INFLUENCE OF QUALITY OF EARLY CHILDHOOD EDUCATION ON PRIMARY SCHOOL READINESS IN PRESCHOOL PUPILS IN NAIROBI COUNTY, KENYA

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A thesis submitted to the Department of Educational Communication and Technology in fulfillment of the requirements for the degree of Doctor of Philosophy (PhD) in Early Childhood Education of the University of Nairobi

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Declaration

This research thesis is my original work and has not been submitted for a degree in any other university**.**

_____ DATE: _____

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This thesis has been submitted with our approval as University Supervisors.

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DR. JOHN KAMAU MWANGI

Dedication

This thesis is dedicated to, first and foremost, Almighty God, who gave me the physical and mental strength to undertake and accomplish the task. Second, to my mother, Mary Muthoni, who taught me the value of hard and honest work from an early age. Third, to all my family members for their support and encouragement. You kept urging and encouraging me to think of the end result whenever the going got tough. God bless you all.

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Abbreviations and acronyms

AERA – American Educational Research Association

ANOVA – Analysis of variance

ECD – Early Childhood Development

ECDE - Early Childhood Development and Education

ECE – Early Childhood Education

ECEC - Early Childhood Education and Care

EFA - Education for All

KICD – Kenya Institute of Curriculum Development

MDG - Millennium Development Goal

MoEST - Ministry of Education, Science and Technology

NACECE – National Centre for Early Childhood Education

NAEYC – National Association for the Education of Young Children

NESP - National Education Sector Plan

QASO - Quality Assurance and Standards Officer

SDG - Sustainable Development Goal

SPSS – Statistical Package for the Social Sciences

UNESCO - United Nations Educational, Scientific and Cultural Organization

UNICEF – United Nations Children's Fund

UPE - Universal Primary Education

Abstract

This study sought to explore the influence of quality of early childhood education on primary school readiness in preschool pupils in Nairobi. A correlational research design was used. A combination of purposive, stratified and random sampling techniques were used to obtain a sample of 39 preschools, 156 pupils, 150 parents and 39 teachers. Three instruments were used to measure the quality of early childhood education. These were: Early Childhood Environment Rating Scale; Teacher-pupil Interaction Rating Scale; and Parent Involvement Questionnaire. A fourth instrument, the Primary School Readiness Test, was used to measure school readiness in the pupils.

The findings of this study have great significance for the practice of ECE. The insights from the findings are useful for policy formulation and beneficial to teachers and parents, and would lead to maximization of benefits accruing from ECE for young children. The findings also contribute to knowledge in the area of early education.

Pearson product-moment correlation and multiple regression analysis were utilized in data analysis. The findings indicated that quality of the early education setting has an influence on primary school readiness in preschool pupils. The findings indicated a significant relationship between the physical and social environment and primary school readiness. Of the four dimensions of teacher-pupil interaction, a significant relationship was indicated by the findings between three of them and school readiness. These three dimensions are positive-relationship, harshness and detachment dimensions of teacher-pupil interaction. No significant relationship was found between the fourth dimension of teacher-pupil interaction, permissiveness, and school readiness.

No significant relationship was established between parental involvement and school readiness. Collectively the six dimensions of physical and social environment account for 29.7% of variance in school readiness. The four dimensions of teacher-pupil interaction in combination explain 32.2% of variance in school readiness.

The study recommended that stakeholders ensure preschool are well-resourced to attain high quality, as well as being adequately staffed with qualified and trained teachers. Parents were encouraged to volunteer more at their children's preschool since volunteering was found to exert the highest positive influence among the six levels of parental involvement. It also recommended that measures which will encourage greater cooperation between preschools and parents be put in place. The study also recommended further research on relationship between parental involvement and child outcomes.

CHAPTER ONE
INTRODUCTION

1.1 Background to the problem

The world today has become increasingly global. The development of children who are born today will determine the quality and competence of the world's future populations. Early childhood experiences are an important cog in the systems that ensure young children reach their full potential in all areas of life. Unfortunately, many children do not realize their full potential due to a variety of barriers in their early years of life.

One estimate by experts suggests that up to 219 million children aged below 5 years living in developing nations are unable to reach their developmental potential (Young & Richardson, 2007). The reason for this state of affairs is the children growing up in undesirable environments and experiences. These environments and experiences include poor quality early life educational experiences, lack of stimulation, poor health and nutrition, as well as poverty. These undesirable environments create life-long developmental barriers in the children, with negative consequences on their present and future learning, productivity and earning potential. This in turn negatively impacts on the individual, households as well as national economies. In our increasingly globalized world, the consequences have the potential to negatively affect the global economy and markets.

Early life educational environments and experiences is one of the things that can produce developmental barriers in children if it is of poor quality. Early life educational environments and experiences are conceptualized under what is referred to as early childhood education (ECE). This is part of the cycle in education systems globally that caters for young learners from their birth to age 6 years before they begin formal schooling in class one. This part of the education cycle is variously referred to as early childhood development (ECD), early childhood development and education (ECDE), and early childhood education and care (ECEC). The educational institutions that offer this phase of education are referred to as preschools. Other names, which are frequently used interchangeably and synonymously with preschools, are also to be found in education literature. They include ECD centre, nursery school, and kindergarten.

The benefits of a good quality ECE are immense, and have been demonstrated by various studies. Eke, Butcher and Lee (2009), for instance, found that the quality of preschool centres directly affects the children's intellectual/cognitive development as well as their social/behavioural development. The positive benefits accruing from a good quality ECE have also been shown to be long-term and life-long (Gronlund, 2014). Conversely, a poor-quality ECE can have negative consequences on children (Morrison, 2007).

The quality of ECE or preschool can be assessed or measured through a variety of parameters and indicators. Education literature and studies mention several parameters. These include number of children in a group; physical environment of the preschool, which includes buildings, amount of space, activity areas, and outdoor activity; equipment, which should be developmentally appropriate and includes materials that allow pupils to engage in dramatic play, as well as materials for art and blocks; utilization of time and space, which includes a schedule; qualification of teachers, which includes personal characteristics and professional qualifications; and, professional growth experience for staff (Read, Gardner & Mahler, 1993). This study used three parameters to assess quality of ECE. These are physical and social learning environment, teacher-pupil interaction, and parental involvement.

The positive or negative developmental outcomes in children enrolled in preschool can also be assessed or measured in one of several ways. A chief objective of ECE is to prepare the children for later formal schooling. It does this by developing skills in the children that enable them to cope with the demands of primary school and benefit from the experiences therein. The development, acquisition and refinement of these skills in children is what school readiness encompasses. These skills include growth and development in aspects ranging from cognitive, language, emotional and social areas. These areas constitute what are known as dimensions or domains of school readiness. Assessing school readiness, therefore, provides a comprehensive, meaningful, and justifiable way of measuring child outcomes in preschool pupils. In assessing school readiness in this study, six dimensions of school readiness were used. These are cognitive dimension, language dimension, social-emotional dimension, physical and motor dimension, adaptive dimension, and approaches to learning dimension. These dimensions cover the

spectrum of knowledge and abilities necessary for children to succeed in primary school and to lay a firm foundation for future and life-long learning.

Because of the established link between quality of ECE and child outcomes, many scholars, experts and governments have lately shifted their attention to the issue of quality of ECE. It is no longer just enough to make ECE accessible. It is important to ensure that the ECE on offer is of a good quality. However, the situation obtaining on the ground suggests that quality in ECE is a present and continuing challenge in most parts of the world. Eldering and Leseman (1999), for instance, point out that high-quality education is a big concern for both developing and developed nations. In the developed nations, schools are more accessible and schooling is mandatory up to secondary school. Even in these countries, however, it is observed that up to a quarter of all learners are not equipped with literacy and numeracy skills for everyday life. The United Nations has included ECD in its Sustainable Development Goal (SDG) 4. This is due to the recognition of the huge potential that early childhood has in setting a foundation for lifelong learning and also well-being. The United Nations Educational, Scientific and Cultural Organisation (UNESCO) however, observes that major challenges exist in meeting and measuring this target, given as target 4.2 (UNESCO, 2015).

A programme known as Step by Step was started in 1994 after the realization that ECE in Central and Eastern Europe needed revitalization (Young & Richardson, 2007). A decade later, in 2004, Step by Step had morphed into a network of 30 Non-Governmental Organisations (NGOs) operating under one umbrella body in 30 countries mainly from Central, Eastern and Southern Europe, as well as Haiti, Mongolia and Argentina. These organizations are involved in joint large-scale national efforts to reforms and improve early childhood care and education as well as school readiness.

In Indonesia, the government has prioritized ECD since the early 2000s. Strategies used to achieve this include anchoring ECD in the national education system law in 2003, and undertaking the first-ever census of ECD in 2011. These policy developments have occurred in tandem with continued progress on child outcomes, including those specified in Millennium Development Goals (MDGs) like universal primary education (UPE). A World Bank study (Denboba, Hasan & Wodon, 2015) surveyed the quality and level of development of ECD policy

at the national level in 28 countries, including Indonesia. The study used a World Bank developed diagnostic tool that had a four-point scale as latent-1, emerging-2, established-3 , and advanced-4. Three policy goals were rated: (i) Enabling environment (ii) Implementing widely (iii) Ensuring quality. The average scores for the 28 countries on the three policy goals were 2.1, 2.4 and 2.1 respectively. These scores are close to emerging-2, implying that challenges continue to hamper provision of high quality ECE. This in turn means the desired learning outcomes were not being realized in the countries surveyed.

In Colombia, the government initiated a programme to assist families with young children. Started in 1986, the initiative was known as Community Welfare Homes. A decade into the programme, the government carried out an assessment of the programme's impact. The quality of the programme was found to be inadequate (Denboba, Hasan & Wodon, 2015). As a result, measures were instituted to improve programme quality. One of these measures was identification of indicators of quality and standards for the community homes. The mothers in these homes have numerous responsibilities. These include organizing and implementing educational and recreational activities, supervising the children's growth and development, and food preparation. This has raised questions over time about the efficiency of the programme. With these acknowledged challenges persistent, efforts continue in Colombia to improve the quality of services offered and hence improve child outcomes.

The United States (US) has probably one of the most robust ECE fields anywhere in the world. Numerous and extensive studies have been undertaken on various aspects of ECE in the US. In tandem with this have been attempts to evaluate the quality of ECE and continue improving the same. All 50 states in the US had by 2013 identified standards for preschool children age 3 – 5 years (Gronlund, 2014). Efforts to identify standards is an implicit admission that quality is not as desirable as it ought to be, or that things can be better. The expected and desired development and learning of children is espoused in the identified standards. A new common core of standards was also arrived at through efforts led by the states. By 2012 some 46 states had adopted these common standards.

