter 2), the present study designs, develops and pilots the use of a new mobile phone-based, online information management system called EMIS-Light. EMIS-Light was developed to better enable research participants to use their *own* technologies on their *own* schedules to engage in what Lewin (1946) describes as stages of self-directed diagnostic action research in collecting, analyzing, comparing, planning and reflecting on self-reported data about levels of child-friendliness in their schools *without* the physical presence of the researcher to possibly bias the process. Most SIR studies apply the case study approach (Muijs, 2012) for collecting and analyzing qualitative data pertaining to the *processes* of school improvement. Riddell (1999) highlights SIR's challenges of using the case study approach in terms of measuring SIR practice over time, at scale, and in a manner that allows comparability among the data. The use of short messaging service (SMS) through school leaders' mobile phones allows the present study to dramatically *increase* the scale of its study to a national cohort of school leaders, use a standardized set of survey questions to enable comparability of school self-evaluation reports, and track how school leaders employ a more evidence-based decision-making process to suggest new approaches for meaningful school improvement. The study also builds on the growing utility of mobile phones within the Kenyan context as an affordable, easy-to-use means of technology already familiar to Kenyan school leaders, nationwide.

3.3.1 'Silicon Savannah': Collaborating with Kenyan Education Technology Companies to Develop Educational Research Tools

As discussed in Chapter 2, the study draws inspiration from both the use of SMS for large-scale, long-term monitoring and evaluation studies in international health and education (Lunny et. al, 2014) and promising, innovative advances in uses of SMS applications in Kenyan agricultural, business, and health sectors. The present study chooses to use SMS as a means for more iterative, cyclical and relevant processes of data collection, analysis, and utilization at scale. However, after scanning the available tools on the Kenyan market, the researcher realized there was no existing platform on which to implement the research design.

As a result, the researcher engaged in a two-step process of choosing *Echomobile* and *ENEZA Education* as two Kenyan-based mobile phone survey design companies to assist in the study's implementation.

First, the researcher developed a *Request for Proposals* (RFP) (attached as Appendix 2) to invite all Kenyan education technology companies to bid to assist the current research study. As an embedded doctoral researcher within UNICEF-Kenya, all formal processes of proposal submission and evaluation were followed with a panel of three KEPSHA, MOEST and UNICEF-Kenya personnel. Eight full proposals were received, from which four companies were interviewed. Two were selected – *ENEZA Education* and *Echomobile* – to work with the present researcher to create the desired EMIS-Light platform.

It was important for the study to not allow SMS technology to drive its research questions, but rather to ensure that the research questions drove the use of SMS technology. Therefore, before piloting, customizing, and rolling out the study, the researcher worked for a four-week period with both *ENEZA Education* and *Echomobile* to propose clearly defined survey question content (developed from Phase 1 of the current research study), a collated list and live database of personal phone numbers from the target sample of 812 school leaders (collected during the CFS workshop focus group discussions along with participant permission forms), and a clear timeline of how the SMS survey would be used by school leaders. The reason why the present study continued to employ both companies is that while *ENEZA Education* had developed the 'interactive model' of SMS needed by the study to collect, analyse and report CFS scores in comparison to other schools, they lacked the back-end, online platform system management features that *Echomobile* had to offer. Therefore, *ENEZA Education* was tasked for developing the tools for the researcher to use for Phase 2 of the research study (see Table 2 and Figure 13 in Section 3.1.2 of this chapter) where multiple school stakeholders (teachers, students, parents and head teachers) were asked to complete school self-evaluation surveys and rate levels of child-friendliness in their schools. *Echomobile* was tasked to enable the researcher to conduct research Phase 3.

3.3.2 Piloting a New Mobile Phone, SMS-based Diagnostic Action Research Tool

Once the mobile phone, SMS-based Enhanced Child-Friendly School Monitoring Toolkit (ECMT)² diagnostic tool prototype was developed with both *Echomobile* and *ENEZA Education*, the researcher sought to pilot the two-pronged EMIS-Light system nationwide and amend the system with user feedback from the field.

To do so, the researcher conducted seven short, national pilot studies to test the use of SMS as means to collect, analyse, and manage data about quality education. As an embedded doctoral researcher within UNICEF-Kenya, there were a number of timely opportunities to test how the EMIS-Light platform would work at scale and under pressure of multiple users, simultaneously. This iterative approach to the research design reflects what Hargreaves and Brawn (2013, p. iv) outline as a key strategy for designing and implementing education improvement and accountability initiatives, in particular, by establishing cyclical systems of ‘reciprocal vertical accountability’ in enabling what Chambers (1997) deems as the ‘lower voices’ to influence those officials ‘at the top’ through more transparent, inclusive, and empowering channels of participation.

As outlined in Table 3 (next page), unique issues of SMS-based surveys surrounding credibility, usability, efficiency, reliability, survey fatigue, and clarity of wording were raised during the pilot testing and then addressed in the finalized design of the mobile phone, SMS-based ECMT diagnostic action research tool. The study employs what Andrews et al. (2012) describe as a ‘problem-driven iterative adaptation’ approach to drive the development of the prototyped tool and education management information system platform (EMIS-Light). The resulting diagnostic tool and back-end education management information systems was meant to better enable school leaders to more easily conceptualize, assess, and act on school improvement data within the Kenyan context. The programmatic questions for each of the seven pilots were driven by leaders at the Kenyan MOEST, KEPSHA headquarters and UNICEF-Kenya offices. As an embedded doctoral researcher, this provided the opportunity to add value to the host institution without compromising any of the study’s research aims.

² ECMT refers to the ‘Enhanced Child-Friendly Schools Monitoring Toolkit’ which is the *newly* developed conceptual model and diagnostic tool developed by the present study in Phase 1 of the study’s research approach. It is important to distinguish this from the regular use of CFS or CMT because only the ECMT was deployed in Phases 2 and 3 of the research study.

Table 3: Pilot Testing of SMS Technology Platform (EMIS-Light) and Lessons Learned. Source: Author (2017).

Programmatic Question	Pilot Test Results	Lessons Learned from Piloting
1. School Leadership (February 2013) – How many secondary schools have adopted a democratically elected student council?	1. 2,466 secondary school head teachers completed a free, 24-item SMS survey through <i>Echomobile</i> . 65% reported having democratically elected student government.	Problem: Credibility - Head teachers who received the SMS survey called their MOEST counterparts and questioned the credibility of the survey, claiming it was SPAM. Since MOEST county education officials were not notified prior to the survey, many head teachers refused to answer the questions. Change Made to the CFS Survey: First, prior to launching the CFS SMS survey, the researcher gained permission from both the Director of Quality Assurance and Standards (MOEST) and the National KEPSHA officers to co-sign the introductory text messages with their names to increase trustworthiness of the messages. Furthermore, all county education officials were also informed.
2. Strikes (February 2013) – How many secondary schools experienced student strikes in 2012?	2. 11% of the 2,466 secondary school head teachers responded that they experienced a school strike in 2011.	Problem: Usability - A number of head teachers received two SMS questions for the same survey item, thereby causing confusion by the research participants. Change Made to the CFS Survey: <i>Echomobile</i> changed the response rate of the SMS survey from 3 seconds to 0.5 seconds to prevent head teachers from responding to questions twice due to delays and thereby triggering a question more than once.
3. Pre-Election School Insecurity (March 2013): Which schools anticipate insecurity in their areas of Kenya? How can we use this to forecast potential hotspots of violence impacting children?	3. 1,671 primary school head teachers and 2,382 secondary school head teachers responded to a 12-item SMS survey. 11% of primary schools and 6% of secondary schools reported potential hotspots of insecurity.	Problem: Efficiency - A number of head teachers experienced a significant delay in between each survey question. <i>Echomobile</i> noticed that their system had never operated under the pressure of such high numbers of SMS users, simultaneously. Change Made to the CFS Survey: <i>Echomobile</i> increased its ‘gateway’ with its mobile aggregator, <i>Africa’s Talking</i> , to enable more messages to be sent into the platform without unnecessary delays in triggering the next question on the survey.
4. Election Related School Insecurity (Mar. 2013) – What schools are reporting incidents of insecurity and how can the Ministry of Education and Head Teacher Associations respond appropriately?	4. 500 SMS messages were received from primary and secondary school head teachers reporting incidents of insecurity using the free hotline SMS number.	Problem: Reliability - <i>Echomobile’s</i> back-end system made it difficult for the researcher to track any incoming messages in a manner that facilitated real-time responses; many times the researcher was unaware that a message had been sent by a school leader to the platform’s hotline. Change Made to the CFS Survey: <i>Echomobile</i> changed the design of the platform user interface to enable the researcher to more easily and quickly respond to any questions posed by school leaders and designed an e-mail trigger for any SMS messages sent into the hotline to trigger a response by the researcher.

5. Post-Election (Mar. 2013) – How many schools reopened on time?	5. Although 99.8% reported on-time reopening of schools, 30% reported having only 75% or less of its enrollment in attendance.	<u>Problem: Sensitivity to Survey Fatigue</u> - The low participation rate in the third survey (in a series of three) indicated the potential survey fatigue that school leaders experience through SMS. <u>Change Made to the CFS Survey:</u> A key insight made to the CFS survey was to schedule adequate time and avoid survey fatigue by limiting the number of questions asked to each participant. Further, even with a survey, numbering each question (for example: Q3 of Q25) informs the participant, they still have 22 questions to answer, but that they are making progress. Otherwise, it appears to participants as an ‘endless’ survey.
6. Participation (May 2013) – What are the views of the democratically elected student council presidents from all 47 counties in Kenya about health, education, HIV/AIDS and youth leadership?	6. 77% of those surveyed indicated that abuse of adolescents was sometimes prevalent and provided qualitative reasons why.	<u>Problem: Clarity</u> - The wording of each question needs to be more direct. A number of respondents asked for clarification of what certain terms meant. Tagg (2012) provides an overview of the unique discourse of text-messaging. In SMS survey instructions, brevity and directness is necessary for increased participation and accurate completion rates. <u>Change Made to the CFS Survey:</u> A separate SMS message was designed to be sent to each participant with instructions of how to complete the interactive survey. Furthermore, wording for each question can only be 160 characters. Noticing that in a number of phones, 160 characters actually translates into two text messages, a strict limit of 155 characters was adopted in <i>ENEZA Education’s</i> surveys.
7. Data from Hard-to-Reach Populations (June 2013) How do you measure basic quality education indicators on a monthly basis (student enrollment, attendance, teacher qualifications, teacher absenteeism, etc.) across 33 primary schools and 7 secondary schools in a refugee camp?	7. 33 primary and 7 secondary school head teachers completed a free UNICEF 3-part SMS survey over three days that asked a total of 36 questions about monthly student enrollment by grade and gender, student attendance, teacher qualifications, teacher attendance and more	<u>Problem: Accuracy</u> – In a number of instances, head teacher respondents input the wrong data to the wrong question (i.e. 3000 students for enrollment rather than 300 students for enrollment). Then, as a means to try to fix the answer, they would type 300, which then registered as the answer for the following SMS question. As a result, the accuracy of the correct data corresponding to the correct questions fell into question. <u>Change Made to the CFS Survey:</u> In <i>ENEZA Education’s</i> interactive survey, respondents could only answer using 0, 1, 2, 3, or 4 depending on their levels of perceived evidence of CFS per indicator; if any erroneous answer was provided, the system would automatically reject it and repeat the question. In addition, at the end of the survey, <i>ENEZA Education’s</i> system enabled the researcher to ask respondents if there were any corrections to be made and then collected any qualitative amendments.

Using the results from the seven pilot studies, the researcher finalized the design of the mobile phone, SMS-based ECMT diagnostic action research tool, addressing methodological issues such as credibility, usability, reliability, and accuracy. Multiple iterations of both the back-end management platform and front-end user experience were co-designed, co-developed and co-tested over a timespan of six months; the final version can be reviewed in Appendix 3. In the end, the researcher found himself engaging in what Sanders and Stappers (2008) refer to as an advanced version of design research where co-designing creates new domains of collective creativity (p. 5). Most importantly, the usability of the chosen methodology emerges from practice rather than theory in assisting the present study to both answer its research aims and questions while also employing a strategy to address the limitations of the researcher's 'outsider identity' and perceived imbalanced position of power.

3.4 Recruiting and Training Indigenous Research Assistants (IRAs)

As a second method of mitigating the potential influence of the researcher's 'outside' identity and associated positionality with UNICEF-Kenya, the researcher recruited, trained and employed what Benoit et al. (2005) refer to as indigenous research assistants (IRAs). The IRAs were recruited to assist in the first phase of the research that involved conducting 100 focus group discussions across ten county-level child-friendly school workshops with 812 Kenyan school leaders.

In 2011, the researcher had posted advertisements in Nairobi University's Comparative International Education Department for research assistants and selected three to accompany him in his fieldwork for his master's dissertation (Cunningham, 2012). In 2013, the present study approached the same three research assistants (biographies attached in Appendix 4) and promoted each of them to serve as research coordinators to lead the recruitment of a larger team of research assistants. This method mirrors Small's (1996) suggestion to utilize local networks of indigenous research expertise to supplement the skills and knowledge of an outside academic researcher.

The original research design had scheduled the ten CFS workshops in concurrent weeks, thereby requiring only six total IRAs to assist the researcher in leading six focus group discussions (FGDs) with sixteen Kenyan head teachers each (each workshop expected a total of 100 participants in attendance). The ratio of having one facilitator per sixteen FGD participants followed Hennink's (2010) recommendations for structuring international FGDs. However, due to the scheduling of the Kenyan elections in March 2013, the researcher's host

organization (UNICEF-Kenya), MOEST, and KEPSHA suggested that they complete five of the ten CFS workshops simultaneously during the last week of February and then the remaining five workshops in May 2013. The researcher, therefore, had the difficult challenge of simultaneously working within the research collaboration with UNICEF-Kenya, MOEST and KEPSHA and needing to relinquish full control over the exact science of the originally intended research process (Small, 1996). For example, the researcher could only attend two of the five simultaneously-run, four-day CFS workshops in Nairobi and Narok counties and therefore needed to rely on his IRAs to lead the remaining three simultaneous workshops in Kiambu, Narok, and Trans-Nzoia counties without his direct, in-person supervision. The same issue arose in May 2013 when the researcher could only attend the CFS workshops in Marsabit and Makueni counties while the IRAs independently had to lead CFS workshops in Garissa, Kakamega, and Lamu counties due to financial and security constraints.

As a result of the changed scheduling of the CFS workshops, the researcher needed to recruit and train a sufficient number of IRAs to simultaneously collect data across ten CFS workshops of 100 participants each while maintaining a 1:16 ratio between the FGD facilitator and FGD participants. Therefore, a total of thirty IRAs were recruited, selected and invited by the researcher to attend a two-day training at the United Nations compound in Nairobi on participatory learning and action research methods, focus group facilitation methods, qualitative research documentation methods, and research ethics. The agenda and time table for the training is attached in Appendix 5.

Similar to what Benoit et al. (2005) noted in their study on community-academic research, one of the greatest challenges for using IRAs is the lack of any formal training in conceptual thinking, research methods and data analysis, a problem also noted in other research using indigenous researchers (Weiss, 1974). As Benoit et al. (2005) suggested in their findings, a great deal of time and effort is needed to train IRAs in developing a 'sociological eye' and acquiring adequate interview techniques and data input skills (p. 273). The present study attempted to mediate this main challenge by recruiting recent university graduates with demonstrated experience in social science research.

During the two-day IRA training, the researcher employed Brislin's (1970) framework used for back-translation techniques to test for construct validity and inter-reliability among IRAs and focus group discussion (FGD) scripted questions. In addition, the researcher tested for what Jones et al. (2001) describe as cultural and functional

equivalencies, especially with regard to listening for characteristics of a ‘child friendly school’ by research participants. The researcher led the IRAs through what Small (1996) would describe as mock focus group discussions to ensure comparable levels of consistency across each IRA. The researcher also assigned a lead research coordinator for each CFS workshop who demonstrated exceptional skills in the research design’s methodologies and could serve as an overall observer and evaluator of the level of quality of each IRA’s data collection experience in the field. Because the timeline of the CFS workshops had been accelerated due to UNICEF, KEPSHA and MOEST’s priority to complete half of the workshops before the 2013 Kenyan election in March 2013, there was no time to pilot the methodologies in actual schools. However, a similar method of participatory learning and action research approaches and use of focus group discussions was piloted by the same researcher of the present study while completing his Masters-level research in five rural Kenyan primary schools in 2010 (Cunningham, 2012). Therefore, the lessons learned from Cunningham’s (2012) piloting exercises were also applied to the present study.

The IRAs reported no major challenges while in the field during the simultaneous CFS workshops in the last week of February 2013. Because two months passed before the next round of five CFS workshops, the researcher re-invited the same thirty IRAs for a ‘refresher’ course in research methods in May 2013 at the United Nations Nairobi campus. Four of the original thirty IRAs were not available and had to be replaced by four new candidates. The agenda for the two-day training provided an opportunity for the researcher to hear, first-hand, any feedback from the field experiences from the first round of data collection. The main challenge experienced in the field was Kenyan government officials not understanding the need for the research session to occur before they introduced the concept of CFS. This issue was resolved by informing the Kenyan MOEST officials of the reasons why the research session eliciting participants’ perceptions of CFS needed to come before the introduction of the government’s definition of CFS to help ensure an unbiased version of local realities of quality education was able to be collected and understood. The agenda for the second IRA training is attached in Appendix 6.

3.5 Sampling Procedures

The study's research aims sought to collect empirical evidence from school leaders from low-performing, low-income, rural government-run public primary schools. The target sample was chosen to address the three main challenges Kenyan school leaders continue to experience in *conceptualizing* characteristics of a child-friendly school, *assessing* characteristics of a child-friendly school, and putting into place evidence-based *school improvement strategies* for raising the levels of child-friendliness in their schools over time.

The present study therefore collaborated with UNICEF-Kenya, MOEST and KEPSHA officials and employed a purposive stratified sampling procedure (Teddlie and Yu, 2007) to select 812 head teachers from across 10 Kenyan counties that represent local realities of leading low-performing and low-income public primary schools in Kenya. The ten counties were selected to represent Kenya's eight main geographic regions (see map in Appendix 7). In an interview with Kenya's MOEST's deputy director of Quality Assurance and Standards, the researcher learned that, 'In order for CFS research findings to be convincing to national policy makers [...] input from all eight geographical Kenyan regions must be included so that we are not accused of favouring one region over the other' (Nakulo, 2011). Therefore, the study uses the following, purposive sampling design as outlined below.

At the national level, the researcher met with the MOEST's deputy director of Quality Assurance and Standards to learn which districts were targeted by the national government for CFS training. After learning which districts were targeted, the researcher then met with UNICEF-Kenya, MOEST and KEPSHA officials to ask officials to invite school leaders from schools that were low-income (as defined by perceptions of local education officials of the average socio-economic status of school populations) and low-performing (defined as having an average school score of 75% or below on the Kenyan Certificate of Primary Education). Although the selection of schools followed these two categories, one will see in the study's description of the nature of the sample, a handful of school leaders provided slightly different answers of how they perceived their schools' levels of income compared to local education officials' perceptions. In addition, a few of the selected school leaders reported different performance levels of their school's KCPE than what was in the local government's educational database; unfortunately demonstrating a common limitation of MOEST's existing education management and information system.

Although the researcher experienced a number of challenges in convincing Kenyan education policy makers to observe the rigorous sampling procedures needed for the research study, the gains of collaborative research in terms of research access, logistical support, and legitimization of the project by local and national education officials far outweighed the limitations experienced during the sampling process. Furthermore, the researcher did not assume the characteristics of the sampled population were true at face value; rather he collected individual demographic surveys from each research participant to ensure the validity of each participating school's characteristics to provide a true picture of the target population for the study. The nature of the sample is provided in the next section.

3.6 Nature of the Sample

Data were collected from 100 focus group discussions with 812 school leaders across ten county-level CFS training workshops in February 2013 and May 2013. All pre-selected 812 head teachers agreed to participate in the year-long study of CFS. In the beginning of the CFS workshop, every participant completed a demographic survey (attached in Appendix 8) to gain information about what type of school he/she led as a head teacher. Although the stratified random sampling structure was used to choose school leaders from predominantly low-income, low-performing, and rural schools, school head teachers' self-reported designations of school type differed slightly. Overall, however, the majority of the sampled schools represent local realities of quality education from low-income, low-performing, rural schools; a population understudied within SER, SIR and EEIR research and yet in most need of evidence-based interventions for improving alarmingly low levels of quality education.

3.6.1 Nature of the Sample Part I: Participation Rates

The overall participation rate for the study was 81% (812 of the targeted 1000 sample schools). The lowest participating district was that of Nairobi due to an unintended simultaneous workshop organized by the Independent Electoral and Boundaries Commission (IEBC) in preparation for the March 2013 elections (head teachers are often asked to be election monitors). In other districts, illness, prior commitments, or instances where the head teacher sent his/her deputy to the CFS training were reported as contributing factors to less than 100% participation rate. Table 4 and Figure 14 illustrate the differences in participation across each of the ten targeted Kenyan counties.

Table 4: Nature of the Sample Part I: Participation by School Location. Source: Author (2014).

Kenyan School Leader Workshops by County		Participating Schools	
February 2013 CFS Workshops		Expected	Actual
Nairobi		100	38
Kiambu		100	83
Makueni		100	94
Narok		100	72
Kakamega		100	124
Sub Total		500	411
May 2013 CFS Workshops		Expected	Actual
Garissa		100	65
Trans-Nzoia		100	95
Lamu		100	77
Marsabit		100	76
Kisumu		100	88
Sub Total		500	401
Total		1000	812
			81%

The results in Table 4 are visualized below in Figure 14 for ease of reference.

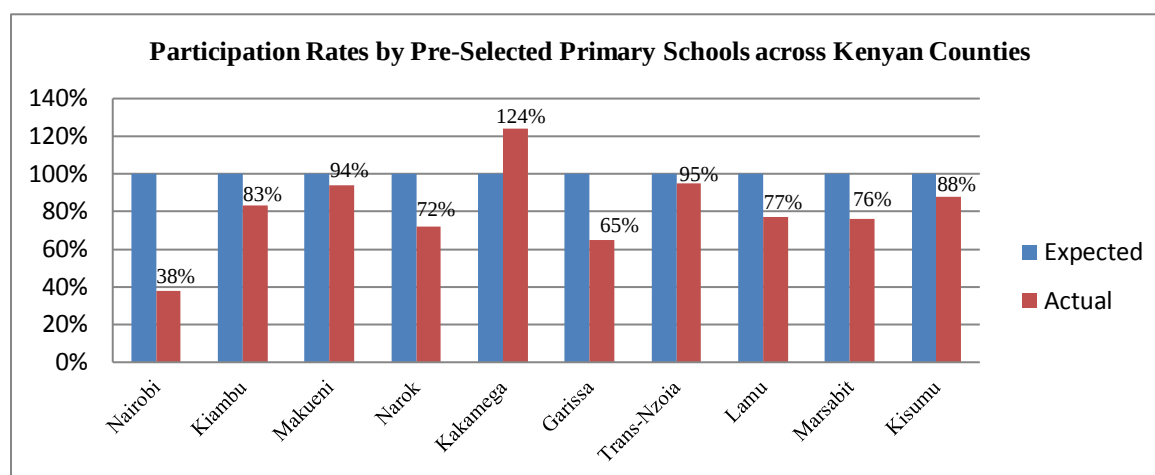


Figure 14: Expected versus actual participation rates for the study's sample by Kenyan counties. Source: Author (2014).

3.6.2 Nature of the Sample Part II: School Characteristics

Although the preselection of schools were done using a purposive stratified sampling procedure in collaboration with MOEST, KEPSHA, UNICEF-Kenya officials, the actual self-reported designation of school type differed slightly. Overall, the sample included mostly rural, poor, medium sized schools that were low performing or failing in their KCPE. Table 5 provides an overview of the nature of the *actual* sample (next page).

Table 5: Nature of the Sample Part II: School characteristics. Source: Author (2014).

Self-Reported School Characteristics	Participating Schools	
Location	# of Schools	Percentage of Sample
Rural	703	86%
Urban	106	13%
Unknown	3	1%
School Enrolment	# of Schools	Percentage of Sample
Small (1-240 pupils)	213	26%
Medium (241 - 480 pupils)	291	36%
Large (481 or more pupils)	266	33%
Unknown	42	5%
Academic Performance	# of Schools	Percentage of Sample
Low Performance (50% - 75% on the KCPE)	282	35%
Failing Performance (49% or below on KCPE)	367	45%
No Reported KCPE Results	164	20%
Socio-Economic Status of School Population	# of Schools	Percentage of Sample
Extremely Poor Income (self-reported by head teacher)	115	14%
Poor Income (self-reported by head teacher)	591	73%
Middle Income (self-reported by head teacher)	101	12%
Unknown (self-reported by head teacher)	5	1%

The final sample meets the criteria of the study's aims to focus on local realities of school leaders from low performing, low-income government public schools. In fact, most of the sampled schools (45%) reported school-wide KCPE averages were below 50% (i.e. failing) while 87% of the schools reported leading schools with children from poor or extremely poor backgrounds. Finally, 86% of the sampled school leaders reported that their schools were located in a rural location.

3.6.3 Nature of the Sample Part III: School Leadership Characteristics

Of the 812 sampled schools, the majority were led by male school leaders with less than five years of school leadership experience. The low level of experience of many rural, low-performing, low-income schools is viewed by a number of scholars as a contributing factor to constraining the quality of education available for many Kenyan pupils (Onsomu et al. 2005; Hungi and Thuku, 2010). Table 6 illustrates the distribution of the sample by gender and self-reported years of experience as a trained Kenyan government head teacher.

Table 6: Nature of the Sample Part III: School Leadership Characteristics. Source: Author (2014).

Self-Reported School Leadership Characteristics	Participating Schools	
Gender of School Leader	# of Schools	Percentage of Sample
Male	663	82%
Female	149	18%
Years of Experience as a School Leader	# of Schools	Percentage of Sample
Beginner (0-4.9 years of experience as HT)	412	51%
Experienced (5-10 years of experience as HT)	158	19%
Very Experienced (10+ years of experience as HT)	200	25%
Unknown	42	5%

The final sample of 812 public primary schools enables the study to discover local realities of Kenyan school leaders often understudied in the literature of SIR, SER and EEIR – those with low levels of experience, posted to rural, low-performing schools, and working with populations of children from extremely poor socio-economic backgrounds. The low amount of female school leaders is unsurprising as this reflects the gender disparity in Kenya’s current roster of school leaders with only 20% of schools reporting they have a female school leader (Republic of Kenya, 2014a). In the end, the study’s sample represents one of the largest national cohorts of Kenyan school leaders to be included in a research project designed to better understand local realities of school leadership for school improvement at scale.

Having established new research *tools* (EMIS-Light and the mobile phone, SMS-based diagnostic action research tool methodology), trained new research *personnel* (IRAs) and finalized the study’s purposive *sample* of Kenyan school leaders, the next section outlines the three phases of the research design used to answer each of the study’s research sub-questions. Each phase outlines the detailed methods of qualitative and quantitative data collection, building on the summary of research phases and steps that were outlined earlier in this chapter.

3.7 Research Phase 1: Qualitative Data Collection Methods

Responding to the contextual gaps identified in the study's literature and policy review of SIR, SER, and EEIR, the first phase of research seeks to answer the study's first research sub-question:

1A: When asked, do Kenyan school leaders' perceptions of key factors that enhance and constrain the quality of education align with the Kenyan government's national CFS monitoring toolkit?

In order to do so, the researcher adopted Johnson and Smilowitz's (2007) community-based operations research approach and reviewed a number of scholarly works that have used the participatory learning and action (PLA) research methods to elicit local knowledge from traditionally underrepresented populations (Chambers, 1983; 1994; 1997; 2007; 2010; Gibson, 1995; Milligan et al., 2011). The researcher also reviewed work from scholars who have raised criticisms about the validity and authenticity of PLA being used to cultivate 'different voices' in the context of development (Nelson and Wright, 1995; Cooke and Kothari, 2001; Neef, 2003; Cornwall, 2011). Recognizing the theoretical and conceptual limitations of PLA, the researcher adopted the PLA research methodology to enable indigenous research assistants to better collect and understand school leaders' local realities of quality education.

After training thirty indigenous research assistants (IRAs) in PLA research methodologies (as described in the previous section), the researcher developed a PLA script for all IRAs to operationalize across the ten county-level CFS training workshops scheduled for February 2013 and May 2013, respectfully. The final PLA script reflected characteristics of the PLA research framework developed by Chambers (1997) and incorporated lessons from Hennink's (2010) list of recommendations for conducting research using international FGDs. The focus group discussions were completed at the beginning of each CFS workshop, **before** Kenyan government or UNICEF-Kenya officials could formally introduce the national framework of child-friendly schools during a two-hour session called, '*What is a Child-Friendly School?*' The timetable for each CFS workshop is attached in Appendix 9 for reference. The PLA script involved eight operational steps and twelve discussion questions to be delivered by each IRA (a full script is attached in Appendix 10). These eight steps and twelve discussion questions are briefly outlined below.

First, the researcher's IRAs were instructed to divide CFS workshop participants into six focus groups of sixteen school leaders, each. One IRA was assigned as the lead facilitator for each FGD. Second, each group's IRA facilitator provided FGD participants with an overview of the research study, distributed copies of the study's background information, including a review of the confidentiality clauses and terms of permission for the research study. These documents are attached in Appendices 11, 12, and 13. Third, each IRA provided adequate time for research participants to understand the study's interests and assured participants that they could opt-out of the current research project at any time without penalty. Fourth, each participant was asked to complete a school background survey that asked three main questions: (i) Head teachers' personal mobile phone numbers (necessary for the study's research Phase 2 and 3), (ii) School-level data to verify or clarify characteristics of the pre-selected sample of schools, and (iii) School leaders' levels of prior exposure to CFS trainings or interventions. Upon completion of the school background survey, the IRA assigned each participant with a research identity number to be used throughout the duration of the study to maintain participant anonymity.

Fifth, each IRA distributed three notecards to each participant and asked participants to label each note card with their identity number (thus enabling the researcher to associate local realities with information gathered from the school background surveys). After distributing the three red note cards, the IRA was instructed to ask participants to fill out the front and back sides of the note cards answering the following six discussion questions (DQs) outlined in Table 7:

Table 7: Six discussion questions (DQs) eliciting school leaders' perceptions of the negative factors that prevent schools from being child-friendly. Source: Author (2014).

Front Side of Notecard		Back Side of Notecard
DQ 1: What challenge prevents your school from being child-friendly?	→	DQ 2: Why does this challenge prevent your school from being child-friendly?
DQ 3: What challenge prevents your school from being child-friendly?	→	DQ 4: Why does this challenge prevent your school from being child-friendly?
DQ 5: What challenge prevents your school from being child-friendly?	→	DQ 6: Why does this challenge prevent your school from being child-friendly?

Sixth, IRAs distributed three green note cards and asked head teachers to write on the front and back sides answering six additional research questions outlined in Table 8 below.

Table 8: Six discussion questions (DQs) eliciting school leaders' perceptions of what positive factors influence a school's level of child-friendliness. Source: Author (2014).

Front Side of Notecard		Back Side of Notecard
DQ 7: What school improvement strategy has made your school child-friendly?	→	DQ 8: Why did this school improvement strategy make your school more child-friendly?
DQ 9: What school improvement strategy has made your school child-friendly?	→	DQ 10: Why did this school improvement strategy make your school more child-friendly?
DQ 11: What school improvement strategy has made your school child- friendly?	→	DQ 12: Why did this school improvement strategy make your school more child-friendly?

Seventh, the IRAs asked participants to place their notecards on the floor for all FGD members to see, read and share (see Figure 15, below). The IRAs then introduced five large sheets of paper, each listing one of the five main CFS themes. The IRA introduced the titles of each CFS theme to the participants, but did not provide any further explanation. If participants asked, ‘What do you mean by ‘Equity and Equality’?’ the IRA would respond by simply saying, ‘It is up to you’. With the flipcharts laid out on the floor, IRAs then requested participants to place their three red cards (challenges) and three green cards (strategies) on the theme that they believed best described each challenge and strategy. This way, focus group participants could read and build on others’ contributions, enabling additional challenges and strategies of CFS to be offered by Kenyan school leaders and captured by the IRAs.

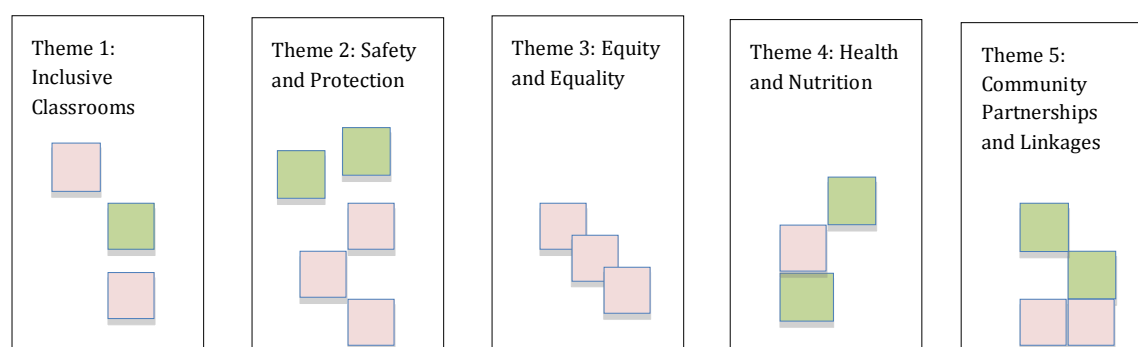


Figure 15: Thematic clustering by CFS themes of suggested challenges and strategies of improving levels of child-friendliness in Kenyan schools. Source: Author (2014).

With the notecards spread out on the large sheets of paper, the IRAs then concluded the process with the eighth step, asking each participant to read aloud their cards to the group. Group members were then encouraged to ask any questions or clarifications by what was meant on the note card, thereby providing the IRAs with additional information about each contribution. IRAs noted further explanations in their fieldwork notebooks and made additional clarifications on the notecards, themselves. Each IRA was finally asked to collect all the notecards and deliver them to the study's main researcher for final data entry and analysis. The results were then compared to the existing CMT framework with 50 indicators; this process of employing constant comparison qualitative coding techniques (Lyons and Coyle, 2007) is outlined in Chapter 4.

3.8 Research Phase 2: Quantitative Data Collection Methods

Responding to the methodological and theoretical gaps identified in the study's literature review of SIR, SER, and EEIR, the second phase of research sought to answer the study's second research sub-question:

1B: When Kenyan school leaders and other school stakeholders (i.e. teachers, parents, and pupils) employ a more bottom-up, co-constructed conceptual framework and diagnostic tool for CFS, what new data and insights emerge about the quality of education in Kenya?

In order to do so, the present study applied key concepts, practices and insights from the action research tradition (Lewin, 1946; Corey, 1953; Stenhouse, 1975; Carr and Kemmis, 1986; Elliott, 1991; McNiff, 2013) to the methodological and theoretical gaps in engaging in large-scale, practitioner-led school improvement research in the Kenyan context. Phase 2 of the research study draws key lessons from Gray et al.'s (1996) review of action research in education-related projects including (i) Mortimore et al.'s (1988) *Halton Effective School Project*, (ii) Myers' (1996) *Schools Make a Difference* project that used the 'plan, do, and review' approach, (iii) Ainscow et al.'s (1994) *Improving Quality Education for All* (IQEA) project (iv) and Ribbins and Burrige's (1994) *Quality Development Initiative*. The study also applies a portion of Jenson's (1997) 'investigation, vision, action, and change' (IVAC) approach to encourage school leaders to engage other school stakeholders in what Corey (1953) describes as 'cooperative action research'. The study developed a five-step process of using SMS technology to enable Kenyan school leaders to engage other Kenyan school stakeholders in a process of mobile phone, SMS-based diagnostic action research.

Phase 2 of the research study was conducted across five consecutive weeks from the 6 July to 2 August 2013. It is important to note that the content of the mobile phone, SMS-based diagnostic action research tool came from the research output of Phase 1 of the study. After the local realities of Kenyan school leaders (data from the focus group discussions) were compared against the 50 indicators of the CMT, the data revealed that 97% of what Kenyan school leaders' perceived as negatively or positively influencing a school's level of child-friendliness could be captured using *half* of the 50 original CFS indicators. As a result, Phase 2 began with needing to digitize the indicators of the newly developed contextual model and diagnostic tool for CFS, called the Enhanced Child-Friendly School Monitoring Toolkit (ECMT), into a mobile phone, SMS-based survey. This process was conducted by using the recently built EMIS-Light system from *ENEZA Education* and *Echomobile*.

After the ECMT was entered into a mobile phone, SMS-based diagnostic action research tool, the researcher designed two parts of SMS instructions, surveys, and feedback reports to be sent to all 812 participating school leaders and their respective school stakeholders from the newly developed EMIS-Light system. These two parts are described by the weeks when they were deployed in the next two sections.

3.8.1 Week 1 – SMS Action Research Survey Part I: Announcements

In week one (3 July to 6 July 2013), the researcher sent a series of SMS announcements to the study's 812 school leaders reminding them that they would soon be asked to complete a free, 25-question interactive SMS-based school self-evaluation survey to assess their schools' levels of child-friendliness. All head teachers had also been informed about this upcoming exercise during their CFS workshops, held two months earlier.

Within the same announcement, the researcher reminded head teachers to randomly select two class eight pupils (one girl and one boy), two primary school teachers (one male and one female), and two parent members of the schools' governing boards (one male and one female) to also complete the 25-question mobile phone, SMS-based ECMT diagnostic action research survey. Pupils, parents and teachers were selected as 'subject matter experts' with regard to rating levels of child-friendliness in schools since they are the ones 'experiencing local realities of Kenyan quality education on a day-to-day basis' (Fushimi, 2009, p. 14). Class eight pupils were selected because they had been in the school the longest and could speak to issues of child-friendliness across all class levels, rather than just one or

two. Parents on the schools' governing boards were selected because they were considered to be better-informed participants of current school operations related to levels of child-friendliness. Finally, teachers were selected as critical informants of what quality education looks like from both within and outside of their classrooms.

The series of SMS announcements also reminded head teachers to inform pupil, parent and teacher respondents of two critical instructions. First, in order to self-register their phones for the survey, they needed to send an SMS message with the word, 'KEPHSA' in its message line to the phone number '20840'. Second, although respondents could use any mobile phone device to complete the survey, they each had to apply the *same* Kenyan National Examinations Code (KNEC) for their school when prompted by the survey. If respondents chose *not* to use the same KNEC number, their responses would *not* be collated and calculated into the schools' total average ECMT scores. After receiving these announcements, a number of schools reported not having a KNEC number because they did not yet have class 8 pupils (i.e. those pupils who are eligible for being candidates for the Kenyan Certificate in Primary Education). In response, the researcher generated temporary KNEC numbers to ensure that all sampled schools could participate.

3.8.2 Week 2 – SMS Action Research Survey Part II: Registration and ECMT Survey

In week two (9 July to 13 July 2013), participants were asked to complete a 7-step self-registration SMS-based survey which provided background information about the individual participant. After completing the registration survey and ensuring their data was affiliated with one of the schools' KNEC codes, the 25-question mobile phone, SMS-based ECMT diagnostic action research survey was sent to each participant asking them to rate the levels of child-friendliness in their schools across the 25 indicators. Detailed instructions of both the seven-step SMS self-registration process and 25-question SMS survey are provided in Appendices 14 and 15.

The mobile phone, SMS-based ECMT diagnostic tool asked each participant to rate the levels of perceived evidence of a particular factor of child-friendliness using a five-level 'extent to which' rating scale: 0 = No evidence; 1 = Below average levels of evidence; 2 = Average evidence; 3 = Above average levels of evidence; 4 = Complete levels of evidence (Cunningham et al., 2013). For example, question four of the 25-question mobile phone,

SMS-based ECMT diagnostic tool is reproduced below as it had appeared in an SMS message to survey respondents:

4:25 My school is a place where
all teachers are competent in their
subject knowledge. Reply with 0, 1, 2,
3, or 4 and press SEND.

The '4:25' indicates it is the fourth question of the 25-item diagnostic survey. After a respondent replied with a number rating (i.e. 0, 1, 2, 3, or 4), the participant would immediately receive the next question of the ECMT diagnostic survey via SMS.

Three key features of the survey seemed to have increased the response rates by research participants. First, the researcher designed the survey to be completed at the convenience of the respondent, rather than at predetermined times by the researcher. A respondent could choose to reply immediately to an SMS survey question *or* wait hours (or even days) to continue the survey so as to not interrupt his/her daily responsibilities. Second, the survey's system rejected any answers provided by respondents that were not '0', '1', '2', '3' or '4'. If a respondent entered an incorrect evaluative rating (i.e. typing '10' instead of '1'), the EMIS-Light system was designed to send the same question back to the same respondent and ask them to reply again using one of the correct rating options. Third, all respondents could send questions, problems or concerns about the survey, at any time (and for free) throughout the duration of the survey to the study's 'hotline' number, '27708'. The hotline was monitored by the researcher throughout the data collection period. The researcher responded to more than three hundred SMS inquiries and follow-up calls from the hotline, enabling survey respondents to receive immediately clarification on certain questions or operability issues of the survey, itself.

3.9 Research Phase 3: Quantitative and Qualitative Data Collection Methods

After thousands of mobile phone, SMS-based ECMT diagnostic action research surveys were completed across the sampled schools by various school stakeholders, the study embarked on the final step of its research design by deploying hundreds of virtual ECMT diagnostic school report cards back to each of the participating school head teachers. The virtual school report cards gave each school leader the average ratings of each ECMT indicator that had been rated by multiple school stakeholders in phase 2 of the research. This third research phase was meant to address the third research sub-question:

1C: When asked to consider the new data and insights about quality education levels in their schools (CFS), what new strategies do Kenyan school leaders develop for evidence-based school improvement?

3.9.1 Weeks 3 and 4 – SMS Action Research Survey Part III: Virtual Report Cards

In week three and four of the SMS-based data collection period (16 July to 27 July 2013), the researcher sent a virtual ECMT diagnostic school report card via SMS to each of the participating school heads providing their schools' average self-reported ECMT scores across all the 25 indicators of the ECMT. The report card also provided information about how well the school's average ECMT ranked in comparison with other participating schools of the study. An illustration of the virtual ECMT diagnostic SMS report card is provided in Appendix 16.

Each school's average ECMT score was calculated using the data from the completed mobile phone, SMS-based diagnostic action research surveys in each school. If a school completed less than the expected seven ECMT surveys (i.e. only one of two pupils completed the ECMT survey) or if a respondent did not fully complete all of his//her 25 questions, the formula for calculating the average school ECMT score was adjusted automatically using the *EMIS-Light* system.

Once the average ECMT score was calculated, a mobile phone, SMS-based ECMT virtual report card was sent to each school leader in seven SMS messages.

The first message summarized the school's overall ECMT self-reported diagnostic score out of a possible 100 points in comparison to the other participating schools in the study. The first message of the mobile phone, SMS-based ECMT virtual school report card is reproduced below as it would have appeared on Kenyan school leaders' mobile phones:

SMS 1: Head Teacher:
Your School Average CFS Score: 56.50/100.00.
Your school is ranked: 327/812 schools.
You will receive 5 more SMS messages
with detailed CFS thematic score reports.

Following the introductory summary message, five additional SMS messages were sent to each school leader, providing the school's average ratings for each of the twenty-five ECMT indicators across the five ECMT thematic domains: (i) Classroom Teaching and Learning, (ii) Safety and Protection, (iii) Equity and Equality, (iv) Health and Nutrition and, (v) Community and Family Engagement. All steps of the school-based virtual CFS report card are illustrated in Figure 16 on the next page. Note that each of the five sub-scores across each CFS theme corresponded to one of the 25 ECMT indicators, co-constructed in Phase 1 of the study. A 'cheat' sheet of which ECMT indicator corresponded with which ECMT virtual report card sub-theme number was sent to all head teachers prior to the ECMT virtual school report card being deployed.



Figure 16: Mobile, SMS-based ECMT Virtual Report Card – Series of Feedback Text Messages Sent to School Leaders. Source: Author (2014).

As one can see, SMS messages 1 through 6 provided the school's average self-reported scores per each of the five indicators related to each of the five ECMT themes. Due to the limited number of characters available for SMS messaging (i.e. 155 to 160 maximum characters), sub-ECMT indicator titles could not be included in the virtual ECMT report card. However, if a school leader struggled to understand his/her individual scores, the researcher's hotline remained open throughout the study for participants to contact the researcher for any clarification. However, a separate series of SMS messages were sent to school leaders prior to the ECMT virtual school report card, providing an index of the new ECMT indicators that head teachers could use as a useful, and essential reference. In the end, the process of assessing schools' levels of child-friendliness became less of an extractive and more of an *instructive* process of data collection, analysis, and dissemination, thereby developing what Dunlap and Piro (2016) would describe as strong data feedback loops about factors constraining or enhancing quality education. With these virtual ECMT school report cards, Kenyan head teachers could easily and quickly identify strong and weak areas of their school climate, as perceived by members of their own school community.

Following the mobile phone, SMS-based ECMT virtual report card, each school leader also received an additional final text message (see SMS #7 in Figure 16, above). The message reminded them of what they had discussed with the IRAs and researcher during the ten county-level CFS workshops and the importance in school-based action research to share the data with local stakeholders through a community meeting. Dunlap and Piro (2016) argue that data literacy for action research should incorporate more adult learning theory that purports that adults are more apt to effect sustainable change if they garner the support of other adults, rather than trying to go it alone (p. 5). This additional SMS message, therefore, was meant to trigger school leaders to socially engage and wrestle with the data to inform more evidence-based and inclusive school leadership strategies for school improvement.

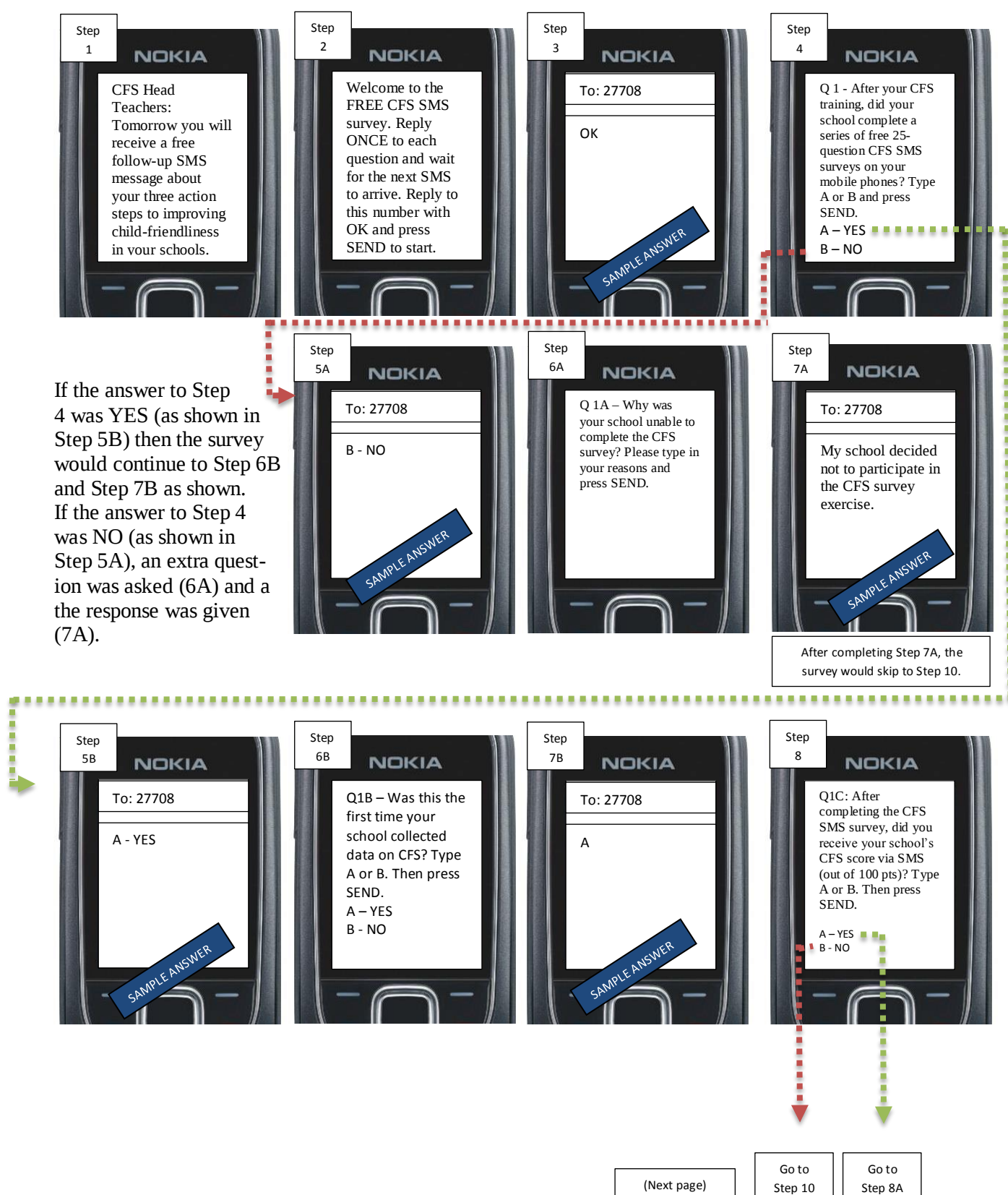
3.9.2 Week 5 – SMS Action Research Survey Part IV: School Leadership Strategies for School Improvement

In week five of the data collection (30 July to 2 August 2013) the researcher sent a follow-up SMS survey (illustrated in Figure 17 over the next three pages) to the school leaders of the sampled Kenyan schools who had completed their mobile phone, SMS-based ECMT diagnostic action research surveys from multiple school stakeholders.

The follow-up survey involved a number of steps with accompanying survey logic built throughout the process (i.e. if a respondent replied with ‘no’ to one question, the system would skip to a different question than if he/she had replied with ‘yes’). Steps 1 through 12, along with the logic model, are illustrated in Figure 17 over the next three pages. As one can see, the follow-up survey began with an attempt to double-check if the school leader had received and read the ECMT virtual report card data. Second, the follow-up survey asked a handful of reflection questions to try to better understand school leaders’ perception of the utility of the exercise, asking if they thought the data from the ECMT was important or not.

Following this short series of reflection questions, Steps 14 through 23 of the follow-up SMS survey asked Kenyan head teachers to develop, after considering the data from their ECMT virtual report card, what three action steps they would now take as a school leader to make their schools more child-friendly? This part of the research study was meant to understand how the school leaders analysed and *responded* to new data about child-friendliness levels within their school and whether their responses exhibited evidence-based approaches to school leadership strategies for school improvement.

Figure 17 School Leader Follow-Up SMS Survey about School Improvement Planning. Source: Author (2017).



(Step 8 cont. from previous page)

If NO

If YES

Figure 17 (continued).

If the answer to Step 8 was YES (as shown in Step 8A), extra questions were asked (9A1, 9A2, 9A3).

Otherwise, if the answer to Step 8 was NO, the SMS survey would skip to Step 10.



Figure 17 (continued).



As a result of the guided exercise in cooperative, diagnostic action research, led by the school leaders, the researcher was able to collect and analyse 1,559 unique school improvement strategies that Kenyan school leaders developed after reading and interpreting the results from their mobile phone, SMS-based virtual ECMT school report card.

3.10 Terrorism and Insecurity during Research

Unfortunately, the original intended scope of the study's research phase 3 was shortened due to a terrorist attack that occurred on 21 September 2013 at the Westgate Mall in Nairobi that killed 67 civilians from 13 countries (BBC, 2013). The attack occurred within one kilometre of where the researcher was residing during his time as an embedded doctoral research student with UNICEF-Kenya and in the mall where he normally shopped for weekly groceries and met with research assistants for formal and informal meetings. The attack was coordinated by the terrorist group, al-Shabaab, who stormed the Westgate mall, one of Nairobi's premiere shopping centres, throwing grenades and firing indiscriminately at customers. The terrorists led a siege that lasted more than 80 hours (BBC, 2013).

Fortunately, the researcher of the present study was preparing for the arrival of another colleague at the time of the mass shooting and was not where he normally would have been on that Saturday morning – inside the mall, buying frozen goods for the week. The researcher learned about the attack from UNICEF-Kenya's emergency SMS channel, informing him to seek safety at one of UNICEF-Kenya's designated 'safe houses'. Sadly, Ravindra Ramrattan, one of the researcher's friends based in Nairobi who was also working towards his PhD, was killed in the attack. In addition, the former Deputy Representative of UNICEF-Kenya was also shot and killed in the parking lot of the Westgate Mall. After attending both funerals, the researcher was asked by the University of Oxford to return to campus for safety and liability reasons. Once back on campus, the researcher needed time to cope and heal. The scope of the study was therefore reduced, significantly.

The researcher had originally intended to visit a number of the surveyed schools after receiving their mobile phone, SMS-based diagnostic school self-evaluations to better understand, in person, what the ECMT ratings meant to school stakeholders on the ground. Furthermore, he had fully intended to trace year-long journeys of school improvement by following up with school leaders about how their strategies of school improvement led to either increases or decreases in levels of perceived evidence about child-friendliness in their schools. However, the unexpected, tragic events of September 2013 forced the researcher to amend the scope of the research study and focus on how the findings and discoveries from research phases 1, 2, and 3 adequately enabled the study to sufficiently co-construct, test, and evaluate its new conceptual model and diagnostic tool for understanding local perceptions of quality education in Kenyan primary schools.

3.11 Ethical Considerations

In order to conduct social science research in Kenya, the researcher needed to obtain a research permit from the Ministry of Education, Science and Technology (MOEST), providing him with permission to work with head teachers and other stakeholders within Kenyan government public primary schools. UNICEF-Kenya has a long standing relationship with the MOEST that allows UNICEF-Kenya affiliates (including the researcher as a UNICEF-Kenya educational research consultant) to conduct research in all Kenyan educational institutions. The researcher also applied to be sponsored by the Kenyan National Council of Examinations (KNEC) in order to be added to their standing research permit that allows Oxford University research affiliates to conduct research in Kenyan public primary schools. Finally, the researcher received formal written permission by the National Chairman of the Kenyan Primary School Head Teachers Association (KEPSHA), the MOEST Director of Quality Assurance and Standards (National Coordinating Officer for CFS in the MOEST), and the Chief of Education and Young People from UNICEF-Kenya to guarantee intellectual autonomy of the study's data collection methods, analysis and dissemination of findings. All Kenyan letters of endorsement are provided in Appendices 18a, 18b, 18c, and 18d. In addition, the researcher received departmental approval of his CUREC (1a) application prior to his fieldwork in February 2013 (attached in Appendix 19). According to Cannella and Lincoln (2007), however, 'regulations are not actually ethics' (p. 327). The study, therefore, employs what Small (2001) describes as a '*process of ethical conduct, rather than a single event*' (p. 405, emphasis added).

To do so, the researcher constantly prioritized the safety, privacy and anonymity of all research participants by working to ensure every participant's right to withdraw, non-traceability, and comfort in expressing their perceptions of local realities of quality education in Kenya. To realize these goals, the researcher and indigenous research assistants hosted an introductory meeting with all participants at each CFS workshop. The IRAs then repeated the same introduction in their FGDs in the local language. A hardcopy of the study's aims, as well as the participant consent forms, were also provided to each participant to take home (Appendices 11, 12, 13). The researcher assigned each participant with an anonymous research identity number for the study to ensure that all data were collected, organized and stored by *number*, rather than by name. No FGD began until all participants had completed a consent form. All original signed consent forms are stored, in hardcopy, with the researcher.

The study's newly developed EMIS-*Light* dashboard that was used to manage participants' phone numbers, survey data, and personal communications throughout the study, could only be accessed by the researcher through a double password protected sign-in web portal. Research participants could also opt-out of the mobile phone surveys at any time by replying to any message with the word 'STOP' via text. The survey would immediately halt and the participant would be removed from the research study. Lastly, the researcher signed legal agreements with *ENEZA Education* and *Echomobile* to ensure that all data and personal information from the study's respondents would remain secure and accessible only by the present study's researcher in perpetuity.

Finally, Goffman (1997) argues that we present ourselves in everyday life as performers on what he calls 'front-stages' and 'back-stages' in life (p. 10). The 'front stage' is where performances are enacted in order for people to create impressions and the 'back-stage' is where unrehearsed performances take place, not intended for others to see (Kothari, 2001, p. 149). With the study's use of PLA and guided action research via SMS, one could argue that the researcher's choices of mixed data collection methods actually *create* the stage on which research participants are *expected* to perform. The researcher, therefore, continually needed to express to research participants that their responses were *not* required and that no penalties or rewards would be given by MOEST, KEPSHA, or UNICEF-Kenya officials as a result of their answers or lack of responses. However, the inherent imbalance of power dynamics between the 'researcher' and the 'researched', especially within the study's context of Kenya, remained a constant ethical challenge for the researcher throughout the study.

The next section of the study presents the qualitative and quantitative findings from the study's three phases of data collection as outlined throughout this last chapter.

Chapter 4: Findings: Qualitative and Quantitative Results

Chapter 4 is organized into three sections that correspond to each of the three research phases of data collection, as outlined in Chapter 3.

First, this chapter presents the qualitative results and data analysis from phase 1 of the research study that helps the researcher use the data from the FGDs to co-construct a new, more contextually relevant conceptual model for CFS; thereby better equipping Kenyan school leaders with a new conceptual framework to better conceptualize and understand key factors that constrain or enhance levels of child-friendliness in their schools. These findings provide the data to answer research sub-question 1A.

Second, this chapter presents the quantitative survey results and analyses from phase 2 of the study that asked Kenyan school leaders, teachers, parents and students to rate the levels of child-friendliness in their schools with empirical diagnostic scores. In other words, these findings outline how the new conceptual model and diagnostic tool (ECMT) was tested in the field to see if school leaders and other education stakeholders could actually *use* it. The results present the first barometer of levels of child-friendliness since the national CFS initiative began in 2009. Differences between how different school stakeholders *perceive* levels of child-friendliness in schools are presented and analysed. These findings provide the data to answer research sub-question 1B.

It is important to note that some of the empirical data from the mobile phone survey relating to perceptions of social and gender equity levels in schools appear to be in direct contradiction to a number of points raised by local stakeholders during the focus group discussions from phase 1 of the study. These differences are presented and analyzed, emphasizing that issues of social and gender equity remain significant barriers to making schools child-friendly within the Kenyan context.

Finally, the chapter presents the quantitative and qualitative mobile phone survey results from phase 3 of the study, where the new ECMT conceptual framework and diagnostic tool are evaluated. To do so, the study investigates the types of school improvement strategies Kenyan school leaders developed in response to new data about perceived levels of child-friendliness in their schools. The study then compared these strategies to the ECMT indicators that received the lowest levels of evidence by respondents

in each school's virtual ECMT school report card. These findings help the study answer the final sub-research question, 1C, about whether or not school leaders developed data-driven strategies for holistic school improvement.

The findings provide critical contextual, methodological, and theoretical contributions to the current gaps in our understanding of school leadership for school improvement in Kenya.

4.1 Co-constructing a New Conceptual Model and Diagnostic Tool for CFS - Qualitative Results and Analyses from Research Phase 1

4.1.1 Results

The study hosted a total of 100 focus group discussions with a total of 812 Kenyan school leaders from across ten Kenyan counties during February and May 2013. Each participant was asked to answer twelve discussion questions (DQs) through written responses on note cards (see Chapter 3 for details). The total *expected* number of unique responses was 9,744. The study collected a total of 9,864 responses, but 1,511 of these consisted of blank sides of the notecards. As a result, the total number of *completed* written unique responses collected from the FGDs was 8,353. A number of school leaders provided *more* than the expected six note cards as they wished to write more than the instructed three challenges or three strategies related to improving levels of child-friendliness in their schools. Others, as evidenced by the non-response rates, only partially answered the DQs. For example, many participants only provided the strategy for making their school child-friendly, but failed to provide the reason why this strategy would make schools more child-friendly.

In sum, the study collected 4,232 unique responses to discussion questions 1-6 (as outlined in Chapter 3) asking Kenyan school leaders '**what strategies made their schools child-friendly**' and '**why these strategies made their schools more child friendly**' and 4,121 unique responses to discussion questions 7-12 (as outlined in Chapter 3) asking Kenyan school leaders '**what challenges prevent their schools from being child-friendly**' and '**why these challenges prevent schools from being child-friendly?**' These results are illustrated in Figure 18 below.

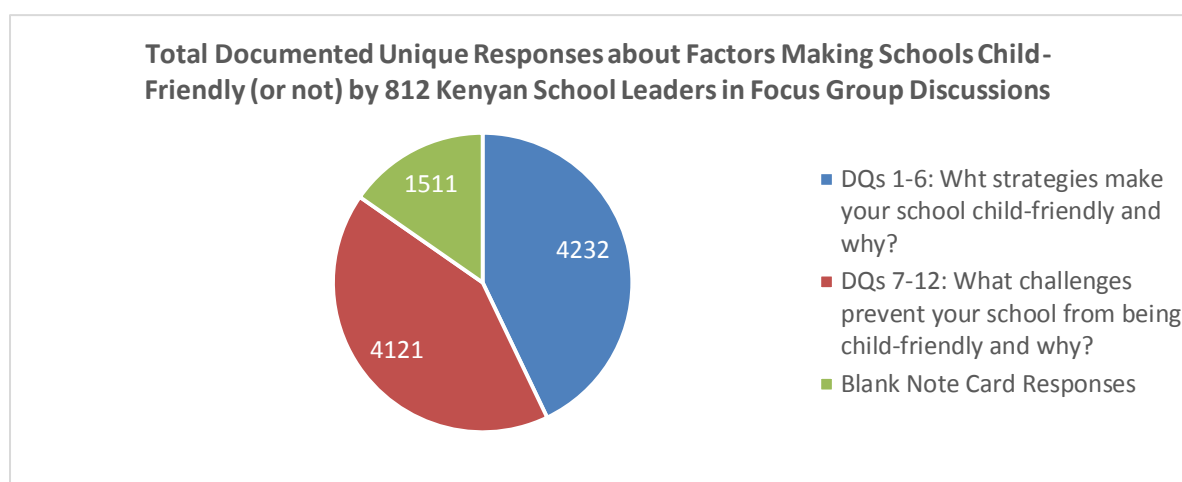


Figure 18: Total number of unique responses from Kenyan School Leader Focus Group Discussions. Source: Author (2017).

In total, 43% of the documented responses from Kenyan school leaders described **strategies** for making schools child-friendly and **reasons** why they perceived these strategies have been effective in making schools more child-friendly. 42% of the responses described what school leaders perceived as **challenges** to preventing their schools from being child-friendly and **reasons** why they perceived that these challenges remained significant constraints to educational quality in their schools. 15% of the responses consisted of blank notecards. The large number of written response provided the researcher with the rare and unique opportunity to understand a wide-ranging set of local perceptions of what factors Kenyan school leaders perceived as negatively or positively influencing schools' levels of child-friendliness. The research findings provided the study with sufficient data to develop a more contextually relevant conceptual model for CFS, rooted in Kenyan school leaders' local perceptions of quality education.

4.1.2 Data Analysis

After collecting responses from the IRAs, the study used a combination of constant comparison qualitative coding techniques (Lyons and Coyle, 2007) and interpretative phenomenological analysis (IPA) (Smith et al., 2009) to engage in what Breakwell (2006) argues as the 'examination of data multiple times and through a variety of techniques that lead to more accurate conclusions and insights' (p. 103). The study employed both of these qualitative data analysis methods to answer the study's first research sub-question:

1A: When asked, do Kenyan school leaders' perceptions of key factors that enhance and constrain the quality of education align with the Kenyan government's national CFS monitoring toolkit?

An important element of IPA is that of hermeneutics – the theory of interpretation. In the case of the present study, the researcher engages with what Smith et al. (2009) refer to as a 'double hermeneutic' because the researcher is trying to make sense of the participant, who is also trying to make sense of what is happening in their schools related to levels of child-friendliness (p. 3). The qualitative analysis involved comparing and contrasting school leaders' local perceptions of CFS to the existing Kenyan government UNICEF-Kenyan CMT.

The use of constant comparisons in coding qualitative data allows for previously coded elements to change and better reflect the reality of the data collected (Lyons and Coyle, 2007). The following seven steps of qualitative data analysis are presented below to provide transparency to the qualitative method – an essential element in trusting any results of qualitative analyses in social science research (Breakwell, 2006). Lincoln and Guba (1987) refer to this narrative account of the data analysis steps as leaving an 'audit trail' in one's presentation of results, which can significantly increase the dependability of the findings.

First, the researcher organized the notecards and school background surveys collected during the FGDs by research ID number. Second, the researcher reviewed each note card response twice to become immersed in the data and begin a process of constant comparison of school leaders' responses (Lyons and Coyle, 2007) in relationship to the UNICEF-Kenya and Kenyan government CMT fifty indicators. Third, the researcher typed the 812 sets of data into Microsoft Excel. Each head teacher was expected to provide twelve responses each for a total of 9,744 pieces of data for manual entry. In some cases, school leaders provided more than twelve notecard responses. In other cases, school leaders provided only partial answers (i.e. only one side of the notecard). A total of 8,353 unique responses were typed into Microsoft Excel by the researcher.

Fourth, the researcher employed Lyons and Coyle's (2007) constant comparison qualitative data coding technique to compare the study's findings with the original 50 indicators of the CMT. Fifth, the researcher used basic principles of grounded theory analysis (Glaser and Strauss, 1967) and interpretative phenomenological analysis (Smith et al., 2009) to translate the FGD data that could not be compared against one of the 50 indicators of the CMT into what Henwood and Pidgeon (2006) refer to as 'emergent new themes' (p. 348).

Sixth, the study then compared, contrasted, and ranked the prevalence of FGD data against the old CMT indicators to develop a new, more contextually relevant framework and diagnostic tool for re-conceptualizing CFS from the bottom-up, rather than the top down. This new model and diagnostic tool was called the ‘Enhanced Child-Friendly Schools Monitoring Toolkit’ (ECMT). The ECMT consisted of the top 25 most prevalent indicators of CFS mentioned by school leaders in their FGDs. Finally, the seventh step involved editing the new 25 indicators of the ECMT into indicators that would abide by the 155 character limit of the mobile phone, SMS-based version of the ECMT. The results of this seven-step process of qualitative data analysis are now presented in the next sections.

4.1.2.1 Kenyan School Leaders' Understandings of Factors that Make Schools Child-Friendly

The study coded 8,353 data points from the 100 FGDs into one of the 50 original CMT categories (listed in Table 1, Chapter 1). If the principal researcher (PR) could not code a response using one of the 50 CMT categories, the PR coded it into a new general category called, 'New Indicators' (NI). This process involved employing constant comparison coding techniques throughout the analysis (Lyons and Coyle, 2007). In order to keep track of difficult categorizing decisions, the PR also kept 'research memo notes' to offer insights into why particular decisions were made and when (Charmaz, 2010, p. 166).

Of the 8,353 uniquely documented responses, 8,103 could be coded using one of the 50 CMT indicators. Table 9 (next page) illustrates how 97% of what Kenyan school leaders perceived as factors influencing the levels of child-friendliness in Kenyan schools could be coded using one of the 50 original CMT indicators. The remaining 13% of the data was coded into emergent new themes using grounded theory (Glaser and Strauss, 1967; Strauss and Corbin, 1990; Heath and Cowley, 2004) and interpretative phenomenological analysis (Storey, 2007; Smith et al., 2009).

The study calculated the frequency of FGD responses per CMT indicator in four different ways: (i) by the raw number of responses by school leaders' FGD responses, (ii) by the total percentage of school leaders' responses in comparison to all responses from the FGDs, (iii) by the total number of mentions by school, and (iv) by the total percentage of responses by school (these different values are listed in Columns A, B, C, and D in Table 9 on the next page). This is an important element of analysis because one school leader could have offered a total of 12 different data points, all of which would have been coded using the same CMT indicator. Coded and analysed data in columns C and D, therefore, work to triangulate and mitigate multiple mentions by one school leader and contextualize how many schools mention factors of child-friendly schools related to the particular CMT indicator. As a result, this type of analysis provides the study with a more accurate representation of the prevalence of certain factors that Kenyan school leaders perceived as either constraining or enhancing quality education in their schools. These data are presented below in Table 9.

Table 9: Kenyan School Leaders' Focus Group Discussion Data Coded Against UNICEF Kenya and Government of Kenya's Child-Friendly Schools CFS Monitoring Toolkit with 50 Indicators. Source: Author (2017).

CMT CFS #	Child Friendly School Monitoring Toolkit Indicator (UNICEF-Kenya, Government of Kenya, 2009)	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
	THEME 1: TEACHING AND LEARNING	A	B	C	D
CFS 1	School has functioning children's government which addresses problems affecting them (including peace building).	224	2.7%	104	12.8%
CFS 2	Effective supervision of curriculum in place.	54	0.6%	41	5.1%
CFS 3	Proper record-keeping (administrative, academic, finance, and stores).	13	0.2%	8	1.0%
CFS 4	Percentage of boys and girls actively participating in lessons.	82	1.0%	69	8.5%
CFS 5	Interactive pupil-centred methods used in teaching/facilitation and learning.	341	4.0%	206	25.3%
CFS 6	Textbook-pupil ratio in all subjects.	145	1.7%	91	11.2%
CFS 7	Availability and use of Teaching and Learning Using Locally Available Resources (TALULAR) e.g. sticks, leaves, beans, etc.	152	1.8%	111	13.7%
CFS 8	Competence/dedication of teachers.	100	1.2%	64	7.9%
CFS 9	Proportion of teachers who had in-service training in the last 12 months.	0	0.0%	0	0.0%
CFS 10	Quality of school assessment and feedback.	154	1.8%	114	14.0%
CFS 11	Proportion of pupils who started class one eight years ago completing school and sitting KCPE.	10	0.1%	6	0.7%
CFS 12	Teacher-pupil ratio (how many pupils study with one teacher).	510	6.1%	247	30.4%
	THEME 2: SAFETY AND PROTECTION				
CFS 13	Peace, citizenship, guidance and counselling are promoted.	215	2.6%	126	15.5%
CFS 14	School enforces a policy on prevention of violence and corporal punishment through positive disciplining.	125	1.5%	72	8.9%
CFS 15	Safety measures in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, etc.).	364	4.3%	168	20.7%
CFS 16	School has environment/compound free from hazardous/risky materials/buildings.	51	0.6%	32	3.9%
CFS 17	School has emergency preparedness and response plan and measures.	58	0.7%	38	4.7%
CFS 18	School enforces policy on protection of girls/disadvantaged against sexual and other abuse or exploitation.	0	0.0%	0	0.0%
CFS 19	School is free from addictive substances, violence, and pornography.	49	0.6%	24	3.0%
CFS 20	School has policy against discrimination with regards to gender, cultural origin, social status, religious beliefs, and other differences.	72	0.9%	45	5.5%

CFS 21	School has duly assigned personnel in charge of securing its premises, properties, and those of pupils and teachers.	10	0.1%	9	1.1%
THEME 3: EQUITY AND EQUALITY					
CFS 22	Detailed pupil profile available (by name, age, sex, home background, other information about a child, etc.).	0	0.0%	0	0.0%
CFS 23	School development plan in place addressing the child's needs holistically.	246	2.9%	159	19.6%
CFS 24	Proportion of teachers trained in special education.	64	0.8%	34	4.2%
CFS 25	Availability of disability-friendly facilities and equipment (e.g. ramps, toilets, braille materials, hearing aids, clearly defined paths, etc.).	95	1.1%	46	5.7%
CFS 26	All out-of-school children identified in the community and efforts made to enrol and retain them in the school.	525	6.3%	255	31.4%
CFS 27	Girls and boys treated equally in teaching, seating, assignment, access to materials, asking questions/feedback.	104	1.2%	56	6.9%
CFS 28	Gender awareness clubs operational in school.	0	0.0%	0	0.0%
CFS 29	Instructional materials reflect and promote gender balance in roles of males versus females.	0	0.0%	0	0.0%
CFS 30	School enforces a policy on dropouts (pregnancy/truancy/child labour)	0	0.0%	0	0.0%
THEME 4: HEALTH AND NUTRITION					
CFS 31	Ratio of latrines for girls and boys.	426	5.1%	204	25.1%
CFS 32	Toilets properly used and well maintained.	39	0.5%	35	4.3%
CFS 33	Provision of nutrition services in school (e.g. school feeding, deworming, vitamin A supplementation).	590	7.0%	290	35.7%
CFS 34	Access to safe clean water for drinking and washing.	440	5.2%	207	25.5%
CFS 35	Health, hygiene and life skills education is part of the curriculum and is regularly taught.	116	1.4%	80	9.9%
CFS 36	School has easy access to health services/sickbay/first aid (immunization/vaccination, reasonable distance to health centre).	3	0.0%	2	0.2%
CFS 37	Number of outreach activities done by school to prevent HIV/AIDS per term.	68	0.8%	55	6.8%
CFS 38	Number of classrooms with proper ventilation, lighting and adequate learning space for children.	804	9.4%	343	42.2%
CFS 39	Appropriate use of available resources	0	0.0%	0	0.0%
CFS 40	School compound is clean and well maintained.	6	0.1%	5	0.6%
CFS 41	Availability and use of well-defined play areas with recreation time allocated on timetable.	253	3.0%	125	15.4%

	THEME 5: COMMUNITY LINKAGES AND INVOLVEMENT				
CFS 42	Functional School Management Committee and Child-Friendly School (CFS) team.	250	3.0%	118	14.5%
CFS 43	School management committee and CFS team equally represented by males and females.	0	0.0%	0	0.0%
CFS 44	Linkages with community-based ECD centres.	92	1.1%	81	10.0%
CFS 45	Income-generating projects in place, effective and benefiting children's welfare.	777	9.3%	377	46.4%
CFS 46	Percentage of parents participating in meetings.	221	2.6%	139	17.1%
CFS 47	Evidence of community participation in the school development plan implementation.	0	0.0%	0	0.0%
CFS 48	Child-to-child activities promoted for school community linkages.	0	0.0%	0	0.0%
CFS 49	Parents are interested in and support pupils' learning at home and discuss pupils' work with teachers.	255	3.0%	183	22.5%
CFS 50	Outreach activities done by school in the community.	0	0.0%	0	0.0%
	GRAND TOTAL	8,103	97.0%		

After the initial round of coding of the data into one of the 50 CMT indicators or a new NI category, the researcher grouped the remaining 250 'NI' responses into more manageable, collapsed categories. In order to do so, the researcher conducted a series of 'constant comparison' rounds and employed IPA-coding methods to allow 'emergent' themes to develop from 'NI' responses (Henwood and Pidgeon, 2006, p. 348). After the analysis, the coding process generated new, additional superordinate categories of reasons why research participants perceived certain factors made schools child-friendly or not child-friendly. These 14 new categories are herein referred to as 'NC' and are presented in Table 10 on the next page. The results are also ranked by prevalence rates in the FGD data.

Table 10: New Categories (NCs) of Child-Friendly Schools developed from Coded Data from Kenyan School Leaders' Focus Group Discussions. Source: Author (2017).

NEW NC #	NEW INDICATORS OF CFS DEVELOPED BY CODED KENYAN SCHOOL LEADERS' FGD RESPONSES	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
NEW 1	Provide transport support to pupils between home and school.	42	0.5%	37	4.6%
NEW 2	Encourage use of national language policy to promote better language acquisition in school.	34	0.4%	18	2.2%
NEW 3	Ensure pupils have access to adequate recreational equipment.	34	0.4%	19	2.3%
NEW 4	Prevent area wildlife from harming pupils while in school.	28	0.3%	19	2.3%
NEW 5	Organize partner school bench-marking, extra-curricular competitions, and pupil exchanges.	15	0.2%	15	1.9%
NEW 6	Encourage pupils' exposure to positive role models in the community.	15	0.2%	15	1.9%
NEW 7	Ensure the teacher roster includes those that are appropriate age, from diverse backgrounds, and gender balanced.	14	0.2%	11	1.4%
NEW 8	Provide adequate housing facilities for teachers.	14	0.2%	11	1.4%
NEW 9	Provide pupils with adequate boarding facilities who may require accommodation.	14	0.2%	10	1.2%
NEW 10	Provide pupils with access to ICT equipment and classes.	10	0.1%	6	0.7%
NEW 11	Provide teachers with adequate daytime welfare services.	9	0.1%	8	1.0%
NEW 12	Ensure the school is free from political influences that could disrupt learning.	8	0.1%	8	1.0%
NEW 13	Provide adequate administration office and storage space.	8	0.1%	7	0.9%
NEW 14	Provide library facilities for pupils.	5	0.1%	4	0.5%
	TOTAL	250	3.0%		

Some of the new NCs included indicators such as ‘*Provide transport support to pupils between home and school*’, ‘*Encourage use of national language policy to promote better language acquisition in school*’ and ‘*Prevent area wildlife from harming pupils while in school*’. However, the overall percentage of new indicators that could not easily be coded into one of the 50 CMT indicators remained significantly low. The question that remained, though, was *which* combination of the CMT indicators could still capture the majority of Kenyan school leaders’ local perceptions of CFS, while perhaps reducing the number of indicators needed to conceptualize and measure levels of child-friendliness in Kenya?

4.1.2.2 Grouping Similar CMT Categories Together

After the data were categorized into the 50 CMT categories and 14 NC categories, the researcher then conducted one more round of constant comparison qualitative coding analysis (Lyons and Coyle, 2007) to try to reduce the number of CMT categories. Through this process, the study collapsed fifteen of the original CMT categories into seven *revised* CMT indicators (referred as RCMT from now on) that totalled 42 instead of 50 dimensions of the original CMT. The explanation of each regrouping and recoding process is explained below.

Grouping 1 (see Table 11 below) combined data from FGDs that were coded under CFS indicator 8 (Competence/dedication of teachers) and CFS indicator 2 (Effective supervision of curriculum is in place) to create a new regrouped CFS indicator (RCMT) called, ‘Competence/dedication of teachers’. In their FGDs, fifty-four Kenyan school leaders mentioned that teachers’ supervision of the curriculum was a critical factor in making schools child-friendly, thereby explicitly stating a dimension of teachers’ overall level of competence. Therefore, data coded under CFS indicator 2 were well absorbed under RCMT 1.

Table 11: Grouping 1 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 1 of CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 2	Effective supervision of curriculum is in place.	54	0.6%	41	5.1%
CFS 8	Competence/dedication of the teachers.	100	1.2%	64	7.9%
REGROUPED CMT # 1	RCMT 1: Competence/dedication of teachers.	154	1.8%	98	12.1%

Grouping 2 (see Table 12 on the next page) combined data from FGDs that were coded under CFS indicator 13 (Peace, citizenship, guidance and counselling are promoted) and CFS indicator 19 (School is free from addictive substances, violence, and pornography) into a new RCMT called ‘Guidance, Counselling and Peace are promoted’. In the FGDs, the forty-nine responses from across twenty-four schools that were related to CFS indicator 19 always related to the role of guidance and counseling in the prevention of using addictive substances, promoting violence and or having pornography in the school. Therefore, the data that had originally been coded into CFS indicator 19 were well absorbed by RCMT 2.

Table 12: Grouping 2 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 2 OF CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 13	Peace, citizenship, guidance and counselling are promoted.	215	2.6%	126	15.3%
CFS 19	School is free from addictive substances, violence and pornography.	49	0.6%	24	3.0%
REGROUPED CMT # 2	RCMT 2: Guidance, Counselling and Peace are promoted.	264	3.1%	141	17.4%

Grouping 3 (see Table 13 below) combined data from FGDs that were coded under CFS indicator 15 (Safety measures are in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, etc.)) and CFS indicator 21 (School has duly assigned personnel in charge of securing its premises, properties, and those of pupils and teachers) under a new RCMT called, ‘Safety measures in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, (vii) security personnel, etc.)’. In the FGDs, the ten responses that were coded under CFS indicator 21 could easily be combined into CFS indicator 15, if security personnel was listed as one of the examples. Therefore, the data that had been originally coded into CFS indicator 21 were well absorbed by RCMT 3.

Table 13: Grouping 3 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 3 OF CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 15	Safety measures in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, etc.).	364	4.3%	168	20.7%
CFS 21	School has duly assigned personnel in charge of securing its premises, properties and those of pupils and teachers.	10	0.1%	9	1.1%
REGROUPED CMT # 3	RCMT 3: Safety measures in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, (vii) security personnel, etc.).	374	4.5%	171	21.1%

Grouping 4 (see Table 14 below) combined data from FGDs that were coded under CFS indicator 40 (School compound is clean and well-maintained), CFS indicator 41 (Availability and use of well-defined play areas with recreation time allocated on timetable), and CFS indicator 16 (School has environment/compound free from hazardous/risky materials/buildings) into a new RCMT called, ‘Safe, hazardous-free recreation areas for play are available for children’. In the FGDs, data that were coded under CFS indicators 40 and 16 were directly related to how these enabled children to be able to safely enjoy outdoor, recreational play spaces. Therefore, the data that had been originally coded into CFS indicators 40 and 16 were well absorbed by RCMT 4.

Table 14: Grouping 4 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 4 of CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 40	School compound is clean and well maintained.	6	0.1%	5	0.6%
CFS 41	Availability and use of well-defined play areas with recreation time allocated on the timetable.	253	3.0%	125	15.4%
CFS 16	School has environment/compound free from hazardous/risky materials/buildings.	51	0.6%	32	3.9%
REGROUPED CMT # 4	RCMT 4: Safe, hazardous-free recreation areas for play are available for children.	310	3.7%	150	18.5%

Grouping 5 (see Table 15 on next page) combined data from FGDs that were coded under CFS indicator 24 (Proportion of teachers trained in special education) and CFS indicator 25 (Availability of disability-friendly facilities and equipment (e.g. ramps, toilets, braille materials, hearing aids, clearly defined paths, etc.)) into a new RCMT called, ‘Disability-friendly school facilities and trained personnel’. In the FGDs, data that were coded under CFS indicators 24 and 25 reflected whether or not schools were well staffed and equipped to address needs of children with disabilities. The data from both CFS indicator 24 and CFS indicator 25 were well absorbed by RCMT 5.

Table 15: Grouping 5 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 5 of CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 24	Proportion of teachers trained in special education.	64	0.8%	34	4.2%
CFS 25	Availability of disability-friendly facilities and equipment (e.g. ramps, toilets, braille materials, hearing aids, clearly defined paths, etc.)	95	1.1%	46	5.7%
REGROUPED CMT # 5	RCMT 5: Disability-friendly school facilities and trained personnel.	159	1.9%	61	7.5%

Grouping 6 (see Table 16 below) combined data from FGDs that were coded under CFS indicator 31 (ratio of latrines for girls and boys) and CFS indicator 32 (Toilets properly used and well maintained) into a new RCMT called, ‘All pupils have access to clean, safe, and well-maintained toilet facilities’. In the FGDs, data that were coded under CFS indicators 31 and 32 were closely related to both the provision and quality of toilet facilities for girls and boys. Therefore, the data that had been originally coded into CFS indicators 31 and 32 were well absorbed into the new RCMT 6.

Table 16: Grouping 6 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 6 of CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 31	Ratio of latrines for girls and boys.	387	4.6%	204	25.1%
CFS 32	Toilets properly used and well-maintained.	39	0.5%	35	4.3%
REGROUPED CMT # 6	RCMT 6: All pupils have access to clean, safe, and well-maintained toilet facilities.	426	5.1%	211	26.0%

While data from CFS indicators 31 and 32 were well absorbed into the new RCMT 6, the importance that local school leaders’ gave to the issue of gender equity in relationship to the provision of latrines and toilets is compromised, to a degree. For example, one school leader wrote, ‘The latrines are not enough for the overwhelming number of children, especially for the disadvantaged girls’ (SL #647). Another respondent described how ‘My girl learners hate school because they have to share latrines with the boys due to poor infrastructure’ (SL #677). Whether it was describing how latrines needed to be ‘more gender sensitive’ (SL #183), or ‘gender appropriate’ (SL #43); ‘more private for special girl needs’

(SL #483) or ‘separate from boys to enhance safety for the girl child’ (SL #555); ‘constructed with the needs of both girls and boys in mind’ (SL #729) or ‘renovated to better reflect and respect the different needs of girls and boys’ (SL #745); the issue of gender equity (and inequity) clearly remains a critical concern in the provision of sanitation and hygiene infrastructure in enhancing the levels of child-friendliness in Kenyan primary schools. Therefore, while RCMT 6 asks school stakeholders to reflect on whether or not ‘*all* pupils have access to clean, safe and well-maintained toilet facilities,’ it is critical to understand that this particular RCMT indicator still reflects Kenyan school leaders’ collective awareness and emphasis that gender equity must still be addressed within the adequate provision of proper sanitation and hygiene facilities in order to improve levels of child-friendliness in Kenyan primary schools.

Grouping 7 (see Table 17) combined data from FGDs that were coded under CFS indicator 23 (School development plan in place addressing the children’s needs holistically) and CFS indicator 42 (Functional School Management Committee and Child-Friendly School (CFS) team) into a new RCMT: ‘Functional school management committee that plans, promotes, and monitors child-friendly school activities’. In the FGDs, data that were coded under CFS indicator 23 often referred to the roles and responsibilities of school management committees (SMCs) and unofficial CFS school staff teams. The data also highlighted the need to develop various components of the school development plan that were ultimately the responsibility of SMC and CFS team leaders. Therefore, the data that had been originally coded into CFS indicator 23 and CFS indicator 42 were well absorbed into the new RCMT 7.

Table 17: Grouping 7 of combined CMT indicators for revised dimensions of the CFS Monitoring Toolkit. Author (2017).

Grouped CMT #	GROUPING 7 of CMT INDICATORS	# of RESPONSES BY HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
CFS 23	School development plan in place addressing the children’s needs holistically.	246	2.9%	159	19.6%
CFS 42	Functional School Management Committee and Child-Friendly School team.	250	3.0%	118	14.5%
REGROUPED CMT # 7	RCMT 7: Functional school management committee that plans, promotes, and monitors child friendly school activities.	496	5.9%	240	29.6%

4.1.2.3 Creating an Enhanced Child Friendly School Monitoring Toolkit (ECMT)

After the data were re-categorized into 42 CMT (and RCMT) categories and 14 NC categories, the researcher combined all 56 coded categories and their corresponding data into one Microsoft Excel sheet and used the ‘sort function’ to rank the total average relative percentages of prevalence rates of each indicator across all FGDs from highest to lowest. Table 18 lists the 56 CFS categories that received the most and least number of mentions by Kenyan school leaders from the FGDs. The purpose of ranking the prevalence of mentions by category was to help the researcher determine which categories aligned (and did not align) with Kenyan school leaders’ local perceptions of quality education.

In Table 18, the indicators that are highlighted in the green represent the 25 dimensions of CFS that received the most number of mentions by Kenyan head teacher responses. The indicators highlighted in red represent the 28 CFS indicators that received the fewest number of mentions by Kenyan head teacher responses from the FGDs. The three indicators highlighted in orange represent three categories of a child-friendly school that had already been asked through the FGD school background survey, and did not require to be asked again in the limited 25-question mobile phone, SMS-based ECMT diagnostic action research tool. These three indicators included three school-level ratio statistics that described levels of the following: classroom: pupil ratios, teacher: pupil ratios, and textbook: pupil ratios. These dimensions also represent categories of child-friendly schools that do not require multiple stakeholders’ perceptions of different levels of evidence in the sampled schools; data about each of the reported ratios, can instead come from the school leaders’ educational resource records.

Table 18: Ranked Dimensions of Child-Friendly Schools by Prevalence of Mentions by Kenyan School Leaders in FGDs.
Source: Author (2017).

RANK BY PREVALENCE	CFS # RCMT # NC #	Combined list of 56 CFS Indicators (original indicators from the CMT, revised CMT indicators (RCMT), and new categories of CFS (NC Indicators))	# of RESPONSES HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
1	CFS 38	Number of classrooms with proper ventilation, lighting and adequate learning space for children.	804	9.6%	343	42.2%
2	CFS 45	Income-generating projects in place, effective, and benefiting children’s welfare.	777	9.3%	377	46.4%
3	CFS 33	Provision of nutrition services in school (e.g. school feeding, deworming, vitamin A supplementation).	590	7.1%	290	35.7%
4	CFS 26	All out-of-school children identified in the community and efforts made to enrol and retain them in the school.	525	6.3%	255	31.4%

5	CFS 12	Teacher-pupil ratio (how many pupils study with one teacher).	510	6.1%	247	30.4%
6	RCMT 7 (CFS 23, CFS 42)	School development plan in place addressing the child's needs holistically (CFS 23); Functional SMC and CFS team (CFS 42).	496	5.9%	240	29.6%
7	CFS 34	Access to safe clean water for drinking and washing.	440	5.3%	207	25.5%
8	RCMT 6 (CFS 32, CFS 31)	Ratio of latrines for girls and boys (CFS 31); Toilets properly used and well maintained (CFS 32).	426	5.1%	211	26.0%
9	RCMT 3 (CFS 15, CFS 21)	Safety measures in place (i.e. (i) fire extinguishers, (ii) fire escapes, (iii) drills, (iv) lightning arresters, (v) First Aid Kits, (vi) school fence, etc.) (CFS 15); School has duly assigned personnel in charge of securing its premises, properties, and those of pupils and teachers (CFS 21).	374	4.5%	171	21.1%
10	CFS 5	Interactive pupil-centred methods used in teaching/facilitation and learning.	341	4.1%	206	25.4%
11	RCMT 4 (CFS 40, CFS 41, CFS 16)	School compound is clean and well maintained (CFS 40); Availability and use of well-defined play areas with recreation time allocated on timetable (CFS 41); School has environment/compound free from hazardous/risky materials/buildings (CFS 16).	310	3.7%	150	18.5%
12	RCMT 2 (CFS 13, CFS 19)	Peace, citizenship, guidance and counselling are promoted (CFS 13); School is free from addictive substances, violence, and pornography (CFS 19).	264	3.2%	141	17.4%
13	CFS 49	Parents are interested in and support pupils' learning at home and discuss pupils' work with teachers.	255	3.1%	182	22.4%
14	CFS 1	School has functioning children's government which addresses problems affecting them (including peace building).	224	2.7%	104	12.8%
15	CFS 46	Percentage of parents participating in meetings.	221	2.7%	139	17.1%
16	RCMT 5 CFS 24, CFS 25	Proportion of teachers trained in special education (CFS 24); Availability of disability-friendly facilities and equipment (e.g. ramps, toilets, braille materials, hearing aids, clearly defined paths, etc.) (CFS 25).	159	1.9%	61	7.5%
17	CFS 10	Quality of school assessment and feedback.	154	1.8%	114	14.0%
18	RCMT 1 (CFS 8, CFS 2)	Competence/dedication of teachers (CFS 8); Effective supervision of curriculum in place (CFS 2).	154	1.8%	98	12.1%
19	CFS 7	Availability and use of Teaching and Learning Using Locally Available Resources (TALULAR) (e.g. sticks, leaves, beans, etc.).	152	1.8%	111	13.7%
20	CFS 6	Textbook-pupil ratio in all subjects.	145	1.7%	91	11.2%
21	CFS 14	School enforces a policy on prevention of violence and corporal punishment through positive disciplining.	125	1.5%	72	8.9%
22	CFS 35	Health, hygiene and life skills education is part of the curriculum and is regularly taught.	116	1.4%	80	9.9%

23	CFS 27	Girls and boys treated equally in teaching, seating, assignment, access to materials, asking questions/feedback.	104	1.3%	56	6.9%
24	CFS 44	Linkages with community-based ECD centres.	92	1.1%	81	10.0%
25	CFS 4	Percentage of boys and girls actively participating in lessons.	82	1.0%	69	8.5%
26	CFS 20	School has policy against discrimination with regards to gender, cultural origin, social status, religious beliefs, and other differences.	72	0.9%	45	5.5%
27	CFS 37	Number of outreach activities done by school to prevent HIV/AIDS per term.	68	0.8%	55	6.8%
28	CFS 17	School has emergency preparedness and response plan and measures.	58	0.7%	38	4.7%
29	NEW 1	Provide transport support to pupils between home and school.	42	0.5%	37	4.6%
30	NEW 2	Encourage use of national language policy to encourage better language acquisition in school.	34	0.4%	18	2.2%
31	NEW 3	Ensure pupils have access to adequate recreational equipment.	34	0.4%	19	2.3%
32	NEW 4	Prevent area wildlife from harming pupils while in school.	28	0.3%	19	2.3%
33	NEW 5	Organize partner school bench-marking, extra-curricular competitions, and pupil exchanges.	15	0.2%	15	1.9%
34	NEW 6	Encourage pupils' exposure to positive role models in the community.	15	0.2%	15	1.9%
35	NEW 7	Ensure the teacher roster includes those that are appropriate age, from diverse backgrounds, and gender balanced.	14	0.2%	11	1.4%
36	NEW 8	Provide adequate housing facilities for teachers.	14	0.2%	11	1.4%
37	NEW 9	Provide pupils with adequate boarding facilities who may require accommodation.	14	0.2%	10	1.2%
38	CFS 3	Proper record-keeping (administrative, academic, finance, and stores).	13	0.2%	8	1.0%
39	NEW 10	Provide pupils with access to ICT equipment and classes.	10	0.2%	6	0.7%
40	CFS 11	Proportion of pupils who started class one eight years ago completing school and sitting KCPE.	10	0.1%	6	0.7%
41	NEW 11	Provide teachers with adequate daytime welfare services.	9	0.1%	8	1.0%
42	NEW 12	Ensure the school is free from political influences that could disrupt learning.	8	0.1%	8	1.0%
43	NEW 13	Provide adequate administration office space.	8	0.1%	7	0.9%
44	NEW 14	Provide library facilities for pupils.	5	0.1%	4	0.5%
45	CFS 36	School has easy access to health services/sickbay/first aid (immunization/vaccination, reasonable distance to health centre).	3	0.0%	2	0.3%
46	CFS 28	Gender awareness clubs operational in school.	0	0.0%	0	0.0%
47	CFS 9	Proportion of teachers who had in-service training in the last 12 months.	0	0.0%	0	0.0%
48	CFS 18	School enforces policy on protection of girls/disadvantaged against sexual and other abuse or exploitation.	0	0.0%	0	0.0%

49	CFS 22	Detailed pupil profile available (by name, age, sex, home background, other information about a child, etc.).	0	0.0%	0	0.0%
50	CFS 29	Instructional materials reflect and promote gender balance in roles of males versus females.	0	0.0%	0	0.0%
51	CFS 30	School enforces a policy on dropouts (pregnancy/truancy/child labour).	0	0.0%	0	0.0%
52	CFS 39	Appropriate use of available resources.	0	0.0%	0	0.0%
53	CFS 43	School management committee and CFS team equally represented by males and females.	0	0.0%	0	0.0%
54	CFS 47	Evidence of community participation in the school development plan implementation.	0	0.0%	0	0.0%
55	CFS 48	Child-to-child activities promoted for school community linkages.	0	0.0%	0	0.0%
56	CFS 50	Outreach activities done by school in the community.	0	0.0%	0	0.0%
Total			8,353	100.0%		

As one can see from Table 18 (above), there is a mix of *both* original CMT categories and regrouped RCMT categories in the top 25 most prevalent indicators of CFS from the FGD data (the indicators highlighted in green). None of the NC categories were ranked in the top 25 most prevalent indicators of CFS, as perceived by Kenyan school leaders.

As a means to compare and synthesize the data from the FGDs, the researcher took the 25 most prevalent indicators mentioned in the FGDs and created an ‘Enhanced Child-Friendly Schools Monitoring Toolkit’, herein called the ECMT. The new list of 25 indicators represents 25 of the most frequently cited reasons why Kenyan school leaders perceived certain factors made their schools child-friendly or not child-friendly. Combined with the three ratio statistics per Kenyan school (classroom: pupil ratio, teacher: pupil ratio, and textbook: pupil ratio), the new ECMT with 25 indicators captures 8,038 of FGD responses, or 97.0% of Kenyan school leaders’ local perceptions of what factors enhance or inhibit levels of child-friendliness in their primary schools. In other words, the ECMT better equips Kenyan school leaders with a new conceptual framework that reflects what *they* perceived to be critical indicators of a child-friendly school; using only **half** of the number of CFS indicators than the original CMT that was created by UNICEF-Kenya and the MOEST.

The final version of the ECMT involved two further rounds of qualitative data analysis and a series of language edits before being deployed through the mobile phone, SMS-based ECMT diagnostic action research tool in phase 2 of the study. These last two stages of analysis and corresponding results are outlined and presented below.

First, a final round of coding was done to try to group each of the 25 ECMT indicators under one of the five main CFS themes (i.e. Inclusive Classrooms, Equity and Equality, Safety and Protection, Health and Nutrition and Community Linkages and Involvement). As illustrated in Table 19 below, the 25 ECMT indicators equally distributed across each of the five themes. This is significantly different than the original CMT where each of the five CFS themes were measured through an uneven number of CFS indicators. Now, the ECMT provides five indicators of child-friendliness for each main ECMT theme. The names of each of the five themes were adjusted slightly to reflect more of what the FGD data had described (i.e. ‘Inclusive Classrooms’ was changed to ‘Classroom Teaching and Learning’; ‘Community Linkages and Involvement’ was changed to ‘Community and Family Engagement’). A further explanation of the renaming process is discussed more in Chapter 5.

Second, the study had to edit the length of each ECMT indicator because only 160 characters could fit onto each question of the study’s mobile phone, SMS-based ECMT diagnostic tool. Each of the 25 indicators was therefore reworded into statements that could easily be understood and rated by school stakeholders in Kenyan primary schools. The final version of the co-constructed ECMT with 25 indicators is provided in Table 19 on the next page.

Table 19: Newly Co-constructed Conceptual Model of the ECMT with 25 Indicators (to be used in the Mobile, SMS-based ECMT diagnostic tool during phase 2 of the study).Source: Author (2017).

ECMT #	Final ECMT with 25 Indicators (to be used in the Mobile Phone, SMS-based ECMT diagnostic tool).
Theme 1	Classroom Teaching and Learning
1	My school is a place where pupils actively learn from interactive, pupil-centered teaching methodologies.
2	My school is a place where girls and boys actively participate in lessons with questions and comments.
3	My school is a place where pupils receive meaningful verbal and written feedback from their teachers about their learning strengths and weaknesses.
4	My school is a place where all teachers are competent in their subject knowledge.
5	My school is a place where teachers use local available resources for instructional materials in the classroom.
Theme 2	Safety and Protection
6	My school is a place that promotes effective guidance and counselling for pupils on a regular basis.
7	My school is a place that enforces a policy on prevention of violence and corporal punishment through positive disciplining (no caning).
8	My school is a place that has safety measures in place (i.e. fire-fighting equipment, first-aid kits, school fences, security personnel, etc.).
9	My school is a place that has an emergency preparedness and response plan in place (i.e. pupils know what to do in case of fire, flood, etc.).
10	My school is a place that provides safe outdoor spaces for pupils' play, rest and recreation activities.
Theme 3	Equity and Equality
11	My school is a place where pupils actively participate in school-based children's governments that allow them to elect pupil leaders and have an equal voice.
12	My school is a place where girls and boys are treated equally in teaching, seating, access to materials and asking questions and receiving feedback.
13	My school is a place where all pupils are treated with respect regardless to cultural origin, tribal affiliation, religious belief and/or social status.
14	My school is a place that identifies all out-of-school children (drop-outs, child labor, and truancy) in the community and makes efforts to enroll and retain them.
15	My school is a place that has the capacity to provide disabled pupils with appropriate disability-friendly facilities, equipment and trained personnel.
Theme 4	Health and Nutrition
16	My school is a place where all pupils have access to clean, safe, and well-maintained toilet facilities.
17	My school is a place where pupils have access to clean water for drinking and washing needs.
18	My school is a place where pupils know how to practice proper personal health and hygiene behavior (e.g. hand-washing, bathing, dental care, use of sanitary pads, etc.).
19	My school is a place where pupils learn ways to prevent transmitting diseases (malaria, HIV/AIDS, TB, worms, cholera, etc.).
20	My school is a place where pupils have access to proper nutrition services (i.e. school feeding).
Theme 5	Community and Family Engagement
21	My school is a place where parents meet with teachers on a regular basis to discuss pupils' learning needs, strengths, and overall progress.
22	My school is a place that has a functional school management committee that plans, promotes and monitors school improvement activities.
23	My school is a place that sensitizes parents about creating a conducive learning environment at home.
24	My school is a place that strongly links with community- and school-based early childhood development (ECD) centers and emphasizes the importance of early childhood development in education.
25	My school is a place that has income-generating activities that benefit pupils' welfare (i.e. fund drives, donors, school gardens, carpentry, poultry farms, etc.).