The US also has a programme that began in 1965 for children who may experience school failure because of poverty at home. Known as Head Start, initial studies of the effectiveness of the programme were controversial and disappointing. This implies that issues of quality and child outcomes continued to dog one of the more organized attempts at addressing issues in ECE. This initiative that was a US federal government programme, produced a revised framework in 2010. Outcomes for children aged 3 to 5 years in Head Start programmes was defined by this new framework. This framework also provided a crucial part of the programmes' assessment on its effectiveness. All these efforts underpin the belief that providing good quality ECE is important for childrens' long-term success in schooling and in life.

The South African situation as far as ECE is concerned has been marked largely by lack of government concern. This has been the situation since the first preschool was opened in the year 1930 in Johannesburg to mainly cater for white children (Maringe & Prew, 2015). The government, however, accepted some responsibility for providing ECE to the white South African children. Other racial groups were largely ignored, with little or no educational stimulation being offered to black and coloured children in a few preschools that were subsidized by the Social Welfare Department.

By 1994, when political and educational transformation was commencing, there was almost total lack of presence of and access to quality preschools for a majority of South African children. The new African National Congress (ANC) government launched an education policy framework. The framework committed the government to stepping in and becoming more committed in the area of ECE. It was also very clear on the importance of ECE. In this transition, the ECE curriculum was also restructured, with the term early childhood development being formally introduced. ECD was defined as encompassing processes through which a child grows and thrives in the areas of mental, emotional, social, physical, spiritual, and moral development from birth to age 9 years. This definition led to provision of services for young pupils that were more appropriate for their development level. ECE that is developmentally appropriate is clearly one of high quality, and the child outcomes expected therein, such as school readiness, will most likely be attained. Among other reforms in South Africa was introduction of a reception year. It was envisaged to become compulsory by the year 2010 but funding and implementation

bottlenecks led to this timeline being move to 2014. In the year 2001 the government carried out a pilot project which acknowledged many challenges facing ECE. These include strategies to improve quality of ECE, cost-effectiveness and equity of the programme for reception year, and further development of standards and norms in ECE. A lot of progress has been made in South Africa in reforming and restructuring ECE. Policy developed and decisions made have, however, at times been at variance with the expectations of other stakeholders such as civil society and with the broader vision for ECE. This has resulted in friction that continues to dog ECE and efforts to improve it (Maringe & Prew, 2015).

Closer home in Tanzania, efforts are also under way to assess the effectiveness of ECE and initiate improvements to attain desired outcomes. An evaluation by Uwezo, a civil society group that monitors achievement in education, in 2011 found that Tanzanian children were not acquiring knowledge and skills as well as they should be. For example, amongst Standard three pupils, out of every 10 pupils only three could read a Standard two-level Kiswahili story or solve standard two-level numeracy problem (Joshi & Gaddis, 2015). The pupils fared even worse in English competencies. Only one in 10 Standard three pupils had mastered competencies of Standard two level English.

Learning opportunities in ECE in Tanzania have increased greatly. Learning outcomes such as school readiness, however, remain poor and have actually declined in the recent past. This is captured aptly by the Uwezo study. Poor learning outcomes result from poor service delivery. Other cited reasons are inequities in allocation of resources, inefficiencies and misalignments in ECE. All these are quality issues which are clearly influencing outcomes such as ability to cope with the demands of lower primary school.

The local Kenyan context has also been marked by efforts to evaluate the ECE sector and institute reforms so as to improve child outcomes. One of these initiatives is the Kenya government's publication of Sessional Paper No.1 of 2005-2010. This Sessional Paper deals with issues of policy framework for training, research and education. One of the objectives of this Sessional Paper is the formulation of a comprehensive Early Childhood Development and

Education (ECDE) policy, enhancing quality of and access to services and building capacity (Republic of Kenya, 2004). Other goals were to attain universal primary education (UPE) and education for all (EFA) by the year 2015. It also sought to raise primary school to secondary school transition from 47% to 70% by 2008. In enacting these policy issues and laying down these strategies, Kenya was fulfilling her obligations as a member of the international community of nations and as a signatory to various international conventions and agreements, and also as a participant in various international forums on education.

One of the earlier of these international forums was the 1990 EFA conference held in Jomtien, Thailand. The vital role of ECE in learning and life was recognized at this EFA conference, whose article 5 emphasized that learning begins at birth. Consequently, the conference recommended that programmes for young children be expanded to cover the span from age zero to eight years. Another recommendation of this EFA conference was that special care was to be taken with regard to the education of young children, and for their education to involve the parents, the community and institutions.

Another international gathering that has had an impact on ECE is the World Summit for Children (WSC) which was held in 1990. This summit sought to build more mutually-shared understanding of the Convention on the Rights of the Child of the United Nations (1989). It also aimed to create a global plan of action. The summit also called for ECD activities to be expanded. Arising from this summit was that a worldwide plan of action was agreed upon, and from this plan many countries drew their national plans of action to actualize the recommendations.

At the turn of the millennium in the year 2000, global leaders assembled for a Millennium Summit under the aegis of the UN. The summit came up with several broad goals to be met within specified time frames. These goals became known as the Millennium Development Goals (MDGs), and they were basically a summary of goals agreed on at international conferences and

summits in the 1990s. There were eight goals, each of which had specific targets that were to be achieved by 2015. Of these eight goals agreed upon, five of them targeted young children's education, health and nutrition. Some of the targets included ensuring that all children have a chance to complete primary school, and the elimination of gender disparities in school enrolment. These goals have since been replaced by Sustainable Development Goals (SDGs). These SDGs stem from and carry on the aims of MDGs and are to be achieved by the year 2030. Goal four of the SDGs is: Quality education, which envisions the provision of quality education that is inclusive and equitable, and the promotion of opportunities for life-long learning for all persons. Kenya has committed herself to achieve the SDGs by 2030. This commitment is one of the three key national and international commitments that underpin the development of education in Kenya, according to the National Education Sector Plan (NESP) (Republic of Kenya, 2016). The NESP is the blue print for the education sector for achieving Vision 2030 goals. It is a five-year programme (2014-2018) to implement education reforms encompassed by recent acts of parliament and the goals of the Medium Term Plan (2013-2018). The NESP aims to improve learning outcomes by among other strategies, raising the quality and relevance of education, and improving education service delivery. The NESP is a fairly current government policy document, and it has as one overall goal the improvement of learning outcomes. This suggests that the current level of learning outcomes is lower than expected and less than acceptable. Indeed, the NESP cites as among challenges still to be overcome, deteriorating quality of education outcomes. The imperative to know more about quality and its influence on learning outcomes in children therefore remains.

These MDGs, SDGs and Vision 2030 goals therefore envision a scenario in which children receive high quality early childhood education. This is in turn expected to provide a solid base on which to build future learning, and to equip the pupils in preschools with the necessary skills to be able to benefit from and succeed in primary school education. The acquisition of these requisite skills is the import of primary school readiness. The concept of school readiness is based on the acknowledgement that children need to possess a predetermined set of capabilities or skills before they enter primary school for them to succeed in school. In this conceptualization, the kind, variety and appropriateness of activities and experiences that

children engage in at preschool is expected to have an influence on how well the pupils have acquired the said set of capabilities as they transit to class one in primary school. According to Mishra (2008) a child's school readiness is defined in terms of cognitive ability, physical capability, learning style, knowledge base and social and psychological competencies. It includes the child's acquisition of social and cognitive competencies.

In the year 2000 the Dakar Framework of Action was held to take stock of progress made by nations in relation to the recommendations of EFA since 1990. At this meeting the international community renewed its commitment to ensuring that young children's educational needs are satisfied within a generation and maintained thereafter. In the year 2001 the UN held a special meeting to discuss issues affecting children. In attendance was a galaxy of heads of state and government, representatives of NGOs, advocates of children's issues and young persons' representatives. The purpose of this general assembly special session was to review the agenda for implementing action plans drawn at the WSC. It also aimed to make renewed commitment and pledge for specific actions for children in the next decade. The Kenyan government has been represented in all these meetings and summits, and so they have had an influence on the development and growth of ECE locally.

Alongside these internationally-led initiatives, Kenya has also instituted various national initiatives to address issues of quality and outcomes in early learning. One of these is the 2001 Children's Act. This act was an effort to domesticate the 1989 UN Convention on Rights of the Child. African nations had also adopted this convention as the African Charter on the Rights and Welfare of the Child. The Children's Act (2001) specifies the way a child is to be viewed and treated in Kenya. It spells out certain rights to be enjoyed by children in Kenya. Some of the rights guaranteed to children by the act include the rights to play and have leisure, education and to participate in cultural activities. The government is currently implementing Vision 2030, a national blue print for development. The main goal of Vision 2030 is to industrialize Kenya and transition it to a middle-income nation by 2030. The blue-print for Vision 2030 rests on three pillars namely economic pillar, political pillar and social pillar. The social pillar includes

education, science and technology. This will only be achieved if today's children receive the best possible foundation for future learning.

In the year 2007 the government launched two important policy documents on ECE. One of these was the National Early Childhood Development Policy Framework (2006). The second one was the Early Childhood Development Service Standard Guidelines for Kenya (2006). The objectives of these policy documents include ensuring that services for children are equitably accessible, relevant, affordable and of good quality; regulating the provision of services and ensuring maintenance of high quality standards; and, coordinating and harmonizing good quality services and maximizing resource utilization across sectors.

The singular and cumulative effect of these international conferences, agreements, instruments and documents has been to push the agenda of ECE to the fore front of public awareness and debate globally and also locally. This has also had the consequence of bringing about a lot of growth in the area of ECE globally and locally. This growth has manifested itself in the areas of enrolment, the number and types of programmes, the number of ECE centres, and the number of trained teachers. This growth and growing awareness has been informed by continual appreciation of the benefits and importance of early childhood education as demonstrated by research. For example, in a review of studies on benefits of ECE, Crosser (2005) found that studies indicate that there are beneficial personal and social gains accruing from early educational experiences. Preschool and kindergarten seem to benefit all children. After a review of literature on benefits of ECE, Morrison (2007) observes that more and more parents today are seeking early learning opportunities for their children. One of the reasons for this is the mounting body of evidence on the significance of early life experiences. Essa (1999) has also reported evidence of the benefits of ECE. Studies also show that these effects and benefits are long term, evident long after the preschool experience (Crosser, 2005).