Although Table 19 outlines how the new ECMT provides five superordinate themes under which the 25 newly developed indicators of child-friendly schools were organized, issues of both social and gender inequity were not limited solely to ECMT indicators 11-15 under the ECMT theme, ‘Equity and Equality’. In fact, when reviewing the raw responses from the FGD data, one clearly sees how school leaders articulated how issues of social and gender equity underpin almost *all* the indicators of a child-friendly school in Kenya. To illustrate this point, a selection of quotes from Kenyan school leaders’ FGD notecards are presented per ECMT superordinate thematic area, emphasizing how issues of gender and social inequities remain as critical areas of concern for CFS in Kenya.

Under the first ECMT superordinate thematic area, ‘Classroom Teaching and Learning’, ECMT indicators one, two and three emerge from a wide array of Kenyan school leaders’ responses that expressed how gender and social inequities are preventing their schools from being child-friendly. One school leader wrote, ‘Often girls are undervalued in classroom conversations while boys receive most airtime’ (SL #341); another head teacher noted, ‘Male teachers often tend to favor the boys during lessons, leaving the girls behind in lesson delivery and comprehension’ (SL #511); on another notecard, a school leader wrote, ‘In my community, girls are viewed as marriage material, not worthy of learning materials’ (SL #701). On the other hand, a number of school leaders called for more ‘gender sensitive pedagogy’ in their classrooms (SL #37; SL #89; SL #405), where one respondent described how her school was more ‘child-friendly because it was *gender-friendly*’ where ‘her teachers took into account differences between girls and boys when developing, delivering, and assessing lesson content (SL #301, emphasis added). In the case of providing meaningful verbal feedback in a child-friendly school, one school leader described how his ‘teachers often provided feedback that goes beyond whether the answer was right or wrong, but whether or not the pupil was comfortable in his or her learning space and valued for who they were no matter their background’ (SL #88). In essence, issues of social and gender equity and equality are strongly related to the ECMT indicators grouped under the ECMT theme of ‘Classroom Teaching and Learning’.

Issues related to gender and social equity also underpin the indicators of the ECMT second superordinate thematic area, ‘Safety and Protection’. In particular, gender-based violence was expressed by Kenyan school leaders as a common reason preventing schools from being child-friendly. One school leader described how ‘boys and male teachers often

take the private parts of the girl child as their toys and without consequences’ (SL #200). Another respondent expressed how in her school, ‘Girls did not trust their male teachers because of reports of sexual and physical abuse in their classrooms and school compounds when nobody was looking’ (SL #561). ECMT indicator six that ‘promotes effective guidance and counselling for pupils on a regular basis’ stems from Kenyan school leaders expressing the explicit need for more ‘gender-sensitive mentorship for the girl-child’ (SL #47), ‘counselling services for the most marginalized girls and those from poor backgrounds that may require special training’ (SL #104) and ‘specialized responses to the barriers facing girls and marginalized pupils who view schooling as a pathway to early marriage, only’ (SL #621). It becomes very clear that issues related to gender and social inequities are related throughout indicators of ECMT thematic area, ‘Safety and Protection’, within a child-friendly school.

As one can imagine, a number of school leaders’ FGD responses about social and gender inequities also underpinned the indicators organized under the fourth ECMT superordinate theme, ‘Health and Nutrition’. As noted earlier, gender equality and equity was expressed by a number of Kenyan school leaders as a significant underlying factor related to the provision of clean, safe, and well-maintained toilet facilities in child-friendly schools. Furthermore, school leaders also noted how the provision of adequate sanitary pads for girls led to increased attendance and self-respect for learners, making their schools more child-friendly (SL #341; SL #401; SL #571; SL #662). ECMT indicator 19, which describes a child-friendly school as a place where ‘pupils learn ways to prevent transmitting diseases (malaria, HIV/AIDS, TB, worms, cholera, etc.)’ reflects a number of school leaders expressing the importance of promoting gender-sensitive and gender-transformative sexual health education. One school leader wrote, ‘Without explicit sexual health education that equips girls with the information they need to say no to boys, my school can never be considered child-friendly since girls remain their sexual prey’ (SL #300). Another head teacher expressed how ‘The school is child-friendly because girls and boys are taught the choices they must make in their sexual and physical futures of health - how their choice to have sex is not for just one of them to make, but for both of them to make together’ (SL #632). As evident by this small selection of quotes, it is clear how issues of gender and social equity are intertwined with ECMT indicators related to health and nutrition in a child-friendly school.

Finally, the fifth superordinate thematic area of the ECMT, ‘Community and Family Engagement’ includes indicators that reflect how critical addressing gender and social

inequities are to Kenyan school leaders in enhancing levels of child-friendliness in Kenyan schools. In particular, ECMT indicator 23, which describes a child-friendly school as ‘a place that sensitizes parents about creating a conducive learning environment at home’, reflects a wide ranging set of inputs from Kenyan school leaders’ notecards collected during the FGDs that prioritized the need for addressing social and gender inequities. One school leader wrote, ‘My school will never be child-friendly due to the deeply rooted tribalism that exists in learners’ homes’ (SL #49). Another head teacher described, ‘Girls will never be able to keep up with the pace of boys because of the burden they carry at home with the chores’ (SL #799). One school leader described the dire situation of his female learners, writing, ‘Girls in my community are viewed as early brides with a price tag that only increases value with the number of years they remain in school – therefore my school will never be child-friendly if their destination only remains to be at the side of a husband’ (SL #58). As one can see from just a handful of the FGD notecards, Kenyan school leaders view both parental engagement and community sensitization about issues related to both social and gender equity as critical for enhancing levels of child-friendliness in their schools.

In summary, while the ECMT includes an explicit superordinate thematic focus area about ‘Equity and Equality’ with five accompanying ECMT indicators, one can see how the indicators across *all* of the ECMT thematic areas (i.e. Classroom Teaching and Learning; Safety and Protection; Health and Nutrition; and Community and Family Engagement) are dependent on overcoming deeply entrenched social and gender inequities that continue to exist in the Kenyan context. These findings reflect what Unterhalter et al. (2014) calls for ‘increased attention to the interconnections of different [educational] development reforms [...] (e.g. related to issues of health, social protection, democratic governance) and their relationship with gender [and social] equality more broadly’ (p. 56). In short, the presentation of a handful of Kenyan school leaders’ FGD notecard responses was meant to re-emphasize how Kenyan school leaders continue to perceive gender and social inequities as key barriers that they must overcome to make their primary schools more child-friendly for all.

4.2 Testing the New Conceptual Model and Diagnostic Tool for CFS: Quantitative Findings and Analyses from Research Phase 2

After developing the new ECMT, the study deployed the mobile phone, SMS-based ECMT to the same 812 primary school leaders who had participated in the focus group discussions in phase 1 of the study, along with a request to involve other stakeholders (i.e. two teachers, two Class 8 pupils, and two parents who were members of the school management committee) in the school-wide diagnostic action research exercise. Phase 2 of the research, therefore, generated and analyzed the quantitative results collected from the completed mobile phone, SMS-based ECMT diagnostic surveys through the EMIS-Light platform, using basic descriptive statistics to answer the second research sub-question:

1B: When Kenyan school leaders and other school stakeholders (i.e. teachers, parents, and pupils) employ a more bottom-up, co-constructed conceptual framework and diagnostic tool for CFS, what new data and insights emerge about the quality of education in Kenya?

4.2.1 Results

4.2.1.1 School Background Survey Data Collected from FGDs: Three Key Ratios

Before analyzing the results of the mobile phone, SMS-based ECMT diagnostic action research surveys, the researcher first analyzed results from the original 812 Kenyan school leaders' school background surveys collected during phase 1 of the research study during the FGDs. The school background surveys had asked school leaders to provide information about three ratios that were components of the newly developed conceptual framework of the ECMT (i.e. classroom: pupil ratios; teacher: pupil ratios; and textbook: pupil ratios). In order to understand perceived levels of child-friendliness levels in Kenya, it was important for the researcher to calculate the results of these three additional categories of the ECMT that would supplement the ECMT mobile phone, SMS-based diagnostic action research results. The findings are presented below.

4.2.1.1.1 Classroom to Pupil Ratios in Kenyan Primary Schools

Of the 812 Kenyan school leaders who were surveyed, a total of 750 responded with information explaining the average classroom to student ratio for their school. Figure 19 below illustrates that a large percentage of the sampled schools (30%) have one classroom for a class size between 40 to 60 children. According to the MOEST, the average classroom to

pupil ratio should be one classroom for between 21 to 40 pupils. 16% of the sampled schools report having classroom to pupil ratios well above the national average with 9% reporting class sizes between 61 to 80 children; 7% reported having one classroom per 81 or more children. 11% of the schools reported having one classroom per 1 to 20 children.

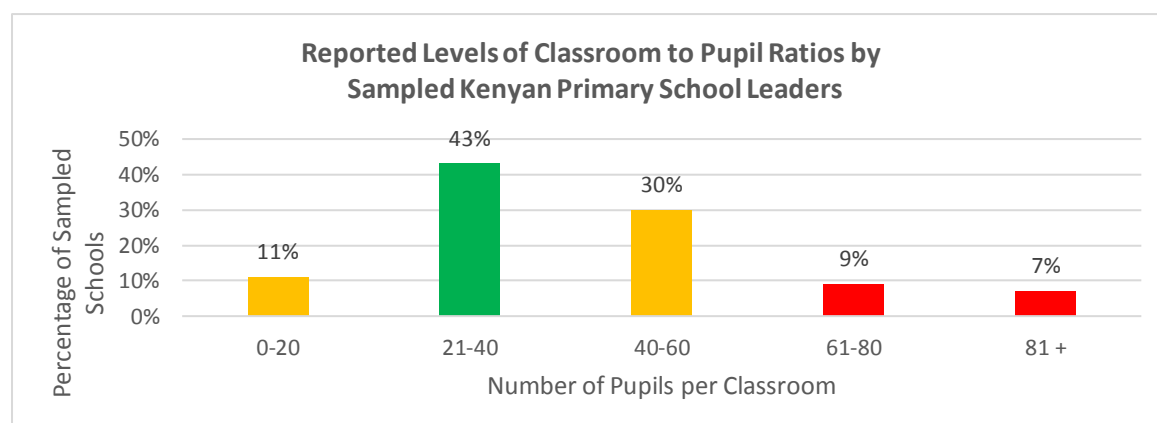


Figure 19: Reported Classroom to Pupil Ratios by Kenyan School Leaders of Sampled Kenyan Primary Schools. Source: Author (2017).

Among the 7% of schools that reported having one classroom per 81 or more children, five of the schools reported having more than 300 children per classroom. Five other schools reported having more than 200 children per classroom, and 24 additional schools reported having more than 100 children per classroom. Therefore, although the total percentage of overpopulated classrooms remains low within the sample, the classrooms that did report above average class sizes are evidently experiencing severe strains on learning environments that are considered to be extremely unfriendly for children.

4.2.1.1.2 Teacher to Pupil Ratios in Kenyan Primary Schools

As one can see in Figure 20 (next page), the majority of schools (57%) reported having a teacher to pupil ratio of between 21 and 40 children per teacher. However, more than 30% of schools reported having more than 41 children per teacher. In some cases, schools reported having more than 90 children per teacher. The MOEST's official teacher to pupil ratio is 1 to 40. As evidenced by the data, the provision of adequate numbers of teachers remains an important and significant constraining factor to improving levels of child-friendliness in the sampled Kenyan primary schools.

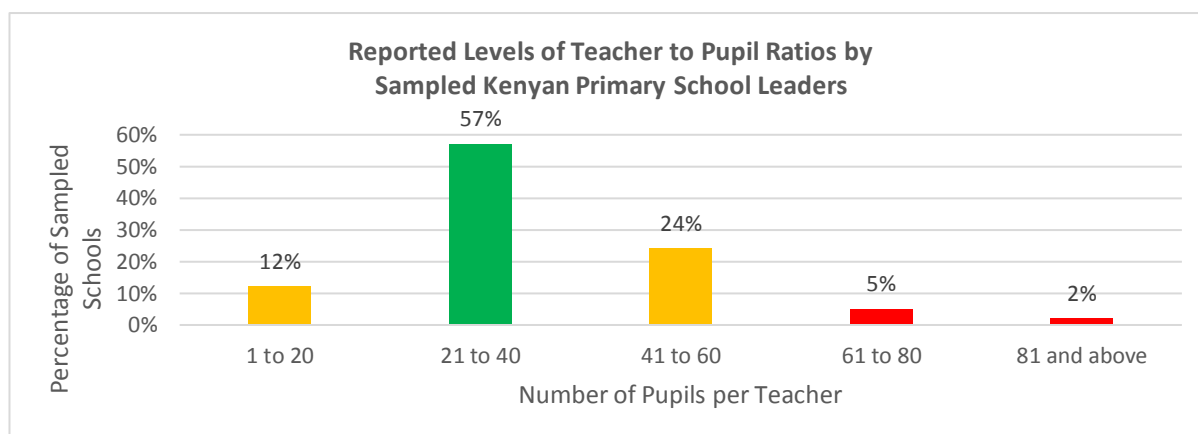


Figure 20: Reported levels of Teacher to Pupil ratios by Sampled Kenyan School Leaders. Source: Author (2017).

Figure 20 (above) illustrates the results of the Kenyan school leaders' school background survey data by highlighting in green the percentage of schools within the adequate teacher to pupil ratio; the yellow coloured histogram bars represent the percentage of schools with concerning teacher: pupil ratios that are either below or above government regulations. Finally, the red coloured histogram bars represent severely strained teacher: pupil ratios.

4.2.1.1.3 Textbook to Pupil Ratios in Kenyan Primary Schools

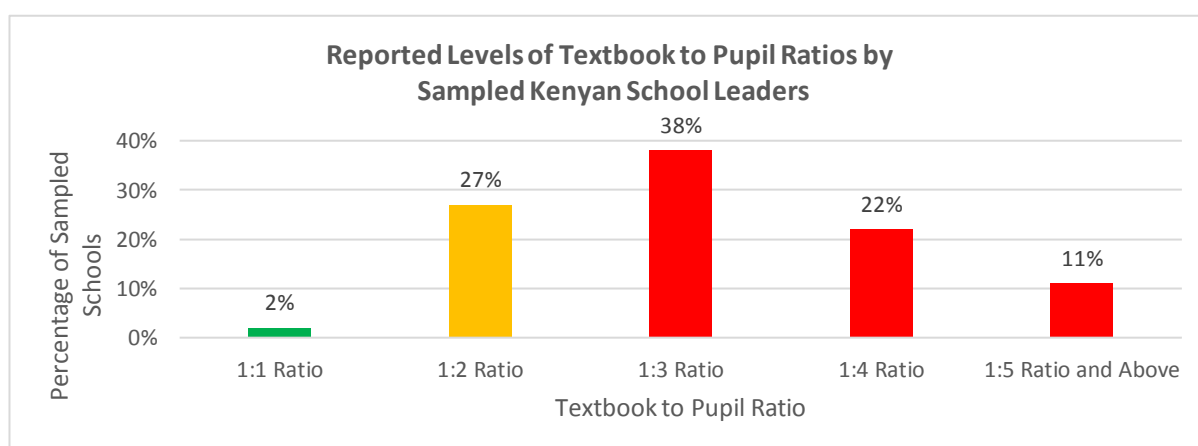


Figure 21: Reported levels of Textbook to Pupil ratios by Sampled Kenyan Primary School Leaders. Source: Author (2017).

Figure 21 (above) illustrates Kenyan school leaders' reported levels of textbook to pupil ratios in their schools. According to the data, only 2% of schools reported having one textbook per one pupil, highlighted above in green. 27% of schools reported having one textbook per two students. Alarming, 71% of schools reported having one textbook for

three or more pupils. 11% of these schools reported having one book per five or more children. In some schools, school leaders reported that one textbook was actually shared among ten or more pupils.

Clear deficits in the quantity of educational supply are evident across all three reported ratio levels – whether they be classroom to pupil ratios, teacher to pupil ratios, or textbook to pupil ratios. However, for purposes of this study, the researcher decided that it was often well beyond the scope of local school leaders' responsibilities to be able to source funds for new classrooms, assign new teachers from the government's Teacher Service Commission or source new textbooks that are meant to be freely provided from the government. Although a number of school leaders noted that these deficits reflected opportunities for them to develop more innovative, grassroots-level partnerships to source new classroom buildings, train voluntary teaching personnel and buy new textbooks, the study wanted to avoid inspiring school improvement plans that pertained to domains that were well beyond the expected roles and responsibilities of a local Kenyan school leader. The next section presents the data that is meant to reflect multi-stakeholder perceptions of the *quality* of the child-friendly schools and produce actionable data that *are* within appropriate realms of actionable Kenyan school leadership strategies for school improvement.

4.2.1.2 Data from Mobile Phone, SMS-based ECMT Diagnostic Action Research Surveys

A total of 1,857 mobile phone, SMS-based ECMT diagnostic action research surveys were deployed and completed across 581 of the original 812 sampled schools, providing the first measure of child-friendliness in Kenya at scale with 46,425 answered questions from 431 Kenyan school leaders, 533 teachers, 467 parents, and 426 pupils. The new mobile phone, SMS-based ECMT diagnostic tool also employed a new rating scale for asking participants to rate levels of child-friendliness in their schools. A discussion justifying the use of the ECMT scoring scale is provided in Section 5.2.1 in Chapter 5. The mobile phone, SMS-based ECMT diagnostic tool asked participants to rate perceived levels of evidence about each of the twenty-five ECMT dimensions on a five-level 'extent to which' rating scale: 0 = No evidence; 1 = Below average levels of evidence; 2 = Average levels of evidence; 3 = Above average levels of evidence; 4 = Complete levels of evidence (Cunningham et al., 2013). The total possible score was calculated to be out of 100 points per school to describe perceived levels of child-friendliness.

The average self-reported child-friendliness score was 66% out of 100% across the 581 Kenyan primary schools and 1,857 survey respondents. The ECMT thematic area of ‘Safety and Protection’ received the lowest levels of perceived evidence from survey respondents; the ECMT thematic area of ‘Equity and Equality’ received the highest levels of perceived evidence. These national measures of child-friendliness indicators in Kenyan schools provide a significant contribution to show how Kenyan school leaders can better assess child-friendliness levels in their schools with a new, affordable, and *useable* ECMT diagnostic action research tool.

The survey results are presented over the next four pages (in Figures 22, 23, 24, 25, and 26) by the response totals from participating school stakeholder groups, using basic descriptive quantitative statistics. The bars of each graph highlighted in red represent those ECMT indicators that were rated as having **below average levels** of perceived evidence in Kenyan primary schools (less than a 50% ECMT score). The bars of each graph highlighted in orange represent those ECMT indicators that were rated as having **average levels** of perceived evidence in Kenyan primary schools (between a 51% and 75% ECMT score). The bars of each graph highlighted in green represent those ECMT indicators that were rated as having **above average levels** of perceived evidence in Kenyan primary schools (higher than a 75% ECMT score). The percentages of perceived levels of ECMT evidence were calculated for each school stakeholder by dividing the total number of reported ECMT scores per stakeholder by the total number of stakeholders completing the survey (for example, 426 ECMT scores were reported by 426 pupils; therefore the total sum of the ECMT scores was divided by 426 to calculate the overall average rating per ECMT indicator). The average self-reported ECMT score was divided by 4 to produce a percentage of perceived levels of evidence of child-friendliness in Kenyan schools (i.e. $3.7/4 = 92.5\%$).

The original research design had hoped that a total of seven school stakeholders (two pupils, two parents, two teachers and the head teacher) per school would each complete one ECMT diagnostic survey. This proved to be too ambitious. A full discussion of the limitations of the generalizability of the findings are presented in Chapter 5. In the end, 71% of the original 812 sampled schools completed the mobile phone, SMS-based ECMT diagnostic action research tool. Results from 46,425 SMS questions generated the first-ever dataset of perceived levels of child-friendliness across Kenyan primary schools at scale. This dataset serves as a critical research output to inform the third and final phase of the research

that investigates whether or not school leaders develop *data-driven* school improvement plans based on the ECMT virtual school report card results.

The quantitative results are first presented by average ECMT scores for each participating school stakeholder group. The empirical data are presented in full to illustrate a new barometer of perceived levels of child-friendliness in Kenya, as observed by Kenyan pupils, parents, teachers and head teachers.

It is important to note, however, that the data depicted in the ‘green bars’ across Figures 22, 23, 24, 25 and 26, reporting pupils’, parents’, teachers’, and head teachers’ perceived levels of high evidence about indicators related to gender and social equality appear to be in **direct contradiction** with the FGD notecard data collected from local school leaders in phase 1 of the research (as discussed earlier in Chapter 4, with relationship to the findings outlined in Table 19). Specifically, the ‘green bars’ showing high levels of perceived evidence reported by Kenyan pupils, parents, teachers and head teachers in Figures 22, 23, 24, 25 and 26 are the result of stakeholders rating the following two ECMT indicators, only:

ECMT Indicator # 12: My school is a place where girls and boys are treated equally in teaching, seating, access to materials and asking questions and receiving feedback.

ECMT Indicator # 13: My school is a place where all pupils are treated with respect regardless to cultural origin, tribal affiliation, religious belief and/or social status.

These two ECMT indicators are **not** intended to capture all issues related to social and gender equity and equality in rating levels of child-friendliness within Kenyan primary schools. In fact, the ‘green bars’ depicted in Figure 25, for example, describe Kenyan head teachers as having reported ‘**above** average levels of perceived evidence’ for gender equality (with an ECMT score of 82%) and ‘**above** average levels of perceived evidence’ for social equality (with an ECMT score of 85%) in their schools. These scores, however, appear to be in **direct contradiction** to the qualitative data collected from Kenyan school head teachers during phase 1 of the study’s research design. For example, Kenyan school leaders often cited issues related to gender **inequality** as key contributing factors to making their schools **not** child-friendly; explaining that the problem of out-of-school children (OOSC), for example, was often linked to gender-related issues such as ‘child pregnancy’ (SL #334), ‘female genital mutilation’ (SL #87), ‘wife inheritance’ (SL #67), and ‘early marriages’ (SL #457). One school leader described the challenge of severe gender discrimination influencing high

numbers of OOSC where she explained, ‘Due to the outdated culture of exchanging girls for camels, many girls will never be seen by families as valuable school-goers and forever remain out of school’ (SL #346). As one can see, issues of gender and social inequality remain critical obstacles for Kenyan school leaders in making their schools child-friendly, even if the ‘green bars’ in Figures 22, 23, 24, 25 and 26 seem to paint a different picture at first glance.

As discussed earlier in this chapter, while only two indicators (ECMT indicators 12 and 13) explicitly asked school stakeholders to rate perceived levels of particular aspects of gender and social equality in their schools, *all* of the other 23 indicators of the ECMT, to some degree, are related to issues of overcoming gender and social inequities in the schools. For example, ECMT indicator 14 describes a child-friendly school as ‘a place that identifies all out-of-school children (drop-outs, child labour, and truancy) in the community and makes efforts to enrol and retain them’. In Figure 25, ECMT indicator 14 about addressing OOSC only received 69% levels of perceived evidence, as compared to 82% for ECMT indicator 12 about promoting gender equality in their schools. This discrepancy illustrates the importance of analysing *all* ECMT indicators *together*, as a more *holistic*, intertwined assessment of perceived levels of child-friendliness in Kenyan primary schools, rather than relying on only one of the ECMT indicators, alone.

In sum, one can see how important it is to **not** interpret the ‘green bars’ in each of the following figures (Figures 22, 23, 24, 25 and 26) as indicative of adequately addressing issues related to gender and social inequity and inequality; rather they should be interpreted simultaneously alongside the other self-rated ECMT indicators of child-friendliness in Kenyan primary schools to gain a more holistic perspective. With an overall national average ECMT rating of only 66% out of 100%, one can imagine the numerous gaps in addressing issues related to social and gender equity in Kenyan schools, today. Whether these gaps relate to issues of ‘Classroom Teaching and Learning’ or ‘Safety and Protection’; ‘Health and Nutrition’ or ‘Family and Community Engagement’; significant strides in more responsive and gender-sensitive school leadership for school improvement are desperately needed.

With this important qualifying clarification about the findings for phase 2 of the research study now made, the empirical data from the study’s mobile phone, SMS-based diagnostic action research surveys are now presented below in Figures 22, 23, 24, 25 and 26.

Kenyan Pupils' Reported Levels of Child-Friendliness in the Sampled Kenyan Primary Schools



Figure 22: Kenyan students' perceived levels of child-friendliness in Kenyan public primary schools. Source: Author (2017).

Kenyan Parents' Perceptions of Child-Friendliness in the Sampled Kenyan Primary Schools



Figure 23: Kenyan parents' perceived levels of child-friendliness in Kenyan public primary schools. Source: Author (2017).

Kenyan Teachers' Perceived Levels of Child-Friendliness in the Sampled Kenyan Primary Schools



Figure 24: Kenyan teachers' perceived levels of child-friendliness levels in Kenyan public primary schools. Source: Author (2017).

Kenyan Head Teachers' Perceptions of Child-Friendliness in the Sampled Kenyan Primary Schools



Figure 25: Kenyan Head Teachers' perceived levels of child-friendliness levels in Kenyan public primary schools. Source: Author (2017).

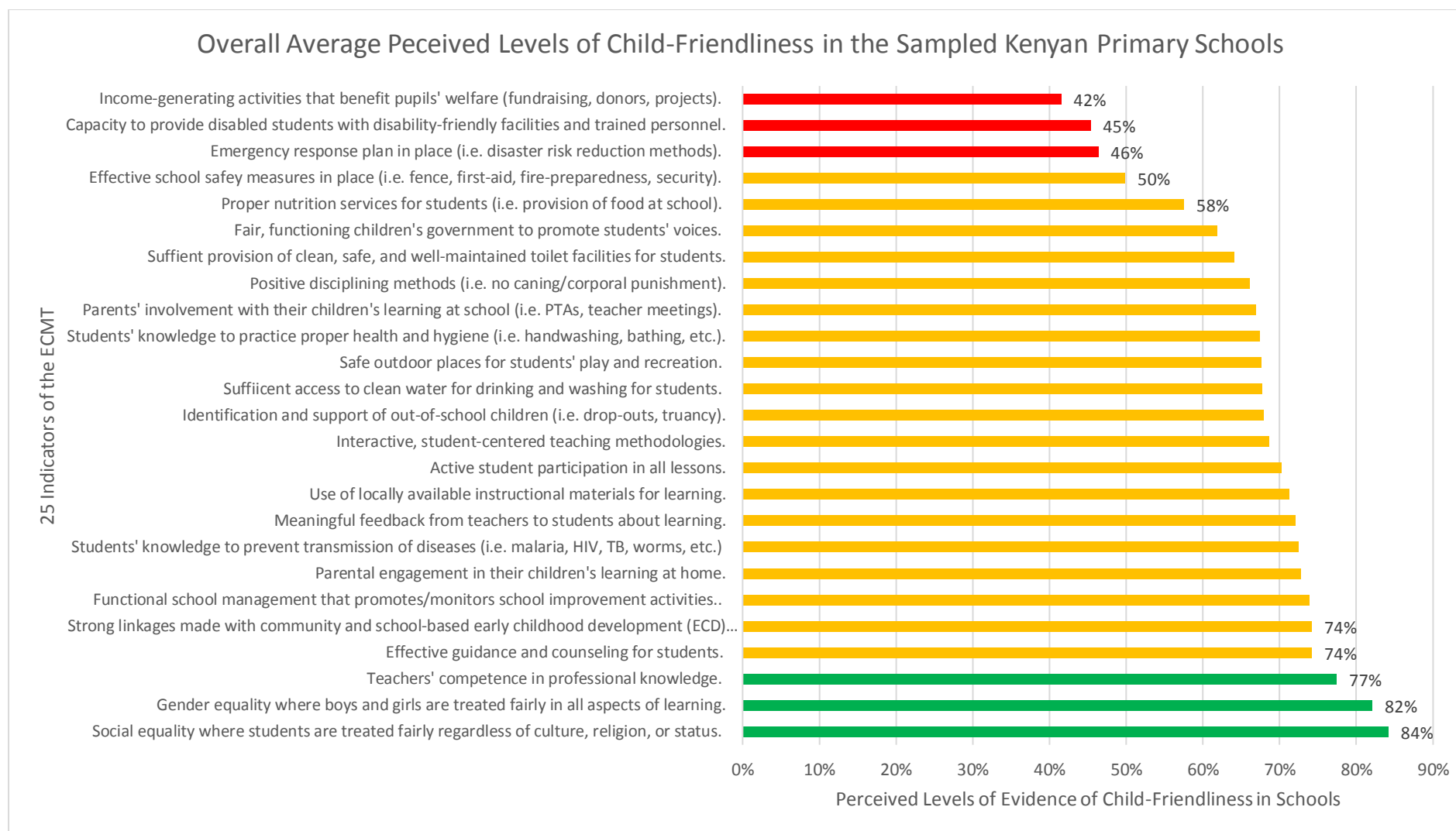


Figure 26: Overall Average Perceived Levels of Evidence of Child-Friendliness in the Sampled Kenyan Primary Schools by all Research Participants (Pupils, Teachers, Parents, and Head Teachers). Source: Author (2017).

4.2.2 Data Analysis

Overall, the differences between Kenyan school stakeholders' perceived levels of child-friendliness in the sampled Kenyan primary schools are very small, with a difference between Kenyan pupils' and Kenyan head teachers', teachers', and parents' self-rated ECMT diagnostic scores of just 2%. These differences are illustrated in Figure 27.

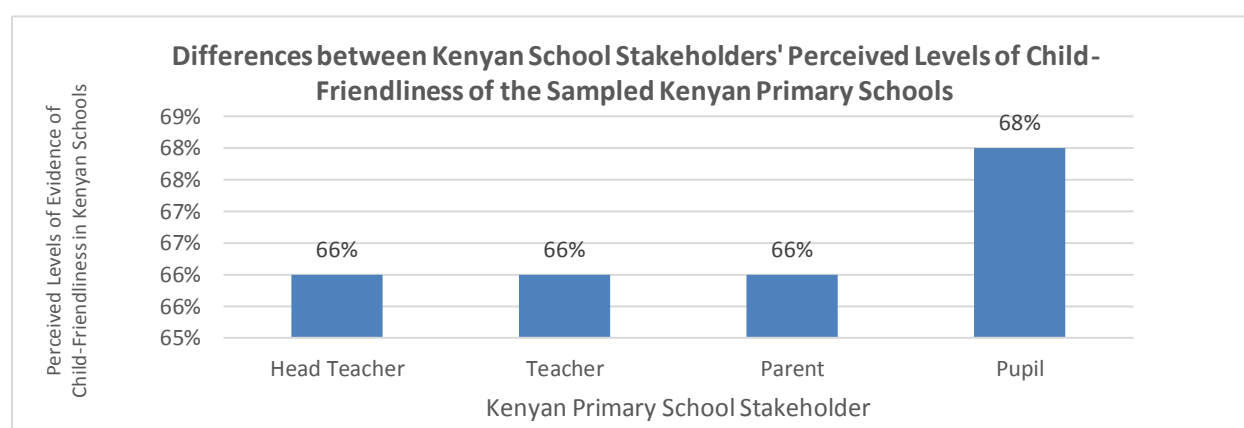


Figure 27: Differences between Kenyan School Stakeholders' Perceived Levels of Child-Friendliness in Sampled Kenyan Primary Schools. Source: Author (2017).

Meaningful differences *between* each ECMT theme do, however, emerge from the data. The ECMT theme receiving the lowest levels of perceived evidence in Kenyan primary schools was 'Safety and Protection', with an average ECMT score that was 10% lower than perceived levels of evidence for indicators related to ECMT theme, 'Classroom Teaching and Learning'. Overall, no ECMT theme received above average levels of evidence (i.e. ECMT score of 75% or more). These results are illustrated below in Figure 28.

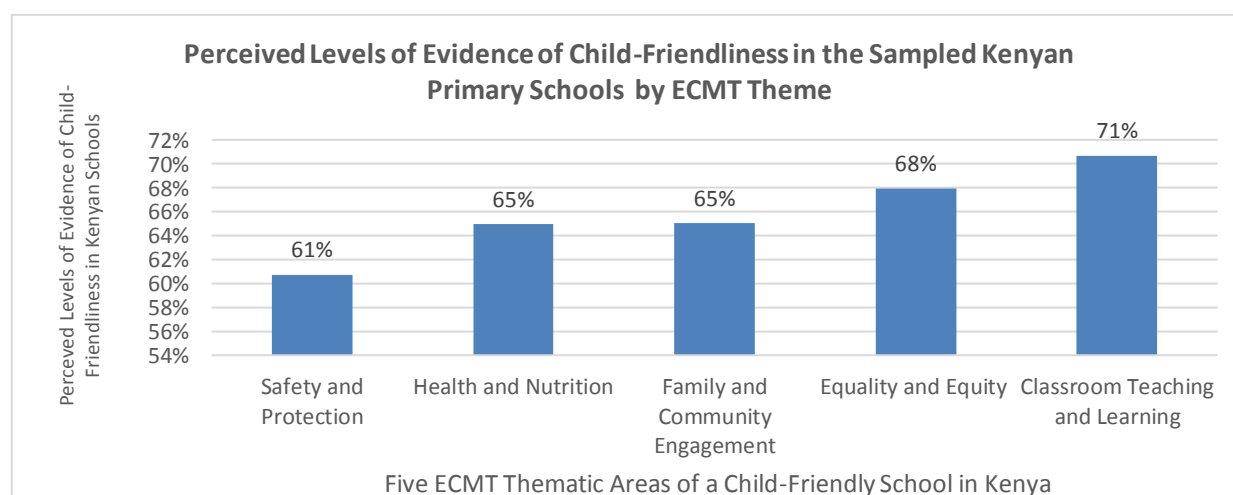


Figure 28: Perceived Levels of Evidence of Child-Friendliness in the Sampled Kenyan Primary Schools by ECMT Theme. Source: Author (2017).

When the results of school stakeholders were analysed by individual ECMT indicators across each of the five ECMT themes, more substantial differences *between* individual ECMT indicator scores emerged; an insight that was lost when comparing overall ECMT average scores by the stakeholder groups. These differences between stakeholder groups' perceived levels of evidence for individual ECMT indicators are presented below in Figures 29, 30, 31, 32 and 33.

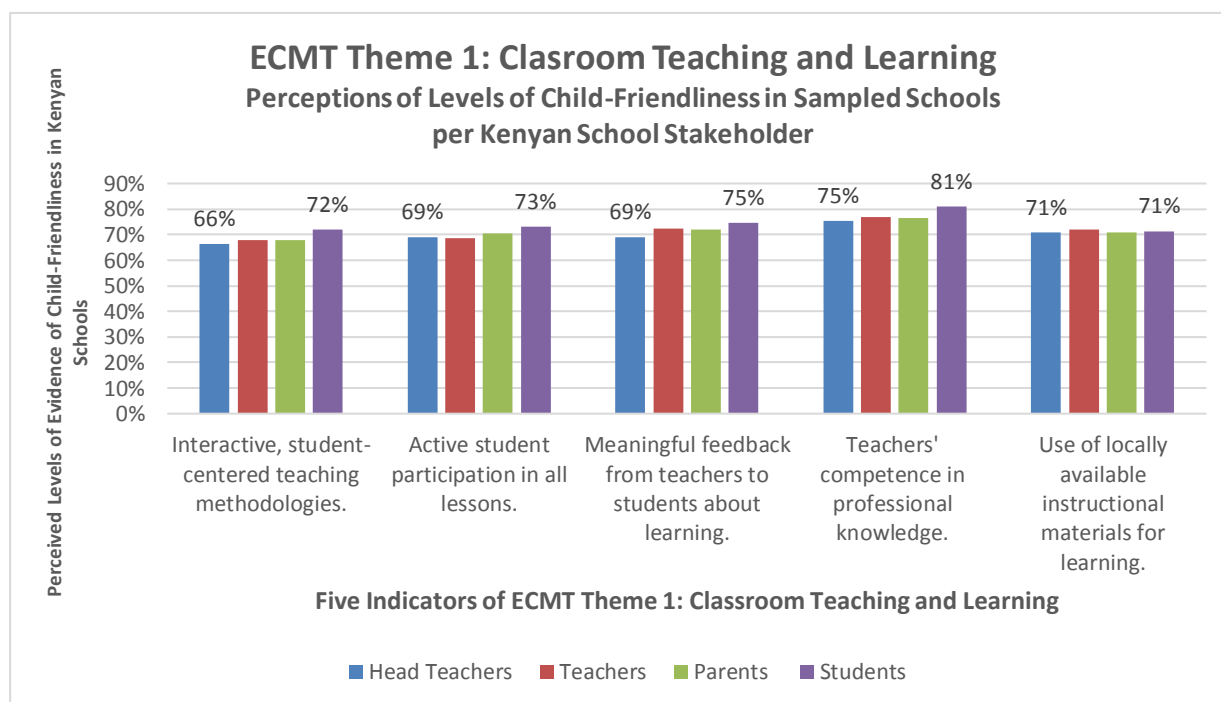


Figure 29: Differences in Kenyan School Stakeholders' perceived levels of evidence of child-friendliness for indicators of ECMT Theme 1: Classroom Teaching and Learning. Source: Author (2017).

Figure 29 (above) illustrates that little to no differences existed between stakeholders' self-reported perceived levels of child-friendliness for indicators related to ECMT theme, 'Classroom Teaching and Learning'. All five ECMT indicators, including 'interactive student centred teaching', 'active student participation', 'meaningful feedback from teachers to students', 'teachers' competence in professional knowledge', and 'use of locally available instructional materials for learning', were rated by all stakeholders as being at or above 'average' levels of evidence throughout the sample. Interestingly, pupils provided a higher rating than head teachers did for ECMT indicator four, which asked school stakeholders to rate levels of evidence about 'teachers' competence in professional knowledge'. Overall, the scores for all ECMT theme one indicators were rated as being at or above average levels by all school stakeholders.

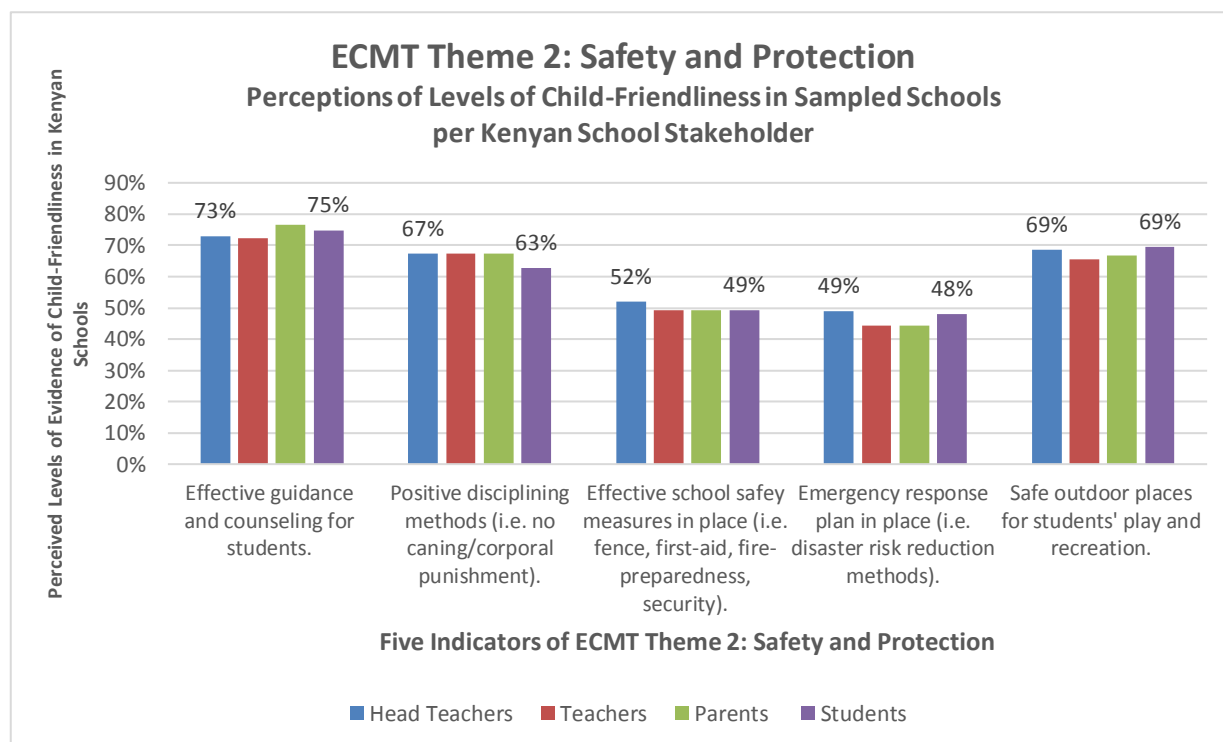


Figure 30: Perceptions of Levels of Child-Friendliness in Sampled Kenyan Schools per Kenyan School Stakeholder for ECMT Theme 2: Safety and Protection. Source: Author (2017).

Figure 30 (above) illustrates that while differences between stakeholders' levels of perceived evidence per ECMT indicator remained unsubstantial, meaningful differences *between* indicators for ECMT theme two did emerge. For example, it seemed that while stakeholders perceived levels of 'effective guidance and counselling' at or 'above average' levels of evidence (with ECMT scores of 72% and above), perceived levels of 'effective school safety measures (i.e. fence, first aid, fire-preparedness, security)' were reported as *below* 50%, or as being 'below average' by teachers, parents and students. While levels of 'positive disciplining' and 'safe outdoor places for students' play and recreation' were deemed as having 'average levels' of evidence (with scores of 65% and above), perceived levels of evidence about schools' 'emergency response plans' were rated as being 'below average' by all stakeholders (with scores ranging from 44% to 49%). Therefore, as one can see, there is need to recognize the more concerning indicators within the overall second thematic area of the ECMT such as effective school safety measures and emergency response plans when considering what may be most needed to improve levels of child-friendliness across the sampled number of Kenyan primary schools.

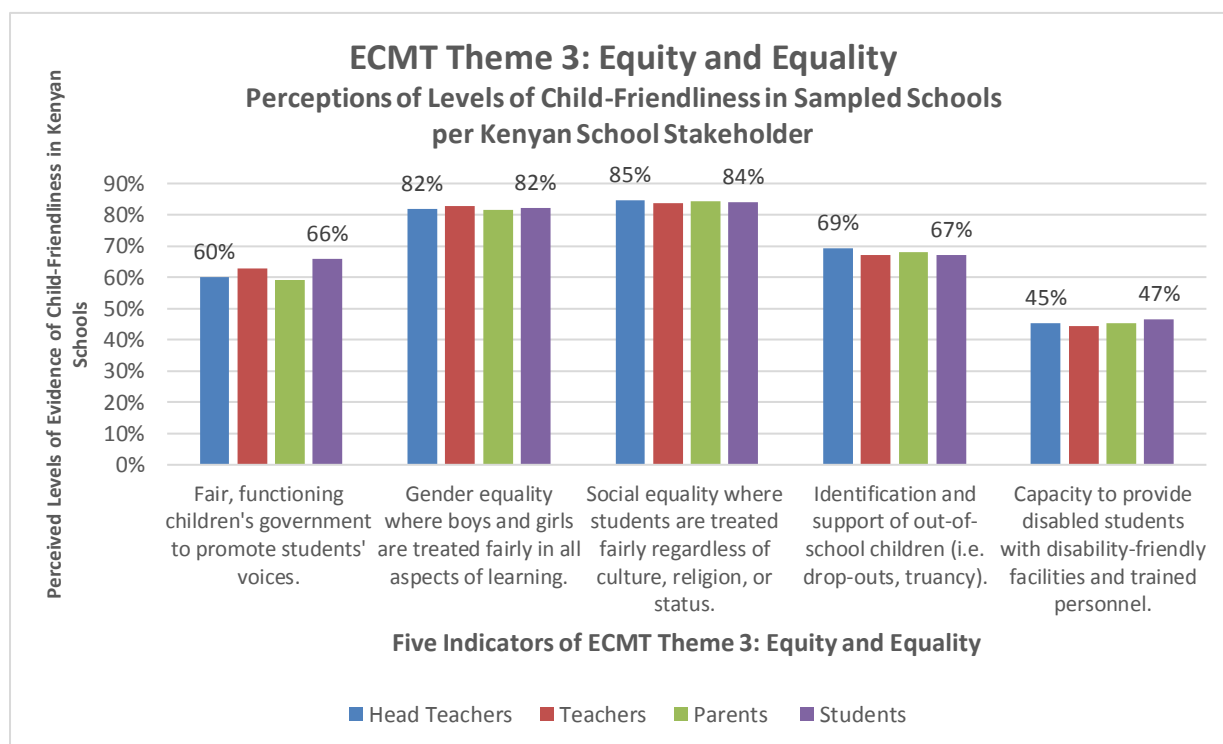


Figure 31: Perceptions of Levels of Child-Friendliness in Sampled Kenyan Schools per Kenyan School Stakeholder for ECMT Theme 3: Equity and Equality. Source: Author (2017).

Figure 31 (above) illustrates the overall reported average scores for ECMT theme three (Equity and Equality). ECMT theme three had the highest levels of perceived scores of evidence by stakeholders. However, differences between individual ECMT indicators in ECMT theme three are important to highlight. In particular, while ECMT theme three indicators such as ‘gender equality’ and ‘social equality’ were rated with very high levels of perceived evidence (with ECMT scores of 80% or above), the same stakeholders *all* rated the ‘capacity of schools to provide disabled students with disability-friendly facilities and trained personnel’ at ‘below average’ levels of evidence (with ECMT scores of 47% or less). Perceived levels of evidence of both ‘functioning children’s governments’ within schools and the degree to which schools are actively ‘identifying and supporting out-of-school children’ remained at only ‘average’ levels of evidence with reported ECMT scores ranging between 59% and 68%, respectively, across all school stakeholders. While the overall average score for ECMT thematic area three (Equity and Equality) was relatively high in comparison to the other ECMT themes, critical questions of equity and equality still exist throughout the sampled Kenyan primary schools, in particular regarding the assurance of equitable quality education for Kenyan students with mental and physical disabilities; a dimension of child-friendliness that received some of the lowest ratings of evidence by all stakeholders.

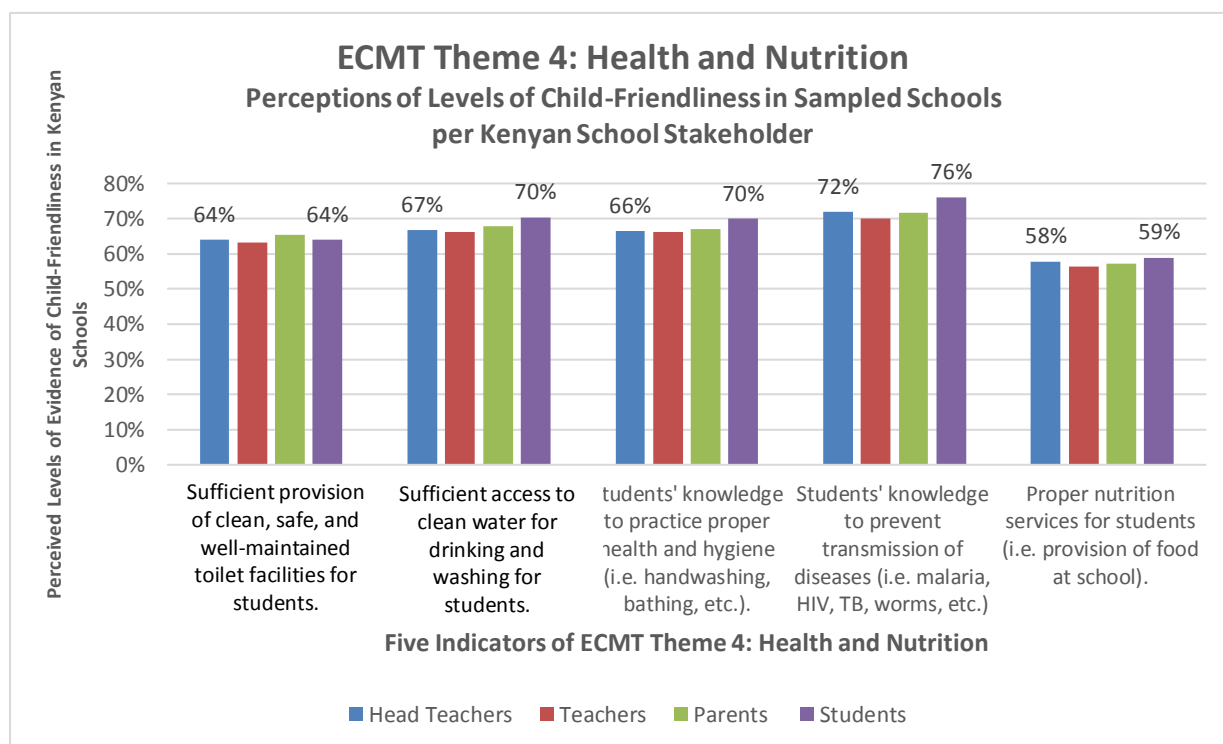


Figure 32: Perceptions of Levels of Evidence of Child-Friendliness in the Sampled Kenyan Schools by School Stakeholders for ECMT Theme 4: Health and Nutrition. Source: Author (2017).