For ECE to have the desired positive effects in children, which include school readiness, it needs to be of high quality. Making ECE accessible is not enough. The quality of the early childhood experiences is also key in determining outcomes. This has also been backed by research findings. Morrison (2007) in a review of studies on influence of quality of ECE on child outcomes (Vandell & Corasanti, 1990; Vandell & Powers, 1983; Fields et al., 1988; Vandell, Henderson & Wilson, 1988; Burchinal et al., 1996; Arnett, 1989) indicates that positive outcomes in children were associated with ECE settings of high quality. Conversely, negative impacts were noted in pupils enroled in settings whose quality was poor. The positive child outcomes observed include the children performing better on thinking ability tasks and language development tests, showing more secure attachments to other children and adults, participating in more complex play with other children. Morrison (2007) also found that early learning of good quality may predict how well a child adjusts at primary school, learning success and lowered incidence of behaviour problems for pupils in class one (Howes, 1988). Crosser (2005) has also reviewed studies that examined the influence of quality of childcare on child outcomes. One of these studies reviewed was Peisner-Feinberg et al. (2001). This particular study sought to determine if the quality of early learning had any long-term effects on the social and cognitive skills of children. The findings showed that good-quality ECE was associated with long-term benefits in children. It was shown, for instance, that pupils attending preschools of higher quality acquired better skills in mathematics in comparison to those placed in preschools of lower quality, they had better mathematics skills, and were better at understanding spoken language. These pupils from higher-quality early learning settings also better cognitive skills, were better at paying attention, had better social skills, and engaged in fewer incidents of behaviour problems at the time they were in class two.

These strands of positive outcomes combine to produce primary school readiness which has several dimensions or domains to it. These dimensions are language development, developments in the social and emotional areas, development in cognition, and developments in motor and physical aspects. Readiness for school is an important issue that is recognized as such by the United Nations Children's Fund (UNICEF). UNICEF observes that by ensuring that we achieve school readiness we will be helping to realize Millennium Development Goals two and three.

These goals aim to attain universal primary education, and to promote women empowerment as well as gender equity (UNICEF, 2011). According to the United Nations Educational, Scientific and Cultural Organisation (UNESCO), preparedness for formal schooling is a crucial outcome of ECE (UNESCO, 2007). Additionally, in early learning programmes, playing and instruction are more important than studying and instruction. Research has shown that children are expected to achieve and attain more in their academic endeavours if they enrol at primary school when they are ready for school. Higher achievement in academic pursuits has been associated with enhanced individual and national outcomes in the health, social and economic fronts (Zuckerman & Halfon, 2003). On the other hand, children who do less well on readiness tests are more likely to repeat a class later on and to drop out of school (Brooks-Gunn, Klebanov & Duncan, 1996). Class repetition and early dropout have been cited as challenges that continue to dog our education sector. The NESP, for instance laments the high dropout rate, which it states is still a challenge. The NESP goes on to add that about 30% of learners enroled in primary school do not complete primary school or do not enrol in secondary school (Republic of Kenya, 2016). Additionally, pupils lacking school readiness skills are more prone to experiencing a difficult stay at school (Raver, 2002, cited by Okeng'o, 2007). Such children are also in danger of facing peer-rejection, which in turn leads to low self-esteem (Cairns, Cairns & Neckerrman, 1989, in Okeng'o, 2007).

Several domains or dimensions of development encompass school readiness. These domains include language and cognitive developments, social and emotional developments, general knowledge, physical wellness and motor development as well as learning approaches. These domains or dimensions are interrelated and build on each other. This means, for instance, that developments in social and emotional domain may lead to new growth in the areas of cognition and language. Growth and development in cognition and language areas will in turn lead to more growth in social and emotional domains. They provide the child with the bedrock for learning and social interaction. It should be noted that at an early age the child learns from virtually every interaction. Children who are school ready are those who will be able to pay attention to the teacher, respond positively to instructions, play well and get along with others, communicate verbally well, and will show eagerness to learn in class.

The influence of quality of ECE on school readiness has been established by various studies. One of the most comprehensive of these studies was undertaken with the support of a group called the International Association for the Evaluation of Educational Achievement (IEA). This research aimed to explore the relationship between cognitive and language development outcomes at age 7 and process and structural characteristics of various preprimary settings in 10 countries (Schweinhart & Fulcher-Dawson, 2009). In 10 of the 15 countries, the children were followed up to age 7 and outcome measures in cognitive and language domains collected. The findings of this study were consistent across all countries. They included the following: (i) Children had better cognitive performance at age 7 if they attended a preschool setting with more variety and a greater number of materials and equipment. Materials and equipment in a preschool are some of the indicators of quality in this study. (ii) Allowing children to freely select the main activities from those proposed by teachers had the most influence on the children's language at age 7. Expressive and physical activities had the second highest influence on language development followed by pre-academic activities. (iii) When children spent more time in activities for the whole group where one activity was proposed by the teacher for all the children, their cognitive performance at age 7 was worse. Cognitive and language developments are two of the domains of school readiness, and various aspects of quality of ECE are seen to be having clear influence on it.

It comes as no surprise therefore to note that alongside growth and expansion of ECE, there is a growing emphasis on high-quality early childhood experiences and care. The 1990 Jomtien Declaration, for instance, called for special attention to be accorded to the care of young children. This is clearly a call to enhance the quality of childcare. The recommendation to have early learning programmes involve parents, communities and institutions is also a call to improve quality of ECE. Parental involvement in matters to do with their children's education is actually one of the recognized measures of quality. It is one of the parameters of quality utilized in this study. The Kenya government's National ECD Policy Framework (2006) and the ECD Service Standard Guidelines for Kenya (2006) have their goals as including ensuring services for children are of good quality, ensuring high quality standards in early learning are maintained, and harmonizing services of good quality in early learning sector.

In ECE practice today, the emphasis locally and worldwide is shifting to programmes that are holistic, integrated, child-centred and child-friendly. It is today recognized that children learn differently from adults. Children learn by doing things practically and through play and discovery. This involves experimenting, exploring, questioning, observing and manipulating objects. That is why ECE programmes must provide for these activities. As such the provision or lack thereof of these activities has implications on quality of the programme. Indeed they are invariably used as measures of programme quality. Various parameters have been used as measures of quality in ECE. They include number of children in a group; qualification of teachers, which encompasses the teachers' professional qualifications as well as personal characteristics; professional growth experience and opportunities for staff; physical environment of the centre, which includes buildings, amount of space, activity areas, and outdoor activity; equipment, which includes developmentally appropriate equipment, blocks, as well as materials for art and dramatic play; use of space; and use of time, which includes a schedule or daily routine (Read, Gardner & Mahler, 1993). Different studies have used one or more of these parameters to assess quality of ECE setting. A United States institute, the National Institute of Child Health and Human Development (NICHD) carried out a seven-year longitudinal study that began in 1991 on quality assessment in early learning centres. The findings of this study indicated that evaluations of quality were based on characteristics such as physical environment, child-teacher ratio, size of the group or class, teacher/care-giver characteristics, and teacher/care-giver behaviour (Santrock, 2008). Clarke-Stewart (1987) and cited in Essa (1999) notes that quality in child care does not depend on single and separable factors. Instead, quality derives from the presence of and interaction between a variety of complex elements.

This study used three parameters to assess the quality of ECE programmes. These parameters are physical and social environment, teacher-pupil interaction, and parental involvement. The physical and social environment is an important aspect of ECE setting. It has several aspects or dimensions which include space and furnishing (indoor space and its utilization and arrangement; outdoor space and its utilization and provision for gross motor play); personal care

routine (including arrival and departure practices and health and safety practices); language reasoning (including availability of books and pictures and use of language); activities (including those for dramatic play, fine motor, and movement); interactions (including child-staff and child-child interactions); and programme structure (including group time and free play). The quality of the physical and social environment has major implications on child outcomes and school readiness, and this has been the subject of numerous studies. A general assumption in education circles has been that the quality of care and education is negatively affected if the caregiver or teacher has a big number of children under his or her care. Several studies have been undertaken to verify this assumption. In a review of such studies, Essa (1999) found that the ratio significantly affects the behaviour of children and their interactions with adults.

The second parameter that was used to assess quality of ECE programme is teacher-pupil interaction. The nature of the interaction between the teacher and the children is one indicator of quality that has been used in several studies (Crosser, 2005). The nature and appropriateness of this interaction is an important determinant of programme quality as it sets the tone for almost all the experiences that a pupil will have at preschool. The nature of the interaction is assessed by observing the teacher and pupils interact in their naturalistic setting and determining the level of positive relationship, harshness, detachment, and permissiveness. These are the different dimensions of the teacher-pupil interaction.

The third parameter of quality in this study is parental involvement. Education starts at home and what happens there has a major effect on the child's development and their learning. Active engagement of a child's parents and family in matters of their development and learning can have important implications on child outcomes. This is premised on the fact that parents exert major influence in the lives of their children. A preschool is likely to provide children with learning experiences of a higher quality when parents are more deeply involved. Parental involvement is therefore an indicator of programme quality. Epstein, et al. (2009) has identified six levels of parental involvement. These levels include activities that occur both in and out of the classroom. The first level at which parents can become involved is at the parenting level,

followed by communicating level, involvement at the volunteering level, learning at home level of involvement, involvement at decision-making level, and involvement at the level of collaborating with the community. The influence of parental involvement in the education of their children on learning outcomes has been explored by a number of studies. Creswell (2012), while reviewing such studies, concludes that parental involvement is important and necessary in children's educational process and outcomes.

Despite the availability and presence of a substantial body of research indicating the link between good quality ECE and positive child outcomes, the situation on the ground shows that a lot more could be done to improve quality. Studies and reports of quality reveal that we can do better, and this cuts across both the developed and developing nations. One such study is on quality of care in child centres by Helpburn et al. (1995) to evaluate community child care centres in four states in the United States. This large-scale study, reviewed by Crosser (2005), ranked quality measures of ECE programmes. The study indicated that most child care fell into the poor to mediocre range. Programmes catering for children aged three and four years were found to be generally poor. Ten percent of preschool programmes were ranked less than minimal. Only 24% of preschool programmes were ranked as excellent. Quality is clearly an ongoing challenge in the provision of ECE.

In Kenya, according to the ECD Service Standard Guidelines for Kenya (2006), the Directorate of Quality Assurance and Standards shall perform the following roles related to quality: One, assess ECDE centres attached to or detached from the primary school on a regular basis. Two, document quality assurance reports and disseminate the same to the stakeholders after carrying out quality assessment. Three, assess play equipment to ensure safety of ECDE children. Four, establish and enforce standards of school readiness programme. These are noble and lofty intentions. Reality on the ground, however, suggests that the situation is far from ideal. The Directorate of Quality Assurance and Standards, and which falls under the Ministry of Education, is not known for efficiency in discharging its mandate. From discussions with stakeholders in ECE and research findings, it emerges that several years can elapse before an

ECE centre is visited by personnel from the Directorate of Quality Assurance and Standards. The reasons for this are many, and range from human resource and financial constraints to systemic weaknesses and inefficiencies in the directorate. Ogamba (2011), in a study that examined the role played by quality assurance and standards officers (QASOs) in assisting primary school teachers improve their effectiveness, found that understaffing of QASOs, funding challenges, and inability by QASOs to make regular field visits to schools, limited their role in aiding teachers enhance their skills. Such a state of affairs has obvious implications on quality. It means quality in ECE programmes cannot be guaranteed or sustained. Nairobi, with its numerous preschools and high population, is likely to be most affected by this lack of close supervision. The large population means preschools sprout up daily in virtually every neighbourhood. The preschools in Nairobi also span widely varying socioeconomic locations and are therefore likely to vary widely in quality. The influence that quality of ECE has on child outcomes can be assessed through primary school readiness.

1.2 Statement of the problem

It has become generally accepted that if children join primary school when they are school ready, they stand a higher chance of succeeding in school and life. The importance of a good quality early education has also been recognized and accepted the world over for some time now. Good quality ECE leads to positive child outcomes which include school readiness. The Kenya Government has formulated the NESP as the education sector's route towards Vision 2030. Vision 2030 aspires to move the Kenyan economy to a middle-income status, and to afford citizens a high quality of life by the year 2030. As one main goal, the NESP aims to ensure that at least 25% of learners enrolled in ECE attain at least 80% of the skills and knowledge set for their level (Republic of Kenya, 2016). This goal will be achieved by improving education service delivery and raising the quality and relevance of education. Research findings indicate that high quality early learning experiences are associated with positive outcomes in children, while low quality experiences are linked to adverse effects in children (Morrison, 2007). Some of the positive outcomes of good-quality ECE are more academic success later on; higher scores on tests of thinking ability and language development; child enjoys more secure attachments to other individuals; the child adjusts better at school; and, the child has less behaviour problems in

class one (Morrison, 2007). Other positive outcomes include fewer cases of class repetition and dropouts, long term gains in achievement (Crosser, 2005); lower rates of arrest and delinquency, and significant economic gains for the society (Essa,1999).

In spite of these recognized and documented benefits accruing from a good-quality ECE, indications are that many children are receiving early education in settings that are of low or questionable quality. ECE of low or poor quality has been documented by various studies such as Mwaura, (2009), Githuthwa, (2011), Kangara, (2010), Wambua, (2010), Ndani, (2008), Makatiani, (2008), Koech, (2006), Muthoni, (2006), and Aila, (2000).

Our education system also continues to face a myriad of challenges at all its levels. These challenges include early dropout, teen pregnancy, low academic achievement, learners not possessing competencies expected at their level, grade retention/class repetition, and juvenile delinquency. The NESP also cites lowered quality of education outcomes witnessed in the recent past as a challenge yet to be overcome.

This study sought to determine the influence that quality of ECE exerts on child outcomes as measured through primary school readiness in preschool pupils in Nairobi County. Nairobi has a very large population and a big number of preschools. The pupils in Nairobi are likely to be exposed to widely-varying levels of quality of ECE. With knowledge on these influences then the challenges of lowered education outcomes can be dealt with.

1.3 – Purpose of the study

The purpose of this study was to establish the influence of ECE quality on primary school readiness in preschool pupils in Nairobi County. Three key elements of quality were used to assess quality of ECE. These were physical and social environment, teacher-pupil interaction, and parental involvement. The influence of these aspects of quality on primary school readiness in the preschool pupils was examined.

1.4 – Research objectives

This research had the following objectives:

i. To establish the relationship between quality of the physical and social environment and primary school readiness in preschool pupils in Nairobi County.

ii. To establish the relationship between quality of the teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County.

iii. To establish the relationship between quality of the parental involvement and primary school readiness in preschool pupils in Nairobi County.

1.5 – Research hypotheses

The research data collected was used to test the following null hypotheses:

i. Ho1 – There is no significant relationship between quality of the physical and social environment and primary school readiness in preschool pupils in Nairobi County.

ii. Ho2 – There is no significant relationship between quality of the teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County.

iii. Ho3 – There is no significant relationship between quality of parental involvement and primary school readiness in preschool pupils in Nairobi County.

1.6 – Significance of the study

The findings of this study have several theoretical and practical implications for early childhood development and education in the country. Firstly, this study contributes to the advancement of knowledge in the area of ECE. The insights provided can assist policy makers to more adequately understand and satisfy the educational and development needs of children aged 0–6, a span during which the foundations for quality learning are laid. It is expected that foundations for life-long and quality learning can only be laid in a setting that is of good quality. Secondly, the study has practical significance since the findings can be applied to improve the ECE curriculum and the regulatory requirements and standards for preschools, as well as strengthening the

supervisory role by the relevant government agencies. This is especially important at a time when the government has indicated that ECE will be integrated into primary school education to become a formal part of the basic cycle of education. In the new governance structure, ECE has become the responsibility of the recently-inaugurated county governments, hence the need to have policy informed by research findings regarding the ingredients of and influence of quality on outcomes. County governments are therefore potential beneficiaries of the findings of this study. Thirdly, it can give parents an objective way of making decisions on choice of preschool by identifying recognized measures of higher quality. It can also create awareness among parents on the importance of becoming more involved in the education of their children. Fourthly, the preschool teachers can be sensitized by the findings to structure their interaction with pupils for the maximum benefits of the pupils. Lastly, the study can contribute to the ongoing effort by KICD to develop standardized primary school readiness tools.

1.7 – Limitations of the study

This study was confined to only one of the 47 counties in the country, that is, Nairobi County. Nairobi has fairly unique features, such as a cosmopolitan population and a wide variation in socioeconomic status and incomes of the residents. An informal settlement or slum area will be found nestled right next to a middle income housing estate in Nairobi. Due to these fairly unique features of Nairobi, generalization of the research findings to other regions should therefore be done cautiously.

Another limitation of the study is the conduct of management of some private preschools with regard to granting permission for field visit to their schools and their subsequent conduct during the actual visit. A number of managers and proprietors of private preschools were reluctant to allow the use of their schools for this study. At one preschool the management insisted on the Parental involvement questionnaire being given to the pupils for onward transmission to parents who would then self-administer the instrument. Since the school was adamant this was done. Subsequently, one of the four instruments at that school was not returned and it was not possible to give a replacement or get the parent for face to face session. At a different private school the teacher insisted on being next to the four sampled pupils as they were being tested on school readiness, and would go ahead and prompt the pupils with hints when they appeared unable to

accomplish a required task. The teacher was, however, prevailed to let the pupils perform the tasks on their own. The teacher was assured that the exercise was not an evaluation of their competency or effectiveness as a preschool teacher. At one public primary school preunit, the teacher was quite hostile and flatly refused the researcher access to the parents. One private school denied the researcher permission to use the school at the last minute even though consent had been granted earlier. No clear reason or explanation was given by the school management.

A final limitation was that even though maternal level of education and family socioeconomic status are known to influence school readiness, their influence was not factored in the study. These two factors are therefore extraneous variables in the study that could have an influence on school readiness.

1.8 – Delimitations of the study

This study was done in public and private preschools in Nairobi which are preparing pupils to join the national 8-4-4 system of education. All these schools therefore use the KICD/NACECE curriculum. There are preschools that use different curricula, namely Montessori, the Islamic Integrated Education Programme, and the Kindergarten Headteachers Association. Preschools using these curricula were not included in this study. Nairobi also has quite a number of preschools attached to private schools offering British system of education, and which a growing number of Kenyan children are being enrolled into. These too were not included in the study.

1.9 – Basic assumptions

One of the assumptions for this study was that pupils of the same or approximately the same age have been in preschool for the same duration. Based on this, it is also assumed that having being in preschool for roughly the same duration, the pupils have been exposed to comparable educational experiences at school.

A second assumption was that all the preschool teachers sampled were familiar with and had access to the KICD/NACECE syllabus, and that they used it in their work. The last assumption was that all the pupils in the sample were of good and normal physical and mental health.

1.10 – Definition of key terms

Early childhood – This is the phase of a child's development that extends from the end of infancy to about 5 or 6 years; the period is sometimes referred to as the preschool years. Of late, early childhood has been conceptualized as the period of a child's life spanning from conception to age 8.

Early Childhood Education – This refers to those settings in places outside their homes at which young children are taken care of in groups by a qualified teacher and other members of staff, and which provide care and learning opportunities to the children.

Influence – Influence is the power or ability to affect an individual's actions, character, beliefs, or development in a particular way. In this study influence of quality on school readiness is demonstrated by the existence of a relationship between the measure of quality and school readiness.

Preschool – Institutions for 3-6-year-olds preparing children for primary school education. It is synonymous with ECE centre.

Quality of the physical and social environment – This refers to a determination of the extent of appropriateness of the physical and social aspects of the setting at preschool in meeting the needs of the child, and is measured using the Early Childhood Environment Rating Scale.

Quality of teacher-pupil interaction – This is a measure of the extent of appropriateness or worthiness of the interaction between the teacher and his/her pupils. In this study this aspect of the setting is assessed by use of the Teacher-pupil Interaction Rating Scale.

Quality of parental involvement – This is the extent to which a child's parents and family on the one hand, and preschool on the other, mutually involve each other in significant events of a

child's life, and share a common commitment to the best interests of the child. It is measured by use of the Parental Involvement Questionnaire.

Primary School Readiness – This refers to that stage of a child's language, cognitive, emotional, social, and physical development when he/she is able to take part successfully in primary school class one instruction without overtaxing himself/herself. This is assessed by use of a Primary School Readiness Test.