Figure 32 (above) illustrates that overall, Kenyan school stakeholders rated the indicators related to ‘Health and Nutrition’ at ‘average’ levels of evidence (with ECMT scores ranging from 55% to 75% across the five inter-related ECMT indicators). It appears that the ECMT indicator with the lowest levels of perceived evidence described schools’ collective inability to adequately ‘provide nutrition services for students’ with ECMT scores ranging between 56% and 58%. Schools also seemed to struggle in the provision of ‘clean safe, and well-maintained toilet facilities’, providing ‘sufficient access to clean water for drinking and washing’ and equipping students with the ‘knowledge to practice proper hygiene’ and ‘prevent transmission of diseases’. None of the ECMT indicators related to ECMT thematic area four (Health and Nutrition) received levels of perceived evidence that were ‘above average’, or scoring more than 75% by any school stakeholder. This particular theme, similar to that of ECMT theme two (Safety and Protection), appears to be a critical area of need for further attention and action by school and education system leadership for improving educational quality in Kenya.

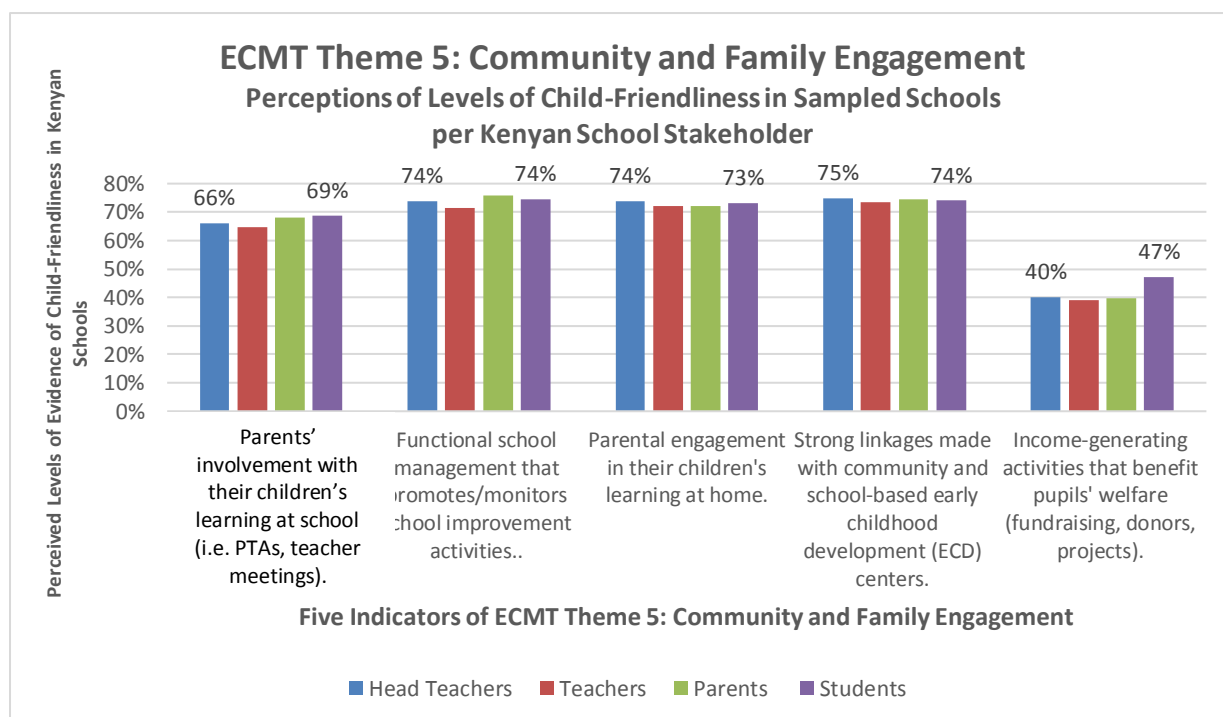


Figure 33: Perceptions of levels of evidence of child-friendliness in sampled Kenya primary schools by all school stakeholders for ECMT Theme 5: Community and Family Engagement. Source: Author (2017).

Figure 33 (above) illustrates the overall ratings by all Kenyan school stakeholders across the five indicators of ECMT theme five (Community and Family Engagement). It appears that all school stakeholders provided high ratings of perceived levels of evidence for describing ‘functional school management committees that promote and monitor school improvement activities’ with ECMT scores of 71% and higher. School stakeholders provided high ratings of perceived evidence describing ‘strong linkages made with community- and school-based early childhood development centres’, with ECMT scores ranging from 71% to 74%. Interestingly, school stakeholders rated the level of ‘parents’ involvement with their children’s learning *at school*’ with lower ratings of perceived evidence than ‘parents’ engagement in their children’s learning *at home*’. The average ECMT score for parental engagement in their children’s learning at school was 67% compared to 73% for describing parental involvement in their children’s learning at home. Finally, school stakeholders provided some of their lowest ratings of evidence for ECMT indicator 25 that asked participants to rate levels of evidence of school-based ‘income generating activities that benefited pupils’ welfare’. All school stakeholders rated this ECMT indicator with well ‘below average’ levels of perceived evidence with a score of 39% given by teachers and 47% from pupils. This is the lowest scored ECMT indicator across the sampled Kenyan schools.

4.3 Evaluating the New Conceptual Model and Diagnostic Tool for CFS - Qualitative and Quantitative Findings and Analyses from Research Phase 3

After calculating and interpreting average levels of child-friendliness across the 25 ECMT indicators in Kenyan schools, the study then deployed virtual ECMT school report cards to the 581 school leaders from schools who had completed their mobile phone, SMS-based ECMT diagnostic action research surveys. Research phase 3 asked school leaders, based on the results of their schools' mobile phone, SMS-based ECMT diagnostic survey results, what *three action steps* would they employ over the next year to make their schools more child-friendly. These findings and analyses are meant to help the researcher answer the study's final research sub-question:

1C: When asked to consider the new data and insights about quality education levels in their schools (CFS), what new strategies do Kenyan school leaders develop for evidence-based school improvement?

4.3.1 Results

The study collected and coded 1,559 school improvement strategies from 436 of the 581 school leaders who completed the school improvement planning SMS follow-up survey in this final third phase of research. The findings provide a fascinating dataset about *how* Kenyan school leaders intend to make their schools more child-friendly. 97% of the developed school improvement strategies related to one of the ECMT's 25 indicators, thereby demonstrating high levels of applicability of the ECMT conceptual framework and diagnostic tool to Kenyan school leaders' articulated school improvement strategies.

The school leaders' strategies for school improvement were then analyzed against their schools' ECMT scores to determine whether or not they related to the ECMT indicators that received the highest or lowest rated perceived levels of evidence by school stakeholders. In other words, were Kenyan school leaders developing evidence-based, data-driven strategies for school improvement? The findings suggest that 58% of school leaders' school improvement strategies related to one or more of the ECMT indicators that were rated as having one of the fifteen lowest ratings of perceived evidence out of the total 25 ECMT indicators. This finding provides promising evidence about how Kenyan school leaders can and do employ *evidence-based* school leadership strategies for school improvement in raising levels of child-friendliness in their schools.

4.3.1.1 Mapping School Leadership Strategies for School Improvement: Priorities for CFS

After reviewing the data on their ECMT virtual school report cards, 436 Kenyan school leaders developed 1,559 school improvement strategies to make their schools more child-friendly. Before collecting data about these school improvement plans, however, the researcher sent three pre-survey questions, asking school leaders to (a) rate the importance of the data they were given through the ECMT virtual school report card, (b) tell the researcher whether or not they held a community meeting to discuss the results, and (c) whether or not this research study was their first time engaging in a diagnostic action research exercise. The results from these three questions are now presented in Figures 34, 35 and 36 below.

The first question asked school leaders, ‘How important were your CFS [ECMT] scores to improving your school planning process?’ They could choose A (Not important), B (Important) or C (Very important) via SMS reply. Figure 34 (below) illustrates how the majority of school leaders (77%) viewed the ECMT virtual school report card data as ‘very important’ to their school improvement planning process. This provides a critical set of feedback data about the value school leaders placed on school improvement-related data.

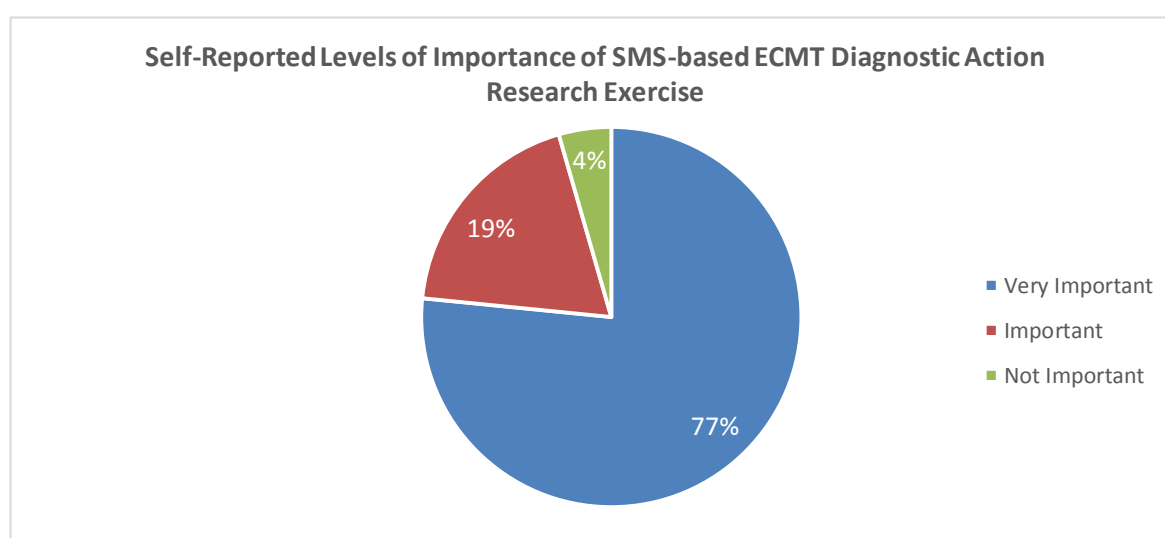


Figure 34: Kenyan School Leaders' Self-Reported Levels of How Important Results of the ECMT Virtual Report Card were to School Improvement Planning. Source: Author (2017).

The second question asked school leaders, ‘After you received your CFS [ECMT] school score, did you host a community meeting to discuss the results?’ School leaders could choose A (YES) or B (NO) via SMS reply. Figure 35 (below) illustrates that 75% of the school leaders reported hosting a community meeting to share and discuss the results of the ECMT virtual school report card results. The product of the school self-evaluation surveys, therefore, were not only reviewed by school leaders, but by a variety of school stakeholders with the school leader at the helm, identifying ways to co-develop relevant, context-specific school improvement strategies *with* their school communities.

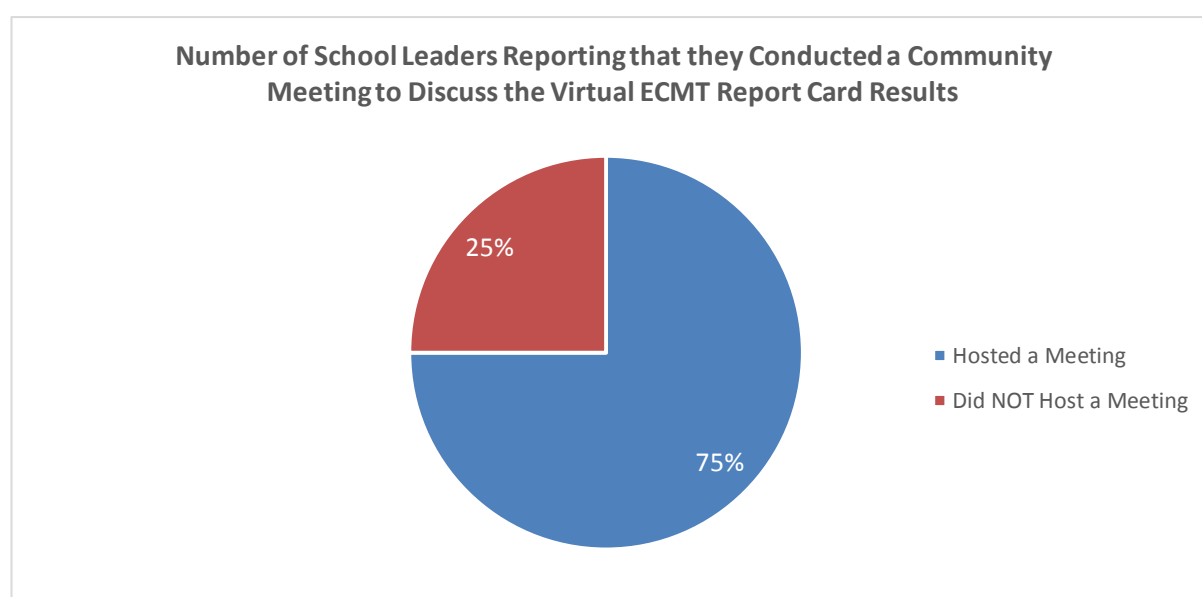


Figure 35: Number of School Leaders Reporting that they conducted a Community Meeting to Discuss the Virtual ECMT Report Card Results. Source: Author (2017).

The third question asked school leaders, ‘Did your school engage in any ‘Action Research’ BEFORE your CFS training?’ During the FGDs, school leaders were given an orientation, or brief training, about action research methods using the new mobile phone, SMS-based ECMT. The study wanted to better understand the familiarity among school leaders in conducting action research in a more general sense. Figure 35 (next page) illustrates how, for 70% of the school leaders, this study represented the first time they engaged in diagnostic action research to inform future school improvement planning.

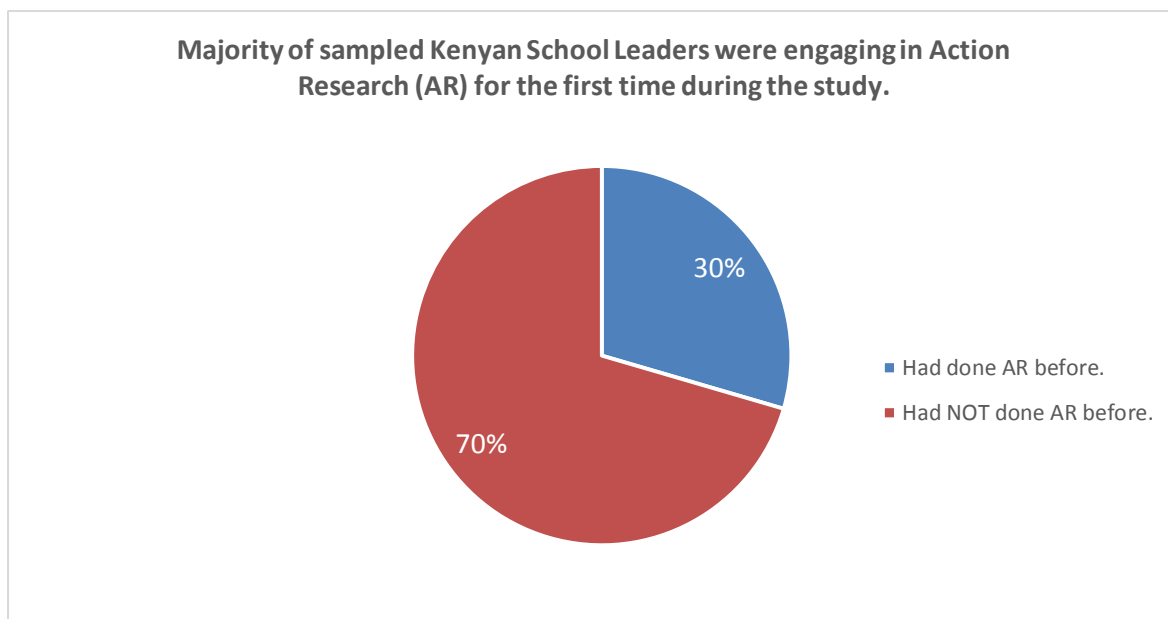


Figure 36: Number of school leaders reporting prior experience in conducting Action Research at their schools before the present study. Source: Author (2017).

As one can see from the data presented in Figures 34, 35 and 36, the majority of sampled school leaders (77%) expressed that they viewed the data from the ECMT virtual school report card as ‘very important’. The majority of school leaders (75%) also reported conducting a community meeting to discuss and debate the ECMT data results. And for 70% of the sampled school leaders, this study marked their first time engaging in action research. Considering there were such low levels of prior experience with action research, the researcher found it striking that 436 of the original 812 sampled school leaders successfully completed *all* three phases of the diagnostic action research cycle and collectively developed more than 1,559 school leadership strategies to improve levels of child-friendliness in their schools. The question that arises, however, did they develop these strategies based on the evidence from their ECMT virtual school report cards? The next section interrogates the data to find the answer to this last question of the research study.

4.3.2 Data Analysis

Using Lloyd and Coyle’s (2007) constant comparison qualitative coding technique (as already described in Section 4.1 of this chapter), the researcher coded the 1,559 school improvement strategies against the 25 indicators of the ECMT and 3 additional indicators of full ECMT conceptual framework (i.e. ECMT indicator # 26 - classroom to pupil ratios; ECMT indicator # 27 - teacher to pupil ratios; and ECMT indicator # 28 - textbook to pupil

ratios). After multiple rounds of using the constant comparison qualitative data coding technique (Lloyd and Coyle, 2007), the study found that 97.0% of the school improvement strategies (n=1513) developed by school leaders could be coded under one of the 28 indicators of the full ECMT conceptual framework that make Kenyan schools child-friendly (or not child-friendly). The results, ranked by prevalence, are shown in Table 20 on the next page.

Table 20: Kenyan School Leaders' School Improvement Strategies Coded by ECMT Indicators. Source: Author (2017).

Rank	ECMT #	ECMT Indicator	# of School Improvement Strategies by Kenyan Head Teachers	% of Total Number of School Improvement Strategies
1	22	Functional school management that promotes/monitors school improvement activities.	194	12.4%
2	26	Number of students per classroom.	142	9.1%
3	16	Sufficient provision of clean, safe, and well-maintained toilet facilities for students.	140	9.0%
4	10	Safe outdoor places for students' play and recreation.	128	8.2%
5	20	Proper nutrition services for students (i.e. provision of food at school).	119	8.0%
6	8	Effective school safety measures in place (i.e. fence, first-aid, fire-preparedness, security personnel, etc.).	103	6.6%
7	17	Sufficient access to clean water for drinking and washing for students.	94	6.0%
8	11	Fair, functioning children's government to promote students' voices.	89	5.7%
9	3	Meaningful feedback from teachers to students about learning.	86	5.5%
10	1	Interactive, student-centred teaching methodologies.	58	3.7%
11	23	Parental engagement in their children's learning at home.	53	3.4%
12	18	Students' knowledge to practice proper health and hygiene (i.e. handwashing, bathing, etc.).	41	2.6%
13	14	Identification and support of out-of-school children (i.e. drop-outs, truancy).	36	2.3%
14	24	Strong linkages made with community and school-based early childhood development (ECD) centres.	36	2.3%
15	21	Parents' involvement with their children's learning at school (i.e. PTAs, teacher meetings).	32	2.1%
16	6	Effective guidance and counselling for students.	31	2.0%
17	25	Income-generating activities that benefit pupils' welfare (fundraising, donors, projects).	29	1.9%
18	4	Teachers' competence in professional knowledge.	16	1.0%
19	13	Social equality where students are treated fairly regardless of culture, religion, or status.	13	1.0%
20	15	Capacity to provide disabled students with disability-friendly facilities and trained personnel.	13	1.0%
21	9	Emergency response plan in place (i.e. disaster risk reduction methods).	12	0.8%
22	7	Positive disciplining methods (i.e. no caning/corporal punishment).	11	0.7%
23	28	Number of students per teacher.	10	0.6%
24	12	Gender equality where boys and girls are treated fairly in all aspects of learning.	8	0.5%
25	27	Number of students per textbook.	7	0.4%
26	5	Use of locally available instructional materials for learning.	6	0.3%
27	2	Active student participation in all lessons.	4	0.2%
28	19	Students' knowledge to prevent transmission of diseases (i.e. malaria, HIV, TB, worms, etc.).	3	0.2%
		Total	1513	97.0%

As one can see from Table 20, 1513 out of the total 1559 school improvement strategies were coded as being related to one of the 28 indicators of the full ECMT conceptual model. Only 46 of the 1,559 reported school improvement strategies could not be coded using one of the ECMT indicators, representing only 3.0% of the strategies.

The study visualized the same data by ECMT themes in Figure 37 (below). This data shows that 25% of school improvement strategies aligned with health and nutrition-related ECMT indicators; 22% to community and family engagement-related ECMT indicators; 18% to safety and protection-related ECMT indicators; 11% to classroom teaching and learning-related ECMT indicators; 10% to equity and equality-related ECMT indicators; 9% to improving student: classroom ratios; 3% to issues that could not be coded within the ECMT; 1% to improving student: teacher ratios; and 0.5% to improving textbook: student ratios.

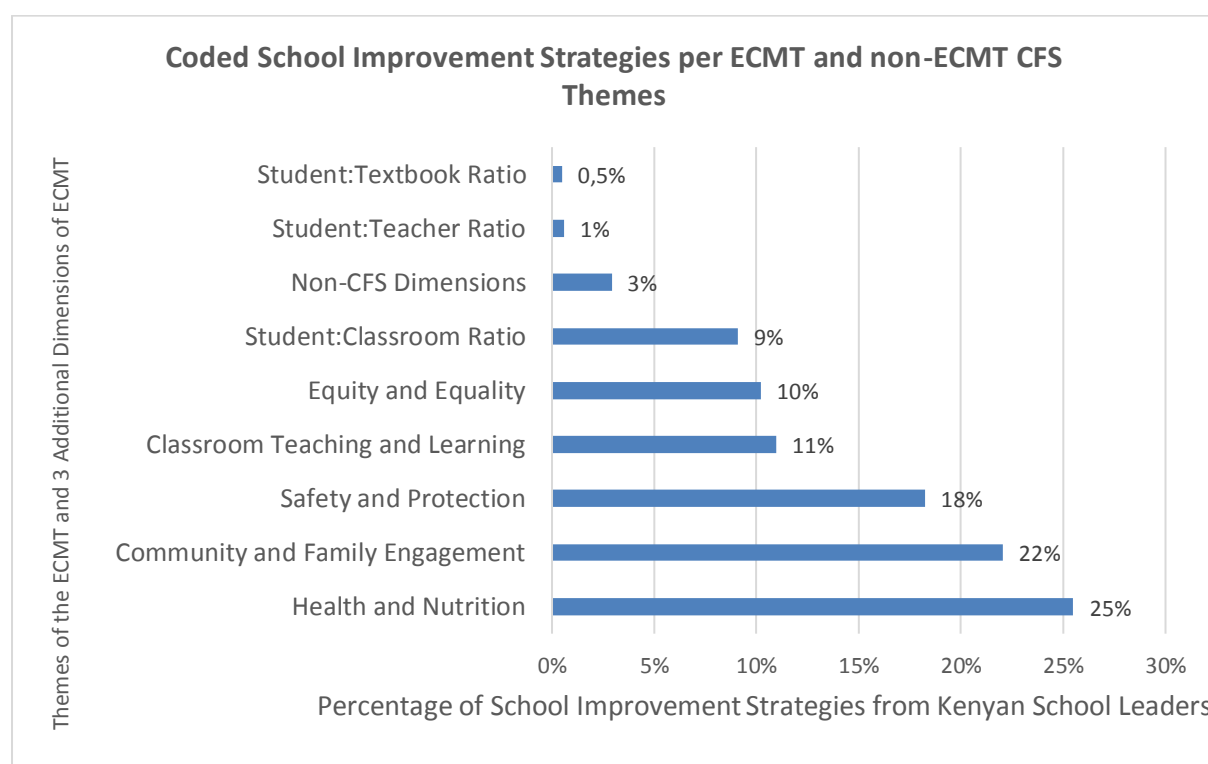


Figure 37 Coded School Improvement Strategies by ECMT and non-ECMT Themes. Source: Author (2017).

The school improvement strategies were then analysed across each of the five main ECMT themes, providing more detailed insights about the types of school improvement strategies that school leaders had developed from using their virtual ECMT report cards. These insights are presented in Figures 38, 39, 40, 41, and 42 (over the next few pages).

First, how many school improvement strategies were related to indicators of ECMT theme one: ‘Classroom Teaching and Learning’? Figure 38 (below) illustrates that 5.5% of school leadership strategies for school improvement were related to improving meaningful feedback from teachers to students about learning; 3.7% were related to improving interactive student-centered teaching; 1.0% were related to improving teachers’ competence levels and less than 1% were related to either using locally available instructional materials for learning or encouraging more active student participation in lessons.

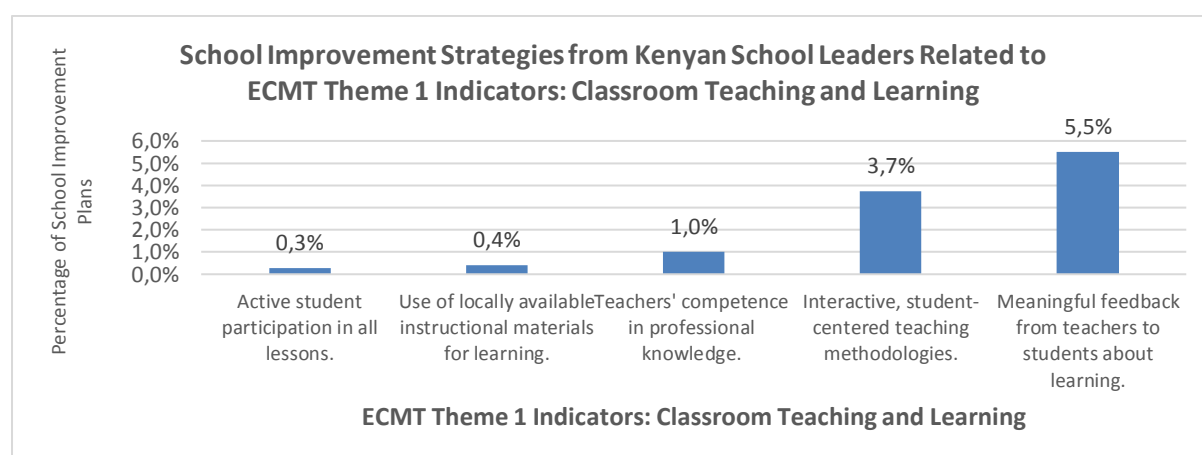


Figure 38: School Improvement Strategies coded by ECMT Indicators for ECMT Theme 1: Classroom Teaching and Learning. Source: Author (2017).

Second, how many school improvement strategies were related to indicators of ECMT theme two: ‘Safety and Protection’? Figure 39 (on the next page) illustrates that 8.2% of school leadership strategies for school improvement were related to improving the quality of safe outdoor places for students’ play and recreation; 6.6% were related to ensuring more school safety measures are in place; 2.0% were related to improving the effectiveness of guidance and counselling services; and less than 1.0% were related for both improving emergency response plans and encouraging more positive disciplining methods (i.e. no caning and/or corporal punishment).

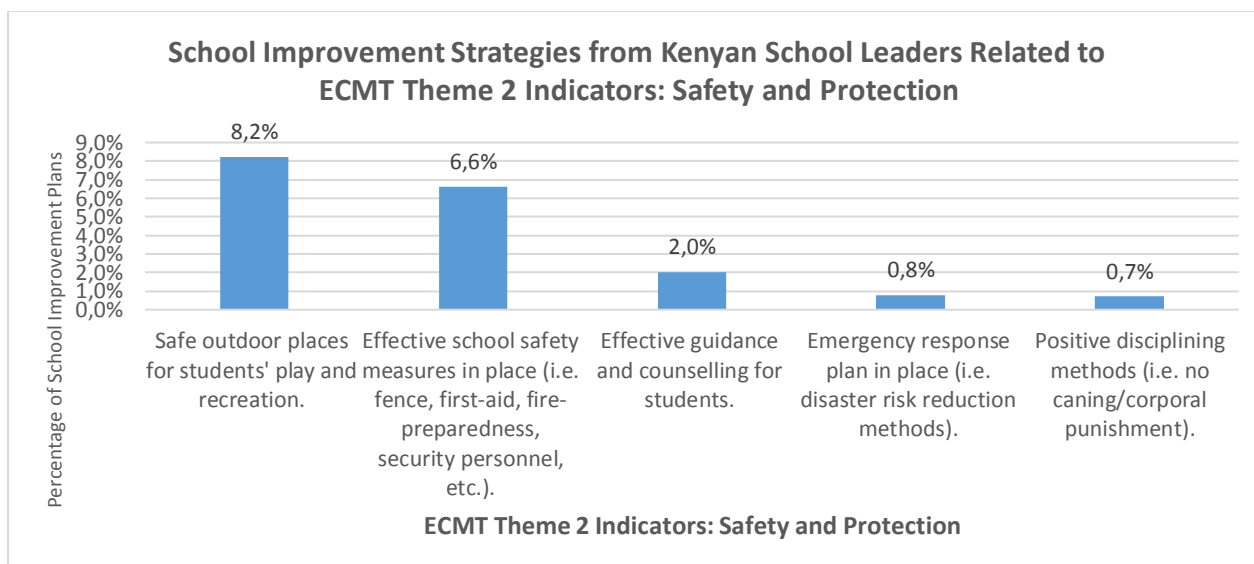


Figure 39: School Improvement Strategies coded by ECMT Indicators for ECMT Theme 2: Safety and Protection. Source: Author (2017).

Third, how many school improvement strategies were related to indicators of ECMT theme three: 'Equity and Equality'? Figure 40 (below) illustrates that 5.7% of the school improvement strategies were related to promoting more fair, functioning children's governments to promote students' voice in school-level decision-making; 2.3% were related to further identifying and supporting out-of-school children; and less than 1.0% were related for building the capacity of staff to provide disabled students with disability-friendly facilities and trained personnel. Less than 1.0% of strategies were related to issues regarding either gender equality or social equality in the sampled schools.

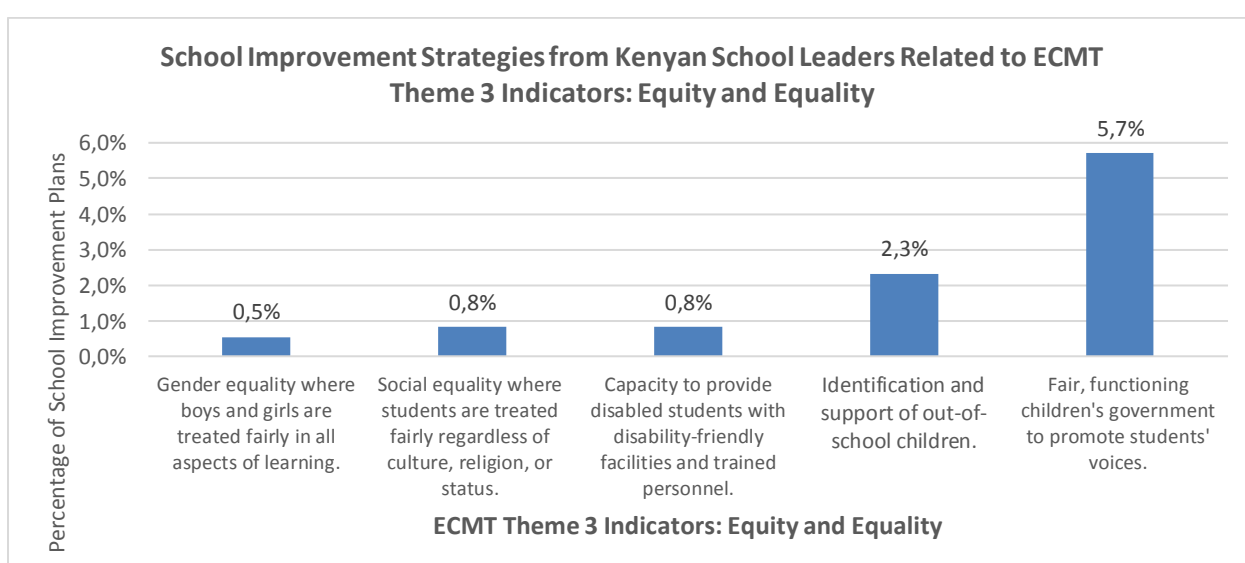


Figure 40: School Improvement Strategies coded by ECMT Indicators for ECMT Theme 3: Equity and Equality. Source: Author (2017).

Fourth, how many school improvement strategies were related to indicators of ECMT theme four: ‘Health and Nutrition’? Figure 41 (below) illustrates that the largest percentage of school improvement strategies offered by school leaders (25.6%) were related to the health and nutrition themed indicators of the ECMT. 9.0% of school improvement strategies were related to improving the provision of sufficient clean, safe, and well-maintained toilets for students; 7.6% were related to ensuring proper nutrition services for students (i.e. school feeding); 6.1% were related to increasing access to sufficient clean drinking water; 2.7% were related to increasing students’ knowledge of health and hygiene practices (especially the use of sanitary pads for girls); and 0.2% were related to improving students’ knowledge about how to prevent transmission of diseases.

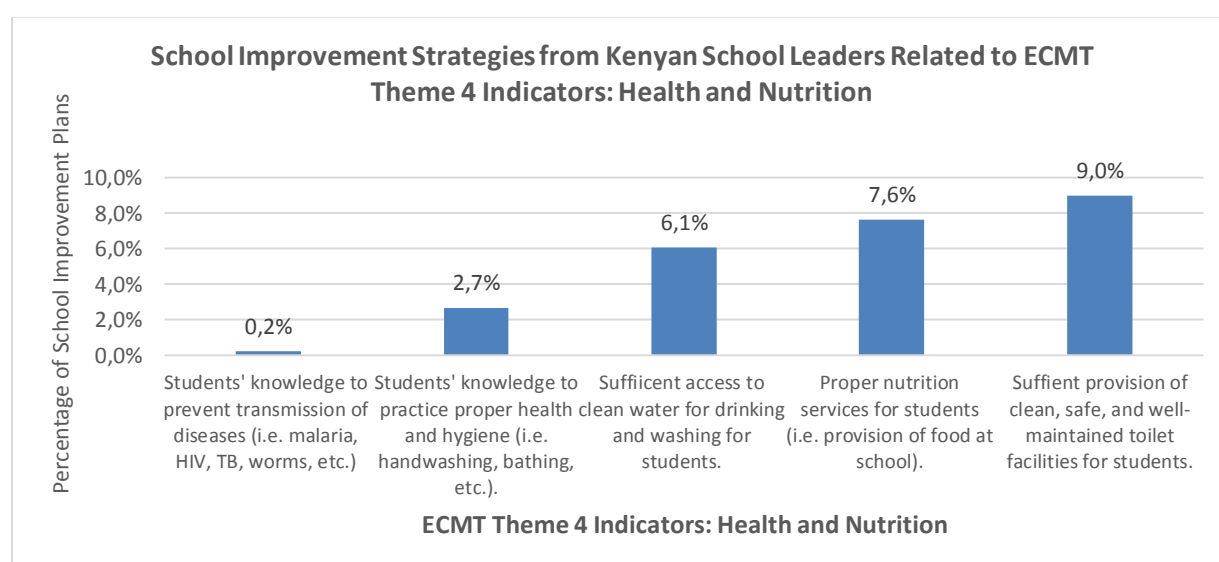


Figure 41: School Improvement Strategies coded by ECMT Indicators for ECMT Theme 4: Health and Nutrition. Source: Author (2017).

Fifth, how many school improvement strategies were related to indicators of ECMT theme five: ‘Community and Family Engagement’? Figure 42 (next page) illustrates that 12.4% of school improvement strategies were related to strengthening the functions of school management committees to better promote and monitor CFS-related projects; 3.4% were related to improving the quality of parental engagement in their children’s learning at home; 2.3% were related to strengthening linkages with community-based ECD centers; 2.0% were related to improving parents’ involvement in their children’s learning at school; and only 1.8% were related to generating income to benefit pupils’ financial welfare.

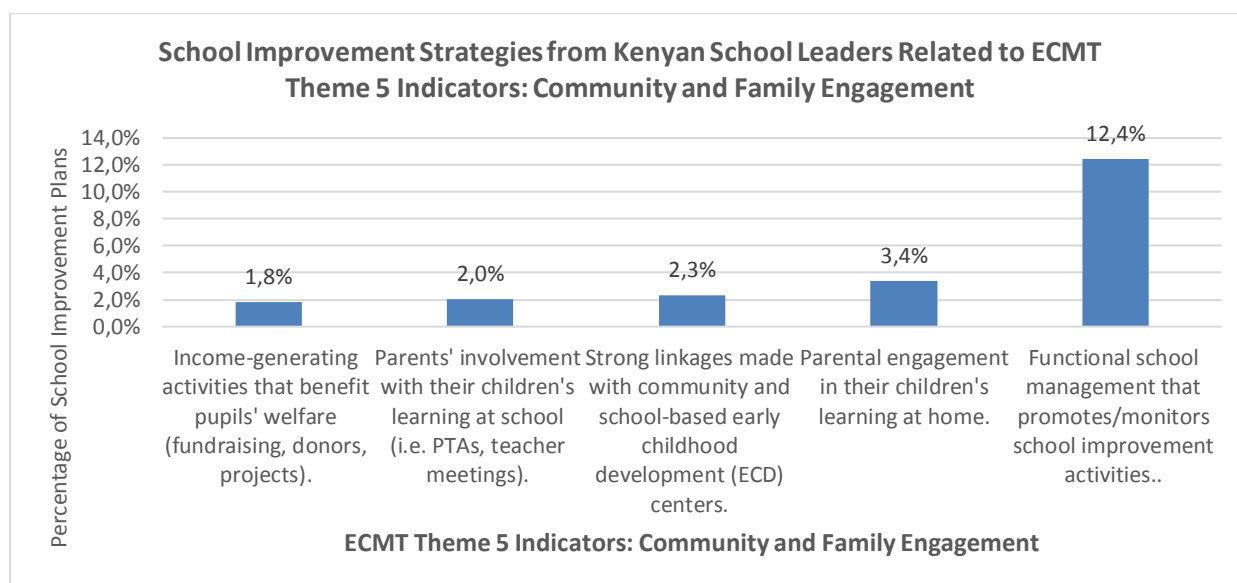


Figure 42: School Improvement Strategies Coded by ECMT Indicators for ECMT Theme 5: Community and Family Engagement. Source: Author (2017).

4.3.2.1 Evaluating School Leadership Strategies for School Improvement: Are They Data-Driven?

The final section of the data analysis seeks to understand the degree to which the school improvement strategies developed by 436 Kenyan school leaders were (or were not) related to the ECMT indicators that received the lowest levels of perceived evidence from the school-level, mobile phone, SMS-based ECMT diagnostic action research surveys. In other words, were Kenyan school leaders developing school improvement strategies that responded to the areas of greatest need, as defined by ECMT indicators receiving low levels of perceived evidence from the mobile phone, SMS-based ECMT diagnostic action research surveys? To conduct the analysis, the researcher conducted a five-step process of both quantitative and qualitative data analysis, inspired by methods used in Goyer (2010). Step 1 involved the researcher typing each of the 436 school's average ECMT scores, by ECMT indicator, into Microsoft Excel. A total of 10,900 data points were entered into the Microsoft Excel sheet. Step 2 had the researcher rank and sort each of the school's ECMT indicators by levels of perceived evidence received on the completed ECMT school self-evaluations. Each school's ECMT indicators were sorted by those with the highest levels of evidence to those with the lowest levels of evidence using the Microsoft Excel sort function (see Figure 43 on the next page).

In Figure 43 (below), the ECMT indicators with the ten highest ECMT scores are colored in green below. The 11th, 12th, 13th, 14th, and 15th highest scoring ECMT indicators are colored in yellow. The ECMT indicators with the ten lowest ECMT scores are colored in red.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Rank Order of CFS Scores	1		2		3		4		5		6		7		8		9		10	
School 1		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT
ECMT Score (%)	100		98		97		95		93		93		88		87		85		73	
ECMT Indicator #	8	0	24	0	4	0	10	0	12	0	13	0	19	0	22	0	20	1	23	0

A	V	W	X	Y	Z	AA	AB	AC	AD	AE
Rank Order of CFS Scores	11		12		13		14		15	
School 1		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT
ECMT Score (%)	72		71		70		69		67	
ECMT Indicator #	6	0	14	0	16	1	17	0	2	0

A	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY
Rank Order of CFS Scores	16		17		18		19		20		21		22		23		24		25	
School 1		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT		SI COUNT
ECMT Score (%)	61		60		51		50		42		40		38		35		32		30	
ECMT Indicator #	3	0	18	0	1	0	7	0	9	0	11	0	5	1	21	0	25	1	15	0

Five Explanatory Notes of Using Microsoft Excel to Examine Mobile ECMT Data

1. Ranking of ECMT scores from High to Low (1st to 25th).
2. Average ECMT score calculated from mobile, SMS-based ECMT
3. ECMT indicator number with the ranked ECMT score.
4. Represents 1 of the 3 School Improvement Strategies developed by the School Leader of School 1 to improve levels of child-friendliness.
5. SI COUNT stands for School Improvement Count.

Figure 43: Illustrative example of how the researcher used Microsoft Excel to investigate whether Kenyan School Leaders' School Improvement Strategies Responded to the Lowest or Highest Scoring ECMT Indicators from each school's average CFS reported scores. Source: Author (2017). *Note:* One school's data would span from Column A through Column AY in Microsoft Excel; it is broken into three parts for ease of formatting within the study's findings and analysis.

In step three, the researcher transferred the results of the first stage of qualitative data coding (i.e. which school improvement strategies were related to which ECMT indicator) and inserted a ‘1’ next to the corresponding ranked ECMT indicator. These tallies are colored in purple in Figure 43 on the previous page.

The three purple boxes illustrated below in Figure 44 represent the three school improvement strategies that the school leader from ‘School 1’ (used as an illustrative example, only) developed after reviewing the total average ECMT scores for his or her school. For example, the school leader’s first school improvement strategy for School 1 was coded as being related to ECMT indicator number 20 (see Column BA in Figure 44, below). The researcher would then search for ‘ECMT indicator 20’ among the ranked roster of ECMT indicators (sorted by ECMT score) and place a 1 next to its box in the ‘SI Count column’ – representing ‘School Improvement Count’ (shown in Column S in the purple box in Figure 43). School 1’s second and third school improvement strategies (outlined and coded in Columns BC and BE in Figure 44 below) are also tallied against the ranked roster of ECMT indicators (shown in Columns AA and AS in the purple boxes in Figure 43). The same process was completed for all 1,559 improvement strategies offered by each school.

AZ	BA	BB	BC	BD	BE
SI STRATEGY 1	CODE	SI STRATEGY 2	CODE	SI STRATEGY 3	CODE
SMS Survey	ECMT	SMS Survey	ECMT	SMS Survey	ECMT
Ensure that school feeding program is enhanced by provision of the right diet and by giving young children fortified porridge	20	Put up new latrines to cater mainly for the girl child who is greatly disadvantaged.	16	Make as many teaching resources from locally available materials	5

Figure 44: Illustrative example of the types of School Improvement Strategies developed by Kenyan School Leaders and then coded by the researcher using the 25 indicators of the ECMT. Source: Author (2017).

Step four calculated the total tallies of school improvement strategies per ranked ECMT indicator. For example, all tallies made in Column C in Figure 43 were summed using Microsoft Excel’s ‘SUM’ function to calculate how many of the Kenyan school leaders’ school improvement strategies responded to the indicator from their school-wide ECMT survey that was ranked as having the highest perceived levels of evidence. The same ‘SUM’ function was used to calculate the total tallies in Columns C, E, G, I, K, M, O, Q, S, U, W, Y, AA, AC, AE, AG, AI, AK, AM, AO, AQ AS, AU, AW and AV in Figure 43 (previous page).

The fifth and final data analysis step involved analyzing how many of the school improvement strategies responded to ECMT indicators that had been categorized as either being in Group 1 (the ‘low ten’ ECMT indicators which were ranked as having the lowest levels of perceived evidence), Group 2 (the ‘middle’ ECMT indicators which were ranked as having the 11th, 12th, 13th, 14th, and 15th highest levels of perceived evidence, out of total 25 indicators), or Group 3 (the ‘top ten’ ECMT indicators which were ranked as having the highest levels of perceived evidence from school stakeholders). In sum, the researcher engaged in 1,559 ‘mini-rounds’ of constant comparison qualitative data coding analysis (Lyons and Coyle, 2007) by matching the coded school improvement strategy with the ranked ECMT indicator based on the ECMT score received from school stakeholders. From this analysis, the researcher could then determine how many of Kenyan school leaders’ school improvement strategies were related (or not) to the ECMT indicators that had received the lowest, middle, or highest ratings of perceived evidence from the school stakeholders. In other words, the researcher could explore the degree to which Kenyan school leaders had adopted evidence-based school leadership strategies in school improvement for CFS.

The results reveal that 58.0% (or 904) of the 1,559 Kenyan school leaders’ school improvement strategies related to one of the *fifteen* (i.e. Group 1 and Group 2 ECMT indicators as defined above) ECMT indicators that received the *lowest* ratings of perceived evidence of child-friendliness out of the 25 indicators of the ECMT (see Figure 45 below). In sum, it appears that when presented with new data about levels of child-friendliness in their schools (i.e. via the ECMT virtual school report cards) that the majority of Kenyan school leaders develop data-driven, evidence-based strategies for school improvement for CFS.

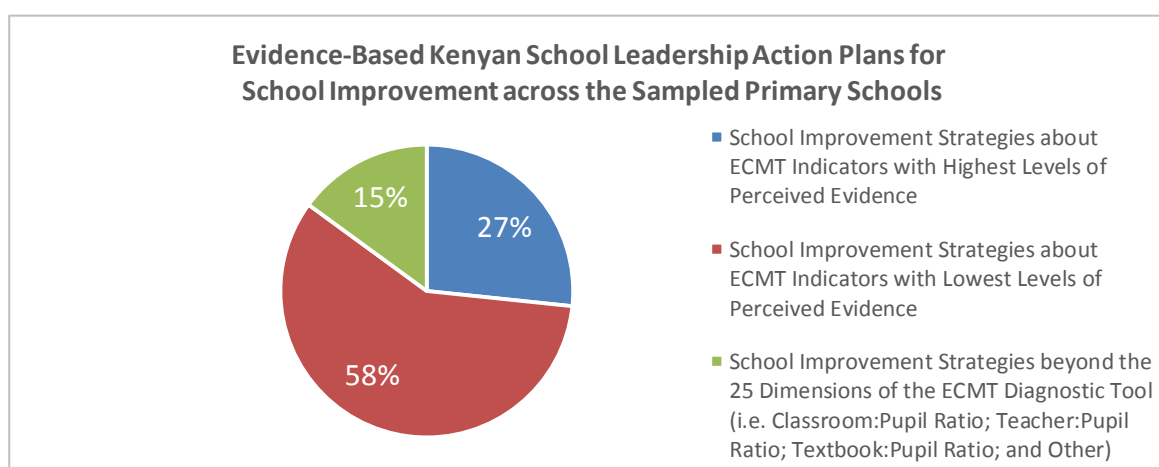


Figure 45: Percentage of Kenyan School Leaders' School Improvement Plans responding to Low and High levels of perceived evidence of Child-Friendliness in the Sampled Kenyan Primary Schools. Source: Author (2017).

Figure 46 (below) provides visualizes the data in a way to illustrate the school improvement plans developed by Kenyan school leaders, ranked by ECMT indicator score (i.e. 1-10 represent the ten ECMT indicators in a school that received the highest levels of evidence from the ECMT surveys). The table on the right of Figure 46 illustrates how the majority of school improvement plans related to one of the red or yellow coloured ranked ECMT indicators when sorted by prevalence rates.

Ranked ECMT Indicators by Levels of Perceived Evidence (1=Highest Levels of Perceived Evidence; 25 = Lowest Levels of Perceived Evidence)	Percentage of School Improvement Plans Related to Ranked ECMT Indicators from Kenyan School Stakeholders' ECMT Survey Results	Ranked ECMT Indicators by Levels of Perceived Evidence (1=Highest Levels of Perceived Evidence; 25 = Lowest Levels of Perceived Evidence)	Percentage of School Improvement Plans Related to Ranked ECMT Indicators from Kenyan School Stakeholders' ECMT Survey Results
1	1,9%	Other	15,0%
2	2,1%	23	4,9%
3	3,1%	16	4,6%
4	1,5%	18	4,6%
5	1,6%	22	4,6%
6	2,8%	19	4,5%
7	3,4%	24	4,2%
8	3,5%	13	4,1%
9	2,7%	10	3,9%
10	3,9%	12	3,8%
11	3,7%	11	3,7%
12	3,8%	15	3,6%
13	4,1%	8	3,5%
14	3,1%	7	3,4%
15	3,6%	20	3,3%
16	4,6%	21	3,3%
17	3,0%	25	3,3%
18	4,6%	3	3,1%
19	4,5%	14	3,1%
20	3,3%	17	3,0%
21	3,3%	6	2,8%
22	4,6%	9	2,7%
23	4,9%	2	2,1%
24	4,2%	1	1,9%
25	3,3%	5	1,6%
Other	15%	4	1,5%

Figure 46: Comparing and contrasting Kenyan School Leaders' School Improvement Strategies with ECMT scores ranked by order of highest to lowest levels of perceived evidence. Source: Author (2017).

Chapter 5: Discussion

This chapter is presented in two parts. The first part discusses the limitations and lessons learned from the study's experience with PLA methods, qualitative data analyses, and use of mobile phone, SMS-based diagnostic action research surveys at scale and within the Kenyan context. The second part discusses the findings and analyses from Chapter 4 in relationship to the overall research question driving the present study:

How far does a school-based monitoring framework allow Kenyan school leaders to better conceptualize, assess, and respond to key factors that enhance or constrain the quality of education (CFS) in Kenyan primary schools?

The chapter will outline how the study's chosen methodologies, findings and data analyses provide important contextual, methodological, and theoretical contributions to current SIR, SER and EEIR literature. The discussion will also provide a brief discussion of the potential implications for future educational research, policy and practice related to school leadership strategies for school improvement in Kenya.

5.1 Limitations and Lessons

Conducting research with school leaders, teachers, parents, and students from remote, rural, low-performing Kenyan public primary schools is not an easy venture. One must expect the unexpected, remain flexible, and most of all, be extremely patient. The study tried to reduce as much error as possible throughout the study. However, 'when the dust settled' and post-analysis began, the researcher realized a variety of limitations in the study's choice of methods, data results, and analyses that could influence the validity and reliability of the study's findings. This section is not meant to dismiss the results (as the scale and nature of the study's data is historic in and of itself within the Kenyan context), but as a means to improve future studies and build on the expertise learned through practice. Transparency is essential in developing qualitative methodologies that try to investigate some of the most difficult concepts of our time – one of them being educational quality. This is what the present study has tried to do. The study highlights six main limitations and offers potential lessons to hopefully inform future novice and professional researchers in international and comparative education to avoid the same pitfalls.

5.1.1 Limitation 1: Discussing Local Realities versus Ideal Factors of Child-Friendly Schools in Kenya

Abiding by the principles of the participatory learning and action (PLA) research approach, the study's focus-group discussion participants reflected on local realities rather than ideal factors that they perceived to make schools child-friendly or not child-friendly. However, this may have influenced the study's results, especially when the researcher employed constant comparison qualitative data coding techniques (Lyon and Coyle, 2007) to understand how Kenyan school leaders' local realities of child friendliness either supplemented or complemented the original set of 50 CMT indicators.

For example, participant responses were limited to what strategies and challenges they *actually* had already employed or experienced in their schools when describing what factors made their schools child-friendly or not. Therefore, if a school did not have a library, it would be unlikely to have the participant respond with anything positive or negative about the library, even though *not having* a library might have been a reason for making a school child-friendly. Furthermore, limiting each participant to identify the 'top three' challenges and 'top three' strategies could have prevented the researcher from gathering the important 'fourth' factor that could have contributed to a more contextually relevant conceptual model for CFS in Kenya. The sheer size of the dataset and emergent similarity across themes, however, demonstrate how the current study might have mediated such a concern. The limitation does raise the question of how aspirational versus how practical should one's conceptual model of school leadership for school improvement become? Should one strive for what is ideal in improving levels of equity and equality, health and nutrition, and safety and protection for children? Or should Kenyan school leaders limit the scope of their school improvement planning to what is simply possible, affordable or doable?

A recommendation for future studies would be to include the same set of discussion questions, but to also ask a follow-up question such as, 'What is missing from the discussion of local realities of child-friendliness that *could* make schools more child-friendly or not child-friendly?' This way, the participants would still use their local realities as important starting points of reflection, but also allow the IRAs to gain more data related to an 'ideal child friendly school' that may or may not correspond with the CMT indicators. However, this is why the study aimed to describe 'local realities' of child friendly schools rather than factors of an 'ideal' Kenyan child friendly school.

5.1.2 Limitation 2: Single-Source Coding and Qualitative Data Analysis

In retrospect, the study's research design for data collection and analysis did not take into consideration just how much time it would require for the researcher to conduct qualitative data analyses throughout each of the three phases of research. In phase 1, the researcher collected, organized, and analysed 8,353 qualitative data points from Kenyan school leaders. In phase 2, the researcher collected, organized and analysed results from 1,857 mobile phone, SMS-based ECMT surveys that generated 46,425 data points from school stakeholders' rankings of perceived levels of evidence. Finally, in phase 3, the researcher analysed results from 1,559 school improvement strategies and thousands of ranked ECMT indicators by perceived levels of evidence. In short, one can imagine the opportunity and inevitability of making errors when employing a single-course coding methodology for sifting and making sense of the study's data.

First, in phase 1 of the study, FGDs produced thousands of note cards with Kenyan school leaders' perceptions of what factors either make Kenyan schools more child-friendly or not. Levels of quality, legibility, specificity and length of each written note card varied across the sample. For example, while one respondent wrote 'interactive teaching' (response # 2249) as his/her strategy for making schools child-friendly, another school leader wrote, 'My school becomes more child-friendly when I introduce child-centred teaching and learning approaches (interactive teaching) where children, rather than the adults, become the sources of information and knowledge during the lessons' (response # 120). Scholars using grounded theory analysis, constant coding comparison techniques and interpretative phenomenological analysis often wrestle with double-meanings, incomplete responses, and insufficient contexts to understand particular data (Lyons and Coyle, 2007).

However, the researcher continued to struggle when coding written responses from note cards that had single worded answers such as 'Poverty' (response # 5,204), 'Hardship' (response # 6832), 'Religion' (response # 6,847) or 'Insecurity' (response # 7,011) as resembling any particular *strategy* or *challenge* related to factors making schools child-friendly or not. The researcher had to rely on the participants' accompanying reasons *why* they believed a particular strategy or challenge influenced their school's levels of child-friendliness. For example, 'hardship' (response # 5,204) was explained by the participant as 'preventing pupils from studying at home' (response # 5,205). Therefore, the researcher was able to code the response as the need to create a conducive learning environment at home.

However, as is common throughout the practice of phenomenology, single-source coding emerges as a significant limitation to any findings using grounded theory analysis or constant comparison coding techniques (Lyons and Coyle, 2007). A strength of the current study's approach is the researcher's ability to draw on his eleven years of experience volunteering and working within the Kenyan education sector to what Breakwell (2006) refers to as 'filling in the contextual gaps' of broadly articulated or incomplete responses by research participants.

Although the researcher's experience can be seen positively, it can also be interpreted as a significant limitation in the research findings in that the data was coded using a single reviewer. Due to time and financial constraints, the researcher was unable to recruit other coders to validate his ratings, therefore perhaps missing an opportunity for increased reliability of the coding process (Breakwell, 2006). In future studies, the researcher could create a small focus group of inter-raters to first read through the data to find common themes and then have the data analysis go through multiple coders to ensure greater reliability and credibility of the results (Hennink, 2010). In order to maintain the integrity of the data, the researcher conducted multiple rounds of constant comparison coding (Lyons and Coyle, 2007) to cluster and categorize each response to the corresponding CMT indicator or newly developed NC category.

5.1.3 Limitation 3: Filtered Field Notes by IRAs

Due to financial and time constraints of the study, none of the FGDs were audio recorded. Review of transcriptions would have allowed the researcher an opportunity to capture more nuanced contributions that would have otherwise been missed during the actual conversation (Hennink, 2010). Furthermore, simultaneous translations limited the IRAs' capacities to adequately capture the complexity of certain words in one language and express their meanings in another (Hennink, 2010, p. 213). Additionally, the natural flow of the group discussion was disrupted by allowing IRAs adequate time to record notes between FGD responses, thereby resembling a scripted group interview rather than an authentic FGD (Kidd and Parshall, 2000). In sum, field notes and the use of notecards limited the scope of the school leaders' discussions and filtered out a significant section of the raw data due to issues of translation. A recommendation for future studies would be to use audio recording devices, transcribe the focus group discussions in the native language before translation, and include a second IRA to assist the facilitator in taking notes during the FGD (Hennink, 2010).

5.1.4 Limitation 4: Reliability of School Self-Evaluative Data about Levels of CFS

Scholars in school self-evaluations note the difficulty in controlling for attributional bias where research respondents inflate positive associations of one's self (Nevo, 2001; MacBeath and McGlynn, 2002; MacBeath, 2008). The potential for attributional bias was very high for this study which, through its data analytics, ranked and disseminated schools' self-reported CFS scores to all research participants. As an attempt to investigate the level of attributional bias, the researcher sent ten teams of three IRAs, each, to ten randomly sampled schools in each of the ten targeted counties of the study. At each school, the IRAs conducted the same 25-question mobile phone, SMS-based ECMT diagnostic action research tool based on their perceptions of observable evidence of ECMT indicators. During the school visits, the IRAs were encouraged to engage in conversations with school parents, pupils, teachers and head teachers and tour the school campuses before completing their ECMT survey.

The IRAs' reported ECMT scores across the 100 sampled schools were compared to the ECMT scores received from schools' self-evaluations. Figure 47 (below) illustrates that in 80% of the schools visited by the IRAs, there was less than 30% variance between the school stakeholders' and IRA's average ECMT scores.

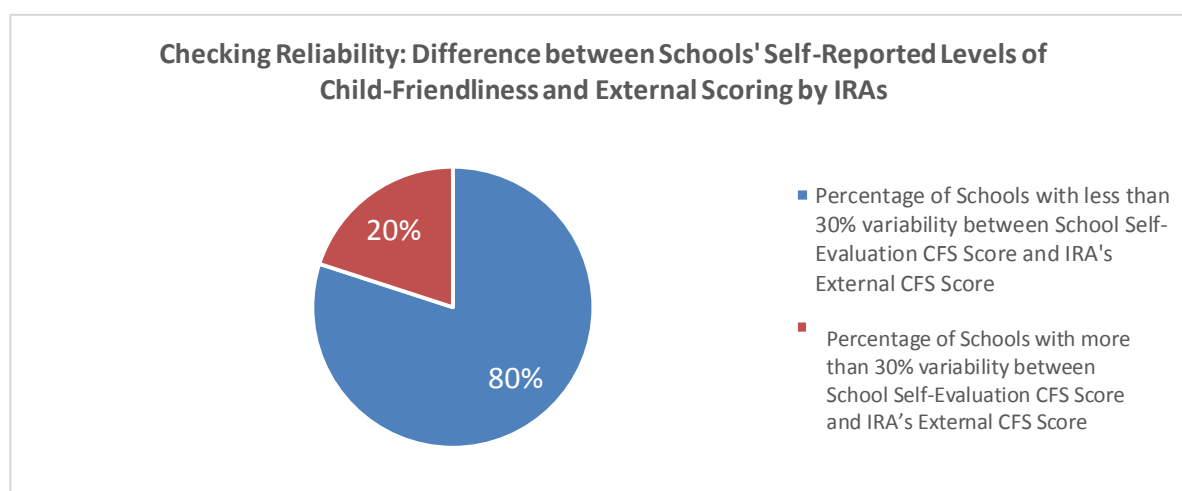


Figure 47: Differences between School Self-Evaluations of CFS scores and External IRA observed levels of child-friendliness. Source: Author (2017).

Figure 48 (next page) illustrates that in 77% of the schools visited by the IRAs, the levels of school stakeholders' self-evaluations about levels of child-friendliness in their schools were higher (or more favourable) than the scores given by external IRAs.

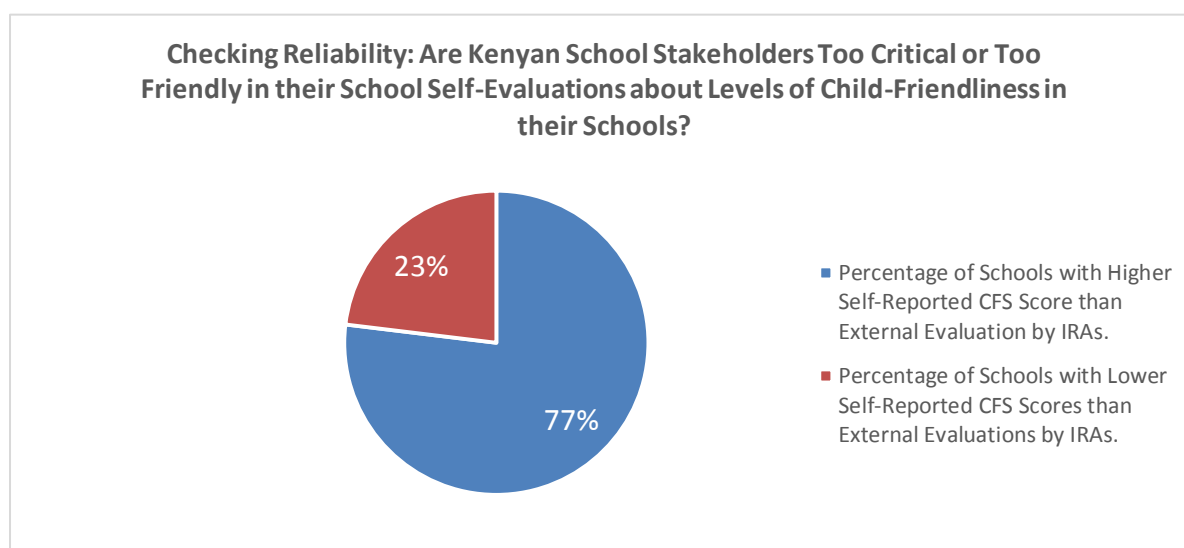


Figure 48: Differences between School Self-Evaluations of CFS Scores and Observed CFS Scores by External IRAs.
Source: Author (2017).

As a result, the data presented and described in phase 2 may reflect a positive attributional bias from local school stakeholders. However, as evidenced by the overall average ECMT score of the study being 66% out of 100%, it seems that school stakeholders are still willing to be self-critical and identify factors that continue to constrain levels of child-friendliness in schools.

One recommendation for future studies would be to employ Brislin's (1970) framework used for back-translation techniques to test for construct validity and inter-reliability among research participants. Future studies could search for what Jones et al. (2001) describes as cultural and functional equivalencies to particular social constructs in FGDs or surveys, especially with regard to introducing the concept of 'child friendly schools'. Perhaps with these considerations, the sequencing and wording of the mobile phone self-assessment surveys could be changed to increase levels of answerability, relevance and comprehension levels by research participants (Gorard, 2001).

5.1.5 Limitation 5: Use of SMS Surveys for Data Collection

Although the study outlines the variety of benefits associated with using the mobile phone, SMS-based ECMT diagnostic action research tool, (i.e. issues of affordability, scalability, immediacy, and accuracy), questions of usability, survey fatigue, participant attrition and limited options for qualitative data collection arose throughout the study, thereby potentially influencing the quality and veracity of the study's data.

Frist, issues of usability plagued the survey from beginning to end. Although the SMS hotline of customer support was available, many research participants opted out of the survey due to frustration with repeated or delayed SMS-based questions. Only 436 of the original 812 sampled school leaders completed phases 1, 2 and 3 of the research study, representing a 47% attrition rate throughout the study. As a result, the justification of including 812 schools through the purposive sampling approach was compromised by the high attrition rates; many due to lack of usability of the mobile phone survey. One recommendation for future studies would be to ensure research participants are able to test using the mobile phone, SMS-based survey while in person with the researcher; rather than wait until they are thousands of miles away.

Second, in phase 2 of the research, only 1,857 SMS surveys were completed, from an expected 5,684 surveys (812 schools multiplied by seven stakeholders). Although the SMS surveys were deployed to all 812 schools, only 581 schools completed the surveys. Within these schools, there was a varied number of teacher, student and parent participants. In total, only 431 school leaders, 533 teachers, 467 parents, and 426 pupils completed the mobile phone, SMS-based ECMT survey. As a result, only a handful of schools received ECMT school assessments from *all* seven of the intended school stakeholders. Assessed levels of child-friendliness, therefore, may be more skewed by views of one group of participants over another. However, the data analysis in Chapter 4 illustrates that throughout most of the surveys, the differences between stakeholders in the way they perceived levels of child-friendliness remained small and fairly unsubstantial.

Finally, the medium of using SMS text messages may have been a significant limiting factor in how school leaders expressed their intended action plans for school improvement. Tagg (2012) describes both the unique and limiting discourse that text-messaging provides. On the one hand, the brevity and directness of SMS responses better enabled the researcher to

understand what school leaders were trying to express. On the other hand, school leaders may have felt extremely limited in expressing the types of school improvement strategies they would want to employ based on the feedback of their schoolwide ECMT data. One key recommendation moving forward would be to enable mobile phone survey participants to use voice-enabled questionnaires, thereby providing the opportunity for Kenyan school leaders to have more flexibility in developing, articulating, and explaining their ideas for evidence-based school improvement.

5.1.6 Limitation 6: Generalizability

While the number of unique responses to phase 1 of the research (8,353 data points) represents a wide range of participant reflections of factors that make a school child friendly or not, the number of sampled schools still remains relatively limited in scope. The geographic, ethnic, and socio-economic diversity across Kenyan counties and sub-counties make it difficult to generalize the findings to represent the ‘average’ Kenyan primary school leader. Furthermore, the researcher did not have permission to check the validity of the records kept by the Kenyan MOEST’s deputy quality assurance officer about which counties had received CFS training in the initial stratified, purposive sampling process. It is possible that the deputy had generated the list, on the spot, himself, rather than from accurate accounting data from the past.

In addition, as noted in Chapter 3, among the selected schools, the majority of schools represent learning environments for children from only poor, rural, and academically low-performing schools. As a result, careful considerations should be made when generalizing the study’s findings in relation to more wealthy, urban, or academically high-performing schools in and throughout Kenya. In the end, the results of the study do not seek to generalize across all Kenyan public primary schools; rather, they provide a valuable insight into a set of 812 local Kenyan school leaders’ perceptions of local realities of quality education in Kenya.

5.1.7 Limitation 7: Political Instability and Insecurity during Research

During the year of 2013, two significant events occurred within Kenya that influenced the timing and scope of the present research study.

First, as discussed in Chapter 3, the timing of research phase 1 was unexpectedly disrupted due to the re-scheduled Kenyan presidential elections in March of 2013. These were the first set of elections set to occur since Kenya adopted its new Constitution in 2010

(Republic of Kenya, 2010). The elections were also the first since the infamous 2007 Kenyan presidential election-related violence where over 1,100 Kenyans were killed and more than 600,000 Kenyans were forced to flee their homes due to election-related violence that destabilized the country for months (News24, 2017). As discussed in Chapter 3, UNICEF-Kenya officials feared that the March 2013 Kenyan elections would lead to another protracted civil conflict within Kenya. Therefore, they requested that the researcher change his research calendar and conduct five of the ten CFS workshops simultaneously, *before* the elections. This required the researcher to train an additional 30 research assistants in leading the FGDs. As a result, this increased the levels of variability across the quality of research assistants and therefore may have influenced the quality of the data collected.

Second, also discussed in Chapter 3, the scope of research phase 3 was shortened due to the terrorist attack that occurred on 21 September 2013 at the Westgate Mall in Nairobi that killed 67 civilians from 13 countries (BBC, 2013). The scope of the study was therefore reduced. The researcher had intended to visit a number of the schools after receiving their school self-evaluations to better understand, in person, what the ECMT ratings meant to local school stakeholders on the ground. Furthermore, he had fully intended to trace year-long journeys of school improvement by following up with school leaders about how their strategies of school improvement led to either increases or decreases in levels of perceived evidence about child-friendliness in their schools. However, the unexpected, tragic events of September 2013 forced the researcher to amend the scope of his study and focus on how the findings and discoveries from research phases 1, 2, and 3 adequately enabled the study to sufficiently co-construct, test, and evaluate its new conceptual model and diagnostic tool for understanding local realities of quality education in Kenya.

In remembrance of ‘Ravi’, the study continued to take inspiration from something he once wrote, ‘Where people see scarcity, I see opportunity’ (Orsola-Vidal, 2015). The researcher never forgot this and believes that this particular study is to continue to see opportunity where others continue to see scarcity within the Kenyan education system.

5.2 Insights and Preliminary Claims

The following three discussion sections review the study's data and analyses from the three phases of research. The discussion outlines key insights and preliminary claims to the overall research question of the study that asks, 'How far does a school-based monitoring framework allow Kenyan school leaders to better conceptualize, assess, and respond to key factors that enhance or constrain the quality of education (CFS) in Kenyan primary schools?' To do so, the discussion revisits each research aim and corresponding research sub-question to link the study's findings to relevant contextual, methodological and theoretical gaps in our scientific understanding of school leadership and school improvement in Kenya. It is important to remember that the first phase of research was diagnostic – trying to co-construct with Kenyan school leaders a more contextually relevant and useful conceptual model and diagnostic tool for CFS. The second and third phases of research were evaluative – testing empirically the levels of efficacy, applicability, and robustness of the newly co-constructed conceptual model for CFS to understand how well it enabled school leaders to generate, interpret and respond to new data and insights about CFS with evidence-based school improvement plans.

First, the discussion will outline how the study's findings provide new contextual and theoretical contributions to the research literature. The first section (5.2.1) will discuss the new conceptual model and diagnostic tool for CFS that was co-constructed by the researcher using 8,353 data points from 100 focus group discussions with 812 Kenyan school leaders. In essence, the section provides answers to research sub-question 1A: 'When asked, do Kenyan school leaders' perceptions of key factors that enhance and constrain the quality of education align with the Kenyan government's national CFS monitoring toolkit?' The findings provide important contributions to existing contextual gaps in our theoretical scientific understanding of school improvement in non-Western countries (Riddell, 1999; Scheerens, 2001; Yu, 2007; Masino and Nino-Zarazua, 2016). In particular, the study fills the repeated call by many school improvement scholars to increase the quantity and quality of empirical data about educational quality from the Sub-Saharan African context (Yu, 2007; Schildkamp et al., 2012). The discussion also highlights how Kenyan school leaders' local perceptions of quality education reveal more granular details about the indicators of child-friendliness in schools that continue to constrain and enhance levels of quality education in Kenya (Mugo et al., 2012; Wasanga et al., 2012; Martin and Pimhidzai, 2013; UWEZO,

2016). The study probes the data and asks *why* certain indicators of child-friendly schools were raised by Kenyan school leaders as key constraints to quality education in Kenya. To do so, the study leverages insights from both *local* perspectives (explanations offered by Kenyan school leaders, *themselves*, from the study's empirical data) and *global* perspectives from relevant SIR, SER and EEIR scholars. The section outlines a number of suggestions for future areas of research that are related to, but beyond the scope of the study.

Second, the discussion will outline how the study's findings provide new methodological contributions to the literature. The second section (5.2.2) will discuss how the newly co-constructed conceptual model and diagnostic tool for CFS (the ECMT) was employed by 431 Kenyan school leaders, 533 teachers, 467 parents, and 426 pupils to generate 46,425 data points (from 1,857 completed surveys) that rated levels of child-friendliness in their schools. In essence the section will answer research sub-question 1B: 'When Kenyan school leaders and other school stakeholders (i.e. teachers, parents, and pupils) employ a more bottom-up, co-constructed conceptual framework and diagnostic tool for CFS, what new data and insights emerge about the quality of education in Kenya?' As a result, the section seeks to empirically test levels of usability and efficacy of the bottom-up, co-constructed conceptual model and diagnostic tool (ECMT) for CFS. It does so by evaluating the ability of the ECMT to generate new explanatory data about key indicators of child-friendly schools that constrain or enhance quality education in Kenya. The findings contribute to methodological gaps in the literature by providing new ways for *local school stakeholders* to assess and measure indicators of school improvement in Kenya (Teddle and Sammons, 2010; Chapman et al., 2012; Hopkins et al., 2014; Scheerens, 2015). The findings of the study also build on the work done by Nevo (2001), MacBeath and McGlynn (2002), and Fushimi (2014) that suggest that 'school self-evaluations' and 'external school inspections' could perhaps merge together into 'school self-inspections', using more globally informed, but locally rooted conceptualizations of quality education. The discussion will also illustrate how the study's approach to generating new data about CFS offers an important example of an SIR study that employs more 'to and fro' processes of 'inductive reasoning for ongoing theory generation and testing that represent *cyclical* rather than *linear* approaches to enquiry' (Sammons, 2012, p. 19, emphasis added).

Third, the discussion will outline how the study's findings provide new contributions to education policy and practice in the Kenyan context. The third section

(5.2.3) will discuss how data from the 1,857 ECMT school self-evaluations (shared through 581 virtual SMS, ECMT school report cards) were considered by Kenyan school leaders and informed the development of 1,559 new school improvement plans to raise levels of child-friendliness in their schools. In essence, the section will answer research sub-question 1C: ‘When asked to consider the new data and insights about quality education levels in their schools, what new strategies do Kenyan school leaders develop for school improvement?’ As a result, the section seeks to empirically evaluate levels of applicability and robustness of the ECMT in generating useful data with which Kenyan school leaders can develop and design new thinking and strategies for evidence-based school improvement. To do so, the study empirically evaluates whether or not school leaders were able to interpret and respond to newly generated data about child-friendliness in their schools. While each school leader developed very *different* types of school leadership strategies for school improvement, the majority of school leaders (58%) appeared to employ an evidence-based approach; developing school improvement plans about indicators of quality education that received low levels of perceived evidence from the ECMT’s diagnostic survey results. The discussion, therefore, recommends that future Kenyan education policy-makers and practitioners seek more opportunities to equip school leaders with the tools and processes to engage in more contextually relevant exercises of school-based diagnostic action research; thereby enabling school leaders to develop more evidence-based strategies for school improvement that are inspired and responsive to *local* perceptions of quality education in Kenyan primary schools (Dunlap and Piro, 2016).

The discussion then concludes with a critical reflection about the potential tension in interpreting the study’s results and contributions to the literature. The study reflects on the degree to which the validity and replicability of the new ECMT depends on the newly developed EMIS-Light technology platform. In other words, if EMIS-Light did not exist, would the new bottom-up, co-constructed CFS conceptual model and diagnostic tool remain as an effective school-based monitoring framework for quality education in the Kenyan context? The discussion addresses these questions and makes preliminary claims that while levels of efficiency, affordability, and scalability of the ECMT depend on the EMIS-Light system, the validity, replicability and relevance of the newly developed ECMT indicators remain high even if school leaders and other educational stakeholders employ them offline and without their mobile phones.

5.2.1 Discussion Section 1 - Co-constructing a New Conceptual Model and Diagnostic Tool for CFS (the Enhanced Child-Friendly School Monitoring Toolkit (ECMT))

While many scholars have debated what specific set of educational inputs and processes have an effect on educational quality in developing countries (Lockheed and Verspoor, 1991; Delors et al., 1996; Heneveld and Craig, 1996), this study provides new data from the Kenyan context. Sifting through the 8,353 data points generated from the 100 focus group discussions with Kenyan school leaders, the study unpacks which indicators ‘matter most’ to Kenyan school leaders in improving levels of child-friendliness in their schools. Then, the study seeks to determine how well Kenyan school leaders’ local perceptions of quality education either supplement or complement the fifty indicators of the Kenyan government and UNICEF-Kenya’s CMT.

As discussed, the study’s findings were meant to provide more *granularity* to the ‘double bottlenecks’ of quality education service delivery in Kenya, as conceptualized in Chapter 1 (Tanahashi, 1979). In particular, the findings highlight more specificity about the factors constraining levels of educational ‘availability coverage’ (i.e. percentages of Kenyan students in Kenyan schools with regularly attending teachers) and levels of educational ‘effective coverage levels’ (i.e. percentages of Kenyan students passing their end-of-primary school leaving exam). In other words, how do reflections from Kenyan school leaders’ *local perceptions* of quality education supplement *national education statistics* and therefore better enrich our levels of understanding of key constraints in delivering quality education for all (Republic of Kenya, 2014a; UNESCO, 2012; UWEZO, 2016)? The discussion of the data adopts what Chambers (1997) recommends in PLA research as a constant triangulation of meaningful learning from several types of information sets. Therefore, the discussion attempts to synthesize *both* local explanations of the data (offered during the study’s FGDs with Kenyan school leaders) and global perspectives from relevant research literature and evidence.

According to the results of the 100 FGDs with 812 Kenyan school leaders, the five indicators that were most often identified by Kenyan school leaders as either constraining or enhancing levels of child-friendliness in Kenyan schools were related to classroom infrastructure, income-generating activities, quality of nutritional services, support to out-of-school children, and teacher: pupil ratios. These are illustrated in Table 21 (next page).

Table 21: ‘Top Five’ indicators that Kenyan School Leaders most frequently identified as either constraining or enhancing levels of child-friendliness in their schools. Source: Author (2017).

ECMT FACTOR RANKED BY PREVA- LENCE	‘Top Five’ Indicators that Kenyan School Leaders Most Frequently Identify as Either Constraining or Enhancing Levels of CFS	# of RESPONSES HEAD TEACHERS	% of TOTAL RESPONSES BY HEAD TEACHERS	# of MENTIONS BY SCHOOL	% of TOTAL RESPONSES BY SCHOOL
1	Number of classrooms with proper ventilation, lighting and adequate learning space for children.	804	9.6%	343	42.2%
2	Income-generating projects in place, effective, and benefiting children’s welfare.	777	9.3%	377	46.4%
3	Provision of nutrition services in school (e.g. school feeding, deworming, vitamin A supplementation).	590	7.1%	290	35.7%
4	All out-of-school children identified in the community and efforts made to enrol and retain them in the school.	525	6.3%	255	31.4%
5	Teacher-pupil ratio (how many pupils study with one teacher).	510	6.1%	247	30.4%

As one can see from Table 21, the most frequently cited indicator offered by Kenyan school leaders that makes schools child-friendly (or not child-friendly) related to the number of classrooms with proper ventilation, lighting, flooring, and adequate learning spaces for children. This finding certainly confirms what was earlier described in Chapter 1 as an existing gap in educational ‘availability coverage’ levels of quality education in Kenya (Wasanga et al., 2012). The finding provides a more granular dimension to this bottleneck.

As a means to better contextualize and understand this finding, the discussion first returned to the study’s qualitative data from the FGDs that offered enriching explanations as to *why* Kenyan school leaders believed this factor was an important and pressing constraint to quality education. One school leader described the urgency of the problem, sharing that ‘My classrooms might collapse on my children and cause death’ (SL #810). Another school leader described the severity of the low quality classroom infrastructure, explaining, ‘When it is cold, the children freeze due to the lack of insulation; when it is hot, the heat is unbearable due to sun beating down on the iron sheets since the classrooms have no ceilings’ (SL #4). A number of school leaders also explained the negative consequences that poor classroom infrastructure can have on students’ well-being. One school leader said, ‘We need better classrooms to avoid jigger infection which comes from cow dung that is used to cement walls of the classrooms’ (SL #76). In response to the articulated urgency and severity of the problem of low quality classroom infrastructure, a number of school leaders also described how they were trying to overcome these challenges by using either ‘shelter sheds for classrooms’ (SL #47), ‘nearby churches’ (SL #98), or ‘areas under any available tree’ (SL

#291). Local explanations provide contextually rich and important dimensions as to why the insufficient level of school infrastructure arose as a significant constraint to raising levels of child-friendliness in Kenyan primary schools.

Global SER and SIR scholars, however, have suggested that there is no high correlation between physical infrastructure and pupils' performance (Armitage et al. (1987); Fuller (1987); Ngware et al., 2010). But recent evidence from SER and SIR meta-analyses of educational impact studies in developing countries highlight the importance of basic school infrastructure to raising levels of quality education (see Snilstveit et al., 2016; Masino and Nino-Zarazua; 2016). Although regional scholars (Ngware et al., 2010) and Kenyan education policy-makers (UNICEF-Kenya, 2009; Republic of Kenya, 2014a) have argued school improvement projects related to classroom infrastructure are too cost-prohibitive and seemingly unimportant to raising the quality of education, this study's findings suggest otherwise. The quality of classroom infrastructure does, in fact, matter to Kenyan school leaders. 42% of the 812 sampled schools mentioned the quality of classroom infrastructure 804 times throughout the FGDs as a key indicator for making their schools child-friendly. Therefore, while Mugo et al. (2012) and UWEZO (2016) may continue to ask Kenyan education stakeholders, '*Are Our Children Learning?*' through annual citizen-led learning assessments and social accountability reports, the study's findings suggest that perhaps we should also be asking, '***Where Can Our Children Learn?***' The study's findings suggest that more attention needs to be given to improving the quality of classroom infrastructure in order to improve levels of child-friendliness in Kenyan schools.

As one can also see from Table 21, the second most frequently cited indicator offered by Kenyan school leaders that make schools child-friendly (or not child-friendly) describe the degree to which 'Income-generating projects are put in place, effective, and *benefiting children's welfare*'. This particular finding suggests a potential 'triple bottleneck' in Kenya's education service delivery, where issues of 'accessibility coverage' (the percentage of children enrolling in school) should be given more attention. In Chapter 1, it was argued that Kenya faces a double-bottleneck in educational 'availability coverage' and 'effectiveness coverage'; hence the suggestion of a third bottleneck with inclusion of deficits related to levels of 'accessibility coverage'. While enrolment rates in Kenya are high, statistics relating to educational access still do not factor in levels of *financial* accessibility of educational opportunities, or the hidden school fees to free primary education (UNICEF, 2017).

The discussion first returns to the study's empirical data in search for *why* this indicator emerged as a key constraint to raising levels of child-friendliness in Kenyan schools. When reviewing the 8,353 data points from the FGDS, the term 'Poverty' was mentioned, in some form, in 81% of the responses and across 85% of the sampled schools. It is important to note that the sample was purposive and did focus on local realities of school leaders from *poor* government primary schools. When probing the data further, the study also discovered that child labour, specifically, emerged as a key factor as to why school leaders saw *school-based* income-generating activities as so important to improving levels of child-friendliness. One respondent explained, 'There is a lot of absenteeism since many parents force their children to go for tea picking instead of coming to school' (SL #518). Another school leader shared that, 'The brick industry is so close to the school and tempts the children to make money instead of coming to school [...], children are usually working even when their parents think they have just come to school' (SL #781). A third research participant shared that 'many pupils are *misused* by parents to burn and sell charcoal instead of coming to school' (SL #809, emphasis added).

In response to the poverty-related constraints, school leaders also offered a number of strategies that they have employed to address this issue. One school leader described, 'We support the children from poor families in our school by organizing school-based micro-lending schemes where parents who have available funds provide mini-loans with no interest to families with pupils who cannot afford the hidden fees of coming and staying in school' (SL #114). Another head teacher wrote, 'We have a special school-based poultry farm that not only helps us sell eggs to support scholarship fees for poor children, but also provides us with chickens so we can give them to poor families who may not be able to afford enough protein in their children's diets' (SL #109). One school leader described an elaborate partnership with a local bank, explaining that they 'have a special, unique agreement between the local bank and [their] school; as part of their corporate social responsibility scheme, the bank donates what is needed to support impoverished children, but then also helps families with micro-credit loans to start small businesses to help them get out of poverty' (SL #45). These insights exhibit a handful of the 'positive deviances' (Bergman, 2013) to how school leaders were responding to the poverty-related constraints to quality education.

Globally, SIR and SER scholars have consistently acknowledged children's socio-economic background as a key factor often constraining the quality education within and beyond developing country contexts (Dalin et al., 1994; Fuller and Clark, 1994; Heneveld

and Craig, 1996; Hanusheck and Woessmann, 2007). Ferguson et al. (2007) provide a particularly useful analysis of how the incidence, depth, duration and timing of poverty all influence a child's educational attainment. Regionally, Oketch and Ngware (2011) also conclude that free primary education in Kenya still excludes the poorest of the poor. The dire state of poverty in many of the sampled school communities most likely contributed to the data results. According to UNICEF-Kenya (2017), Kenya is one of the most unequal countries in the Sub-Saharan African region. Forty-two percent of its population of 44 million people still live below the poverty line (UNICEF-Kenya, 2017). But rarely do we see in the research literature about low educational access rates, a specific call from local school stakeholders for more school-based income-generating activities to *address* problems related to poverty. The study's findings, therefore, illustrate a key constraint within the levels of 'accessibility coverage' of Kenyan education service delivery (Tanahashi, 1979) and suggests that more, rather than less attention be given to exploring more school-based entrepreneurship, strategies to lobby donor and government funds, and traditional income-generating activities such as school gardens, poultry farms, and fish ponds. Future areas of research may borrow lessons from school-based entrepreneurship education and micro-business development models being introduced by East African NGOs such as *Educate!* (Educate!, 2017) and *Teach a Man to Fish* (TAMF, 2017). The study's findings clearly illustrate that economic disparities still remain a significant factor to school quality, but suggest promising ways forward in designing more innovative and *locally*-rooted school-based income generating activities.

The third most frequently cited indicator that Kenyan school leaders perceived as making their schools child-friendly (or not child-friendly) was the provision of nutrition services in schools (i.e. school feeding). The study's empirical findings repeatedly highlighted how the lack of nutritional services could negatively influence *all* levels of Tanahashi's (1979) 'effectiveness service coverage model', used in Chapter 1 to describe the current state of quality education in Kenya (i.e. levels of 'acceptability coverage' such as student enrolment; levels of 'contact coverage' such as student attendance; and levels of 'effectiveness coverage' such as quality of learning outcomes). One school leader described that, 'If children are not well fed at school, they waste a lot of class time going home during the day for lunch on foot and then coming back late' (SL # 85). Another head teacher described that 'Without school feeding, pupils sometimes have little reason to come to school at all instead of searching for their daily bread' (SL #101). A third school leader shared that,

‘When children eat from school, they do not bother wasting time going home; therefore this increases their rates of attendance in our schools – a true indicator of child-friendliness’ (SL # 378). In response to these perceived constraints related to low levels of quality school-feeding programmes, a number of school leaders described how they have been trying to overcome this perceived bottleneck. One school leader reported involving parents ‘in the collection of food during harvest time to be stored in school and used for providing lunch snacks for all pupils throughout the more dry and food insecure seasons’ (SL # 37). However, the majority of school leaders highlighted the persistent challenges related to the lack of school nutrition programs, including but not limited to: ‘pupils’ dire hunger levels’ (SL #89), ‘school famines’ (#10), and ‘never-ending malnutrition problems’ (SL #4).

Globally, recent SER and SIR findings confirm school-feeding to be one of the few educational interventions that shows promise for improving both school participation and quality learning at scale (Snilstveit et al., 2016). Bundy et al. (2006) argue that ‘school nutrition is an essential school input variable and necessary condition for improving learning at scale’ (p. 1105). The problem within Kenya, however, is that the contextual constraints of malnutrition, especially for children living in arid and semi-arid counties, appears to only be worsening. Recent survey results carried out by the Kenyan Ministry of Health and nine international NGOs found that drought conditions are expected to persist in 2018, leaving an estimated 3.4 million Kenyans severely food insecure (Republic of Kenya, 2017). As a result, it is estimated that approximately 482,000 Kenyan school-going children will require treatment for acute malnutrition (Republic of Kenya, 2017). Many of the study’s sampled school leaders hailed from Kenya’s drought-affected counties, therefore perhaps influencing the data. But their prioritization of school-based nutrition efforts in advancing levels of child-friendliness reflects a national priority in making schools more child-friendly. The study’s findings also suggest that school leaders have few solutions to address this particular constraint and more innovative solutions are urgently needed.

The fourth most frequently cited indicator by Kenyan school leaders as making their schools child-friendly (or not child-friendly) was the degree to which out-of-school children (OOSC) were identified and supported to enrol back into school. Again, although nationally reported levels of Kenyan student enrolment and attendance are high (UNESCO, 2012), the study’s findings highlight that school leaders still perceive the issue of OOSC as a critical educational constraint preventing quality education from being realized in their schools.

Data from the study's local FGDs help explain *why* some school leaders identified OOSC is such an important issue to improving levels of quality education service delivery. One school leader explains, that by 'identifying and supporting OOSC, the school can actually generate more financial and economic benefit for its overall budget - with more money comes more opportunities to make our schools more child-friendly' (SL #99). According to the government of Kenya, capitation grants to Kenyan schools are based on a per-pupil enrolment formula (Republic of Kenya, 2014a). In theory, if a school has more enrolled students, they also have access to a larger school budget to help run the overall management of the school. Some Kenyan school leaders, therefore, may be prioritizing the issue of OOSC as a possible strategy for ensuring that more adequate funding resources are received from the government. However, these payments are often delayed due to a variety of reasons and only exacerbate the challenges facing local Kenyan school leaders (Republic of Kenya, 2014a).

Overall, Kenyan school leaders expressed how helpless they felt in addressing the problem of OOSC. 'Child pregnancy' (SL #334), 'parents dying of HIV/AIDS' (SL #54), 'female genital mutilation' (SL #87), 'wife inheritance' (SL #67), 'community ignorance' (SL #776), and 'early marriages' (SL #457) were all cited by school leaders as key contributing factors to the intractable problem of OOSC. As a result, many expressed being overwhelmed with the enormity of the challenge. One school leader wrote, 'I feel simply helpless - how on earth am I supposed to find OOSC when the obstacles facing children *in* my school are already so overwhelming?' (SL #41). School leaders also noted the challenge of severe gender discrimination influencing high numbers of OOSC. One school leader explained, 'due to the outdated culture of exchanging girls for camels, many girls will never be seen by families as valuable school-goers and forever remain out of school' (SL #346). She wrote a note on the back of the FGD notecard, 'What are we supposed to do?' Another school leader explained that 'pupils are often engaged in looking after domestic animals with their parents, taking care of babies, or fetching firewood and water for their families and have no time for schooling' (SL #74). He, too, wrote on the back of his FGD notecard, 'How can this ever change?' (SL #74). Although many school leaders identified OOSC as a significant constraint to quality education, few offered successful strategies for addressing the problem.

Global scholars in SIR and SER also emphasize the crisis of OOSC in inhibiting levels of quality education in developing world contexts (Fuller, 1987; Heneveld and Craig,

1996). Although NER and GER rates within Kenya are very high, a staggering 2.9 million children still remain out-of-school (UNICEF-Kenya, 2014). These numbers also do not reflect the varying levels of student attendance throughout the year due to food insecurity or natural disasters (UNESCO, 2012). Leithwood et al. (2010) argue that effective school leadership for school improvement needs to happen through four different paths: rational action, emotional reaction, organizational reform and *familial engagement*. The perspectives from Kenyan school leaders seem to agree, where they recognize the importance of changing negative familial and community attitudes in order to address the challenge of OOSC. But the study's findings suggest that Kenyan leaders need many more 'indirect channels of school leadership that are rooted in the community' to help address and overcome the persistent educational challenge of OOSC in making their schools more child-friendly (Bellei et al., 2015, p. 3).

Finally, the fifth most frequently cited indicator by Kenyan school leaders as making their schools child-friendly (or not child-friendly) was the school's overall ratio of students per teacher. The empirical data from the school leader FGDs provide a dire state of affairs, with one school leader describing the troubling reality facing teachers in her school:

The teachers are overloaded and are not able to reach all the pupils; the work load is on average *38 lessons a day* which prevents any teacher preparation from happening and lessons being cut short. Often, *students remain alone, sitting in an empty classroom, waiting all day for a teacher to arrive*. And the classes are just too large with at least 80 pupils assigned to one teacher. There is no way my school can be child-friendly with this imbalance of teachers to students. (SL #133, emphasis added)

The reality of such poor learning environments for pupils is extremely hard to read and internalize. But one can only imagine how these realities play out in practice; thereby simultaneously negatively influencing levels of educational access, quality and equity. One school leader wrote, the 'lack of enough teachers has actually made pupils *run away* from school, seek immediate *transfers*, or even *sneak* out of school in search of classrooms in neighbouring schools that may have lower numbers of pupils per teacher' (SL #66). Another school leader wrote on her FGD notecard, 'A child in my school must simply feel lost - she is one of 120 pupils in her classroom, having a teacher who probably only knows her name, but has never asked her a single question from the syllabus' (#741). With teacher: pupil ratios being reported at levels of '8 teachers for 564 pupils' (SL #41), '13 teachers for 838 pupils' (SL #102), or '10 teachers for 1,223 pupils' (SL #303), the issue of inadequate provision of

qualified teachers clearly emerges as a devastating educational constraint to improving child-friendliness levels in Kenyan government schools.

Globally, SER and SIR only confirm the importance of this finding. It has been proven in many studies that imbalanced teacher: pupil ratios influence levels of quality education in developing countries (Kambuga, 2013; Masino and Zarazua, 2016). Kambuga (2013) calls for more supply-side education policies in Sub-Saharan African countries that focus more on hiring qualified teachers. This important, and yet devastating set of findings from the study also confirm what Fuller (1987), Heneveld and Craig (1996) and Lee et al. (2005) have all outlined in previous studies as the critical relationship between school staffing and varying levels of quality learning environments. The data from the study are clear: in order to improve levels of child-friendliness in Kenyan schools, current levels of teacher: pupil ratios must be improved.

In sum, the study's findings from the first phase of research reinforce the prevailing view that third world education systems often place a high emphasis on improving educational inputs to advance educational quality (Fuller, 1987; Heneveld and Craig, 1996). These findings come as little to no surprise to the researcher, considering the current crisis in educational quality in Kenya with overcrowded classrooms, understaffed schools, and crippling school infrastructure (Mugo et al. 2012; Wasanga et al., 2012; UNICEF, 2017). But the data show an important localized conceptualization of the most pressing constraints impeding quality education in the Kenyan context. The richness of the qualitative perspectives of Kenyan school leaders brings the statistics of educational inequities and inequalities to life and provides an important 'state of affairs' of current educational system bottlenecks within the country from the bottom-up rather than the top-down. The findings also indicate that there is no 'single view' held by Kenyan school leaders of which factors either constrain or enhance schools' levels of child friendliness. Chambers (1997) writes, it is critical to *not* have 'one voice' emerge as the dominant version of the 'total truth' (p. 156). The wide variety of participant responses reaffirms UNICEF's original global intention for CFS to move beyond single-factor approaches and adopt a 'multi-dimensional' set of principles to guide education quality in developing countries such as Kenya (UNICEF, 2009).

This section of the discussion was meant to illustrate how the study's first set of findings and analyses contribute to key contextual gaps in the SIR and EEIR literature by discovering the often neglected voices of *local* education practitioners in non-Western

country contexts (Riddell, 1999; Scheerens, 2001; Yu, 2007; Masino and Nino-Zarazua, 2016). The richness of the data stemming from the local perceptions of Kenyan school leaders only emphasizes the need for more empirical data and theoretical development about what factors continue to constrain and enhance quality education for children in marginalized contexts. Chambers (1997) would describe the result of the first phase of the research study as a ‘reversal of learning’ where the researcher succeeded in ‘learning *from the people* rather than learning *about the people* from policy makers’ in identifying which factors matter most in enhancing quality education in the Kenyan context (p. 157, emphasis added).

But how well do the Kenyan government’s 50 indicators of a child-friendly school capture or address these local perceptions of quality education expressed by Kenyan school leaders? Is there a need for a new conceptual framework for CFS that better reflects and respects what educational factors matter most for Kenyan school leaders in making their schools child-friendly? The next section discusses what new insights emerge from the data.

When comparing the 50 indicators of child-friendly schools in the Kenyan government’s CMT against the Kenyan school leaders’ local perceptions of quality education, a gap certainly emerges. The study’s findings show that although 97.0% of the school leaders’ responses could be coded using one of the 50 CMT indicators, the *majority* of what school leaders perceived as important factors constraining or enhancing levels of child-friendliness in schools could actually be coded using only 28 of the 50 CMT indicators. This means that just about *half* of what Kenyan education policy makers and donor partners had proposed as important factors of child-friendly schools through the CMT, were actually *not* particularly relevant to local perceptions of quality education offered by Kenyan school leaders on the ground. In response, the study co-constructed with Kenyan school leaders a new conceptual framework and diagnostic tool for CFS (called the Enhanced Child-Friendly School Monitoring Toolkit, or the ECMT) to better reflect local realities of quality education from the bottom-up rather than the top-down.

As outlined in Chapter 4, the researcher wrestled with how to best synthesize the overwhelming 8,353 unique qualitative data points from the Kenyan school leaders’ FGDs. He conducted two full rounds of qualitative analysis, employing the constant comparison coding technique (Lyons and Coyle, 2007). The first round sought to understand how well the local perceptions of Kenyan school leaders compared and contrasted with the original 50 indicators of the CMT. The study found that 8,103 (97.0%) of the 8,353 FGD responses

could be coded using one of the original 50 indicators from the CMT tool. The remaining 3.0% of the data (250 data points) were coded into ‘14 New Categories’ for CFS using an interpretative phenomenological approach (Storey, 2007) and principles of grounded theory (Glaser and Strauss, 1967). The second round of coding was completed to determine if any of the data initially coded under the 50 CMT indicators were in fact similar enough to one another to justify what Henwood and Pidgeon (2006) describe as thematic overlaps and potential new categorical grouping of data. The research analysed all 8,353 pieces of data for a second time and found that 15 of the original CMT categories could be collapsed into 7 regrouped CMT categories, thereby recoding 2,183 data points (26% of school leaders’ local perceptions of quality education) into these newly combined indicators of child-friendliness. After two rounds of intensive qualitative coding, the FGD data had been successfully coded into 35 of the original CMT indicators, 7 newly ‘combined’ or ‘grouped’ CMT indicators, and 14 ‘New Categories’, totalling 56 indicators of a more localized version of which factors Kenyan school leaders perceived to make their schools child-friendly or not child-friendly.

The study then sought to better understand *which* of the 56 coded indicators mattered *most* for Kenyan school leaders. To do so, the researcher ranked each of the 56 indicators according to the prevalence of FGD responses using the ‘sort’ function in Microsoft Excel. In other words, which indicators of CFS were mentioned the most times by 812 Kenyan school leaders across 100 focus group discussions? Chapter 4 provided a detailed overview of the process of qualitative data analysis. What emerged as an important finding was that the top 28 indicators (out of the study’s 56 recoded CFS indicators) could capture 97.0% of the unique responses given by school leaders about factors constraining or enhancing child-friendliness levels in their schools.

Upon reviewing the top 28 CFS indicators, the researcher noticed that three of the most frequently mentioned CFS indicators were more descriptive of ‘fixed indicators’ of quality education: classroom: pupil ratios, teacher: pupil ratios, and textbook: pupil ratios. The researcher decided that when asked, school leaders, teachers, parents, and pupils would either provide the *same* answer to each of these three indicators; or not know the accurate answers without the proper administrative records. Since the study aimed to co-construct a conceptual model *and* useable diagnostic CFS school-based monitoring framework, it was decided to keep the three newly coded CFS indicators in the conceptual model, but exclude them from the new CFS diagnostic tool which was meant to be used by *all* stakeholders. The

other ‘top 25’ indicators within the new ECMT included dimensions of quality education that could invoke different opinions about their perceived levels of evidence (i.e. the degree to which parents are perceived by pupils, teachers and school leaders as being involved (or not) in their children’s learning at school). As a result, the researcher kept all 28 indicators as essential components to the newly co-constructed CFS conceptual model, but only asked head teachers, rather than all school stakeholders, to report on these three dimensions of the ECMT. It is important to note, then, that while the study repeatedly refers to the 25 indicators of the ECMT, three additional indicators of a child-friendly school are consistently included as critical dimensions of the newly co-constructed ECMT conceptual framework as well.