CHAPTER TWO
LITERATURE REVIEW

2.1 – Introduction

In this chapter a review of literature on various aspects of the research topic was undertaken so as to contextualize the study and determine what related studies have found. The literature reviewed included published books, journals, magazines, unpublished research theses and papers, government publications and policy documents, and online research articles, books, journals and other documents available online. It included studies done locally in Kenya, in other developing nations as well as those conducted in the developed nations of the west. The review was organized under various subheadings. These are: influential people in ECE; ECE curriculum models in Kenya; policy framework for ECE in Kenya; development of ECE in Kenya; primary school readiness; quality of ECE; primary school readiness and quality of ECE; theoretical framework; conceptual framework; and, gaps in knowledge.

2.2 – Influential people in ECE

Many individuals have over the years made significant contributions to how we view young children and their education and care today. The ideas and insights put forward by these individuals have influenced the development of ECE, and they continue to do so to date. They achieved this through their writings, teachings, research and pioneering works in ECE. It is important to know these ideas and theories as this knowledge enables scholars and practitioners of ECE to be active participants in the recycling process of applying good practices of past years to contemporary practice. This gives a better understanding of how to implement current teaching strategies and better confront emerging and continuing challenges. These influential educators include the following:

Jean-Jacques Rousseau (1712-1778) – Rousseau was a French philosopher who believed that things natural and primitive were intrinsically good. Consequently he posited that allowing children to grow without the influence of civilization would allow them to attain their full potential of being moral and good (Morrison, 2007). Rousseau further took cognizance of the fact that children learn and think in ways that are fundamentally different from those of adults. The ideal education was therefore one based on the pupil's level of development rather than on

some adult-imposed criteria. Today it is agreed that in general children's nature is unique and this needs to be shielded and protected, as proposed by Rousseau.

Johann Pestalozzi (1746-1827) – Pestalozzi was highly influenced by Rousseau's educational ideas. Pestalozzi believed that children should be educated according to nature, and postulated that young children's learning is deeply tied to observation and concrete experiences (Essa, 1999). He strongly proposed for taking into account individual differences among children. Pestalozzi added that learning should be based on the relevance of children's self-activity and not rote learning. Allowing children to select own activity within teacher's proposals and guidance is a mark of good quality in ECE.

Friedrich Froebel (1782-1852) – Like his predecessors Rousseau and Pestalozzi, Froebel believed nature and the child's developing mind were closely interwoven (Driscoll & Nagel, 2002). Froebel was also a strong believer in the importance of play in young children's development. Froebel's classes were held in a garden, under a well-structured curriculum that had specific materials. Among these materials were blocks, which today are a standard early childhood material. Play is also a crucial ingredient in all ECE settings of desirable quality.

Maria Montessori (1870-1952) – As a medical doctor, Montessori worked with retarded children. Later she got an opportunity to try out her teaching methods with normal children. Montessori was keenly interested in children's great capacity in their first few years of life to learn a lot (Morrison, 2007). Montessori argued about existence of sensitive periods. During these periods, children are most receptive to absorbing certain types of learning. Montessori formulated a curriculum that avails appropriate experiences to children during these sensitive periods to take advantage of them. A key question on activities preschool pupils engage in is whether they are developmentally appropriate. This is an issue of quality and relates to outcomes, and is what Montessori highlighted.

Erik Erikson (1902-1994) – Erikson reworked on some ideas of Freud's theory and formulated his psychosocial theory. Erikson's theory argues that each stage of an individual's development is characterized by a conflict. These conflicts accord the individual opportunities for growth (Driscoll & Nagel, 2002). The conflicts involve relationships with others as well as centering on the person. Erikson's theory comprises eight universal stages. The first four are crucial as they

describe important tasks that take place during infancy and young childhood (birth through about age 6 years). The stage of age 3 to 5 years is characterized by the main task of initiative versus guilt. At this stage children are very curious and like to experiment solely as well as with peers. At this stage children require guidelines and freedom to explore and satisfy their curiosity. If this does not happen, the children will develop a sense of guilt and a feeling of failure. Consequently, in early learning settings it is essential to permit children to try out and initiate a variety of activities and experiences. At the same time appropriate guidelines should be provided, as these allow children to learn the rules and expectations of society.

Jean Piaget (1896-1980) – Piaget's theory of cognitive development views the growth and development of cognition as being similar to how living things function physiologically. They organize the environment around them even as they adapt to it (Essa, 1999). Cognitive adaptation occurs any time new information or experience confronts a child. Adaptation allows the incorporation of any new information or experience into the psychological structure. Adaptation occurs via the twin processes referred to as assimilation and accommodation. Assimilation is at work when an individual attempts to make new information or experience fit into an existing concept or schema. Accommodation, on the other hand, involves modification of the schema or formation of a new concept to incorporate new information or experience. Accommodation brings about development, which is a qualitative change. Assimilation facilitates growth, a quantitative change in cognition. A variety of activities and experiences will therefore most likely lead to more cognitive growth and development.

B.F. Skinner (1904-1990) – Skinner viewed children's education and development as being shaped by external rather than by internal forces. These forces mainly come from the environment. This is the basis of behaviourism viewpoint (Driscoll & Nagel, 2002). This theory is utilized in behaviour modification, which operates on the premise that by manipulating aspects of the environment, behaviour can be modified or altered. This environment comprises both physical and social components. Skinner also put forward the argument that almost all behaviour is acquired through experience. Consequently certain behaviours can be increased or decreased as a function of what follows the behaviour. Positive reinforcement is commonly used in ECE to shape children's behaviour and learning.

Lev Semanovich Vygotsky (1896-1934) – Vygotsky formulated the Sociohistoric theory of child development. An essential part of this theory is the higher emphasis it places on the role of the culture and history within which a child is socialized and grows (Morrison, 2007). Vygotsky argued that through social interaction such as dialogue between children and adults, customs, beliefs and cultural values are handed down to younger generations. Cognitive development and ability to engage in complex thinking by children also develop through social interaction. Preschool pupils can learn many skills and tasks through guided assistance to go beyond the zone of proximal development. Vygotsky used zone of proximal development to refer to the level at which a child will find a task too difficult to accomplish on their own, but with support and assistance from an adult or older peer can complete it. This is relevant in ECE settings where the pupils are always trying one task afer another, the tasks usually having differing levels of difficulty.

2.3 – ECE curriculum models in Kenya

The influential scholars and theorist in ECE have influenced the development of various curriculum models. Different approaches or curriculum models have been derived from the theories and ideas of these individuals or from a combination of ideas from several of them. These curriculum models are to be found all over the world in different education jurisdictions. Kenya has a national curriculum for ECE developed by the National Centre for Early Childhood Education (NACECE). NACECE is the section of the Kenya Institute of Curriculum Development (KICD) that deals with ECE. KICD is a semiautonomous government agency that falls under the Ministry of Education, Science and Technology (MoEST), and has the responsibility of developing curricular for all levels of education below university. The MoEST took charge of ECE sector through the Presidential Circular Number 1 of 1980.

To cater for all categories and ages of children attending ECE centres in Kenya, the syllabus is divided into three levels: (i) Level I – baby care (3 years and below); (ii) Level II – pre-primary 1 (4 years); (iii) Level III – pre-primary 2 (5 years). The Government of Kenya's ECD Service

Standards Guidelines (2006) identifies early childhood as extending from birth to eight years, and gives the grouping of children in ECD services as in Table 1.

Table 1: Grouping of children in ECD services in Kenya

Age (years)	½ - 2	3	4	5	6	7	8
Group	Play group	Baby class	Pre-primary I	Pre-primary II	Standard I	Standard II	Standard III

In Kenya today, four distinct curriculum models are discernible and widely used across the country. These are: (i) KICD/NACECE (ii) Montessori (iii) Islamic Integrated Education Programme (iv) Kindergarten Headteachers Association.

KICD/NACECE curriculum – This was developed by NACECE and is the most widely used approach. It targets children aged 0-6 years. It is designed to ensure the children move through the developmental milestones in all aspects of life successfully. This curriculum borrows from the theories and ideas of the pioneers in ECE. The main NACECE curriculum activity areas are: (i)Language activities (ii)Outdoor activities (iii)Math activities (iv)Creative activities (v)Social activities (vi)Music and movement (vii)Science activities (viii)Religious activities (ix)Life activities.

Montessori curriculum – Montessori curriculum integrates separate disciplines into one approach that comprises studies of human experience, physical universe, and the world of nature. The pupil works and learns at his or her own pace through matching of the right materials to a child's stage of development. This model is founded on the teachings of Maria Montessori.

Islamic Integrated Education Programme – The Koranic school, also known as madrassa, prepares the Muslim child to know and practice Islam a way of life. In Kenya children are enrolled in Koranic schools from age 4. The children mainly learn through memorization and practice. They recite the Koran, learn and practice to live as Muslims. They also learn basic literacy in Arabic, Kiswahili and English. In 1986, the Muslim community in collaboration with

government and development agencies, mainly the Aga Khan Foundation, started a project that incorporates secular aspects of the broader national ECE curriculum into these Koranic schools. This programme became known as the Islamic Integrated Education Programme (IIEP). It targets the Muslim child aged 0-6 years, and its main is to ensure that the Kenyan Muslim child is properly grounded in the Islamic faith and is also prepared for mainstream formal education.

Kindergarten Headteachers Association – This curriculum model was initiated by a group of headteachers in Nairobi. It offers an alternative ECE curriculum whose ideas enrich the official ECE curriculum. This model stresses the importance of play for children and learning through play. Learning through play can directly be traced to Froebel's Kindergarten movement. In this curriculum, English is the medium of instruction. Kindergarten Headteachers Association (KHA) also offers post-secondary school early childhood teacher education. It draws its principles mainly from Froebel, and also those after him such as Montessori.

Today various terminologies are used to refer to preschools settings in which ECE takes place in Kenya. They include: ECD centre, a fairly new terminology used for any institution catering for children before they start primary school; Nursery school, commonly used in rural areas or low-income residential areas; Day care centre, used in rural or urban areas; Kindergarten, normally found in urban areas; Play group, predominantly used in urban areas; and, Home-based care centre, usually ran in residential quarters.

2.4 – Policy framework for ECE in Kenya

In 1980, the Presidential Circular Number 1 of 1980 was issued. This document effectively vested the responsibility for management and regulation of preschools in the MoEST. The MoEST took charge of this responsibility and in 2007 it launched the National Early Childhood Development Policy Framework (2006) and the Early Childhood Development Service Standard Guidelines for Kenya (2006). The Kenya government was a signatory to the 1989 UN Convention on the Rights of the Child, the 1990 African Charter on the Rights and Welfare of the Child and the Millennium Development Goals of 2000. The government had also been a participant at the 1990 Jomtien Education For All (EFA) summit as well as the 2000 Dakar World Education Forum, which emphasized the important role played by ECE in enhancing the

holistic development of children. The government has also put in place poverty eradication strategies and other measures to improve the living standards of Kenyans.