The final ECMT is presented earlier in Table 19 in Chapter 4. The version of the ECMT with 25 indicators, therefore, represents what the study refers to as the new ECMT diagnostic tool; equipping all school stakeholders with a new tool to assess levels of child-friendliness in their schools.

The study then conducted a third round of qualitative analysis, again using the constant comparison coding technique (Lyons and Coyle, 2007) to determine how well the new 25 indicators of the newly developed CFS diagnostic tool distributed across the five main themes of the original CMT: (i) Inclusive Classrooms, (ii) Safety and Protection, (iii) Equity and Equality, (iv) Health and Nutrition, and (v) Community Linkages and Involvement. Reviewing the 25 indicators, the researcher discovered that with some small adjustments to the original wordings of each indicator, the data distributed evenly across each of the ‘main themes’ of the original CMT. Five of the 25 ECMT indicators were coded under each thematic area. As a result, each ‘sub theme’ of the ECMT had equal weighting with five indicators being grouped under each; another significant difference to the original CMT which had a skewed distribution of indicators across the five themes.

In sum, the study’s newly co-constructed ECMT conceptual framework with 28 indicators and accompanying mobile phone, SMS-based diagnostic action research tool with 25 indicators, exhibit five critical improvements made to the original indicators of the CMT.

First, the indicators of the new ECMT were co-constructed *with* rather than *for* Kenyan school leaders. Unlike the original CMT with 50 indicators, the ECMT was developed from the bottom-up, rather than the top-down. As Kanbur and Squire (2001) found in their review of international development interventions, most ‘self-help’ initiatives

imposed from the top-down fail because the needs of the ‘people being helped’ were not incorporated into the plans of those ‘wishing to help’ (p. 4). The study’s new conceptual model, therefore, emerges from what Easterly (2006) describes as ‘searching’ rather than ‘planning’ for what matters most in improving quality education in Kenya. Chambers (1997, 2007) argues that assumed realities by the high level policy makers eventually lead to creating irrelevant policies and procedures to ‘help’ those at the bottom. The findings demonstrate that almost half of the original 50 CMT indicators were irrelevant to local educational realities, as perceived by Kenyan school leaders.

Second, the ECMT uses fewer number of indicators to describe what constrains or enhances levels of child-friendliness in Kenyan schools than the original CMT. In fact, the ECMT offers almost 50% fewer indicators than the original CMT. It is important to note that in any evaluation, it is surely impossible to cover *all* of what Fushimi (2010) refers to as the ‘evalund’ (or the totality of the construct one wishes to measure), which in this case would be local Kenyan school leaders’ local perceptions of factors making schools child-friendly (or not child-friendly). However, the reduced number of ECMT indicators still captures 97.0% of what Kenyan school leaders prioritize as key factors influencing levels of child-friendliness in their schools.

Courtney (2008) argues that without community input into the design of school self-evaluations about quality education, the results are often seen as meaningless and school stakeholders often dismiss any recommendations for improvement stemming from the evaluations. The study’s newly co-constructed conceptual model was developed in practice, rather than in theory, therefore demonstrating a high level of relevance to the intended users: Kenyan local school stakeholders. Babbie (2010) notes that when designing school self-evaluations about quality education, it is crucial to reduce the length of questions to less than thirty dimensions in order to avoid survey fatigue by participants. The ECMT offers 25 indicators, rather than the original 50 indicators from the CMT, thereby fulfilling one of Babbie’s (2010) key recommendations to designing effective school self-evaluation tools.

Third, the new ECMT provides more equally weighted sub-themes, with a more equally distributed number of indicators per sub-theme than the original CMT. In the original CMT, **twelve** indicators were listed under *Inclusive Classrooms*; **nine** indicators under *Safety and Protection*; **nine** indicators under *Equity and Equality*; **eleven** indicators under *Health and Nutrition*; and **nine** indicators under *Community Linkages and Involvement*. The new

ECMT diagnostic tool makes an important advancement in providing five indicators for each original thematic theme for CFS. The equal distribution, therefore, enables school leaders and local school stakeholders to calculate more comparable data between the five CFS sub-themes.

Fourth, the new ECMT utilizes a more understandable and, therefore, easily administered and interpreted rating scale than the original CMT. In the original CMT, responses to the 50 indicators were made against the following four-level scale (UNICEF-Kenya, 2009, p. 19):

- 0 = Poor** – There were major weaknesses/very little/almost never/insufficient.
- 1 = Unsatisfactory** – While there were strengths, there were some important weaknesses/sometimes/about half satisfactory.
- 3 = Satisfactory** – On balance, strengths outweighed any weaknesses/sufficient/most of the time/nearly all good but more can be done.
- 5 = Excellent** – There were major strengths/very good/excellent/all expected indicators are there.

However, as discussed in Chapter 1, interviews with Kenyan school leaders revealed that the rating scale out of 250 points (i.e. the original CMT scale and response options could generate a maximum “score” of 250 points by multiplying each of the 50 CMT indicators by their maximum score of 5 points, each) and the definitions of each rating level were deemed as inoperable in practice by Kenyan school leaders (Karuga, 2012). As the National Chairman of the Kenyan Primary School Head Teachers Association noted, ‘if I give myself a 184 out of 250 for my CFS score, what does that actually mean to me? Why can’t CFS be scored out of a one hundred points and make it all easier?’ (Karuga, 2012). In response to comments like this, the simplified and re-weighted response scale below was implemented in the present study:

- 0 = No levels of evidence.**
- 1 = Below average levels of evidence.**
- 2 = Average levels of evidence.**
- 3 = Above average levels of evidence.**
- 4 = 100% levels of evidence.**

As noted above, the decision to modify the CFS response scale from the original CMT was driven in part by direct input from Kenyan school leaders (Karuga, 2012). The new response scale provides a meaningful 0 point (i.e., ‘No levels of evidence’) and compared to the

original CMT, yields overall CFS scores that can total to 100 and therefore be more easily reported, interpreted, and acted upon by school leaders.

In addition to tailoring the CMT to meet the needs of its actual users, the present response scale modifications were driven by MacBeath's (2008) recommendation to root self-reflections in discoverable and accountable sources of evidence. The original 50 indicators of the CMT asked respondents to rate levels of child-friendliness on extremely abstract, subjective opinions that could never be verified against any sort of shared standard or benchmark. A goal in the present work was to encourage school leaders to base their CFS judgements on levels of *evidence* that could be more easily quantified and verified at least against what other school stakeholders had collectively perceived (i.e., a sort of normative benchmarking model).

It is perhaps also worth noting that neither the original CMT, nor the adapted ECMT response scale reflect traditional characteristics of a Likert scale, which are bi-polar with a neutral midpoint (i.e. 'Strongly negative' ► 'negative' ► 'neutral' ► 'positive' ► 'Strongly positive') (Likert, 1932). These two response scales instead reflect more of an 'extent to which', 'frequency', or 'single continuum' type of scale for which 'a higher score equals more of something' and 'a lower score equals less of something' (Cunningham et al., 2013). In theory, the researcher wanted to develop a scale where individual ratings could perhaps be verified by asking respondents to show examples of the evidence they used to inform their judgement. In practice, levels of evidence actually became verified when multiple stakeholders concurred that there were 'no levels of evidence' or 'complete levels of evidence' across the different ECMT indicators.

Fifth, the new ECMT offers more user-friendly and concise language describing key factors constraining levels of child-friendliness in Kenyan schools than the Kenyan government's CMT had provided to end-users. After identifying the core 25 indicators of the new ECMT, the researcher made important edits to the language of each original CMT indicator in hopes of improving readability and efficacy of the tool. First, the ECMT developed more concise narrative descriptors of each ECMT indicator (160 characters or less) so that the factor could fit within the space of a single mobile phone SMS message. Second, the ECMT renamed two of the original CMT superordinate themes to reflect more accurately what each of the five indicators under each theme were describing. The ECMT

first changed the CMT superordinate theme, ‘Inclusive Classrooms to ‘Classroom Teaching and Learning’. Within the Kenyan context, the use of ‘inclusive classrooms’ invoked images of disability-friendly learning environments (Karuga, 2012). While disability-friendly facilities and trained personnel are included within an indicator of the new ECMT, the study decided that this dimension fell more appropriately under the ‘Equity and Equality’ superordinate ECMT theme. The ECMT then changed the CMT’s superordinate theme ‘Community Linkages and Involvement’ to ‘Community and Family Engagement’; better reflecting the fact that two of the five indicators within this theme refer to family engagement in pupils’ quality of learning in school and at home. Finally, the ECMT rephrased the beginning of each ECMT indicator to read as a statement, beginning with, ‘My school is...’ to better focus respondents’ perceptions on indicators related to ‘child-friendly schools’. This particular editing decision was inspired by reflections from MacBeath and McGlynn (2002) who describe a number of ‘helpful tips’ for designing and implementing successful school self-evaluations.

Although the new conceptual model and diagnostic tool reflect a more contextually relevant, user-friendly, understandable school-based framework for measuring levels of child-friendliness in Kenyan schools, the 25 indicators of the ECMT still suffer from asking ‘double barrelled questions’ – thereby forcing potential users to provide single answer responses to categories that have multiple parts (Babbie, 2010, p. 257). For example, one of the new ECMT indicators asks school stakeholders to rate the perceived levels of evidence related to the following statement: ‘My school is a place that has safety measures in place (i.e. fire-fighting equipment, first-aid kits, school fence, security personnel, etc.)’. What if a school has fire-fighting equipment, but no first-aid kits? How does a user of the ECMT diagnostic tool accurately rate the level of evidence for this particular indicator? This confusion illustrates one of the main weaknesses of *both* the original CMT *and* the newly constructed ECMT. While breaking the new ECMT categories into non-double-barrelled questions could have certainly increased levels of construct validity and reliability (Babbie, 2010), the anticipated number of discrete ECMT indicators would have become logistically prohibitive and conceptually counterproductive.

It is important to remember that the key aim for this first phase of research was to ‘co-construct with Kenyan school leaders a new conceptual model and diagnostic tool for understanding the factors that impede or enhance the development of child friendly schools’.

Figure 49 illustrates how the findings from the first phase now form the basis for the remaining two phases of the research study.

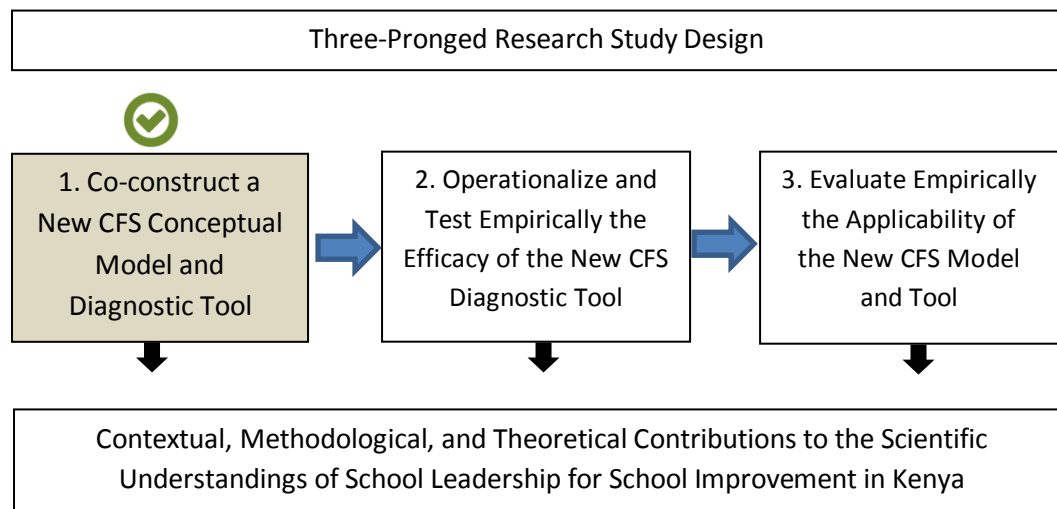


Figure 49: Completion of Phase 1 of the three-pronged research study design. Source: Author (2017).

The study now turns to the second phase of its three-pronged research approach and discusses the potential methodological contributions of the study's findings to the literature.

5.2.2 Discussion Section 2 - Evaluating the Efficacy of the ECMT

The findings from the second phase of research provide ground-breaking new insights into how Kenyan school stakeholders perceive current levels of child-friendliness in their schools. The second phase of research was meant to provide answers to the study's second research sub-question that asked, 'When Kenyan school leaders and other school stakeholders (i.e. teachers, parents, and pupils) employ a more bottom-up, co-constructed conceptual framework and diagnostic tool for CFS, what new data and insights emerge about the quality of education in Kenya?'

In total, 431 Kenyan school leaders, 533 Kenyan school teachers, 467 Kenyan parents of primary school-aged children, and 426 Kenyan pupils enrolled in Class 8 were able to successfully use the mobile phone, SMS-based ECMT diagnostic action research tool to rate levels of perceived evidence of child-friendliness factors in their schools. In total, 1,857 SMS-based surveys were collected from these stakeholders across 581 of the original 812 sampled schools. In total, users answered 46,425 SMS questions.

The study's EMIS-Light system was able to calculate how long each user of the new ECMT diagnostic tool took to complete their ratings of the 25-question school self-evaluation. On average, each school self-evaluation took only 7.25 minutes to complete. There was also little difference between the average times it took for each stakeholder to complete the 25-question school self-evaluation. The study's empirical data help clearly demonstrate that the new ECMT diagnostic tool exhibits high levels of usability and efficacy with *all* types of Kenyan school stakeholders; pupils, teachers, parents, and head teachers alike. As discussed in Section 5.1.5, the study received hundreds of clarifying questions from Kenyan school stakeholders through its 'customer support' function on the EMIS-Light system. However, most of the questions were related to remembering their school's Kenya National Examinations Council code when registering for the survey, rather than raising questions about the ECMT diagnostic tool or process, itself. The data clearly demonstrate the efficacy in terms of the ECMT's level of *usability*; but what does the data tell us in terms of its efficacy in generating new insights about quality education levels in Kenya? The discussion now examines and interprets the empirical data that emerged from the 1,857 completed ECMT diagnostic mobile phone, SMS-based surveys.

As presented in Chapter 4, the average school-wide child-friendliness score was 66% out of a total possible score of 100%. School leaders, parents, pupils, and teachers all gave similar scores on the 25-item ECMT diagnostic tool. Head teachers gave an overall average CFS score of 65%; teachers, 65%; parents, 66%; and pupils, 68%. ECMT indicators related to ‘Classroom Teaching and Learning’ were given an average score of 71%; ‘Equity and Equality’, 68%; ‘Community and Family Engagement’, 65%; ‘Health and Nutrition’, 65%; and ‘Safety and Protection’, 61%. The national measures of child-friendly schools are the first of their kind and produce a valuable new dataset for future research about quality education in Kenya. The empirical data that emerge from the use of the ECMT are not speculative, but rather explanatory in helping Kenyan school leaders better conceptualize and assess the current ‘state of affairs’ of child-friendliness in their schools. The ‘top five’ and ‘bottom five’ scored indicators on the ECMT are presented below in Tables 22 and 23. These data provide new insights into understanding levels of quality education in Kenya.

Table 22: Highest scoring indicators on the new CFS Diagnostic Tool from 1,857 Kenyan school stakeholders’ CFS school self-evaluations. Source: Author (2017).

ECMT RANK # BY CFS SCORE	The ‘Top Five’ Scoring Indicators on the CFS Diagnostic Tool (ECMT) Results from: 1,857 Kenyan school stakeholders’ CFS school self-evaluations.	Average CFS Diagnostic Survey Score
1	My school is a place where all pupils are treated with respect regardless to cultural origin, tribal affiliation, religious belief and/or social status.	84%
2	My school is a place where girls and boys are treated equally in teaching, seating, access to materials and asking questions and receiving feedback.	82%
3	My school is a place where all teachers are competent in their subject knowledge.	77%
4	My school is a place that promotes guidance and counselling on a regular basis.	74%
5	My school is a place with strong links to community- and school-based ECD centres and emphasizes the importance of early childhood development in education.	74%

Table 23: Lowest scoring indicators on the new CFS Diagnostic Tool from 1,857 Kenyan school stakeholders CFS school self-evaluations. Source: Author (2017).

ECMT RANK # BY CFS SCORE	The ‘Bottom Five’ Scoring Indicators on the CFS Diagnostic Tool (ECMT) Results from: 1,857 Kenyan school stakeholders’ CFS school self-evaluations.	Average CFS Diagnostic Survey Score
25	My school is a place where pupils have access to proper nutrition services (i.e. school feeding).	58%
24	My school is a place that has safety measures in place (i.e. fire-fighting equipment, first-aid kits, school fences, security personnel, etc.).	50%
23	My school is a place that has an emergency preparedness and response plan in place (i.e. pupils know what to do in case of fire, flood, etc.).	46%
22	My school is a place that has the capacity to provide disabled pupils with appropriate disability-friendly facilities, equipment and trained personnel.	45%
21	My school is a place that has income-generating activities that benefit pupils’ welfare (i.e. fund drives, donors, school gardens, carpentry, poultry farms, etc.)	42%

In other words, these findings serve as an important barometer of current perceived levels of child-friendliness in Kenyan schools, viewed from the bottom-up, rather than the top-down.

This section now discusses and reviews the ‘bottom five’ scored indicators of the ECMT. Table 23 outlines aspects of quality education that are commonly documented and discussed by SIR and SER scholars describing education systems in developing countries (Yu, 2007; Masino and Nino-Zarazua, 2016). But the data illustrate alarmingly low levels of perceived levels of evidence by Kenyan school stakeholders about: (i) disability-friendly facilities and trained personnel, (ii) emergency preparedness and response plans, and (iii) basic safety measures for providing security within school compounds. Too often, the discourse for school improvement in Kenya is overwhelmed with calls to improve levels of children’s literacy and numeracy, only (Piper, 2010). But, as one can see from the data, the quality of learning *conditions* still remains tragically insufficient.

The data also provide critical directions and priorities for influencing future educational research and policy. For example, the educational constraints listed in Table 23 raise critical reminders to educational decision-makers that educational affordability, basic quality school infrastructure, and adequate provision of proper nutrition *still* remain absolutely critical to ensuring quality education for all. Yet, these factors influencing quality education remain largely unaddressed by government or donor-sponsored education improvement programmes in Kenya (Karuga, 2012). How can we realistically expect to improve children’s reading and writing levels when they remain trapped in cyclical poverty traps (Oketch and Ngware, 2011), suffer from extreme hunger (UNICEF, 2017), or are permanently excluded from educational access because of their mental or physical disabilities (UNICEF, 2013)? In sum, the ‘bottom five’ indicators of CFS in Kenya, as rated by users of the mobile phone, SMS-based ECMT, provide clear policy areas and directions for immediate attention and action by leaders in school improvement from the top-down *and* bottom-up

Unlike the ‘bottom five’ rated ECMT indicators from the mobile phone, SMS-based diagnostic action research survey results, the ‘top five’ rated ECMT indicators yielded results from Kenyan school stakeholders’ local perceptions that were **not** aligned with documented local realities. The discussion begins with the ‘top two’ rated ECMT indicators: levels of

perceived evidence of social equality (ECMT score of 84%) and gender equality (ECMT score of 82%) in the sampled Kenyan schools.

As discussed in Chapter 4 (pages 146-147), it is important to **not** interpret these results as indicative of Kenyan school stakeholders having adequately addressed issues related to gender and social inequity and inequality in their schools. Rather, the average scores of these two ECMT indicators illustrate how local perceptions of Kenyan school stakeholders appear to be in contradiction to documented local realities of social and gender inequities that continue to constrain quality learning environments in the Kenyan context.

First, this section describes the contradictions between Kenyan school stakeholders' perceived levels of **social equality** in the sampled schools and arguments made in Chapter 1 of this study, outlining **social inequalities** that continue to plague the Kenyan education sector. As argued in Chapter 1, social inequities continue to create systematic bottlenecks in the provision of quality education in the Kenyan context. For example, social inequities in the provision of quality learning environments are evident in the available research literature: (i) Only 8% of pupils in rural north eastern Kenya (where the majority of the study's sampled schools exist) have access to a mathematics textbook, compared to 44% of pupils living in Nairobi (Onsomu et al., 2005); (ii) 47% of children in schools in the north east regions of Kenya sit on dirt floors to learn (because they have no desks), compared to only 1% in Nairobi (Mugo et al., 2012); and (iii) a child living in an arid county in Kenya (again where most of the study's sampled schools exist) is three times more likely to be out of school than a child living in an urban county (Mugo et al., 2012). Furthermore, Kiplagat and Mugasia's (2014) study of school violence in Kenyan schools specifically highlights severe tribal and ethnic tensions that negatively influence the quality of Kenyan school learning climates. The ethnic violence that emerged after the 2007 Kenyan presidential election only further illustrates how tribal tensions often remain 'below the surface' in Kenyan culture, 'ready to erupt' (UNICEF, 2017). It is assumed that it would be no different in Kenyan schools. Against these documented, deeply ingrained social inequities in the Kenyan educational context, the study found it difficult to grapple with the ECMT data, where levels of perceived evidence of social equality within Kenyan schools were given such high ratings by school stakeholders.

Second, similar contradictions between local perceptions collected from the ECMT respondents about **gender equality** and arguments made in Chapter 1 about **gender**

inequality, arose in the study's findings. The ECMT average score of 82% out of 100% perceived levels of evidence for gender equality directly contradicts the discussion about gender inequity, as outlined in Chapter 1. For example, UNESCO (2012) estimates that 45% of adolescent girls living in the north east regions of Kenya (where the majority of the study's sampled schools exist) have never attended a day of schooling in their young adult life. As Mugo et al. (2012) reported, girls in the north eastern provinces in Kenya are *seven* times more likely to miss a day of school than girls in Central province, due to differences in communal cultural values of education. Furthermore, numerous other studies about gender inequality have demonstrated the dire, and in some places, worsening situation for quality girls' education in Sub-Saharan African country contexts, including Kenya and throughout the Eastern African region (Unterhalter et al., 2014; Sperling and Winthrop, 2015). For example, recent research findings from Parsitau (2017) and UNICEF (2017) show high rates of reported gender-based school violence, ongoing school-level gender-based discrimination, and horrifically high levels of reported gender-based sexual abuse in Kenyan school classrooms. As one can see, there appears to be a severe disconnect between what local Kenyan school stakeholders perceived on the ECMT to be as deserving high levels of evidence for gender equality in their schools and the widely documented barriers that continue to prevent Kenyan girls from accessing basic quality education for all.

These contradictions raise important areas for future research. For example, why are local school stakeholders' perceptions of levels of social and gender equality not aligned with documented local realities of social and gender inequities in the Kenyan context? As discussed in Chapter 4, one perhaps fruitful line of inquiry would be to consider the ratings by local Kenyan school stakeholders on *other* ECMT indicators that have social and gender issues naturally embedded within their constructs. For example, ECMT indicators 7 (school-based violence), 11 (provision of latrines), 14 (identification of out-of-school children), 15 (disability-friendly education), 18 (teaching of personal health and hygiene), and 23 (parental engagement in learning at home), among others, depend on local school stakeholders addressing issues of social and gender equity and equality in a holistic fashion. In other words, the reported scores for ECMT indicators 12 (gender equality) and 13 (social equality) should not be interpreted alone, but rather simultaneously alongside and intertwined with the other self-rated ECMT indicators of child-friendliness levels to gain a more holistic perspective of the state of quality learning environments in Kenyan primary schools.

A second area of future research could also investigate the degree to which the local perceptions of social and gender equity were the result of potential attributional bias by research respondents. When the study compared ECMT scores from participating schools against ECMT scores completed by the researcher's IRAs, levels of locally perceived evidence about social and gender equality in schools were higher than those from the IRAs; thereby providing potential evidence for effects of attributional bias. The researcher had originally planned to visit a selection of the sampled schools to compare and contrast the perceived levels of evidence, as reported on the ECMT, with local realities on the ground. However, as discussed in Chapter 3, the scope of phase three of the research study was limited due to the terrorist attacks at Westgate Mall in Nairobi and insecurity levels in September 2013. Future research could involve follow-up visits to the schools in order to better understand the tension between the study's local school stakeholders perceptions of social and gender equality and externally documented local realities of social and gender inequities that continue to plague the Kenyan education sector.

The ECMT indicator with the third highest rated levels of evidence (receiving an ECMT average rating of 77%) related to school teachers' professional competencies. This finding also paints a different picture of teacher quality than what was discussed in Chapter 1. For example, Martin and Pimhidzai (2013) discuss the *lack* of qualified teachers as being a key impediment to improving learning outcomes within Kenya. Globally, the World Bank (2018) describes how education systems within Sub-Saharan Africa pay little attention to what teachers know or what they do in the classroom and as a result impede the delivery of quality education for the most marginalized students. The World Bank (2018) further estimates that less than 25% of Sub-Saharan African teachers even complete secondary education and are therefore ill-equipped with limited professional teaching competencies (World Bank, 2018). The study's findings do, however, provide a rich starting point for potential future areas of research. For example could the findings be related to the recent nationwide USAID-funded Primary Maths and Reading Initiative (PRIMR) which equipped thousands of Kenyan public school teachers with improved pedagogical skills and knowledge (Gove et al., 2017)? A future study could perhaps look at how many of the sampled schools were also participants in the PRIMR programme. On the other hand, the study's findings could also be interpreted as the simple fact that more than half of the ECMT respondents were teachers or head teachers; therefore suggesting high probability of attributional bias.

The fourth highest rated indicator on the ECMT ratings (receiving an overall average score of 74%) related to schools being viewed as places with effective guidance and counselling services. Again, this finding seems to contradict evidence from recent SIR from the region. For example, Wambu and Fisher (2015) recently investigated the quality of guidance and counselling services within Kenyan public primary schools and concluded that the ‘challenges facing guidance and counselling in Kenya today are similar to those experienced by the United States in the 1920s: role ambiguity, a lack of practical planning to develop and implement school counselling programs, and a lack of adequate preparation of teachers to carry out effective guidance and counselling services’ (p. 95). But the study’s findings, again, paint a slightly different picture of quality education. What is happening in these sampled schools to cause school stakeholders to rate their schools as places with effective guidance and counselling services? As one can see, the diagnostic data that emerge from the ECMT continue to provide important directions for potential new areas of interesting, exploratory follow-up research studies.

Lastly, the fifth highest rated ECMT indicator related to perceived levels of evidence about the strong linkages that exist between schools and early childhood development (ECD) centres. This finding is particularly important to the future of ECD policy and practice within the Kenyan context. As ECD remains a top priority in the Kenyan National Education Sector Plan (Republic of Kenya, 2014a), more examples of success are desperately needed to help guide Kenyan school leaders about how to operationalize lofty policy goals into tangible results on the ground (Karuga, 2012). Wangila (2017) concludes that more examples of success are needed in order to overcome the emerging challenges in implementing new ECD policies nationwide such as the inadequacy of ECD learning resources, financial constraints of ECD services, lack of government good will, and poor training of ECD teachers. Although the study’s findings portray strong linkages between schools and ECD centres, the diagnostic data do not provide evidence about the *quality* of the provision of ECD at the end of these linkages. The data calls for future research that could interrogate this question, alongside many others related to the ECD field within Kenya which seems to always be under financial, political and logistical construction (Wangila, 2017).

In summary, when Kenyan school stakeholders employ the ECMT, new data and insights about factors constraining and enhancing quality education in Kenya emerge. The new dataset, alone, offers an important and historic contribution of new empirical data about

current levels of quality education in Kenyan government schools, generated from bottom-up rather than the top-down perspectives (Chambers, 1997). Methodologically, the ECMT seems to equip Kenyan school leaders with a new means to assess quality education, therefore supplementing existing methods available to Kenyan school leaders, including high-stakes testing, school self-evaluations, and external school inspections (De Grauwe and Naidoo, 2004). The ECMT appears to provide Kenyan school leaders with what Nevo, (2001), MacBeath and McGlynn (2002) and Fushimi (2014) would describe as a tool for ‘school self-inspections’ that is globally informed, but locally rooted. As seen from the data, when school stakeholders employ the ECMT, new, and oftentimes contradicting insights about quality education emerge; thereby providing important new directions for educational research, policy and practice. In the end, the data ultimately show that the ECMT has high levels of efficacy in generating important new data and insights about key factors constraining or enhancing the quality of education in Kenya, today. As a result, the findings help the study achieve its second aim of its three-pronged research design (illustrated in Figure 50), in successfully operationalizing and testing the operability and efficacy of the ECMT.

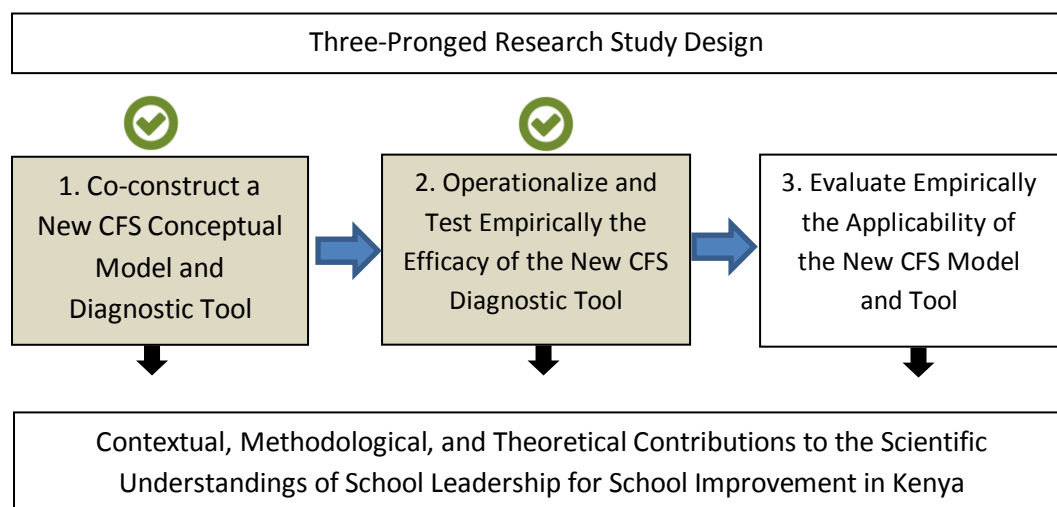


Figure 50: Completion of Phase 2 of the three-pronged research study design. Source: Author (2017).

The third section of the discussion now turns to interpreting the findings from the third and final phase of the three-pronged research approach.

5.2.3 Discussion Section 3 - Evaluating the Applicability of the ECMT

The last phase of the research study sought to answer the third research sub-question: ‘When asked to consider the new data and insights about quality education levels in their

schools, what new strategies do Kenyan school leaders develop for evidence-based school improvement?’ To do so, the study sent 581 mobile-phone, SMS-based ‘virtual ECMT school report cards’ through the EMIS-Light system to head teachers of schools whose stakeholders had successfully completed the ECMT diagnostic action research survey. The ECMT virtual school report cards provided Kenyan school leaders with two new sources of data: (i) the average of all school stakeholders’ scores for each of the 25 indicators of the ECMT and (ii) data about how well their school’s levels of child-friendliness compared with the overall averages of child-friendliness from all participating schools in their region. Importantly, school leaders could not trace which stakeholder gave what score, thereby helping protect the anonymity of the respondents and also help mitigate often implicit power structures that can sometimes negatively influence the outcomes of participatory research (Neef, 2003).

After having received their virtual ECMT school report cards, each school leader was then asked via SMS, ‘Based on your school’s CFS [ECMT] results, what *three action steps* would you employ over the next year to make your school more child-friendly?’ In total, the study collected 1,559 new school improvement strategies from 436 of the 581 head teachers whose school communities had completed an ECMT multi-stakeholder, school-based diagnostic action research exercise. Through the analysis of the data, the study drew out two key findings.

First, 97.0% of the 1,559 school leadership strategies for school improvement developed by Kenyan school leaders related to one of the newly developed indicators in the ECMT conceptual model. In other words, the 28 indicators of the full ECMT conceptual model were applicable to 97.0% of what Kenyan school leaders perceived as action steps that were necessary to address educational constraints within their schools.

Second, 58.0% of school leaders’ school improvement strategies corresponded to one of the fifteen *lowest* rated ECMT indicators on their ECMT virtual school report cards. In other words, the majority of Kenyan school leaders appeared to employ an evidence-based, data driven approach to designing their school improvement plans in response to areas of most need. These two final findings of the study are now discussed in further detail.

5.2.3.1 New School Leadership Strategies for School Improvement

The study's collection of school leadership strategies for school improvement show what Murphy (2012) describes as a 'blurring of boundaries between the home and the school, between the school and the community, and between the professional staff and lay constituents' (p. 257). A wide-ranging, diverse typology of new school leadership strategies for school improvement emerges from the data.

To make sense of this final dataset, the researcher again employed the constant coding comparison technique from Lyons and Coyle (2007) to understand how applicable the ECMT conceptual model was to the school leadership strategies for school improvement. In other words, the study interrogated the data to determine the level of applicability of the newly developed ECMT to school leadership plans for school improvement. A portion of the coding results are provided in Table 24, below, illustrating how 46.2% of the school leadership strategies for school improvement could be coded using five indicators of the new ECMT.

Table 24: 'Top Five Indicators' of the ECMT Conceptual Model that describe the Most Prevalent School Improvement Strategies Developed by Kenyan School Leaders from the ECMT Diagnostic Tool. Source: Author (2017).

ECMT # RANKED BY PREVALENCE OF SI STRATEGIES	The 'Top Five' Indicators of the New ECMT Conceptual Model That Describe the Most Number of School Improvement Strategies Developed by Kenyan Primary School Leaders Results from: 1,559 Kenyan School Leaders' School Improvement Plans	Prevalence of School Improvement Strategies
1	My school is a place that has a functional school management committee that plans, promotes, and monitors school improvement activities.	(n=194) (12.4%)
2	Classroom: Pupil Ratio	(n=142) (9.1%)
3	My school is a place where pupils have access to clean, safe and well-maintained toilet facilities.	(n=140) (8.9%)
4	My school is a place that provides safe outdoor places for pupils' play, rest and recreation activities.	(n=128) (8.2%)
5	My school is a place where pupils have access to proper nutrition services (i.e. school feeding).	(n=119 (7.6%)

When the researcher ranked the prevalence of all coded school improvement strategies against all indicators of the ECMT, he discovered that 87.0% of school leaders' self-designed school improvement strategies could be coded by just fifteen factors of the ECMT concept model. The applicability of the model, therefore, is clearly evident to the typology of school improvement strategies developed by Kenyan school leaders.

The study's findings certainly reveal a fascinating, rich tapestry of innovative, locally rooted, and practical school leadership strategies for school improvement. But how do they

relate to the available literature that conceptualizes dimensions of quality education in Kenya? In response, the researcher conducted one final round of qualitative coding analysis using Lyons and Coyle's (2007) constant comparison coding technique to compare the school improvement strategies against Heneveld and Craig's (1996) CIPO framework (CIPO standing for educational 'context', 'input', 'process' and 'outcome' variables). This particular approach to data analysis was inspired by Fushimi's (2010) recoding of the 50 original indicators of the CMT using the same CIPO framework (see Chapter 2). The results of the coding exercise are displayed below in Figure 51, which help us better understand the typology of school improvement strategies developed by Kenyan school leaders.

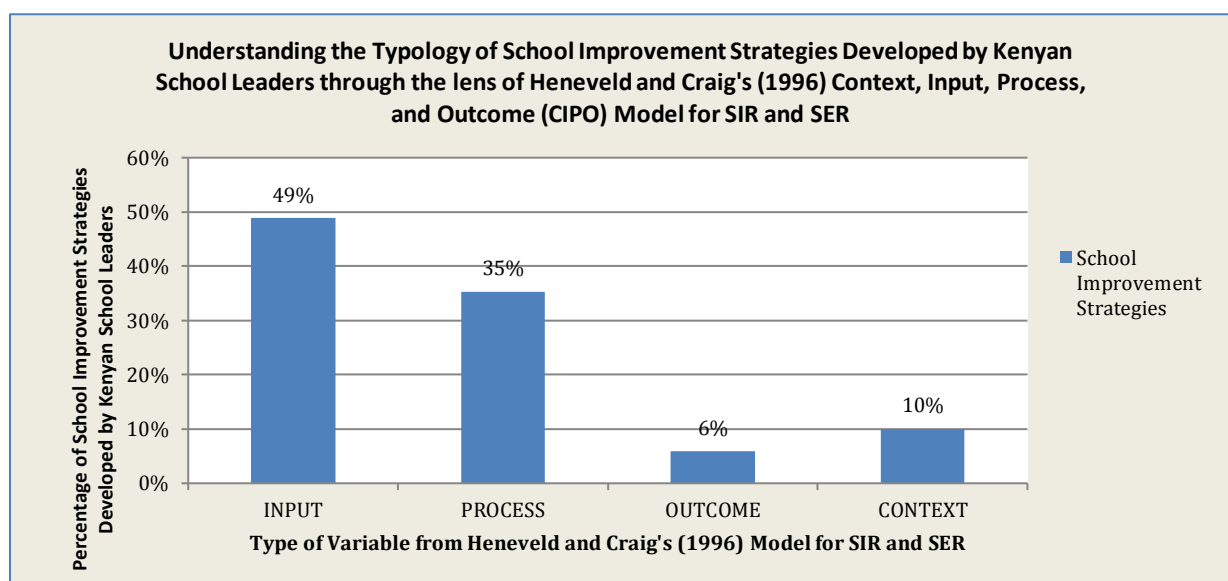


Figure 51: Understanding the Typology of School Improvement Strategies Developed by Kenyan School Leaders through the Lens of Heneveld and Craig's (1996) Model of SIR and SER. Source: Author (2017).

Evidently, most of Kenyan school leaders' school improvement strategies were related to either educational 'input' variables (49%) or 'process' variables (35%). Very few of school leaders' school improvement strategies appeared to relate to 'context' variables (10%) or 'outcome' (6%) variables. An explanation of the variables that constitute each CIPO factor was discussed in Chapter 2. The findings reflect the nature of the research design, where respondents were not asked about how to raise learning outcomes, but rather how to make their schools more child-friendly. The present study asked about conditions and strategies related to child-friendly schools. Future research could build on these findings about input and process variables related to school improvement and further investigate the relationship to learning outcomes; this was beyond the scope of the current study.

Overall, the evidence of the ECMT model's applicability to the type of school leadership strategies for school improvement developed by Kenyan school leaders is clear and substantial. The next section of the discussion now interrogates the data for the final time to understand the degree to which data generated from the new ECMT model better enabled Kenyan school leaders to adopt *evidence-based* school improvement strategies.

5.2.3.2 New Data-Driven School Leadership Strategies for School Improvement

The final set of data from the study provides one of the most important contributions of the study to our scientific understanding of school leadership strategies for school improvement in Kenya. The study wanted to determine if the school leadership strategies for school improvement responded to the greatest constraints of quality education in their school contexts, as defined by indicators of the ECMT that received low ratings of evidence from school stakeholders' school self-evaluations. Through a series of basic descriptive quantitative analyses of the data (outlined in more detail in Chapter 4), the study discovers that 58.0% of Kenyan school leaders' strategies for school improvement related to one of the fifteen indicators of the ECMT diagnostic tool that received the *lowest* ratings of evidence by school stakeholders. In other words, after considering the data generated from using the ECMT diagnostic tool, 58.0% of the school improvement strategies developed by school leaders responded to the greatest areas of need in making their schools more child-friendly. As a result, the empirical evidence provides a clear demonstration of the applicability of the new ECMT in enabling the generation of evidence-based school leadership strategies for school improvement within the Kenyan context.

The results also directly answer the third and final portion of the study's overall research question which asked, 'How far does a school-based monitoring framework allow Kenyan school leaders to better conceptualize, assess, and ***respond*** to key factors that enhance or constrain the quality of education (CFS) in Kenyan primary schools?' The empirical results illustrate that the new ECMT has high levels of applicability *and* robustness in enabling Kenyan school leaders to better respond to key constraints preventing quality education in their schools.

Schildkamp et al. (2016) argue that the *use* of school data for advancing more evidence-based educational improvement has never been more needed than it is today. However, few SIR studies within the Kenyan context have provided concrete examples of

what Schildkamp et al. (2016) and others describe as sufficient levels of ‘data literacy’ by local school stakeholders in using data to inform evidence-based school leadership strategies for school improvement; in other words, ‘data literacy’ that goes *beyond* simply calculating pupil test scores which has been well documented in Kenya’s high-stakes testing culture (De Grauwe and Naidoo, 2004). In the present study, school leaders appear to demonstrate a promising level of data literacy in making sense of such a wide range of indicators relating to quality education, including perceived levels of evidence about the quality of classroom teaching and learning, health and nutrition, equity and equality, safety and protection, and community and family engagement within their school contexts. In summary, too often, terms such as ‘data-driven decision making’ or ‘evidence-based school improvement’ are used in educational political rhetoric rather than in locally grounded practice. The findings provide an important example of such grounded practice, where Kenyan school leaders, through the use of the new ECMT diagnostic tool, considered new data about levels of quality education in their schools and generated new insights and evidence-based strategies for school improvement.

The study’s findings also demonstrate the applicability and robustness of the new ECMT tool in enabling Kenyan school leaders to engage in what Schildkamp et al. (2016) describe as ‘dynamic school data teams’ – or groups of people working to engage in iterative, cyclical and relevant data collection and analysis procedures (p. 230). As illustrated in Chapter 4, 75% of school leaders reported hosting a community meeting to share the results of their virtual ECMT school report card. Therefore, the data suggest that these evidence-based school leadership strategies for school improvement may also have been socially constructed by school leaders, using data-driven school leadership to develop more participatory, inclusive approaches to school improvement planning. In this respect, the ECMT diagnostic tool and resultant data appear to support Kenyan school leaders in operationalizing the positive tenets of action research where ‘self-reflective inquiry [...] [can] improve the rationality and justice of their own practices, their understandings of these practices, and the situations in which the practices are carried out’ (Carr and Kemmis, 1986; p. 162). Again, the evidence illustrates a strong level of *applicability* and *robustness* of the ECMT conceptual model in enabling Kenyan school leaders to *synthesize* and *prioritize* new data about quality education and respond with evidence-based action plans for school improvement.

In the end, what implications do the study’s findings have for school leadership in Kenya for school improvement? In short, the data help us to move *beyond* ‘artificial distinctions’ that exist between varying ‘types’ of school leadership for school improvement (Bush, 2003). Each school reported *different* levels of evidence about *different* ECMT indicators that inhibit or enhance *different* perceived levels of child-friendliness in their schools. Therefore, how can one ‘type’ of school leadership be sufficient for developing such a variety of school improvement strategies to overcome varying educational constraints (Bush and Glover, 2014)? Instead, the study’s findings suggest developing innovative ways to better enable Kenyan school leaders to diagnose the problems facing their schools and *translate* their diagnostic data into more contextually responsive, evidence-based, and actionable plans for school improvement (Dunlap and Piro, 2016).

It is important to remember that the key aim of this last phase of the study’s research design was to ‘evaluate empirically the robustness and applicability of the new co-constructed CFS conceptual model for interpreting the diagnostic data and generating new insights and strategies for school improvement’. The empirical evidence demonstrates that the ECMT shows high levels of robustness and applicability in enabling Kenyan school leaders to better assess and respond to key factors constraining quality education (CFS) in their schools. This final achievement of the study is illustrated in Figure 52, representing the study’s final destination after a very long research journey.

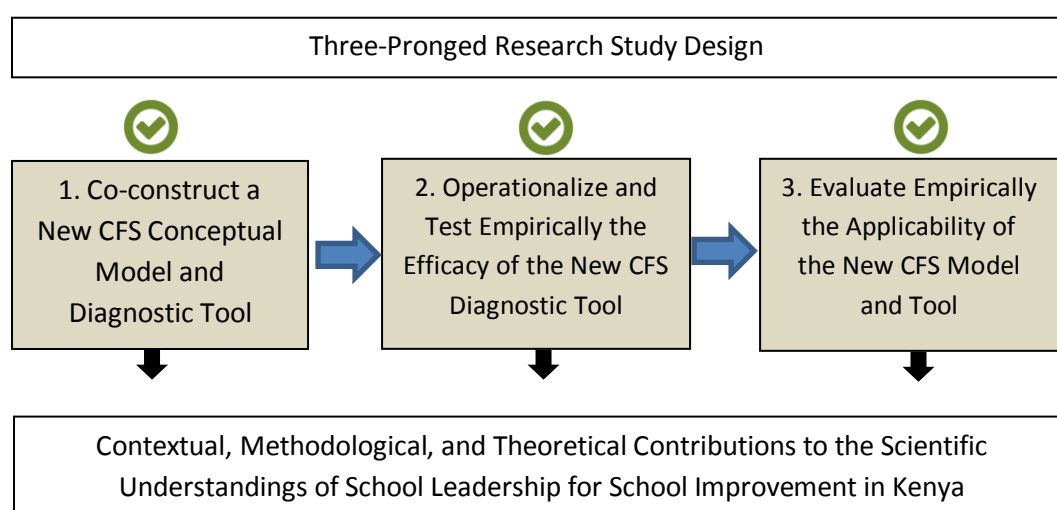


Figure 52: Completion of Phase 3 of the three-pronged research study design. Source: Author (2017).

The discussion now closes with a final set of critical reflections about the intersection between the ECMT conceptual model, diagnostic tool and the study's newly developed EMIS-Light technology platform.

5.2.4 Critical Reflections

The final section of the discussion seeks to tease out whether the new ECMT conceptual model and diagnostic tool would be as successful without the technological platform that the study developed and deployed (EMIS-Light). This part of the discussion is meant to help clarify that the main contribution of the study rests in the relevance, efficacy, robustness and applicability of the *indicators* of the ECMT conceptual model and diagnostic tool, rather than its innovations in using *technological* devices and platforms at scale.

This study reflects, therefore, whether the new ECMT conceptual model and diagnostic tool are truly meaningful alternatives to the Kenyan government and UNICEF-Kenya's original CMT; or does the difference really emerge from the successful design, deployment and uptake of the new technology platform, EMIS-Light? In other words, would the ECMT diagnostic tools and their levels of relevance, efficacy, robustness and applicability fall away if the SMS technology was suddenly unavailable or unable to be employed for some reason? The discussion reflexively wrestles with these questions.

First, it is important to consider how the indicators of the ECMT were co-constructed with whom, by whom and for whom in the study. The study analyzed 8,353 unique data points from 812 Kenyan school leaders from the poorest, most remote, and under-performing Kenyan schools to co-create new indicators of the ECMT conceptual model and diagnostic tool. The study, therefore, strongly argues that the new ECMT conceptual model and accompanying diagnostic tool offer a significant alternative to the original 50 indicators of the CMT, as its new origins are rooted in *thousands* of qualitatively coded, bottom-up local perceptions of quality education in Kenya rather than a dozen of ideas from senior Kenyan education policy-makers. As discussed in section 5.2.1 of this chapter, the ECMT also made significant improvements to the original design of CMT to increase its levels of usability and robustness in the type of data it could generate and be able to interpret. One could imagine, therefore, if a school leader compared using the 25 indicators of the ECMT diagnostic survey through an offline version with the paper-based, 50 indicators of the original CMT, he or she would likely conclude the ECMT's levels of relevance, efficacy, usability, robustness and

applicability in informing school leadership strategies for school improvement were higher than what was being proposed in the government's original school-based monitoring framework. Of course, future studies would need to confirm this assumption.

But the study concedes that without the use of EMIS-Light, the ECMT would lose levels of efficiency (Zhang et al., 2011) and scalability (Cavus and Ibrahim, 2009). For example, without EMIS-Light, one can imagine how cumbersome the process would be in conducting multi-stakeholder diagnostic school self-evaluation exercises (MacBeath, 2008). Without EMIS-Light, the study would also not have been able to track, calculate, and manage tens of thousands of data points across hundreds of schools simultaneously. School leaders would likely not have been able to receive timely ECMT virtual school report cards or comparison data about perceived levels of child-friendliness in other schools.

In the end, the study sought to leverage what every Kenyan head teacher already owned and knew how to operate in their schools: a mobile phone with SMS text messaging features. The study used the research opportunity to innovate and develop a more reliable, affordable, and scalable EMIS-Light platform to operationalize a more contextually relevant, usable, and applicable conceptual framework and diagnostic tool for CFS. Both the ECMT and the EMIS-Light enabled the researcher to more accurately and meaningfully address key contextual, methodological, and theoretical gaps in how Kenyan school leaders were conceptualizing, assessing and responding to educational constraints in their local school contexts (De Grauwe and Naidoo, 2004). EMIS-Light, together with the ECMT conceptual framework and diagnostic tool, therefore, offer what Chambers (2007) would describe as a complimentary method and model that 'tangibly reverses power relations in international development and research by forming new knowledge from the bottom-up rather than the top-down' (p.21).

The study now turns to its final chapter for the conclusion.

Chapter 6: Conclusion

According to Scheerens (2015), educational research must answer questions about why, how, under what circumstances, and for whom new educational practices and priorities affect educational quality. The current study sought to employ an ambitious three-pronged research approach in an attempt to address key contextual, methodological, and conceptual gaps in current SIR and EEIR literature about school leadership for school improvement in Kenya. The study successfully co-constructed, operationalized, tested, and evaluated a new conceptual model and diagnostic tool that Kenyan school leaders can now use to better conceptualize, diagnose, and *respond* to key indicators of child-friendliness that constrain or enhance levels of quality education in their schools. The conclusion now tries to take a step back and reflect on its potential contributions to educational research, policy and practice.

The study situated itself within a well-established tradition of studies concerned with factors that enhance or constrain the quality of education in developing countries (Delors et al., 1996; Heneveld and Craig, 1996; Riddell, 1999; Glewwe and Kremer, 2006; Snilstveit et al., 2016; Masino and Nino-Zarazua, 2016). It was concerned in exploring local perceptions of quality education within the Kenyan context from the bottom-up, rather than the top down. As a result, similar to the UNESCO (2005) Global Monitoring Report, this study had to wrestle with the ‘education quality imperative’ (UNESCO, 2005) by problematizing the UNICEF global concept of a ‘child-friendly school’ (UNICEF, 2009) within Kenya.