The National ECD Policy Framework (2006) and the ECD Service Standard Guidelines for Kenya (2006) highlight the principles of ECE policy, identify the target groups, roles of the different partners in provision of ECD services, and the implementation structure. These two documents aim to ensure that ECD services for children are equitably accessible, of high quality, relevant and affordable. They place controls on the provision of ECE services, ensure maintenance of high quality standards, and coordinate and harmonize quality of services as well as maximizing resource utilization across sectors. The documents provide guidelines on all aspects of quality including size of the classroom, minimum acreage for ECDE centres, furniture and furnishing, play and learning equipment, sanitation, outdoor play space, teacher-child ratio, and curriculum and pedagogy. According to the Service Standards Guidelines (2006), every child in pre-primary I and II shall be integrated into the basic education by the year 2010. Additionally, every primary school, both public and private, shall establish a reception class for children aged 4-5 years, while every child aged 4-5 shall have access to and attend a reception class in primary school by 2010.

This provision has effectively made attendance at preschool a requirement for admission to primary class 1. The Service Standards Guidelines, however, states that all children shall be eligible for admission to standard 1 after their sixth birthday, or if their birthday falls within the first term (January-March). The document also outlaws interviews for purpose of joining standard 1, and states that a KIE Primary School Readiness Assessment tool shall be used for transition to standard 1. In practice, however, primary schools routinely administer achievement tests for purposes of admission to standard 1, especially where the number of those seeking admission is higher than the number of places available, while also giving preference to those from the reception class.

The MoEST is the government authority responsible for ECE activities in Kenya. Within the MoEST there are three arms that are responsible for different aspects of ECE at the national

level. These are: 1) ECE Unit of the Directorate of Basic Education, responsible for registration of preschools, policy guidelines, funding and donor matters, coordination of data collection, and providing of trainers; 2) ECE Unit of the Division of Directorate of Quality Assurance and Standard, which is charged with the responsibility of carrying out inspection of preschools and ECE teacher training institutions, administration of preschool teacher training examinations, and issuing teacher certificates; 3) NACECE based at KICD, responsible for development of preschool curriculum and materials, training of professional support to devolved centres for ECE, coordination of research, monitoring and evaluation.

As can be seen from their roles, each of the three organs has an aspect or several aspects to do with quality of ECE programmes ingrained in their defined responsibilities. From experience and evidence on the ground, government departments in charge of maintenance of standards, especially in the MoEST, have not always discharged their responsibilities as well as they should.

2.5 – Development of ECE in Kenya

Ancient societies such as the ancient Egyptians, Greeks and Romans all had elaborate conceptions of childhood. These conceptions have however undergone with time as the prevailing ideas about childhood kept changing in the history of the societies. Plato and Aristotle both advocated on the importance of educating young children. In ancient Greek society male children from well-off families were enrolled in school at age 6-7 years, while in ancient Roman society young children began their education as soon as they could speak.

From the sixth to the fifteenth century many societies treated children like as miniature adults. This is reflected in the manner in which the children were dressed. They were dressed much like small adults. Around the seventeenth century the teachings of the English philosopher, John Locke, became widely accepted. Locke proposed the tabula rasa view of the child. This was the belief that a child is born as a clean slate ready to be shaped through experiences. Around the

eighteenth century the industrial revolution was taking place across both Europe and America. A period of rushed childhood was taking place. This was marked by children being forced to grow up in order to be of economic benefit to their family by providing labour. Cases of children being abused and exploited in factories became widespread. The twentieth century was marked by a variety of activities in the formation of ECE. Chief among them, education for all children became increasingly accepted. This acceptance strengthened the idea that childhood is a separate and important period.

In traditional African society high value was placed on children. The children in turn performed important roles in the life of the family and the community. They were a source of joy and were welcomed with pride. Their arrival gave legal status to the marriage, while also bestowing respect, recognition and new status to the parents. The responsibility of socializing and caring for children was chiefly the parents' but was shared with the extended family as well as the larger community.

Organised and formal ECE in Kenya emerged in the 1940s. To begin with it targeted children of the European settlers in Kenyan Colony. It took the form of preschools that were modeled on the lines of those in Britain. These preschools offered basic academic and subject knowledge together with religious education. They were mainly to be found in urban areas, and were variously referred to as infant school, kindergarten or nursery school, depending on the philosophy of the founder. The content offered and the methods used varied according to the influence of popular educators. A major role of these preschools was to prepare children for formal schooling. In other words the preschools were to make the children ready for primary schooling. Missionaries established and ran preschools for African children with the aim of teaching them how to read and write. They would later offer teachings in Christianity, enabling them to read the Bible. The missionaries recognized that African children could be educated as well as the children of the White settlers. All they needed was proper instruction and experiences. Colonial government officials, however, considered sufficient a basic education meant to prepare Africans as labourers.

The first preschools for African children in Kenya were begun in the plantations and urban areas in the 1940s. They mainly provided custodial care, feeding and medical care. During the turbulent emergency period in Central Kenya between 1953 and 1960, many centres were established by the colonial government to provide custodial care to children when their parents were engaged in forced labour. Sometimes children were given food and medical care in these centres.

After independence in 1963, rapid growth in preschools occurred, stimulated by the spirit of harambee or self help that was championed by the founding president. Communities came together and initiated development projects, including preschools. Since then, there has been massive expansion in the number of preschools, pupil enrolment as well as the number of teachers as the importance of ECE becomes widely recognized and acknowledged. There has also been a huge increase in the number of agents sponsoring preschools (Eshiwani, 1993). By December 1986, Kenya had 12,192 ECE centres with a pupil enrolment of 657,688 (Eshiwani, 1993). According to Eshiwani (1993) this enrolment represented a quarter of all children aged 3-6 years. This meant that by 1986 only one in four Kenyan children in the preschool age was attending school. The National Early Childhood Development Policy framework (2006) of the Government of Kenya notes that since 1990, about 35% of children aged 3.0 to 5.11 (just under 6 years) have been accessing ECDE services in Kenya. In this, the policy framework, which quotes the statistics from the Global Monitoring Education for All Report (2002), indicates that Kenya is fourth in the African continent. Mauritius, Namibia and Ghana are the only African nations said to have a higher proportion of children receiving ECDE services. According to Eshiwani (1993) Nairobi alone had 190 ECE centres with 8,800 pupils by December 1986 which, according to the *2009 Kenya Population and Housing Census Report,* had risen to 155,936 pupils in 561 pre-primary centres. By 2015 Nairobi had about 1135 ECE centres.

2.6 – Primary school readiness

The way children learn and develop has been a point of great and often divisive debate between philosophers, psychologists, scientists and educators for a long time. Development refers to how

a child grows, matures and functions. It can be broken into different strands or dimensions such as language and cognitive development, emotional and social development, and cultural and spiritual development. These strands come together to complete the view of child development. The development of children generally follows the same stage and sequence but at varying rates. In the past age has been the consideration most commonly used in determining entrance to preschool and primary school. Educationists of note such as Rousseau recommended late school entry, with some suggesting as late as the tenth year. Other educationists favoured the earliest possible start to schooling (Seyfried, 1969). Erasmus and Locke, among others, for instance, argued that formal schooling should start in the child's third or fourth year. Comenius, Pestalozzi and many others represented a middle position. While the level of development of each child should be taken into account, this middle-position group regarded the age of 6 or 7 as generally suitable for school entry. In Kenya, age as well as the level of physical development has been used to determine primary school entry in the past.

However, as noted by Crosser (2005), there is no clear evidence that one entrance age is better than another. In fact, relying solely on age to decide whether a child is ready for school or not, can lead to negative results. Research has indicated that schooling exerts more influence on children's development than age (Bentin, Hammer & Cahan, 1991). Bentin, Hammer and Cahan (1991) found that the independent influence of schooling was four times greater than that of age on performance at kindergarten. Bickel, Zigmond and Strahorn (1991), in a similar study, indicated that any academic advantage conferred by age at class one entry was lost within a few years. In addition, the pace at which children acquire concepts and learn varies, and merely attending preschool does not necessarily mean a particular child is ready for school. Research findings also point out the importance of early years and the necessity of meeting the intellectual, physical, emotional and social needs of young children. Preschool may thus be regarded as a laboratory where learning and human relationships are developed (Read, Gardner & Mahler, 1993).

The issue of school readiness has for long been a concern to educators, though its systematic study has had a much shorter history (Seyfried, 1969). School readiness implies that stage of a child's intellectual, emotional, social, and physical development when the child is able to take part successfully in class instruction within the education system without overtaxing himself or herself. It is that state of early development or preparedness that enables an individual child to participate fully in and reap maximum benefits from class one learning experiences. School readiness is a term frequently used in preschool and kindergarten settings. School readiness is also used with children who are joining kindergarten, especially in the US. As such, this study uses primary school readiness to denote that the readiness is in respect to entering primary school at class one. Primary school readiness is conceptualized on the assumption that all children need to possess a predetermined set of skills and abilities before they enter formal school. Readiness for school can also be distinguished with readiness to learn. According to Janus (2007), children are capable of learning at all ages, even before birth, according to some opinions. Readiness for school, on the other hand, narrows down and focuses on ability of a child to cope with the demands of classroom and school tasks. These tasks include playing and working cooperatively with peers; being able to comfortably explore the environment and ask questions; ability to hold a pencil and run on the playground; having the ability to listen selectively to a teacher; and following and remembering rules. Pupils who possess these and other related skills and abilities are in a position to benefit from educational activities and experiences provided in school. Janus (2007) also adds that school readiness is an important measure of children's outcomes in their early years. Kagan (1999, in Crosser, 2005) also distinguishes between the two concepts of readiness: readiness to learn and readiness for school. Research in child development demonstrates that human beings are capable of learning even prior to being born. Given normal intelligence, it cannot, therefore be argued that children need to reach a certain state of readiness before they can learn. On the other hand, readiness for school implies that there is some set of knowledge, abilities and skills that a child needs to possess in order to be successful in school.

Different definitions and conceptions of school readiness are available. Roumeliotis (2011) conceives school readiness to mean that state when a pupil is equipped to become a member of a new education and social setting. Put another way, the pupil is ready to begin the process of

learning how to do things independently. To do this a child should have the ability to attend or listen to what someone else is saying; work independently; participate in organized activities such as play and story-telling; possess the necessary social skills to allow him or her learn in a cooperative learning environment where children learn from teachers and from one another; and, wait for their turn in line. The Web defines school readiness as the state of development that equips an individual child with the requisite skills to participate in and benefit from class one learning activities and experiences (www.researchconnections.org/childcare/childcare-glossary). The US Department of Health and Human Services Head Start Program defines school readiness as the state of pupils possessing the skills, knowledge, and attitudes necessary for success in school, for later learning and life. The state of Virginia Department of Education in the US conceptualizes school readiness as the capabilities possessed by pupils, their families, schools and communities that enhance the pupil's success in kindergarten and beyond. Each element – pupils, families, school and communities – has a critical role to play in developing school readiness. This study conceptualizes school readiness as a variable or outcome that is influenced by factors in the child, families, preschool and the larger community. This conceptualization closely resembles the definition of school readiness offered by the Virginia Department of Education.

The First 5 California Commission states that school readiness is about making sure that all young children enrol in school when they are emotionally and physically healthy and ready to succeed. It is also ensuring that those who provide early care and education, such as preschools, child care centres and family child care providers, are equipped to assist young children succeed as they enter elementary school. Preschool should basically comprise of play in a structured setting. Here, activities and experiences undertaken lead to acquisition of skills that enable children to get along with others and allows them to experiment with new material while under the supervision of qualified preschool teachers. Pupils attending preschool also have a chance to improve their language and talking skills, and play and experiment with paper, soil, sand and clay. These activities and experiences basically facilitate in preparing children for the process of learning. The children are also prepared in the psychological processes of learning. These processes include a good knowledge of the alphabet, an awareness of the concept of reading,

memory, organizational skills, social interactions, and experimentation of new, more advanced paper and pencil tasks. Tasks like holding and manipulating pencil depends on the child's perceptual-motor development.

School readiness is a very critical issue that according to UNICEF, achieving school readiness also helps in the attainment of MDGs two and three: Realizing universal primary education, and empowerment of women as well as promotion of gender equity (UNICEF, 2011). According to UNESCO, preparedness for formal schooling is an important outcome of ECE (UNESCO, 2007). In this study school readiness is used to assess the overall outcome of ECE, in agreement with UNESCO's position.

The concept of school readiness is a fairly new area of interest for researchers, educators and policy makers, at least in comparison to most areas in the field of education. In the US, for instance, where a lot of research on the subject has been done, school readiness became a national goal in 1991. This was after the National Education Goals Panel (NEGP), established by the president, designated as its first goal that by the year 2000 all children in America will enrol at school ready to learn. NEGP was established in 1990 by the US president with the mandate of establishing and reporting the progress the country had made with regard to attaining six goals of education by the year 2000 (Landry & Cooper, 2014). This panel was the first formal attempt to define the many components of school readiness. The panel observed that school readiness in the child is determined by a set of developmental trajectories that are interdependent. These trajectories of development include motor and physical development, social and emotional development, learning approaches, language development, and general knowledge and cognition, which incorporates number concepts, sound-letter association, and spatial relations, among others. With time these dimensions have been increased to incorporate new competencies by the child such as self-regulation. The capability of the systems in which the children live and develop, such as school, family and community, to facilitate the gaining of these competencies have also been incorporated into the conceptualization of school readiness.

Education and development literature commonly discusses four main views of school readiness (Meisels, 1999). These are: One, the idealist or nativist view, which postulates that children are school-ready when they mature to the level of having self-control, good peer relations and the ability to follow directions. This view in addition holds that the process of getting ready for school is determined from within the child. Two, the empiricist or environmentalist view. This view posits that school readiness is influenced by what is known to the children and how they behave. Three, the social constructivist model, which looks at school readiness in terms of social and cultural issues. This model therefore places more focus on the roles played by the community and its values and expectations rather than on the child. Fourth is the interactional rational model. This model's focus is the child and the environment in which the child grows, and also the ongoing interaction between the two. One key theme of this model is its argument that success in learning is dependent on the mutual relationship between the school and the child, particularly on the mentorship provided by the teacher (Meisels, 1999). This model is most consistent with this study, whose main focus is the child, the environment and the interaction between them in line with Bronfenbrenner's (1979) theoretical model of human development. Bronfenbrenner's theory of human development is the main theoretical view underpinning this study.

Researchers and scholars in education have, in the last couple of decades, identified the different domains of school readiness. Three of the most commonly cited domains are cognitive, socioemotional, and physical development (Janus, 2007). A key finding in child development is that there occurs large normal variability both among children of the same chronological age and within an individual child. Social skills, cognitive skills, physical skills, and emotional skills of children are all important areas of development, and each contributes to how well children learn and do in school. Development and growth in these domains occur in all children regardless of their birth place or ethnic origin. The domains of school readiness considered in this study are cognitive development; language development; social development; emotional development; physical and motor development; adaptive domain; and approaches to learning domain.

2.6.1 – Cognitive development domain of school readiness

Cognitive development is one of the domains of school readiness. At age 5 to 8 years children are beginning to make the transition to what is called middle childhood. This phase of a child's life is characterized by massive cognitive growth that gives the child capacity for complex mental tasks (Santrock, 2011). Children grow in mind, that is, in what they know and how they think about it. This intellectual growth from infancy to adulthood is generally called cognitive development. Development of basic memory process is one of the first changes in this age. This entails the routine acts of storage and retrieval of information. The child's capacity to remember has increased enormously by this age. Children accumulate knowledge, that is, they process information and store it in memory, both recalled and constructed. At this age children are able to use sophisticated memory strategies known as mnemonics, which include rehearsal, and deliberately repeating over and over. One other significant achievement at this age is children's increasing ability to understand the views or perspectives of others. With this ability to see a situation from two perspectives comes the ability to focus on several aspects of a problem at the same time. This leads to better and complex problem-solving strategies. This is also important in conflict resolution besides being necessary for the child to do be able to empathize.

Another important milestone at this age group is concept acquisition. Concept acquisition means that children are moving beyond memorization to understanding. Classification, the ability to group objects by common attributes, is another milestone in this age group. The children begin this ability by using one attribute, such as colour or size, to classify objects and then extend the ability to classify using more than one attribute. Concept acquisition becomes important in acquisition of academic knowledge and skills. By the time the child is 5 years old, their brain has grown to about 90% of its adult size. Increasing brain maturation contributes to improved cognitive abilities.

2.6.2 – Language development domain of school readiness

Language development is the second domain of school readiness. Language acquisition and development is at the centre of all learning. The development of language in children aged 4 and 5 years is phenomenal. Their vocabulary (upwards of 2000 words) and concept acquisition have become grown extensively (Santrock, 2008). They continue to get better with regard to following directions. They show great curiosity about reading and many of the pre-reading skills are forming. For instance, they recognize that a group of letters represents a word. They can retell a story they have heard. A fascinating development observed in children in this age group is their ability to play out scripts. At this age children have become familiar with scenes and accompanying dialogue of everyday activities, such as grocery shopping, going to see a doctor, and doing laundry. The children can be heard playing these roles with adult dialogue. Their language development becomes evident in these scenes.

Another aspect of language development at this period is the development of humour. Children of preschool age enjoy jokes and riddles. They create jokes of their own and laugh hilariously at them. According to Vygotsky's theory, relations between mental functions in a child constitute their cognitive or mental structures. Thought and language at this stage are intricately linked and related. Thought and language begin by developing independently but they later on merge. This merging of thought and language is guided by two principles. The first principle is that all mental functions have external or social origins. Before they can focus inward to their own mental processes, children must first use language and communicate with others. The second principle is that children need to use language and communicate externally for some time before they transition from external to internal speech or self-talk. This transition occurs around the age 3 to 7 years of age. With time this self-talk occurs naturally to children such that they can act without needing to verbalize. By this time, the children have internalized their egocentric speech in the form of inner speech. Their inner speech has now become their thoughts. Vygotsky believed that extensive use of private speech by children enhances their social competence. Young children guide themselves and regulate their behaviour through talking to themselves.

2.6.3 – Social development domain of school readiness

Social development is another domain of school readiness. Humans don't just grow bigger and smarter; they also grow and develop in their relations with other people. This includes learning to behave in socially acceptable ways. They learn to perceive the nuances in another's behaviour and to communicate their own needs and wishes. They learn to be good friends to allies and to deal warmly with adversaries. Learning to do all these is called social development. Our social horizons expand on the human journey from birth to old age. In the first weeks of life our social world is limited to just one person, usually the mother. But in time, this social sphere enlarges to include both parents, then the rest of the family, then young peers in the neighbourhood, nursery and school.

Infants start showing interest in other children at a very early age. The social skills children nned to play with other children, however, build up gradually. Parallel play shows up between 1½ and 2. The children will next to each other, doing the same activities, but with minimal interaction. By age 2 imitation becomes more visible. If one child throws a toy into the air, the other might respond by doing the same; then they both giggle. These brief, nonverbal games of 'follow the leader' set the stage for more complex interactions, which begin at around 2½. Here children use language to communicate with their playmates, and they begin to use imagination in their play. By age 3 or 3½ they start to engage in cooperative games involving group imagination. While the school environment encourages independence and self-sufficiency, at the same time it demands cooperation with others and participation in structured group activities. The importance of getting along well with one's classmates shows up clearly when psychologists study unpopularity and its effects. Studies show that children who are unpopular stand higher chances of engaging in crime, dropping out of school, and displaying evidence of mental illness later in life. This is especially true with children who are unpopular due to their aggressive behaviour (French, 1988). Children who are rejected by peers lack the normal opportunities to practice their social skills, making efforts to teach them social skills to be only partially successful. Children who face constant frustration may lower their expectations or even give up altogether. In many respects, then, school is the first encounter between a child and the social system outside the

family. Success or failure in the early years of schooling can exert a lifelong influence on self-image (Morris, 1993).

Alongside the overt changes are many adjustments that are not immediately visible but are crucial nonetheless. When children join preschool their social lives and circles expand dramatically. They are separated from siblings and parents for much of the day; they enter a world filled with unfamiliar adults and peers. The impact of school is felt immediately. No matter what kind of school a child attends, there are new codes of behaviour that are different from those at home. They must learn the right way to ask and answer questions, and they must learn to do many things by themselves.