Since 2003, the Kenyan government, with support from development partners, have adopted the *notion* of a child-friendly school and the resultant *tools* (CMT) employed to monitor educational quality at the school level (Republic of Kenya, 2009). In 2009, UNICEF-Kenya and MOEST officials delivered over 40,000 Child Friendly School Monitoring Toolkits across 26,000 Kenyan public primary schools. And yet almost eight years later, no data about levels of child-friendliness in Kenyan schools exist. Policy makers described the CMT as an exercise in ‘school self-evaluation’, informed by SER and SIR camps of research, and culturally adapted for the needs of Kenyan primary school practitioners (Fushimi, 2009). They described the CMT indicators as holistic and comprehensive in promoting the essential aspects to making schools more child-friendly within the Kenyan context. This description,

however, emerged only from a select number of senior education policy makers at the ‘top’ of Kenya’s education sector hierarchy.

The study sourced its inspiration from the interest in better understanding how bottom-up local realities of quality education in Kenya could disrupt current top-down education manifestos and policies such as CFS. Since no local school stakeholders were substantially involved in the development of the CFS concept and accompanying tools, the study viewed the conceptual model of CFS in Kenya and the tools offered to head teachers as severely limited and to a large degree, inoperable. In response, the present study first aimed to critically examine the implicit theories underpinning (or not underpinning) the CFS model to better understand how it framed school quality and school improvement. Using Heneveld and Craig’s (1996) model and recent scholarly findings from Fushimi (2014), the study uncovered linkages related to SER, SIR and EEIR literature. To explore the proposition that UNICEF’s conceptual model and diagnostic tool for CFS was contextually, methodologically and theoretically flawed, the study explored whether a new conceptual model and diagnostic tool, designed with Kenyan school head teachers, could offer a more usable, relevant, and applicable diagnostic approach for advancing CFS. Through a three-pronged research design, the study co-constructed a new conceptual model and diagnostic tool for CFS that can now enable Kenyan school leaders to better conceptualize, assess, and respond to key factors constraining quality education in their schools. The study’s data also show how the ECMT exhibits high levels of efficacy, robustness, and applicability to local realities of Kenya quality education.

Upon reflection, the implications of the study’s results could be many. But for purposes of this study, the important main research implications are grouped into two parts. The first set of implications highlight the relevance of the study’s findings to educational policy and practice through the participatory learning and action research perspective, raising important questions of power, participation, and influence in educational reform as it relates to CFS in Kenya. The second set of the study’s research implications provide potential areas of contribution to SIR and EEIR literature.

6.1 Re-conceptualizing Quality Education in Kenya - Part I

In short, the study does *not* claim moral authority with its findings, as some PLA practitioners try to do (Chambers, 2007). Rather, the study's findings, with limitations acknowledged, simply try to amplify and integrate Kenyan local realities of quality education into the global concept of child friendly schools from the bottom-up rather than the top-down. What the study provides to Kenyan education policy makers and practitioners, therefore, is a promising new *starting point* to engage in what Morrison and Singer (2007) suggest as a process of 'deliberative democracy' in developing new criteria, methods, and conceptual frameworks for quality education in Kenya (such as CFS).

Over the last few years, the study has successfully employed its three-pronged research approach to deconstruct the top-down versions of educational reality in Kenya (CFS) by listening to local perceptions of quality education from the bottom-up and then *renegotiating* concepts of reality in regards to new educational policy and practice (i.e. the new ECMT conceptual model and diagnostic tool) (Chambers, 1997; Kar, 2003; Easterly, 2006; and Bongartz et al., 2010).

The first phase of research was diagnostic. The study adopted Easterly's (2006) approach to development by becoming a 'searcher' of local realities of quality education in Kenyan government schools. The study collected 8,353 unique responses from 812 Kenyan school leaders through 100 focus group discussions about factors they believed made their schools child-friendly (or not child-friendly). Through numerous rounds of constant comparison coding techniques (Lyons and Coyle, 2007), the study's results showed that the number of CFS indicators proposed by UNICEF-Kenya and the Kenyan government could in fact be reduced by almost *half* and still capture 97.0% of what Kenyan school leaders described through their focus group discussions as key factors inhibiting child-friendliness in their schools.

The second and third phases of research were evaluative, determining whether or not a newly co-constructed CFS conceptual model and diagnostic tool (ECMT) could demonstrate satisfactory levels of relevance, efficacy, usability, robustness and applicability in helping Kenyan school leaders develop evidence-based strategies for school improvement.

In the evaluative stages of the research, the study managed to design and operationalize a new, innovative mobile phone-based, interactive SMS diagnostic action

research survey technology platform (EMIS-Light). EMIS-Light was meant to better enable school leaders and other school stakeholders to easily rate levels of perceived levels of evidence of child-friendliness in their schools through an affordable, efficient, and scalable manner. 581 of the original 812 sampled schools completed this second phase of the research, with 1,857 school stakeholders completing the ECMT diagnostic action research exercise. The new data and insights about the state of quality education in Kenya demonstrate high levels of relevance and efficacy for the new ECMT. The study analysed answers from 46,425 completed mobile phone, SMS-based ECMT survey questions. The new data about child-friendliness levels in Kenyan schools was the first of its kind. While the current international education discourse calls on researchers, policy-makers and practitioners to align our focus on improving learning outcomes in developing countries (World Bank, 2018), the present study's findings refocus our attention back to the critical need to improve quality learning environments (CFS). The average self-reported child-friendliness score was 66% out of 100% across the 581 Kenyan primary schools, illustrating a dire state of quality learning environments in many of the sampled government schools. Quality classroom infrastructure, school feeding programmes, and disability-friendly facilities and trained staff were all rated with alarmingly low levels of perceived evidence across the sampled schools.

The study also evaluated levels of robustness and applicability of the new ECMT by asking school leaders who had overseen the completion of a multi-stakeholder, school-wide ECMT diagnostic school self-evaluation exercise, what *three action steps* they would employ over the next year to make their schools child-friendly. The study collected and coded 1,559 school improvement strategies from 436 of the 581 surveyed school leaders. The data provide the first empirical dataset of school improvement strategies designed by school leaders intended to raise levels of child-friendliness in Kenyan government primary schools. The study's analysis uncovered two main findings that demonstrate high levels of applicability of the ECMT to enhancing school leadership for school improvement. First, the ECMT conceptual model could be used to describe 97.0% of the school improvement strategies developed by school leaders. Second, 58.0% of school leaders' school improvement strategies appeared to respond to one of the fifteen ECMT indicators that had been rated by school stakeholders with the lowest levels of perceived evidence. Both findings suggest how far a more contextually relevant and co-constructed school-based monitoring framework, such as the ECMT, can allow Kenyan school leaders to better conceptualize, assess and respond to factors that constrain or enhance quality education in their schools (CFS).

It is important to reflect that before this study no data existed to describe what local school leaders perceived as factors that made a school child-friendly (or not child-friendly). In addition, before this study, there was no operational, easy-to-use, and reliable diagnostic tool with which to help school leaders conceptualize, assess and respond to factors inhibiting their schools from being child-friendly. Harber and Davies (2005) have theorized on conceptualizing school improvement models at macro-, meso- and micro-levels and argue that more empirical evidence is needed from the micro-levels to influence and change the more macro-concepts of educational quality, particularly in developing countries. The present study offers new evidence from the micro levels of Kenya's education sector and provides key recommendations for how these data could influence macro-concepts such as CFS and the original set of 50 indicators of the CMT.

Rooted in the participatory learning and action approach, the study discovered that school communities have more knowledge about their social problems than what policy makers often give them credit for (Chambers, 1994). Based on a desktop review of failed projects in international development, Kanbur and Squire (2001) argue that 'the poor often have better knowledge of their situation and their needs [than policy makers], and can therefore better contribute to the design of policies and projects intended to improve their lots' (p.204). The current study offers Kenyan policy-makers with a new CFS conceptual model and diagnostic tool that is co-constructed, tested, and evaluated *with* local educational stakeholders rather than simply *for* Kenyan school leaders.

One of the greatest strengths of the study was its use of participatory research methods such as focus group discussions and the new mobile phone, SMS-based diagnostic action research surveys where research experts remained 'on tap, but not on top' in the production of new local knowledge (Gibson, 1995, p. 4). The study's findings actually challenge traditional power structures and seek what many feminist theorists would call 'different voices and versions' of the truth (Gaventa and Cornwall, 2008, p. 179). In sum, the study's three-pronged research study design seemed to demonstrate what Chambers (2007) has described as a new 'paradigmatic shift from things to people, from top-down to bottom-up, from standard to diverse, from control to empowerment' (p. 26). Using the work of Chambers (1997) as a lens, this study's findings provides UNICEF-Kenya and Kenyan government officials with a new opportunity to engage in more 'responsible disempowerment' by 'stepping down, handing over the stick, [...] and enabling others to

express, analyse, and act on their [own] diverse realities' as a means to influence how quality education is better conceptualized, evaluated and improved within Kenya (p. 236-237).

However, some scholars have raised criticisms about the validity and authenticity of the PLA approach in cultivating these 'different voices' in the context of international development (Cooke and Kothari, 2001). These critiques apply directly to many of the study's conclusions as well. For example, the study's use of a wide range of PLA approaches (i.e. FGDs, multiple SMS-based diagnostic surveys, and school self-evaluations) could be critiqued by some as introducing a 'tyranny of techniques', in that 'handing over of the stick' may actually translate into placing participants in a more controlled scenario for study rather than a genuine position of freedom (Neef, 2003). Second, the study may also have 'underestimated the opportunity costs' for participants taking time to engage in the FGDs and mobile phone, SMS-based diagnostic action research surveys (ibid, p. 493). Third, the application of the study's findings to suggested policymaking may also fundamentally 'complicate the constructivist value of PLA' by claiming to generate authentic knowledge from the ground, while simultaneously 'impos[ing] a positivist approach' in the analysis process by using local knowledge to create policy solutions for communities rather than with them (ibid., p. 493). Greenwood and Levin (2007) also warn how PLA methods are often exploited by large institutions to maintain the status quo and promote their own agendas in the name of 'participatory learning'. For example, the World Bank's introduction of 'poverty consultations' in the form of 'Poverty Reduction Strategy Proposals' have been criticized as involving token representatives and fraught with questions of authenticity and validity of their findings (Morrison and Singer, 2007). The study's findings, too, could be seen as simply promoting the 'UNICEF agenda'. However, the study employed a number of mitigating mechanisms to ensure high levels of research validity, authenticity, and independence from UNICEF or government officials.

In summary, the first set of potential implications from the study demonstrates how the study offers a promising new conceptual model and diagnostic tool for CFS that is globally informed, but locally rooted. This will hopefully provide future Kenyan education policy-makers and local practitioners with a more relevant, operable, and applicable model and tool that can be used to better identify and respond to key constraints of what matters most to improving the future of quality education for all pupils throughout Kenya.

6.2 Re-conceptualizing Quality Education in Kenya - Part II

The second part of the study's potential implications relates to its contextual, methodological and theoretical contributions to the SIR and EEIR literature.

First, the study offers significant contextual and theoretical contributions to our current scientific understanding of school leadership for school improvement in non-Western country contexts (Riddell, 1999; Scheerens, 2001; Yu, 2007; Masino and Nino-Zarazua, 2016). In particular, the study's new contextually relevant dataset about quality education levels in Kenya, as perceived from local Kenyan school stakeholders, provides new insights and avenues for further applied research about school improvement and school leadership in an under-represented geography of current international SIR and EEIR literature (Yu, 2007; Schildkamp et al., 2016). The findings therefore help enrich and deepen the way we currently understand factors that constrain or enhance quality education in Kenya, thereby continuing a long tradition of SIR and EEIR in the developing world contexts (Fuller and Clarke, 1994; Heneveld and Craig, 1996; Teddlie and Reynolds, 2001; Yu, 2007; Mugo et al., 2012; Wasanga et al., 2012; Martin and Pimhidzai, 2013).

Second, the study provides important methodological contributions to the literature. The study provides a new method with which Kenyan school leaders and other education stakeholders can self-assess levels of educational quality in their schools (Teddlie and Sammons, 2010; Chapman et al., 2012; Hopkins et al., 2014; Scheerens, 2015).

The study's new ECMT diagnostic action research tool adopts and adapts work done by Nevo (2001), MacBeath and McGlynn (2002), and Fushimi (2014) in 'school self-evaluations' and 'external school inspections' and suggests a globally informed, but locally informed exercise in 'school self-inspection' for CFS. According to Fushimi (2009), 'school self-evaluation, through the CFS monitoring tool, is perhaps the *key* ingredient to the process of mainstreaming CFS in Kenya' (Fushimi, 2009, p. 18, emphasis added). Seen through these lenses, the CFS framework encourages schools to become more focused on self-improvement, accountability, and greater transparency from within rather than being told to do so from the outside (Bubbs et al., 2007). However, Fushimi (2014) argues that process of school self-evaluations is often full of 'complexities, challenges and conflicts in terms of, for example, ideology, culture, power, micro-politics, capacity, and human interaction in the school as a social context' (p. 3). A number of critiques of school self-evaluations for school

improvement have been raised by scholars in SIR and EEIR literature. The current study highlights three common criticisms of school self-evaluations for school improvement related to issues of power, contextual relevance, and trust.

First, critics argue that school self-evaluations have become recognised as useful tools for external educational quality assurance and control, rather than school self-improvement in the emergence of the so-called audit culture within the education sector (Fushimi, 2014). Second, the concept of school self-evaluations has often been transferred from educational contexts in the proverbial ‘Global North’ to contexts in the proverbial ‘Global South’, thereby raising concerns of contextual relevance and responsiveness to local educational needs in developing world contexts, such as Kenya (Smith and Ngoma-Maema, 2003). Third, scholars have argued that school self-evaluations for school improvement are fraught with distrust, noting that ‘everybody seems to hate external evaluation[s] while nobody trusts internal evaluation [s]’ (Nevo, 2001; p. 104). Hargreaves (1995) argues that school self-evaluations are often amateur enterprises as school stakeholders do not normally have the sufficient skills, knowledge, or resources for rigorous self-evaluation methods (Fushimi, 2014). In sum, MacBeath (2006) argues that school self-evaluations without action is a waste of time, and there is a need for results-based planning and action to accompany evaluative efforts for school improvement to occur (Fushimi, 2014). Therefore, the study’s ECMT provides an important contribution to the limited research literature about school self-evaluations within the Kenyan context by providing a new diagnostic action research tool and process with which Kenyan school leaders can more easily conceptualize, assess, and *act* on indicators of child-friendliness within their local school contexts. In other words, the ECMT offers Kenyan school leaders with the opportunity to use a comparable set of externally accountable ECMT indicators through a self-evaluative, action-research oriented process at the school level. As a result, the ECMT offers school leaders with an exercise in ‘school self-inspection’, a hybrid of both external accountability measures and internal processes of school self-evaluations (Fushimi, 2014).

The study’s new EMIS-Light system also provides school leaders and other education stakeholders with what Yengin et al. (2010) described as an ‘interactive’ model of using SMS technology for educational research and practice; rather than the traditional ‘push’ and ‘pull’ models of previous SMS-based educational research designs and programmes. The study also offers an example of what it means to employ a more ‘to and fro’ process of SER, SIR, and

EEIR to generate more ‘inductive reasoning for ongoing theory generation and testing that represent *cyclical* rather than *linear* approaches to enquiry’ (Sammons, 2012, p. 19, emphasis added).

Finally, the study makes an important claim about the need to move *beyond* recommending ‘artificial distinctions’ that exist between varying types of school leadership for school improvement in Kenyan educational policy and practice (Bush, 2003). As the data show, each school reported *different* perceived levels of evidence of child-friendliness indicators and inspired a tapestry of very *different* school leadership strategies for school improvement. Therefore, how can one ‘type’ or ‘style’ of leadership be recommended for improving quality education in Kenya (Bush and Glover, 2014)? Instead, the study’s findings suggest developing more innovative ways to better enable Kenyan school leaders to diagnose the problems facing their school communities and translate their diagnostic data into more contextually responsive, evidence-based, and actionable plans for meaningful school improvement (Dunlap and Piro, 2016).

Of course, while the study has contributed new scientific understanding to the art of school improvement in Kenya, much more needs to be done. In addition to its discussion in Chapter 5, the study identifies two broad, and what it believes to be very promising and needed areas of future research related to the present study’s contextual, methodological, and theoretical contributions so far. These include:

1. **CFS and Learning Outcomes:** How could future research explore the relationship between perceived levels of child-friendliness in Kenyan schools with academic learning outcomes of Kenyan pupils? Do children in more child-friendly schools perform better? This area of potential future research reflects an opportunity to adopt what the literature review had discussed as Fitz-Gibbon’s (1996) ‘Better Science Model’ by now using evidence from school improvement research (CFS) to inform future school effectiveness research.
2. **CFS and Longitudinal Education Effectiveness and Improvement Studies:** How do levels of child-friendliness in Kenyan schools change over time? Which school improvement strategies suggest greatest opportunities to raise levels of child-friendliness in Kenyan schools? One of the exciting directions for future research seems to be designing a longitudinal, comparative study about CFS in Kenya that can

leverage the study's EMIS-Light system and deploy the newly tested and evaluated ECMT diagnostic assessment at scale throughout multiple academic terms and across thousands of schools. How do CFS levels change after one year of school improvement strategies? Five years? Ten years? With only twelve years left until the United Nation's SDGs expire, the ECMT and EMIS-Light could provide a powerful new model and tool with which to track and understand how children navigate multiple pathways of uncertainty and what system-level educational factors continue to constrain or enhance their opportunities for quality education.

In the end, the study's findings bring us back to the question raised by Chambers (1997) and mentioned earlier in Chapters 2 and 5 of this study: *Whose reality [really] counts?* One way of interpreting the study's wide-ranging set of findings is to agree with Chambers (1997) and conclude that '*theirs*' does. According to Chambers (1997), meaningful policy change can only happen when the voices from *above* allow the voices from *below* to be heard (Chambers, 1997). If nothing else, the study has remained steadfast in its commitment to listen, learn and value the complex local realities influencing levels of quality education in the Kenyan context.

In conclusion, the study's findings provides an exciting array of new opportunities for future analysis of the existing data, potential new areas of applied research, and most importantly a continued negotiation of 'cognitive justice' – or that which affirms the right of different systems of knowledge to exist as a part of a dialogue (Visvanathan, 2007, p. 84). The findings of this study do not intend to represent every Kenyan primary school, nor capture every factor related to child friendliness. Rather, the study's findings suggest an initial disruption in the way indicators of quality education in Kenya can better be conceptualized, assessed and addressed by Kenyan school leaders. The study's findings provide an impetus to *continue* what Easterly (2006) describes as 'searching' for the local realities of quality education in Kenya in order to create more suitable plans for educational quality interventions and assistance. Most importantly, the study's findings encourage policy makers to engage in more, rather than fewer opportunities to better understand and appreciate the local realities of Kenya's heroic pupils, parents and teachers who continue to learn, live and teach amongst some of the harshest conditions in Sub-Saharan Africa - all trying their best to achieve quality basic education for all.

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Appendices

Appendix 1: WISER and the Researcher's Prior Experience of Working in Kenya

Before coming to Oxford University, the researcher spent four years living and working in rural Muhuru Bay, Kenya in partnership with local villagers to establish WISER - The Women's Institute for Secondary Education and Research - as the first all girls' secondary boarding school and community centre for development in the region that opened in January 2010. The researcher served as the Co-Founder and inaugural Executive Director of WISER from 2006-2010, overseeing more than 100 volunteers, 3 full time volunteer staff, and 30 pupils, 11 teachers, 3 administrative staff, and 10 support staff in the school's first year of operation. In addition, the researcher worked through the obstacles of building a brand new school in an area 60 km from the closest paved road.

WISER is now a 7-acre campus with nine classrooms, a computer laboratory, library, dining hall, kitchen, sewage system, security guardhouse, administration wing, and assembly hall and provides full boarding facilities for 25 teachers and currently 240 students who are on full scholarship. The campus also provides a one acre self-sustainable farm donated by Development in Gardening, and provides the first source of clean, drinking water through a water pump, filtration and distribution centre for 25,000 residents of the village through a microfinance scheme empowering local women to manage the water kiosks. The campus also provides the first football pitch for women's soccer and WISER hosted the first women's soccer tournament in the region in collaboration with the American School in Switzerland faculty and students.

In addition, WISER collaborates with high schools around the world through a WISER Partner School network that invites international students from schools like Hotchkiss, the American School in Switzerland and the Dwight School to visit the WISER girls on campus in Muhuru Bay and engage in cross-cultural learning and exploration. WISER also hosts college students from Duke University during the summer for eight weeks as part of the Duke-Engage program, providing a summer camp for adolescent boys and girls to learn issues ranging from health, gender and leadership.

In the last 20 years, no girl from Muhuru Bay (population 30,000) has continued on from secondary school to public university while boys go every year. More than 38% of the village is infected with HIV/AIDS and the majority of these cases are young women. WISER is changing this picture.

WISER currently works with UNICEF, Goldman Sachs, Nike, the Robertson Foundation, Johnson and Johnson, Greenpeace, and a worldwide network of grassroots partners to deliver the highest quality of education in the region. WISER is a Kenyan registered NGO and is affiliated with Duke University.

Visit www.wisergirls.org for more information.

Video of WISER's Opening Ceremony in 2010:
<http://www.youtube.com/watch?v=dKKjD9QYTR4>

Video of WISER's First Day of Class: <http://www.youtube.com/watch?v=4bcTUnK-UE0>

Appendix 2: Request for Proposals – The Study’s Call for an SMS-based and Web-based Online Information Management Technology Provider

As an embedded DPhil researcher, the author developed the following request for proposals that outlined the technology needs of the present study. The costs of hiring the mobile phone survey and online data management technology service provider were covered by UNICEF Kenya and the Kenyan Primary School Head Teachers Association (KEPSHA). Therefore, the request for proposals was released through KEPSHA’s offices. Seven full proposals were received. Two finalists were selected – ENEZA Education and Echomobile.org to meet the requirements of the present study. The following is a copy of the original Request for Proposals for the SMS and web-based online data management provider.

Request for Proposals for Mobile Phone Survey and Online Data Management Technology Service Providers

To enable more efficient, accurate and affordable methods of mobile phone-based monitoring and evaluation with online data management capabilities for the Kenyan Primary School Head Teachers Association (KEPSHA), in partnership with the Kenyan Ministry of Education Quality Assurance and Standards Office.

DUE DATE Thursday, 5:00 PM GMT+3 January 24, 2013

WORK START DATE Wednesday, February 6, 2013

LEAD ADVISOR Mr. Karuga, KEPSHA Chairman

TECHNICAL ADVISOR Mr. Andrew Cunningham, Oxford University

REQUIREMENTS

- I. Company Profile**
- II. Narrative Responses to Services Needed**
- III. Budget Proposal Part I and Part II**
- IV. Security Documentation**
- V. References**

SUBMISSION All submissions and inquiries should be made only electronically to **kepshatender@gmail.com**. Please address all submissions to Mr. Joseph Karuga, National Chairman of KEPSHA.

I. SUMMARY

In partnership with the Ministry of Education’s Directorate of Quality Assurance and Standards, the Kenyan Primary School Head Teachers Association (KEPSHA), with 23,000 members strong, is interested in increasing its organizational efficiency and accuracy in monitoring and evaluating the impact of its child-friendly schools initiative across a number of its districts.

Realizing the untapped potential of members’ mobile phones as a means of data collection and real time monitoring and evaluation through online data dashboards, the Ministry of Education and KEPSHA are highly interested in digitizing its traditional data collection methods through a user-friendly, online interface from which SMS-based and/or JAVA-based survey questions can be designed, disseminated, collected and analysed in an affordable, accessible and reliable manner within Kenyan mobile networks.

II. DESCRIPTION

The purpose of the mobile phone survey and online data management technology service provider is to deliver the desired mobile phone-based survey product, online dashboard, training, customer service and maintenance arrangement that would equip KEPSHA members with the capacity to complete the following tasks:

- 1. Design SMS-appropriate survey questions on an online dashboard:** The system will need to provide a do-it-yourself, accessible, user-friendly, online platform that allows MOE and KEPSHA administrators to design, edit and finalize SMS-appropriate questions that take on various formats (e.g. multiple choice, open-ended, and numerical).
- 2. Include SMS survey logic:** The system will need to allow logic to be built into SMS survey questions. For example, the system will need to respond to a situation where if the answer to question 5 is 'A', then the survey will skip to question 10 for the respondent.
- 3. Change the SMS survey question content in real-time:** The system will need to offer a feature that allows a MOE or KEPSHA administrator to alter the question of one of its survey questions after it has been sent to respondents in real-time in order to respond to any answerability issues.
- 4. Save and edit draft versions of SMS survey questions:** The system will need to offer a MOE or KEPSHA administrator the capacity to save and return to the online draft SMS survey to allow the user to alter the ordering of survey questions before its final version.
- 5. Schedule an SMS survey distribution at specific time intervals and dates to respondents:** There should be an option in the system to send SMS surveys to respondents at pre-arranged times and days. Also, there should be a function to send a survey to a sub-set of contacts from a larger roster contact list.
- 6. Upload contact lists manually and in bulk for SMS survey respondents:** The system needs to offer an online platform to enable a MOE or KEPSHA administrator to have the option of uploading respondent contact numbers in bulk or individually. If the contacts are uploaded in bulk, manually or self-registered, the system needs to offer an option of personalizing the SMS introductory message to a survey with the contact's First Name.
- 7. Allow respondents to self-register for the SMS survey through texting a short code.** The system will need to allow respondents who are not on a contact list to self-register and trigger the receipt of the SMS survey on their phone. Please explain that if a short code is not available through your services, how your company would assist MOE or KEPSHA in organizing for one or an alternative means of doing so and the cost implications.
- 8. Manage survey respondents and responses:** The system will need to offer MOE or KEPSHA administrators the ability to access respondent registration data, response data, and lack of response data to inform the need for follow-up.
- 9. Automatically analyse results of SMS survey responses:** The system will need to offer automatic, real-time visual and textual summaries of results from respondents. The system will need to have the capacity to offer MOE or KEPSHA administrators with the option for analyses in histograms, pie graphs, maps that correspond to GPS and/or post code information per respondent and exportable excel charts with data filling the particular corresponding fields. In addition, these results should allow for KEPSHA administrators to manipulate the data in useful ways for planning and presentations.
- 10. Technological integration with the Ministry of Education's data management system:** The system will need have the capacity to share/export data information (through API or other means) to

the Ministry of Education's online data management system. Please describe the compatibility of your company's data management system to other types of data management systems.

11. Train the trainers for KEPSHA administrators: In anticipation of a 1,000 school pilot program, the provider will need to train 10-25 KEPSHA or MOE administrators in a 'trainers of trainers' event to equip KEPSHA or MOE administrators with the skills necessary to lead child-friendly school workshops across the country using your SMS-based system.

12. Offer a JAVA-enabled phone survey option: In anticipation of a 50-item questionnaire for monitoring and evaluating the levels of child-friendliness of a school, the system will need to have an option (if possible) for using a java enabled survey that collects data offline and then has the capacity to send the same data to the online management dashboard system where the SMS-based surveys are sent and analysed. If your company does not currently have this feature, please include cost and timeline for developing this feature.

13. Send survey results back to the survey respondent: In anticipation of schools having 6 teachers, 6 parents, 6 pupils and 1 head teacher respond to the same survey on a mobile phone, the system will need to then be able to provide immediate feedback (calculated summaries) of each question that is asked back to the school via SMS, e-mail or other means as determined by your company. In addition, the system will need to be able to rank and compare the school's child friendly school survey score with other school's survey responses in this message. This may be developed once the contract is given, but please describe your company's potential for customization for this feature with cost and timeline implications.

14. Provide customer service and technical support: The system will need to have a local support office in Nairobi to provide customer support, training, and assistance as needed by MOE or KEPSHA administrators.

III. REQUEST FOR PROPOSALS

A. PROPOSAL GUIDELINES

- This is an open and competitive process.
- Proposals received after **5:00 PM GMT+3 (East African Time), Thursday January 24, 2013, will be returned unopened.**
- All proposals **MUST** be submitted electronically, only. No paper-based proposals will be accepted.
- The proposal must contain the scanned signature of a duly authorized officer or agent of the company submitting the proposal.
- If you wish to submit alternate solutions and/or supplementary information, please do so.
- The price you quote should be inclusive. If your price excludes certain fees or charges, you must provide a detailed list of excluded fees with a complete explanation of the nature of those fees.
- If the execution of work to be performed by your company requires the hiring of sub-contractors, you must clearly state this in your proposal. Sub-contractors must be identified and the work they will perform must be defined. In your proposal, please provide the name, address, and contact information of the subcontractor.
- KEPSHA will not refuse a proposal based upon the use of subcontractors, however we retain the right to refuse the sub-contractors you have selected.
- Provisions of this RFP and the contents of the successful responses are considered available for inclusion in final contractual obligations.

B. CONTRACT TERMS

KEPSHA will negotiate contract terms upon selection. All contracts are subject to review by KEPSHA's legal counsel, and a project will be awarded upon signing of an agreement or contract, which outlines terms, scope, budget, and other necessary items.

C. PROPOSAL REQUIREMENTS

1. Company profile (PAGES 1-5)

The company/organization profile should include the following:

- a. Cover letter with an authorized signature of a company officer (PAGE 1)
- b. Certificates of registration (scanned PDFs) (PAGE 2)
- c. KRA tax registration (scanned PDFs) (PAGE 3)
- d. Physical address (PAGE 4)
- e. Website (PAGE 4)
- f. E-Mail Address and Phone Numbers (PAGE 4)
- g. Nairobi Staff Names, Positions and Technical Capacity (expertise and qualifications) (PAGE 5 with attachments if necessary)

2. Narrative of services (PAGES 6 – 19)

Please provide an outlined set of responses that answers how your company can satisfy the 14 needs outlined in Section II. The needs are repeated below. Please provide a screenshot and/or textual narrative of how your company would fulfil KEPSHA's outlined needs. If your current product does not have the capacity to fulfil a need, please narrate your capacity for customization and technical expertise for doing so. Also note any particular cost implications. Please limit each response to one page maximum.

- a. Design SMS-appropriate survey questions on an online dashboard (PAGE 6)
- b. Include SMS survey logic. (PAGE 7)
- c. Change the SMS survey question content in real-time. (PAGE 8)
- d. Save and edit draft versions of SMS survey questions. (PAGE 9)
- e. Schedule an SMS survey distribution at specific times to respondents (PAGE 10)
- f. Upload contact lists manually and in bulk for SMS survey respondents (PAGE 11)
- g. Allow respondents to self-register for the SMS survey through texting a short code (PAGE 12)
- h. Manage survey respondents and responses. (PAGE 13)
- i. Automatically analyze results of SMS survey responses. (PAGE 14)
- j. Technological integration with the Ministry of Education's data management system (PAGE 15)
- k. Train the trainers for KEPSHA or MOE administrators (PAGE 16)
- l. Offer a JAVA-enabled phone survey option to collect offline data sets and send to online dashboard for analysis (PAGE 17)
- m. Send survey results back to the end-user with ranking of scores (PAGE 18)
- n. Provide customer service and technical support (PAGE 19)

3. Budget (PAGES 20-25)

PART I: Please include a budget that addresses the following questions in this order:

- a) Cost of basic online dashboard and data hosting for 1 year on a monthly basis.
- b) Training costs for 25 KEPSHA or MOE administrators on dashboard use and survey design
- c) Cost per SMS question sent from the dashboard

- d) Cost per SMS question received from respondent
- e) Cost per self-registration by respondents through short-code and/or long-code
- f) Customer service fees and technical assistance per month
- g) Cost for customization options
- h) Cost implications for further software development as needed from any of the 14 needs in outline above.

PART II: In addition to the line item budget, please provide a costing for enabling KEPSHA and MOE to design a 50 question survey that uses two logic functions in its order of questions and is sent to 1,000 respondents three times over the course of 2013. Assume all 1,000 respondents complete the survey and your company needs to provide a histogram, pie chart and a map of KEPSHA's responses (enabled by the post code information provided in one of its questions) in real-time as the data comes in. What is the total cost to KEPSHA?

4. Security (PAGE 26)

Please provide documentation of the security features of your system in protecting the SMS question data, contact lists, and response data. In addition, please note the terms for ownership of data collected from respondents.

5. References (PAGES 27-32)

PART I: Provide a list of clients that have previously used your product and explain how they used it. Please provide contact information for each of the clients listed (Name, Physical Address, Phone Number, and E-mail Address). Limit to maximum of ten. Please note these examples are supposed to demonstrate your company's capacity to work with KEPSHA as a professional organization of 23,000 members.

PART II: Provide a list of any external funders and/or companies that can speak to your company's performance in mobile phone survey design, dissemination, and analysis of data. Please provide contact information for each of the external funders listed (Name, Physical Address, Phone Number, and E-mail Address). Limit to maximum of ten. These are meant to validate your technical capacity to deliver the desired product.

IV. Sending Information

Thank you for your interest in supporting KEPSHA and the MOE in developing a more efficient, accurate and useful tool for collecting data from its members, particularly about the Child Friendly Schools initiative. We look forward to hearing from you. Please send all inquiries and submission of materials to kepshatender@gmail.com by **no later than 5:00 PM GMT+3 on Thursday January 24, 2013.**

Appendix 3: Overview of SMS-based Online Education Management Information System (EMIS Light)

In partnership with *Echomobile.org*, UNICEF-Kenya, the Ministry of Education, Science and Technology (MOEST), and the Kenyan Primary School Head Teachers Association (KEPSHA), the researcher co-designed the EMIS Light platform that allows for the collection, analysis and dissemination of all SMS-based data from the research participants from 812 schools across Kenya. An overview is provided as a background to the newly developed instrument for the present study.

I. Visualizing Quality Education: UNICEF's E-MIS *Light* Dashboard

In partnership with the Ministry of Education, Science and Technology, the Kenyan Primary School Head Teachers Association, and Echomobile.org (a Nairobi-based technology company), UNICEF Kenya, led by Oxford University DPhil student Andrew Cunningham, has co-designed and co-developed the first-ever EMIS *Light* system to facilitate its monitoring, evaluation and communications plan for ensuring the delivery of basic quality education for all. In short, the system builds on UNICEF's Global Innovation's work to better collect, analyse, and act on school-level and school-reported data about quality education. The difference is that it provides a customized dashboard for **education**.

Illustrated below in Figure 53, one can see how easily accessible, understandable and meaningful school-based data becomes at the school, sub-county, county and national levels.



Figure 53 EMIS Light Dashboard Analysis Methods. Source: Echomobile.org (2014).

By clicking on each of the squares depicted in Figure 53 (above), the viewer can compare and contrast data at the school, sub-county, and county levels about various educational indicators including levels of child-friendliness, attendance, retention and completion rates.

II. Collecting Quality Education Data: UNICEF's Operational Dashboard

The data can be collected in one of four ways: SMS, Android (smart phones), web, USSD (similar to M-PESA technology) or uploading of documents via e-mail as attachments). The main monitoring tool that is being rolled out nationally is the National Meriting Tool which provides **ten** thematic areas against which schools engage in self-evaluation exercises to measure and act on quality education in Kenyan primary schools.

Figure 17 displays the operational dashboard from which UNICEF, Ministry of Education, and members of the Kenyan Primary School Head Teacher Association (KEPSHA) can design, send, and visualize results of educational indicator surveys. They can also manage users of data by groups and link all results to the EMIS *Light* dashboard of analysis as depicted in Figure 54. The current dashboard reflects 1.5 years of co-designing and piloting with government and Kenyan primary school officials to view its use as easy as using G-Mail.

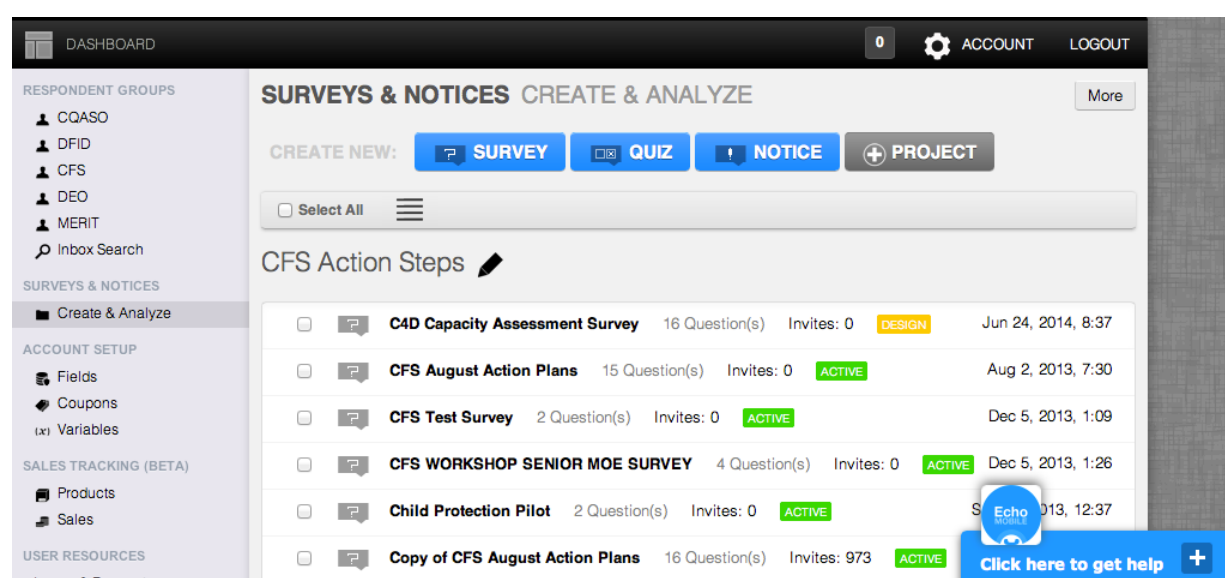


Figure 54 The Operational Dashboard for EMIS Light and SMS-based Surveys. Source: Echomobile.org (2014).

Managing Groups: As one can see in the above example (above left corner), the groups of data are managed by CQASO (47 County Quality Assurance Officers), DFID (420 primary schools for DFID-funded programme), CFS (11,800 primary school head teachers measuring issues of child-friendliness), DEO (214 District Education Officers), MERIT (34 pilot schools who completed the co-design of the National Meriting Tool).

Designing and Analysing Results: Similar to Survey Monkey, the create and analyse functions provide anyone with access to the 'Under the Hood' dashboard with control to design, send, and track completion of surveys, quizzes or notices with visualization techniques such as mapping, creating graphs, and exporting into CSV or excel files for further analysis and data management.

Dialogic approach to Monitoring Equity: Administrators 'beneath' the EMIS-Light hood can interact with users on a personalized basis while easily keeping track of all communications. This proves extremely useful for individual follow-up to programme implementation.

24-Hour Customer Support: Unlike any other system, the Echomobile.org partnership was built to have a 24-hour online help function for users to take advantage of in implementing the programme of monitoring and evaluation. As seen in the bottom right corner, one can see a constant chat box for

support; since Echomobile.org is based in Nairobi this provides an essential element to rolling out the system and providing real-time reiterations of product design and use on the ground.

III. Making School Data Accessible to All

At the school level, head teachers and children's government officials will also be able to access the data via SMS using the same technology that all Kenyans apply when inquiring about their Kenya Power bill (they text in their account number by phone and receive the balance of their bill in a return text message). Similarly, using the Kenyan Teacher Service Commission School Code, one will be able to text in a school's code and receive the most up-to-date EMIS *Light* information. Therefore, information management is not limited to those who have a computer or the Internet. Rather, the monitoring and evaluation system is made accessible to *all* duty bearers and *beneficiaries*.

IV. SMS Interactive Model for Data Collection and Analysis

The system allows for each participant to use SMS messaging to answer one question which will trigger the next question immediately. The respondent can answer questions at his/her own pace. In addition, the researcher can follow-up on survey respondents in real-time.

Figure 55 (to the right) illustrates the user experience of the SMS-based survey where the respondent triggers the survey with the text, 'SCHOOL'. After answering the first question of the survey, the second question immediately follows. A dialogue is therefore created between researcher and research participant.

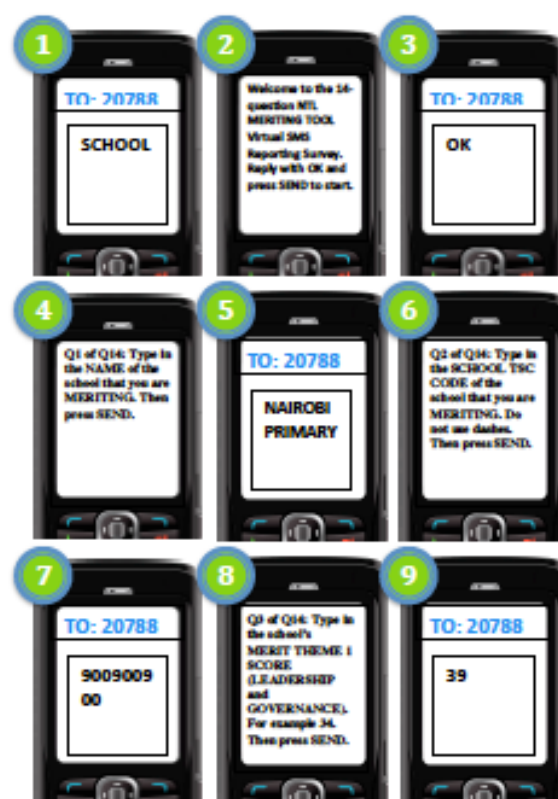


Figure 55: Sample SMS-based Survey. Source: Author (2014).

Appendix 4 – Background of Three Lead Research Assistant Coordinators

The researcher depended on three main research assistant coordinators from his MSc. Research project (Cunningham, 2012) to recruit, train, and monitor the additional 27 research assistants needed for the present study's research phase one. All three research assistant coordinators were fluent in English and Swahili and had long experience working in bi-lingual environments at the University and in the various social science research projects. The following biographies were submitted by each of the research assistant coordinators to describe their expertise and qualifications as indigenous research assistants.

Winniejoy Muthoni Kamui: Winniejoy was born in Meru, Kenya in 1983 and attended the Materi Girls Centre, a mission school. In 1999, she progressed to Chuka Girls High School, from which she graduated in 2002. Winniejoy's academic performance at Chuka Girls High School earned her a scholarship at Kenya Methodist University where she obtained a degree in business management and specialized in purchasing and supplies management (2007). She has served as a research assistant in a variety of Kenyan research firms where she has conducted research on topics regarding new development in model-based learning activities in science, social economic activities and designing both qualitative and quantitative research instruments to be used in the field. During the CFS study, she applied the skills of qualitative data collection method.

John Ndeda: John was born in Busia District in Western Kenya. He graduated from Catholic University of East Africa where he majored in computer science and was the Student Secretary for Campus. He joined the team with a background in banking and personal experience with quality assurance measurement in primary schools from his home district considering the work of his family. During the CFS study, John applied his expertise in leading discussions which he had gained from his time as a student politician and leader on campus.

Isaiah Mutungi Njagi: Isaiah was born in Nkondi Division in Tharaka Nithi County. He attended Kiorimba Primary School and proceeded to Ikuu Boys' High School in 1996. He was accepted into Jomo Kenyatta University of Agriculture and Technology in 1999 and earned a degree in Microbiology. He graduated in 2005 and has engaged in research in many fields including water and sanitation, participatory poverty assessments, HIV prevalence and morbidity, and early childhood education. In the CFS study he applied his expertise working with diverse groups under harsh conditions in the rural district that was visited during the fieldwork.

Appendix 5 – Agenda for First Research Assistant Training Session at the United Nations, Nairobi, Kenya.

Meeting of Research Assistant Training

14th February 2013

UNITED NATIONS CAMPUS, GIGIRI, NAIROBI, KENYA

Agenda

- | | |
|---------------|---|
| 7:00 – 8:00 | Security and Arrivals |
| 8:00 – 8:15 | Introductions and Ice Breaker |
| 8:15 – 8:30 | Introduction of Andrew Cunningham’s Oxford DPhil Research Project |
| 8:30—8:45 | Introduction of Andrew Cunningham’s previous Oxford MSc. Research Assistants |
| 8:45 – 9:15 | Demonstration: Walk-Through of Participatory Learning and Action Research Script for Focus Group Discussions for the end of February 2013. |
| 9:15-9:45 | Practice: Simulation of Research Script: Role Play with partner Research Assistants |
| 9:45 – 10:00 | Feedback: Group Work Feedback: What worked well? What were some of the challenges? |
| 10:00 – 10:15 | Research Validity, Reliability and Transparency |
| 10:15 – 10:45 | Ethical Research Protocols – Scenarios |
| 10:45 – 11:00 | Distribution of Research Materials |
| 11:00 – 11:15 | Permission and Research Assistant Contractual Agreements |
| 11:15 – 11:30 | Tea and Coffee |

In Your Packet:

1. Agenda
2. Time Table for CFS Workshops
3. Contact List for Research Teams
4. PLA Research Script and Time Table
5. Field Notebook (Please write your name on it)
6. Mini Folders (Please write CFS 1, 2, 3, 4, 5, your Team #, and your name at top of each envelop).
7. CFS Monitoring Toolkit from UNICEF (reference only)

Please Pick:

1. Pick 17 Demographic Form Copies for your Focus Group Discussion Participants
2. Pick 17 Consent Form Copies for your Focus Group Discussion Participants
3. Pick Reminder of Note Cards, Mini-Folders and Poster Materials as Needed

Appendix 6 – Agenda for Second Research Assistant Training Session at the United Nations, Nairobi, Kenya.

Meeting of Research Assistants – Part II

10th May 2013

UNITED NATIONS

Agenda

- 8:00 – 9:00 Security and Arrivals
- 9:00 – 9:15 Introductions and Ice Breaker
- 9:15 – 9:45 Break-Out Group Work
- 1. Train New Members
 - a. Sign Letter of Understanding and Agreement
 - 2. Brainstorm Feedback
 - a. What were the challenges faced the last time? (5)
 - b. What were the strategies that worked the last time? (5)
 - c. How will you improve the next time? (5)
- 9:45 – 10:30 Group Presentations
- 10:30 – 11:00 Tea/Coffee – Team Leaders Meet with Andy for Cards and MPesa Accounts
- 11:00 – 11:30 Overview of 5 District Trainings
- New Program – Time Slots
 - New Additional Step – Presentation of Preliminary Findings
 - New Integrated Collaboration with Ministry of Education Facilitators
- 11:30 – 12:00 Ministry of Education – National Coordinator of CFS

In Your Packet:

- 1. Agenda
- 2. Time Table for Monday
- 3. Contact List for Research Teams
- 4. Field Notebook (Please write your name on it)
- 5. Mini Folders (Please write CFS 1, 2, 3, 4, 5, your Team #, and your name at top of each envelop).
- 6. CFS Monitoring Toolkit

Please Pick:

- 1. Pick 17 Demographic Form Copies
- 2. Pick 17 Consent Form Copies
- 3. Pick Reminder of FGD Note Cards, Mini-Folders and Poster Formatting

Appendix 7 – Map of Kenya and 10 Target Counties for the Study

Figure 56 Map of Kenya with Target Counties for the Present Study

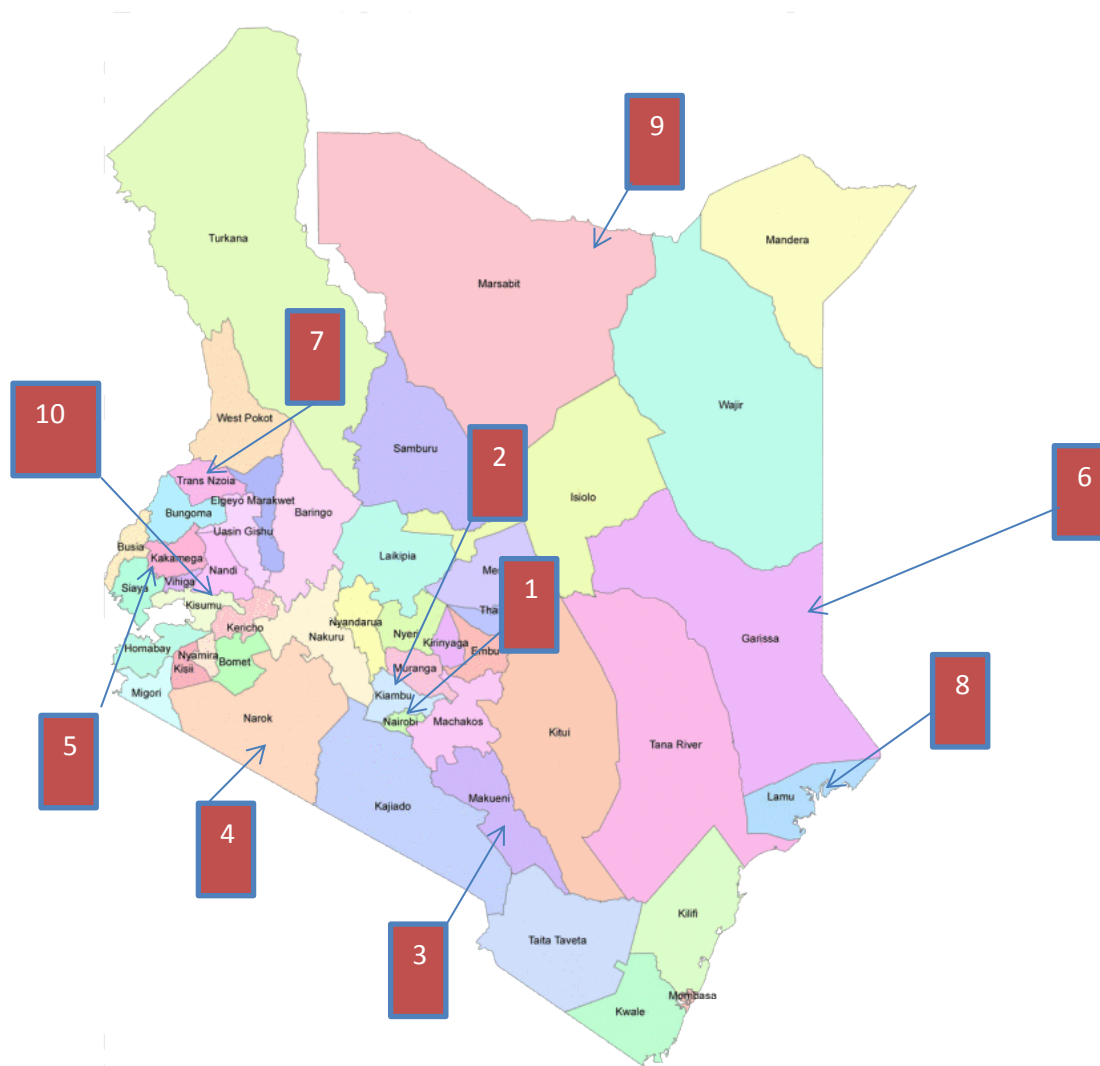


Table 25 Target Counties for the Present Study

Target Counties of the Study in Kenya

1. Nairobi
2. Kiambu
3. Makueni
4. Narok
5. Kakamega
6. Garissa
7. Trans-Nzoia
8. Lamu
9. Marsabit
10. Kisumu

Appendix 8 – Demographic Survey for Research Participants in Phase 1

Study Participant KEPSHA ID #: _____

(1) NAME OF YOUR SCHOOL: _____

(2) DISTRICT: _____ (3) COUNTY: _____ (4) POST CODE: _____

(5) MOBILE PHONE CONTACT: _____ (6) AGE: _____ (7) GENDER: _____

(8) # of GIRLS enrolled in your school: _____ (9) # of BOYS enrolled in your school: _____

(10) # of TSC Teachers in your school: _____ (11) # of non-TSC Teachers in your school: _____

(12) What was your mean score for the KCPE in the years:

(a) 2010 KCPE: _____ (b) 2011 KCPE: _____ (c) 2012 KCPE: _____

(13) Is your school PUBLIC or PRIVATE? _____

(14) Is your school Boarding/Day/Both? _____

(15) How many classrooms do you have built? _____

(16) What is your PUPIL:BOOK ratio? _____

(17) Do you have any sponsors or other sources of funding beyond the government for your school? If yes, list and describe below:

(18) How would you describe your school's location? (please circle)

- A. Rural
- B. Urban
- C. Semi-Rural
- D. Semi-Urban
- E. Other

(19) How would you describe the socio-economic levels of the **majority** of your school pupils' families?

- A. Extremely poor
- B. Poor
- C. Middle Class
- D. Upper Class

(20) Does your school have access to electricity?	YES	or	NO
(21) Does your school have access to clean, drinking water?	YES	or	NO
(22) Does your school have mentally disabled children?	YES	or	NO
(23) Does your school have physically disabled children?	YES	or	NO
(24) Does your school provide ECD classes?	YES	or	NO
(25) Does your school provide special education classes?	YES	or	NO
(26) Have you attended a CFS training before today?	YES	or	NO

(27) How many years have you been trained as a head teacher? _____

(28) How many years have you been posted as the head teacher of this school? _____

(29) What is the highest level of education that you have completed? _____

Appendix 9 – Child-Friendly School Workshop Timetable

CFS as a Management Tool for Head Teachers Workshop Time Table			
DAY 1	TIME	ACTIVITY	FACILITATOR
Sunday	6:00 pm - 7:00 pm	Registration	KEPSHA Regional Secretary
	7:00 pm - 8:00 pm	Dinner	KEPSHA Regional Chair
DAY 2	TIME	ACTIVITY	FACILITATOR
Monday	8:00 am-9:00am	Welcoming Remarks	KEPSHA Regional Chair
		A. Introductions	
		B. Icebreaker Activity (Song)	
		C. Workshop Aims and Goals	
		D. Expectations of Workshop (Note Cards Activity)	
	9:00 am-11:00am	What is a Child-Friendly School? Your Thoughts as Head Teachers	Oxford University Research
	11:00 am – 11:30 am	TEA BREAK	
	11:30 am – 12:00 pm	What is CFS as a Management Tool?	KEPSHA Facilitator (MOE)
	12:00 am – 12:30 pm	Theme 1: Equity and Equality Promoting Schools	KEPSHA Facilitator
	12:30 pm – 1:00 pm	Theme 2: Safe and Protective Schools	KEPSHA Facilitator
	1:00 pm – 2:00 pm	LUNCH BREAK	
	2:00 pm – 2:30 pm	Theme 3: Health and Nutrition Promoting Schools	KEPSHA Facilitator
	2:30 pm – 4:30 pm	Theme 4: Inclusive Classrooms	KEPSHA Facilitator
		A. Using locally available resources for instruction B. Utilizing interactive teaching methodologies/games	
	4:30 pm – 5:00 pm	Theme 5: Community Partnerships and Linkages	KEPSHA Facilitator
	5:00 pm – 5:30 pm	TEA BREAK	
DAY 3	TIME	ACTIVITY	FACILITATOR
Tuesday	8:00 am - 8:15 am	Reflections of Day 2	KEPSHA Regional Secretary
	8:15 am - 8:30 am	Overview of Day's Groups - Special Focus on Two Themes	KEPSHA District Chairman
	8:30 am - 10:30 am	Group A (50): Child-Centred DRR Training	KEPSHA Facilitator (MOE)
		Group B (50): Children's Governments	KEPSHA Facilitator (Teacher and Pupil for Children's Govt.)
	10:30 am – 11:00 am	TEA BREAK	
	11:00 am – 1:00 pm	Group A (50): Children's Governments	KEPSHA Facilitator (MOE)
		Group B (50): Child-Centred DRR Training	KEPSHA Facilitator (Teacher and Pupil for Children's Govt.)
	1:00 pm – 2:00 pm	LUNCH BREAK	
	2:00 pm – 3:00 pm	Children's Government Speeches by 5 Pupils from a surrounding school about its impact	KEPSHA District Chairman
	3:00 pm – 5:00 pm	DRR Mapping Exercise by Zonal Groups	KEPSHA Facilitator (MOE)
	5:00 pm – 5:30 pm	TEA BREAK	
Day 4	TIME	ACTIVITY	FACILITATOR
Wednesday	8:00 am – 8:30 am	Reflections of Day 3	KEPSHA District Chair
	8:30 am – 9:00 am	Overview of Managing CFS through Monitoring and Evaluation with Two Methods: SMS and Action Research	KEPSHA Facilitator (MOE)
	9:00 am – 10:30 am	CFS Monitoring and Evaluation with the Mobile Phone	Oxford University Research
	10:30 am – 11:00 am	TEA BREAK	
	11:00 am - 11:30 am	Review SMS Results from Live Demonstration	Oxford University Research
	11:30 am - 1:00 pm	Using SMS results towards School Improvement Planning	Oxford University Research
	1:00 am – 2:00 pm	LUNCH BREAK	
	2:00 pm – 3:00 pm	Action Research Part I: Definitions and Processes	KEPSHA Facilitator (MOE)
	3:00 pm – 4:00 pm	Action Research Part II: Stages and Contexts	KEPSHA Facilitator (MOE)
	4:00 pm – 5:00 pm	Doing Your Own Action Research in Your Schools	KEPSHA Facilitator (MOE)
	5:00 pm – 5:30 pm	TEA BREAK	
Day 5	TIME	ACTIVITY	FACILITATOR
Thursday	8:00 am – 8:30 am	Reflections of Day 4	
	8:30 am – 10:00 am	Community Partnerships and Linkages: Peace Campaign Event on Friday	KEPSHA District Chair
	10:00 am – 11:00 am	Role of Head Teacher as Leader in CFS Management	KEPSHA Facilitator (MOE)
	11:00 am – 11:30 am	TEA BREAK	
	11:30 am – 12:00 pm	Course Evaluations	KEPSHA Regional Secretary
	12:00 am – 1:00 pm	Closing Ceremony	KEPSHA District Chair

Appendix 10 – Head Teacher Focus Group Discussion Script and PLA Activities Guide for Research Assistants in Research Phase 1

The FGD Script for RAs: Eight Steps in Facilitating FGDs and PLA Note Card-Making Activities

Step 1: Before starting the FGD, the RA will explain the overview of the present research study by providing participants with copies of the study's background information, ethical approval, and anticipated uses of the study's results. Afterwards, the RA will ask each participant if they wish to continue participating in the FGD. If so, each participant will be asked to complete a formal consent form for participation. After the formal introduction of the study, the RA will be responsible for releasing the tension do so by asking one of the head teachers in each FGD to lead members in a song they use with pupils at their school. This is meant to make participants feel comfortable and orient their mind-sets back to their school's classrooms. Furthermore, each participant will be asked to introduce themselves and say something unique about their schools to the group.

Step 2: The RA will hand out six note cards (three green and three red) to each of the FGD participants. Each participant will also be provided with a pen.

Step 3: The RA will facilitate following the provided FGD script:

- 'You have been given six note cards [shows three red and three green by hand]. Does everyone have enough?'
- 'Now, take your three **red note cards** and on one side, write three challenges that you are facing right now that are preventing your school from being child friendly. On the other side of the note card, write *why* you think this challenge is preventing your school from being child friendly'. The following three cards provide examples for the RA to use.

Front side of red card 1:

CHALLENGE I AM
FACING IN MAKING MY
SCHOOL a CFS:

Pupils are being caned in
school by the teachers.

Front side of red card 2:

CHALLENGE I AM
FACING IN MAKING MY
SCHOOL a CFS:

There are not enough funds
to buy teaching materials
for the walls.

Front side of red card 3:

CHALLENGE I AM
FACING IN MAKING MY
SCHOOL a CFS:

Girls are being molested by
outside men at the security
gates.

Backside of red card 1:

WHY THIS MAKES MY
SCHOOL NOT a CFS:

Pupils fear teachers because
of their use of the canes.
The relationship between
pupils and teachers have
become very unhealthy.

Backside of red card 2:

WHY THIS MAKES MY
SCHOOL NOT a CFS:

Pupils are bored in class and
do not have any materials to
prompt their curiosity.

Backside of red card 3:

WHY THIS MAKES MY
SCHOOL NOT a CFS:

Girls are afraid to come to
school because of the
possibility of being raped
outside the school gates by
male strangers.

The red cards are supposed to prime head teacher participants to think about current challenges in their schools to prompt potential strategies to address these problems.

Step 4: The RA will then continue, ‘Once you are finished writing the challenges on your three note cards, take your three **green note cards** [shows green notecards in his hands]. On one side, write three strategies [may need to use term ‘solutions’] you or members of your school community are **currently** using to make your school child friendly [it is important for RAs to clearly explain that these strategies must have already happened or be in the process of happening at their schools]. On the other side, write *why* you think this strategy is making your school child friendly’. Examples are provided for the RA to use on the cards below.

Front side of green card 1:

ONE STRATEGY I USE
TO MAKE MY SCHOOL a
CFS:

Our school hosts a pupil’s court that allows pupils to report indiscipline to peers rather than be caned; they are given court hearings with fair results.

Front side of green card 2:

ONE STRATEGY I USE
TO MAKE MY SCHOOL a
CFS:

Pupils elect their own pupils’ government and host weekly meetings to discuss issues facing their school’s welfare.

Front side of green card 3:

ONE STRATEGY I USE
TO MAKE MY SCHOOL a
CFS:

There is a suggestion box that pupils can place their concerns in every week and all concerns are read on Fridays by the administrators.

Backside of green card 1:

WHY THIS STRATEGY
MAKES MY SCHOOL a
CFS:

Pupils are more aware of the reasons behind school rules and indiscipline has subsided. Teacher-pupil relationships have also improved greatly.

Backside of green card 2:

WHY THIS STRATEGY
MAKES MY SCHOOL a
CFS:

Pupils are encouraged to develop and practice their leadership skills inside and outside of the classroom.

Backside of green card 3:

WHY THIS STRATEGY
MAKES MY SCHOOL a
CFS:

Pupils can ask personal and private questions that they may have been too embarrassed to ask otherwise. This creates a sense of ‘safe spaces’.

Once the notecards are completed, the RA will place five large sheets of flip chart paper **on the floor** with each of the CFS themes written on the top of the paper (illustrated below). The PR will introduce the titles of the five CFS thematic components to participants as shown below, but not provide any further explanation. If participants ask, ‘What do you mean by inclusive classrooms?’ the RA should respond by saying, ‘It’s up to you’.

Safety and
Protection

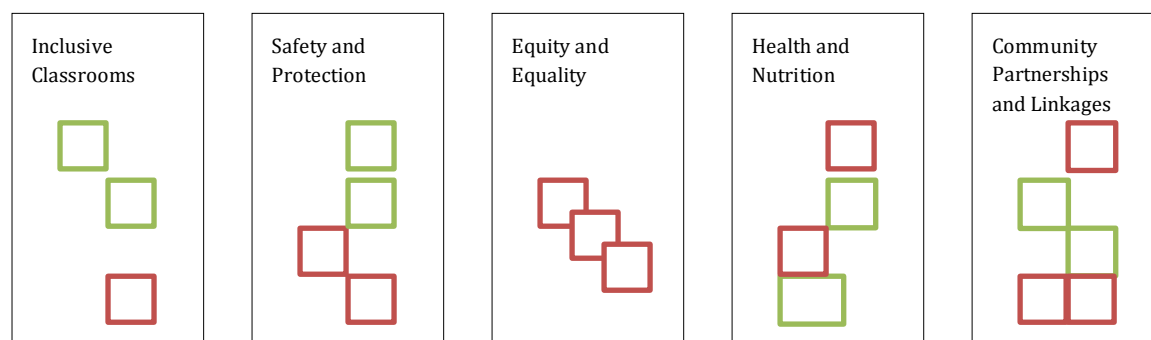
Equity and
Equality

Community
Partnerships
and Linkages

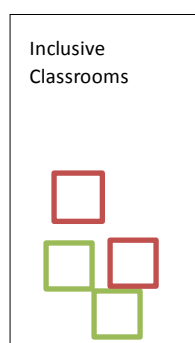
Inclusive
Classrooms

Health and
Nutrition

Step 5: With the flipcharts laid on the floor, participants will all have equal access to the categories. The RA will then say, ‘Now, place all your three red cards and three green cards on the theme that you believe best describes each challenge and strategy’. This way, future coding and analysis of transcriptions by the PR can be triangulated with participants’ own process of categorizing CFS problems and strategies under one of the five CFS thematic components. An example of the notecards on each flip chart paper is provided below for the RA to reference (more notecards will be on each sheet in the actual FGD).



Step 6: After each participant places all of his/her cards on the sheet of paper, the RA then brings the attention of the group to notecards placed on the first sheet of paper (shown below).



- The RA will then ask each participant who placed a challenge card on the sheet to read the card aloud and explain why he/she thought this was preventing their school from being child friendly. This allows each participant to expand on what may have been a written description that is not easily understood without a supporting verbal explanation. After each problem card is read, the RA will ask the group, ‘By show of hands, how many of our group members agree this challenge belongs in the category, ‘Inclusive Classrooms’? The RA will record the number of votes in his/her field notebook. If someone disagrees, a follow-up question of ‘why’ will be recorded.
- The RA will then ask each participant who placed a green strategy card on the sheet to read the card (front and back side) and explain why this strategy is working to make their school child friendly. After each card is read aloud, the RA will ask participants, ‘By show of hands, how many of the group members agree this strategy/solution belongs in the category, ‘Inclusive Classrooms’?’. The RA will record the number of votes in his/her field notebook. If someone disagrees, a follow-up question of ‘why’ will be recorded.
- The RA will then ask the group, ‘After seeing and listening to all the strategies and problems facing our schools with regards to ‘Inclusive Classrooms’, are there any additional problems or strategies that come to mind that you may not have thought of while writing your notecards?’ The RA will facilitate follow-up comments.

- d. Lastly, the RA will ask the group THE final four questions: a.) ‘Among all the problems you are facing in making your schools child friendly in regards to ‘Inclusive Classrooms’, which one would you all identify as the most difficult to overcome? Why?’ b.) ‘Among all the strategies you are using to make your schools more child friendly in regards to ‘Inclusive Classrooms’, which one would you all identify as having the most potential to make a significant impact across all Kenyan primary schools?’ ‘Why?’
- e. Repeat steps 6.a to 6.d with all five CFS thematic sheets.
- Step 7:** After finishing the last round of placing note cards and making follow-up questions to ‘Community Linkages and Partnerships’, the RA will ask participants for any final thoughts or reactions to their personal strategies of making their schools child friendly. After allowing for any follow-up questions, the RA will thank participants for their participation and encourage them to take any of the strategies generated in the FGD back home to their schools and communities.
- Step 8:** The RA will provide the PR with the completed field notes. In addition, she/he will fold up the notecards in the flip chart paper on which participants categorized their red and green cards. All documentary evidence will be given to the PR.

Appendix 11: Letter of Introduction for Research Participants

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general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Supervisors: Dr. David Johnson and Dr. Ann Childs

Administrator: Kay Cage

Researcher: Andrew JC Cunningham



[Date of Focus Group Discussion]

Dear Head Teacher of _____ (insert name of school):

My name is Andrew Cunningham and I am a student in the Education Department at the University of Oxford with recent experience in community development, child friendly schools and girls' schooling in rural Kenya. To complete my Doctorate degree, I am writing my dissertation about understanding local strategies of head teachers and school stakeholders that are being used to create child friendly schools at the school-level in Kenya. My supervisors at Oxford University are Dr. David Johnson and Dr. Ann Childs.

I have received support from the Marshall Scholarship Commission and UNICEF to conduct a comparative study of the local strategies head teachers and local school stakeholders are employing to implement the Child Friendly Schools Initiative in Kenya towards improving, monitoring and evaluating quality basic education in primary schools.

To do this, I will conduct a series of focus group discussions with head teachers of public primary schools in all eight regions of Kenya. Your experience as a head teacher gives you tremendous insight into the planning and practice of the Child Friendly Schools initiative. I am very interested in your thoughts, opinions and reactions to the CFS program and would be delighted to have you participate in this study.

Participation would involve joining nine other head teachers during your regional professional development training workshop organized by the Kenyan Primary School Head Teachers Association (KEPSHA) for [insert date] in a focus group discussion with me (approximately one hour in length) in a relaxed setting. I hope that conducting the interview in English will not pose a problem, but I will have a local research assistant available fluent in Kiswahili if needed. I am most interested in what strategies you are employing to make your school more child friendly across the five components of the child friendly school initiative: i. inclusive classrooms ii. Equity and equality iii. Health and nutrition iv. Safety and protection and v. Community partnerships and linkages. This study is intended to be a qualitative study, which I hope will be useful for better understanding how to plan, implement and evaluate child friendly schools and overall quality education in Kenya.

All information collected will be anonymous, confidential, and stored securely for the use in this research project. I will use audio recording equipment during the focus group discussion to be able to generate transcripts afterwards. No one will be granted access to your responses who is not directly involved with the data analysis of this particular project. Transcripts and notes of the focus group discussion will be made available to you for factual checking, as will drafts of written papers prior to publication.

I am hoping to conduct your focus group discussion on [insert date].

I will reach out to you through the Kenyan Primary School Head Teachers Regional Chairman to arrange a visit. Please do not hesitate to contact me with any questions! Email is the best way: andy.j.cunningham@gmail.com. My supervisor's email address is david.johnson@sant.ox.ac.uk if you have any questions for him directly.

Yours sincerely,

Andrew JC Cunningham, MSc. Education
Oxford University Department of Education, DPhil Candidate

Appendix 12: Information and Background of Study for Research Participants

University of Oxford
Department of education

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Supervisors: Dr. David Johnson and Dr. Ann Childs

Administrator: Kay Cage

Researcher: Andrew JC Cunningham



Understanding Local Strategies for Child Friendly Schools in Kenya: Head Teacher Perspectives

Information for Participants

Invitation

You are being invited to take part in a research study. Before you decide to participate, it is important to understand why the research is being conducted and what your participation entails. Please take time to read the following information carefully. Please ask if there are any aspects of the project that are unclear or if you would like more information. Take time to decide whether or not you would like to take part in this research.

What is the purpose of the study?

This study is an exploration of the Child Friendly Schools Initiative in Kenya and the strategies that head teachers and local stakeholders are using to plan, implement and monitor efforts made in the child friendly schools initiative in Kenya. The study attempts to analyse the Child Friendly Schools initiative beyond simply the training of trainers and arrive at a more nuanced understanding of local ownership and implementation of a national and international educational intervention to improve quality. Furthermore, the study seeks to uncover local strategies that may not be known to policy makers in rolling out child friendly schools and finalize a set of indicators for measuring child friendly schools nationally. Your responses will provide on-the-ground, local insight into the development of a national policy initiative for all Kenyan pupils.

Why have I been chosen?

For this study, we are seeking the perceptions of head teachers. The Child Friendly Schools initiative is currently targeting head teachers through its various local, regional and district trainings. You have been identified as someone with insight to school leadership and as a head teacher. The goal of this study is that by conducting focus group discussions with a wide-range of primary school Headmasters throughout different parts of Kenya, an emerging picture how the Child Friendly Schools initiative is being translated into practice can be explored. Many times, head teachers may not realize they are already engaging in strategies for rolling out child friendly schools; this study seeks to capture a more localized set of definitions, actions and results for the national child friendly schools initiative.

Do I have to take part? What are the risks and benefits of taking part?

It is your decision to take part in this study. You can decide to stop participating at any time. You do not need to answer questions that you do not wish to. Every effort will be made to preserve

confidentiality but as this cannot be fully guaranteed by the nature of this research it is possible that you may be able to be identified in the final report. Other than this, there are no known risks to taking part. The benefits are helping to create a holistic picture of implementing the Child Friendly Schools initiative throughout Kenya and improving the quality of basic education at the school-level. Your participation as part of this study will benefit those trying to understand and improve the Child Friendly Schools initiative and provide critical insight into program development.

What will I be expected to do?

The research project is designed in three phases. In the first phase, you will be invited to join focus group discussions during one of regional capacity workshop sponsored by UNICEF, MOEST and KEPSHA where you will be asked about your experiences as a head teacher in your school. The second phase will involve conducting a free, SMS-based questionnaire while at your school to reflect on your current status of quality education. You will be asked to recruit two class eight pupils, two parents, and two teachers to join you in this exercise. After completing the SMS survey, you will be sent the results in an SMS text message and asking you to host a community meeting to share the results. The research project will inquire, again through SMS, what action steps you developed in the community meeting for the next year to improve the quality of your school. The third and final step of the research project will involve a follow-up survey one year later that will ask similar questions to that of the second phase of research and will again, request your support in recruiting two class eight pupils, two teachers and two parents to complete the follow-up SMS survey as well.

What will happen to the results of this research?

The results of this research will form the basis of an Oxford Doctoral dissertation. Some results may be published in academic journals concerned with exploring educational policy. If you wish to obtain a copy of the published results, please inform the researcher. The study will take place over the next four months after which time the published results will be publicly available.

Who is funding and organizing the research?

The research is funded and organized as an independent DPhil research project in conjunction with the Department of Educational Studies, Oxford University.

Other in-country partners include the Ministry of Education Office of Quality Assurance and Standards, The Kenyan Primary School Heads Association (KEPSHA), the Kenyan National Examination Council, Nairobi University Department of Education and UNICEF-Education Kenya Country Office. However, none of these actors have the power or ability to influence the research questions, data collection methods or conclusions of this study. They are partners in logistical management, only.

Contact for Further Information or Follow-up

Should you have any further questions about this research, please feel free to contact:
Andrew JC Cunningham, Department of Education, 15 Norham Gardens, Oxford, UK OX2 6PY.
Andy.j.cunningham@gmail.com. Your inquiries are most welcome.

Appendix 13: Consent Form for Research Participants

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general.enquiries@education.ox.ac.uk www.education.ox.ac.uk

Supervisors: Dr. David Johnson and Dr. Ann Childs

Administrator: Kay Cage

Researcher: Andrew JC Cunningham



Understanding Local Strategies for Child Friendly Schools in Kenya: Head Teacher Perspectives

Interview and Mobile Phone Survey Consent Form

This research study seeks to explore the local strategies Head Teachers and local stakeholders are employing to make their schools child friendly across the five components of child friendly schools (i. inclusive classrooms ii. Equity and equality iii. Health and nutrition iv. Safety and protection and v. Community partnerships and linkages.). This is a study undertaken by Andrew JC Cunningham, DPhil student at that Department of Education, University of Oxford.

1. I have read and understood the information about this study and have had the opportunity to ask questions. I have considered all the risks involved with this research.
2. I understand that I can withdraw from the study without consequence at any time simply by informing the researcher of my decision.
3. I understand my responses will be recorded by the principal researcher for research purposes and stored using password protected computer archival services.
4. I understand who will have access to identifying information provided and what will happen to the data at the end of the project.
5. I am aware of who to contact, should I have questions following my participation in this study.
6. I understand that this project has been reviewed by and received ethical clearance through the University of Oxford Central University Research Ethics Committee.

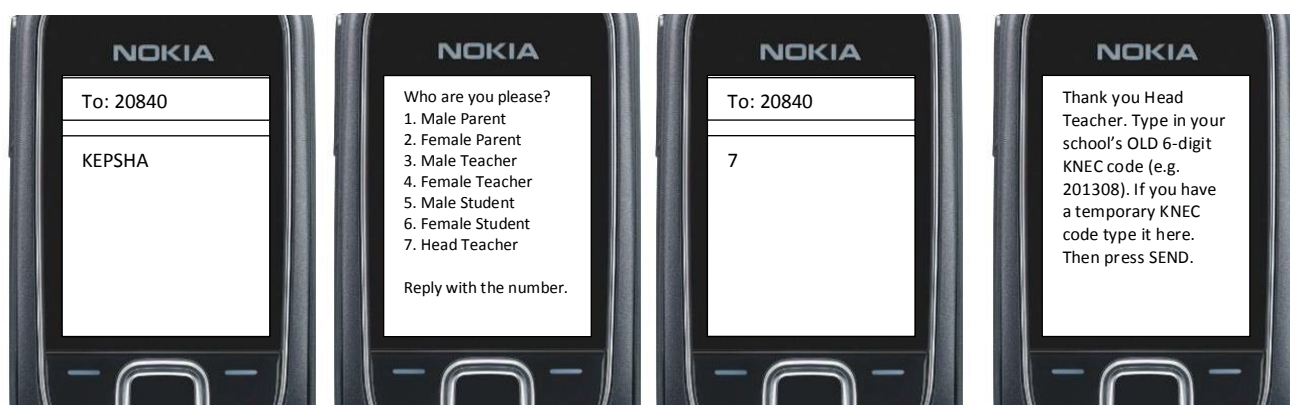
I agree to participate in this study.

Name of Participant: _____
Date: _____
Signature: _____

Appendix 14: 7 Steps for Self-Registration into the CFS Baseline SMS Survey

Following the CFS workshops in February and May 2013, the following survey was made active in July 2013. 2 pupils, 2 parents, 2 teachers and the head teacher of each of the 812 target schools were asked to complete the 25-item questionnaire. The survey closed in August 2013. The following image provides an overview of the self-registration process and interactive model of the SMS questions asked across each of the schools.

7 Steps for Self-Registration via CFS SMS Survey

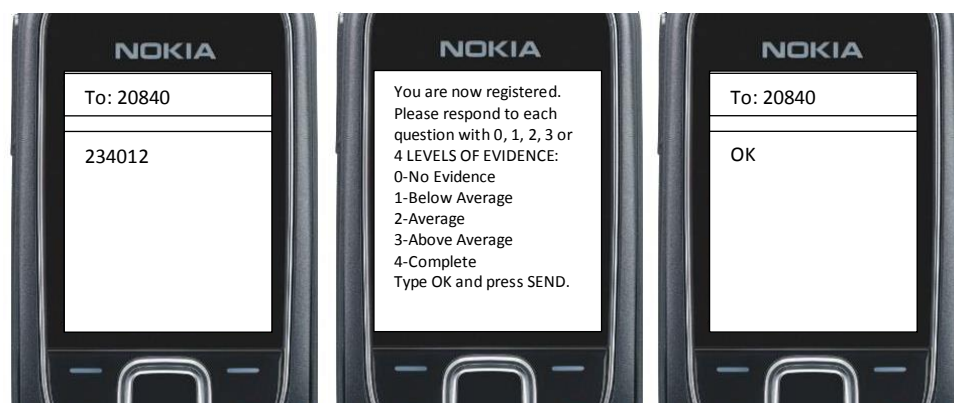


Step 1: The respondent types a free SMS message to 20840 with the word KEPSHA or CFS to **trigger** the survey.

Step 2: The respondent receives a SMS message from 20840 asking his/her role in the school. Note if a male teacher has already responded, the system will call the input an ERROR and re-ask the question.

Step 3: The respondent replies to the SMS message with the appropriate number. In this case, 7 indicates the respondent is a head teacher.

Step 4: The respondent receives an SMS message asking for the 6-digit Kenyan National Examinations Code for his/her school. This then connects to an existing database with the school's demographic data. The Code also ensures all scores provided by parents, teachers, and pupils of the same school are stored and averaged together in the analysis.



Step 5: The respondent replies with his/her school KNEC code. In some schools, they did not have a KNEC code because they did not have Class 8 pupils sitting for the exam yet. A temporary code was provided by the researcher in collaboration with ENEZA Education.

Step 6: The respondent receives an introductory text message informing them of the different rating levels they can use when responding to the 25 ECMT questions. This also serves as a reminder to the head teacher who was given an extensive training and introduction to the categories in the CFS workshops.

Step 7: The respondent replies with OK to acknowledge his/her receipt of the instructions. 25 interactive survey questions are then sent. At any time respondents can type STOP to stop the survey and can also come back to questions at their own convenience over the three week period of surveying in July 2013.

Figure 57 - 7 Steps for Self-Registration into the CFS Baseline SMS Survey. Source: Author (2014).

Appendix 15: 25 Questions for SMS-based Exercise in Diagnostic Action Research by Head Teachers, Parents, Teachers and Pupils

Following the self-registration process described in Appendix 14, the following 25 questions were asked of each respondent. The respondent could start and stop the survey at any time over the course of the three week active period of the survey.

Step 1 1:25 My school is a place where pupils actively learn from interactive, pupil-centred teaching methodologies. Reply with 0, 1, 2, 3 or 4.	Step 2 To: 20840 3	Step 3 2:25 My school is a place where girls and boys actively participate in lessons with questions and comments. Reply with 0, 1, 2, 3 or 4.	Step 4 To: 20840 2
Step 4 3:25 My school is a place where pupils receive meaningful verbal and written feedback from their teachers about their learning strengths and weaknesses.	Step 5 To: 20840 4	Step 6 4:25 My school is a place where all teachers are competent in their subject knowledge.	Step 7 To: 20840 4
Step 8 5:25 My school is a place where teachers use local available resources for instructional materials in the classroom.	Step 9 To: 20840 1	Step 10 6:25 My school promotes guidance and counselling for pupils on a regular basis.	Step 11 To: 20840 3

Figure 58: 25 Questions for SMS-based Exercise in Diagnostic Action Research by Head Teachers, Parents, Teachers and Pupils (part a). Source: Author (2014).

Appendix 15 (continued part b)

Step 12 7:25 My school is a place that enforces a policy on prevention of violence and corporal punishment through positive disciplining (no caning).	Step 13 To: 20840 2	Step 14 8:25 My school is a place that has safety measures in place (fire-fighting equipment, first-aid kits, school fence, etc.)	Step 15 To: 20840 3
Step 16 9:25 My school has an emergency preparedness and response plan in place (i.e. pupils know what to do in case of fire, flood, etc.).	Step 17 To: 20840 0	Step 18 10:25 My school is a place that provides safe outdoor spaces for pupils' play, rest and recreation activities.	Step 19 To: 20840 2
Step 20 11:25 My school is a place where pupils actively participate in school-based children's governments that allow them to elect pupil leaders and have an equal voice.	Step 21 To: 20840 2	Step 22 12:25 My school is a place where girls and boys are treated equally in teaching, seating, access to materials and asking questions and receiving feedback.	Step 23 To: 20840 1
Step 24 13:25 My school is a place where all pupils are treated with respect regardless to cultural origin, tribal affiliation, religious belief, and/or social status.	Step 25 To: 20840 4	Step 26 14:25 My school is a place that identifies all out-of-school children (drop-outs, child labour, truancy) in the community and makes efforts to enrol and retain them.	Step 27 To: 20840 0

Figure 59: 25 Questions for SMS-based Exercise in Diagnostic Action Research by Head Teachers, Parents, Teachers and Pupils (part b). Source: Author (2014).

Appendix 15 (continued part c)

Step 28 NOKIA 15:25: My school has the capacity to provide disabled pupils with appropriate disability-friendly facilities, equipment and trained personnel.	Step 29 NOKIA To: 20840 3	Step 30 NOKIA 16:25 My school is a place where all pupils have access to clean, safe, and well-maintained toilet facilities.	Step 31 NOKIA To: 20840 1
Step 32 NOKIA 17:25 My school is a place where pupils have access to clean water for drinking and washing needs.	Step 33 NOKIA To: 20840 0	Step 34 NOKIA 18:25 My school is a place where pupils know how to practice proper personal health and hygiene behaviour (e.g. hand-washing, bathing, dental care, etc.).	Step 35 NOKIA To: 20840 2
Step 36 NOKIA 19:25 My school is a place where pupils learn ways to prevent transmitting diseases (malaria, HIV/AIDS, TB, worms, cholera, etc.).	Step 37 NOKIA To: 20840 3	Step 38 NOKIA 20:25 My school is a place where pupils have access to nutrition services (school feeding).	Step 39 NOKIA To: 20840 0
Step 40 NOKIA 21:25 My school is a place where parents meet with teachers on a regular basis to discuss pupils' learning needs, strengths and overall progress.	Step 41 NOKIA To: 20840 2	Step 42 NOKIA 22:25 My school is a place that has a functional school management committee that plans, promotes and monitors child friendly school activities.	Step 43 NOKIA To: 20840 1

Figure 60: 25 Questions for SMS-based Exercise in Diagnostic Action Research by Head Teachers, Parents, Teachers and Pupils (part c). Source: Author (2014).

Appendix 15 (continued part d)

Step 44 23:25 My school is a place that sensitizes parents about creating a conducive learning environment at home.	Step 45 To: 20840 1	Step 46 24:25 My school links with community ECD centres and emphasizes the importance of early childhood development in education.	Step 47 To: 20840 1
Step 48 25:25 My school is a place that has income-generating activities (i.e. school gardens, carpentry, or poultry farms) that benefit pupils' welfare.	Step 49 To: 20840 0	Step 50 Congratulations! You have completed the CFS baseline survey! Your results will be sent in two weeks. To use the same phone to complete a new survey, type KEPSHA to 20840. Thank you!	

Figure 61: 25 Questions for SMS-based Exercise in Diagnostic Action Research by Head Teachers, Parents, Teachers and Pupils (part d). Source: Author (2014).

Appendix 16: 8 Parts of the Virtual ECMT SMS Report Card

After school leaders led their exercise in diagnostic action research with 2 pupils, 2 parents, 2 teachers and the head teacher, the researcher collaborated with ENEZA Education to create an automatic formula to analyze the results and send back eight feedback text messages, each with the average reported scores for each CFS indicator in relation to the total population sampled. The following text messages were sent:



Figure 62 8 Part Virtual CFS SMS Report Card. Source: Author (2014).

Appendix 17: 8 Questions for the SMS Follow-Up Action Step Survey

After school leaders had time to share the results of their diagnostic action research SMS surveys (described in Appendix 15), the researcher used Echomobile.org to send a follow-up SMS survey with the following questions to determine if the school leaders had hosted a community meeting and to document the three action steps (school improvement strategies) and anticipated challenges to making their schools child-friendly in the next year. An announcement SMS was first sent to all head teachers informing them of the follow-up survey that was to follow. The order of the remaining interactive SMS survey questions are listed below.

Step 1

NOKIA

CFS Head Teachers: Tomorrow you will receive a free follow-up SMS message about your three action steps to improving child-friendliness in your schools.

Step 2

NOKIA

Welcome to the FREE CFS SMS survey. Reply ONCE to each question and wait for the next SMS to arrive. Reply to this number with OK and press SEND to start.

Step 3

NOKIA

To: 27708

OK

Step 4

NOKIA

Q 1 - After your CFS training, did you complete a free 25-question CFS SMS survey on your mobile phone? Type A or B and press SEND.
A – YES
B – NO

If the answer to Step 4 was NO, an extra question was asked (6A) as pictured to the right. Otherwise, if the answer to Step 4 was YES, the SMS survey would continue to Step 6B.

Step 5A

NOKIA

To: 27708

B - NO

Step 6A

NOKIA

Q 1A – Why was your school unable to complete the CFS survey? Please type in your reasons and press SEND.

Step 7A

NOKIA

To: 27708

My school decided not to participate in the CFS survey exercise.

After completing Step 7A, the survey would skip to Step 10.

Step 5B

NOKIA

To: 27708

A - YES

Step 6B

NOKIA

Q1B – Was this the first time your school collected data on CFS? Type A or B. Then press SEND.
A – YES
B - NO

Step 7

NOKIA

To: 27708

A

Step 8

NOKIA

Q 1C: After completing the CFS SMS survey, did you receive your school's CFS score via SMS (out of 100 pts)? Type A or B. Then press SEND.
A – YES
B - NO

Figure 63 SMS Action Step Survey Questions. Source: Author (2014).

If the answer to Step 8 was YES, an extra two questions were asked (9A1) (9A2), and (9A3) as pictured to the right. Otherwise, if the answer to Step 8 was NO, the SMS survey would continue to Step 10.

Step 8A

NOKIA

To: 27708

A - YES

Step 9A1

NOKIA

What was your school's overall CFS score (out of 100 pts - i.e. 58/100) that you received via SMS? Please type in the score (i.e. 58) and press SEND.

Step 9A1A

NOKIA

To: 27708

89

Step 9A2

NOKIA

How important were your CFS scores to improving your school planning? Type A B or C and press SEND.
A – Not important.
B- Important
C- Very Important.

Step 9A2A

NOKIA

To: 27708

C

Step 9A3

NOKIA

After you received your CFS school score, did you host a school community meeting to discuss the results? Choose A or B. Then press SEND. A – YES. B – NO.

If the answer to Step 9A3 was YES, an extra question was asked (9A3A1) pictured right. Otherwise, if the answer to Step 9A3 was NO, the SMS survey would continue to Step 10.

Step 9A3A

NOKIA

To: 27708

A

Step 9A3A1

NOKIA

At your school community meeting, did you create an action plan for improving CFS in your school? Choose A or B. A – YES. B- NO.

Step 9A3A1A

NOKIA

To: 27708

A

Step 10

NOKIA

Q2: Since the CFS training, has your school engaged in any Action Research? Type A or B. Then press SEND.

A – YES
B - NO

Step 11

NOKIA

To: 27708

A

Step 12

NOKIA

Q3: Did your school engage in any Action Research BEFORE your CFS training? Type A or B. Then press SEND.

A – YES
B - NO

Step 13

NOKIA

To: 27708

A

Figure 64 SMS Action Step Survey Questions (part b) Source: Author (2014).



Figure 65 SMS Action Step Survey Questions (part c) Source: Author (2014).

Appendix 18: Letters of Endorsement for DPhil Research in Kenya

a.) Kenya Ministry of Education Endorsement Letter for the Research Project



MINISTRY OF EDUCATION

Telegrams: "EDUCATION", Nairobi

Telephone: Nairobi 318581
Fax No.: 254-2-218378

When replying please quote

Ref No.: **QAS/N/1/22**

**DIRECTORATE OF QUALITY ASSURANCE &
STANDARDS**

JOGOO HOUSE "B"

HARAMBEE AVENUE

P. O. BOX 30426 – 00100

NAIROBI

16th May, 2011

RE: AUTHORITY TO CONDUCT RESEARCH FOR ANDREW JC CUNNINGHAM

The proposed study on Child Friendly Schools has been approved by the Ministry of Education. Andrew Cunningham is currently serving as an UNICEF INTERN FROM Oxford University and is conducting an academic research on The Child Friendly School concept in Kenya which is under the Directorate of Quality Assurance and Standards.

This letter authorizes him to conduct the research study which is critical in assessing the impact of the nationwide program of child Friendly Schools in Siaya District, Wajir, and Mombasa County.

He will be visiting various districts and schools in the country to collect data and meet stakeholders. The DEOs and MEO Mombasa municipality are requested to give him the necessary assistance to reach the schools he wishes to visit.

ENOS O. OYAYA, OGW

DIRECTOR QUALITY ASSURANCE AND STANDARDS

**Cc: Provincial Director of Education, Nyanza
Provincial Director of Education, Coast
Provincial Director of Education, North Eastern
District Education Officer, Wajir East
District Education officer, Siaya District
Municipal Education Officer, Mombasa Municipality**



b.) UNICEF-Kenya's Chief of Education's Endorsement Letter for Research

United Nations Children's Fund
Kenya Country Office
Education and Youth People Program

Telephone 254 20 7622217
Facsimile 254 20 7622746
www.unicef.org

May 12, 2011

Research Support

To Whom it May Concern,

RE: Support for Andrew JC Cunningham to Conduct Academic Research on Child Friendly Schools in Kenya

I am writing to your office in full support of the attached research proposal entitled, '**How Friendly is Your School? From Planning to Practice**' – **An Analysis Child Friendly Schools initiative in Kenya**'. I serve as Andrew Cunningham's official in-country Supervisor and Chief of UNICEF-Education Sector of the proposed project at UNICEF. Andrew has been accepted as an Intern at UNICEF-Education and is officially affiliated with our section.

The proposed study has been approved and endorsed by the UNICEF-Education office in Nairobi and is critical to learning the impact of the nationwide program of Child Friendly Schools. Andrew is the principal researcher and is serving as a UNICEF Intern from Oxford University's Department of Education from May 1, 2011 – July 1, 2011.

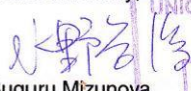
In addition, the development of the proposed study has been in collaboration with Oxford University's Department of Education under the supervision of Dr. David Johnson, Nairobi University's Department of Education under the supervision of Dr. Gakunga, the Kenyan Ministry of Education Office of Quality Assurance under the supervision of Fidelis Nakhulo, and the Kenyan Primary School Heads Association, under the supervision of Joseph Karuga.

Andrew's transport and DSA will be provided by UNICEF-Education as part of his internship benefits and he plans to travel to two Districts that have received Child Friendly Schools trainings in the past.

We kindly request your office to support his application for a Research Permit. The proposed study will significantly improve the understanding of how to improve quality in primary education throughout Kenya and we are very eager to share the results with local, national and international stakeholders.

Please feel free to contact me with any questions.

Yours Sincerely,


Suguru Mizunoya
Chief Officer
UNICEF-Education & Young People Program
(254) 728600504
smizunoya@unicef.org



unicef 

c.) KEPSHA National Chairman's Endorsement Letter for Research



KENYA PRIMARY SCHOOLS HEADTEACHERS ASSOCIATION

P.O. BOX 30053-00100, GPO NAIROBI.

Motto: Effective Management for Conducive Learning

13TH MAY 2011

TO WHOM IT MAY CONCERN
RE: ANDREW JC CUNNINGHAM

This is to certify that Andrew Cunningham is known to me and he has been endorsed by UNICEF, KEPSHA and MoE in his research undertaking. The findings will be valuable to us as an Association particularly on the impact in teaching and learning through CFS in our schools.

Any assistance accorded to him will be highly appreciated.

Yours faithfully,

JOSEPH KARUGA
NATIONAL CHAIRMAN - KEPSHA

J. Karuga (Chairman) 0710 787934
S. Ndolo (Vice Chairman) 0720 826312
Irene W. Ngengi (Woman Leader)

William Mukoya
John M. Mwiti
G. Mwaliko

(Sec General) 0733 431353
(Deputy Sec, Gen)
(Org./Publicity Sec.)

Ibrahim .H. Boya (Treasurer) 0724 335240
J.A.M. Otiende (Vice Treasurer) 0722 476024

d.) KNEC Endorsement Letter for Research

THE KENYA NATIONAL EXAMINATIONS COUNCIL

P.O.Box 73598 - 00200 CITY SQUARE, NAIROBI, KENYA.

Telephone (+254-20) 341098/50/71, 317419

E-mail: exams@kneec.ac.ke

Website: www.examsCouncil.or.ke

Fax: (+254-20) 2226032

In reply please quote our Ref.



Council Secretary/Chief Executive
National Housing Corporation Building,
Aga Khan Walk, P O Box 73598 – 00200 City
Square, NAIROBI, KENYA

*All official correspondence should be addressed to:
The Council Secretary/Chief Executive*

REF: KNEC/RS/NA/GEN/CORR/NASMLA/MAY-01

16TH MAY 2011

TO WHOM IT MAY CONCERN

**SUBJECT: SUPPORT FOR ANDREW JC CUNNINGHAM TO CONDUCT ACADEMIC RESEARCH
ON CHILD FRIENDLY SCHOOLS IN KENYA**

We write to inform you of our full support of the attached research project, 'How Friendly is Your School? From Planning to Practice' - An Analysis Child Friendly Schools Initiative in Kenya'. Andrew Cunningham is closely working with our National Assessment Centre.

The proposed study has been approved and endorsed by the UNICEF-Education Office in Nairobi and the Ministry of Education's Office of Quality Assurance and is critical to learning the impact of the nationwide program of Child Friendly Schools.

Andrew is the principal researcher from Oxford University and is serving as an intern at the National Assessment Centre. The National Assessment Centre has an existing research agreement with Oxford University and Andrew's research satisfies all necessary Kenyan ethical and legal requirements to conduct research in the country.

Andrew's transport and DSA will be provided by UNICEF-Education as part of his internship benefits and he plans to travel to some sample Districts that have received Child Friendly Schools trainings in the past.

We kindly inform you that Andrew Cunningham is working with us and request that you kindly grant him the necessary assistance.

For further information, please contact Mr. Mukhtar A. Ogle, Coordinator of the National Assessment Centre, Tel +254-20-720 231 367


MR. PAUL M. WASANGA, MBS
COUNCIL SECRETARY/CHIEF EXECUTIVE

"ON THE FRONTLINE IN QUALITY ASSESSMENT AND EXAMINATIONS"

Appendix 19: Oxford University CUREC Approval



Andrew Cunningham <andrew.wiser@gmail.com>

CUREC Application Approval

Education Research Office <research.office@education.ox.ac.uk>
To: Andrew Cunningham <andrew.cunningham@sant.ox.ac.uk>
Cc: Ann Childs <ann.childs@education.ox.ac.uk>

Mon, Feb 18, 2013 at 4:17 PM

18/02/2013

Dear Andrew JC Cunningham

Application Approval

Title: “Understanding Local Strategies for Child Friendly Schools in Kenya: Head Teachers’ Perspectives.”

The above application has been considered on behalf of the Departmental Research Ethics Committee (DREC) in accordance with the procedures laid down by the University for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to DREC, the proposed research has been judged as meeting appropriate ethical standards, and accordingly, approval has been granted.

If your research involves participants whose ability to give free and informed consent is in question (this includes those under 18 and vulnerable adults), then it is advisable to read the following NSPCC professional reporting requirements for cases of suspected abuse

http://www.nspcc.org.uk/Inform/research/questions/reporting_child_abuse_wda74908.html

Should there be any subsequent changes to the project which raise ethical issues not covered in the original application you should submit details to research.office@education.ox.ac.uk for consideration.

Good luck with your research study.

Yours sincerely,

Justina Kurkova

Research Office Assistant

Appendix 20: Qualitative Coding Example for Findings Research Phase 1

A full audit trail of how the researcher coded each of the 8,323 unique responses from the first phase of research in Chapter 4 is available upon request. The total summary sheet contains 190 pages of Excel worksheets and are not appended to the present study. A sample of how one of the new categories of child-friendliness that could not be coded to the ECMT emerged: NEW (4): Prevent area wildlife from harming pupils while in school.

First, note that each card response was given a unique ID that corresponded to the demographics of the research participant (rural/urban, low or middle socio-economic status, experienced or beginner head teacher) which could allow further interrogation of the data for analyses beyond the scope of the present study. Second, note that there were four types of responses – *strategies* head teachers used to make schools child-friendly and why they believed these were effective, and *challenges* head teachers faced that prevented them from making their schools child-friendly and reasons why they thought this way. Therefore, as you can see, a range of data was collected.

Table 26 Qualitative Coding Audit Trail from Phase 1 FGD Data. Source: Author (2014).

Response #	Written response (with spelling mistakes included)	Coded Dimension
1538	To protect the learners from dangerous wild animals	New 4
9420	Wild animals can invade the school and pupils any moment	New 4
7604	The school is located at the breeding place of elephants hence pupils are afraid	New 4
7915	Attack from wild animals esp. elephants and snakes due to bushy environment near the forest	New 4
9655	The perennial river where pupils fetch water is infested with crocodiles which threat both humans and other animals of the school.	New 4
3014	To safe guard a child and to hinder animals interfering in an institution	New 4
3109	This will help keep out wild animals from crizzing crossy the compound	New 4
4548	No wild animals in the compound pupils will feel very safe	New 4
4612	This has kept away wild animals	New 4
1177	Keep off wild animals from the compound	New 4
1179	To protect the school from wild animals	New 4
1191	Protect the school from animals	New 4
1419	Protect children from wild animals	New 4
3014	To safeguard a child and hinder wild animals interfering in an institution	New 4
1485	Need to make local communities aware of danger of animals moving around school	New 4
4642	To make wild animals not dangerous to pupils by creating alternative environment	New 4
5239	Invasion of wild animals	New 4
5402	Security threat due to animal trespass	New 4
6767	Human wildlife conflict	New 4
7103	Insecurity from wild animals and bandits involving snakes	New 4
6260	School is built in bushy areas where there may wild animals which endanger pupils life	New 4
6264	Lack of security, animals trespassing vehicles trespassing children may be harm	New 4
6330	Interference from animals	New 4
7460	Neighbouring wild animals and even cows and goats sneak in the compound	New 4
7579	Failure by KWS [Kenya Wildlife Service] to confine the wild animals	New 4
7640	Wild animals invade the school	New 4
7797	Compound is not safe because wild animals can enter the compound and disturb	New 4
9196	Livestock and wild animals intrude	New 4
Total Counts		28