The age period of 5 to 8 years is also a time for advances in self-understanding. Children compare themselves with peers and are able to make an assessment of their own personal abilities. They can also view themselves in a social setting, that is, as a member of a group. Development of gender roles in children is also ongoing. Significant adults in their lives and parents exert a big influence on development of these gender roles. Books, songs, and the media also influence children's development of gender roles. Children in this age group begin to play, interact with, and prefer same-sex friends, but demonstrate the beginnings of attraction to the opposite sex. Peer relationships become increasingly important and begin to rival those with the family. Peers become important, and children learn cooperation from other children, as well as learning about relationships, friendships, and how to work and play in groups. Social groups are already forming at age 5 and become more stable by age 6. Social development in children can be inferred from new evidence of forming relationships, ability to share, negotiate, and cooperate with others, as well as respect for others and developing cultural awareness.

2.6.4 – Emotional development domain of school readiness

Emotional development is the other domain of school readiness. Personality characteristics and dispositions are quite visible when children are working or playing with others. A lot can be

learnt about a child's emotional development by observing his or her social interactions. Emotions serve three main functions in children's development. These are: i) adaptation and survival; ii) regulation; and, iii) communication (Bretherton, 1986, in Santrock, 1994). Children aged 6 to 8 years are constantly travelling back and forth between the outside world and the smaller more personal one of the family. This period is consequently a time of emotional extremes. The child wants constant attention and affection from parents and other adults and will regularly display exaggerated dependence. At the same time, the same child craves independence from those adults.

The appearance of new fears and the disappearance of old ones in children go hand in hand with changes in cognitive development. As children begin to understand things, some fears are released. With new information and understanding however, come new fears. Children here may not express fears loudly or with intense emotion like younger children, but they will exhibit fear responses. These responses are characterized by anxiety, discomfort, and repression of the fear. This is also a time of stability of self-concept. Self-concept is greatly influenced by what children believe others think about them. It should be noted that peers at this age are very important. Children are self-critical and they often compare themselves with others. Therefore children need to be assisted to accept their own feelings and to realize that their feelings have an effect on their relationships. Appropriate and healthy interactions with adults provide children with support for emotional development. During this time children often engage in organized games and sports. These activities can have a significant influence on the children's emotional development, especially self-worth. Emotional development can be inferred by the ways in which the child responds to the feelings of others and also how they express their own feelings. Evidence of growing mastery of their own behaviour also indicates emotional growth in children.

Social and emotional well-being of children significantly affects their development. Their development and learning is influenced by their emotional state in significant ways (Pascal & Bertram, 1997, in Bruce, 2010). Their emotional state profoundly affects how they explore and try to make sense of their world. Children with poor emotional well-being are likely to display fear, timidity, and rigidity when confronted with new experiences. This inhibits their ability to engage in exploration, a route through which learning about the world occurs. Such children

have been shown to become hesitant, withdrawn and very clingy in a way that inhibits their ability to explore. On the other hand children who possess secure attachments and are confident normally play and become adventurous, enjoying taking risks and having flexibility that new experiences require. Laevers (1994, in Bruce, 2010) has also shown that children with strong well-being are able to engage with others at deeper levels of involvement and immersion in their explorations of the world. A child who lacks social skills and is timid and insecure will miss the joy of experimentation, adventure and risk-taking and the attendant benefits that derive from them. It is now known that there exists a strong relationship between cognitive and emotional developments (Bruner, 1996, in Bruce, 2010). Loving relationships, close and warm relationships and emotional support to children improve their development in all areas. Disrupted relationships, inability to form strong attachments, and cold and distant care during the first few months of life have been linked to long-term developmental delays in children (Bruce, 2010). If children are able to make relationships with others, they will benefit from all the learning opportunities available during interactions with other individuals. They will also be more confident and show more secure attachments to others, which in turn enable them to enhance their learning.

2.6.5 – Physical and motor development domain of school readiness

Physical well-being and motor development have a direct impact on acquisition of knowledge, skills and attitudes. Children aged about 5 to 8 years advance in motor skills partly because of development and partly because they have many opportunities to use those abilities in games and sports. During the early childhood years gross motor skills develop at a very fast pace (Driscoll & Nagel, 2002). As their gross motor skills get better, children's sense of adventure increases greatly. Young children's lives are extremely active, more active than at any other point in the life cycle. Rough-and-tumble play often occurs, especially in boys, and it can serve positive educational and developmental functions. Preschool teachers must provide young children with activities that are appropriate for their age and abilities so as to increase their gross motor skills. Such activities include fundamental movement, daily fitness, and perceptual-motor opportunities. Many children of this age are physically ready and very enthusiastic, and they develop coordination and complex motor skills. In terms of small motor development, dexterity has

increased and eye-hand coordination is better. Small motor skills also improve substantially during early childhood. Small motor skills greatly influence school success. Availing a variety of tools for drawing and writing will increase children's interest in tasks that refine small motor skills. Children also need a balance of guided and unguided writing and drawing activities. This aspect of development exhibits enormous variation among a group of children who are exactly the same age.

Another aspect of physical and motor development is the perceptual-motor development. Perceptual-motor movements are a combination of what the child sees or perceives through the senses and the body movements that respond to those perceptions. Perceptual-motor abilities are well developed in this age, and the level of refinement is dependent on the experiential opportunities available to the children. Children of this age develop spatial and directional awareness as they participate in games and sports. Children, even beyond preschool, should be provided with opportunities for physical development and motor abilities. As cited by Driscoll and Nagel (2002), a study by Black and Pucket (1996) indicates that educators will confirm the relationship between school success and physical development and motor abilities.

2.6.6 – Adaptive domain of school readiness

Adaptive domain is the second last domain of school readiness. Development in this domain enables the child to fit in their immediate environment and to adapt to changing circumstances. Children are expected to use self-control and to follow orderly procedures, such as raising their hands before speaking and asking for permission to visit the toilet. They must learn to control their anger and their tears and to follow basic rules of social behaviour. These skills become crucial in interpersonal interactions. Children are also expected to have some awareness of potentially dangerous circumstances. If children have the ability to regulate their own behaviour, care for themselves, communicate effectively and interact well with others, they will have set themselves on a path of success in terms of their learning.

2.6.7 – Approaches to learning domain of school readiness

Approaches to learning domain is the last of the domains of school readiness. Development in this domain influences the child's learning style. According to Bruce (2010), the attitudes, dispositions and feelings a child has towards tasks and people influences the way the child deals with the unknown. This in turn affects the child's exploratory drive and their curiosity. Curiosity and exploration are good attributes when it comes to learning and acquisition of skills in children. A good sense of curiosity and exploration will therefore benefit a child in an early learning setting.

In conclusion, all the domains of school readiness – language, cognitive, social, emotional, physical, adaptive and approaches to learning – are connected or interrelated. When, for instance, a 5-year-old develops new motor skills, it may result in changes in his social development. Driscoll and Nagel (2002) cite a study by Bredekamp and Copple (1997) which shows that especially in the early school years, different domains of development exert mutual influence on each other. Consequently a good quality ECE programme should help the child grow and develop holistically. For this reason the Primary School Readiness Test incorporates items from all these domains.

2.7 – Quality in early childhood education

The term quality has many interpretations and is used differently by across the society. It therefore has many definitions. As a concept quality is fairly difficult for most people to comprehend. Its use is consequently littered with lots of myth and confusion, as noted by Dale, Wiele and Iwaarden (2007). Linguistically, the word quality has its origin in the Latin word *qualis* which means "such as the thing really is". Quality of a process or object is a determination of the degree of worthiness and excellence, or goodness, of the process or object. Quality therefore connotes examining the process or object, and determining the degree of worthiness as judged against a given criterion. A standard definition of quality first used by Dr Juran is that quality is fitness for purpose or use (Dale et al., 2007).

Another widely used international definition of quality is that it is the extent to which certain characteristics possessed by a process or object fulfills requirements. An organization known as the American Society for Quality offers its own definition of quality. This society defines quality as a subjective term for which every individual has his or her own definition. When used in a technical sense the term quality can carry two meanings: (i) One is that it is the characteristics possessed by a service or product and which influence its ability to satisfy stated or implied requirements. (ii) The second is that quality is a service or product that has no deficiencies. Dr Deming, a renowned authority on the subject of quality, defines quality as systems that have no fault. Non-faulty systems, in Deming's view, are systems that have the capacity to provide the consumer with a service or product according to specifications because they are free from error. Philip Crosby in his text, *Quality is free*, states that quality is the property of conforming to requirements and nonquality is lack of conforming (Summers, 2010).

A fundamental confusion in the use of the word quality often arises. This happens whenever quality is used as an adjective rather than as a noun, which etymologically it is. The adjectival use of quality, however, is increasingly common, especially in policy and marketing circles. Here we come across something being sold, such as quality healthcare or quality dining room furniture. When applied to a process like education as a noun, the term quality can imply a characteristic, property or attribute. In this sense the term is value-neutral. When applied to a process like education, it could also connote a degree of excellence, like in high or indeed low quality (Alexander, 2008). This study uses quality in its original etymological derivative, that is as a noun. When used as an adjective, quality poses problems in that it proposes indicators of the standard to be desired without pausing to consider the attributes, or qualities, which characterize all education, let alone quality education. The confusion that arises is therefore one between the descriptive and prescriptive senses of quality. Descriptive (as a noun) considers the basic attributes while prescriptive (as an adjective) considers indicators of qualitative excellence.

In assessing the quality of an early childhood education setting, various parameters can be used. The setting is a complex unit with different aspects contributing to overall quality. Different scholars and experts therefore categorize the many ingredients of quality into few broad

categories. Some of these categorizations encompass the physical environment, relationships and interactions, and teacher variables. Others comprise contextual variables which include features found outside the classroom but which have an influence on classroom and child experience, such as parental involvement, teacher-teacher interaction and ECE centre administration. Santrock (2008) reports on a comprehensive, longitudinal study by the National Institute of Child Health and Human Development (NICHHD) of the United States which began in 1991. One of the findings of that seven-year-long study was that quality of early learning centres can be assessed using a variety of measures. Some of the measures of quality unearthed by the NICHHD study were physical environment, group size, child-adult ratio, and care-giver characteristics and behavior. In an online article, a guide to assessment in early childhood, three specific types of programme evaluation measures described by Shepard, Kagan and Wurtz (1998) are given as: a) Physical characteristics of child, family and services; b) Social indicators, which is an indirect measure that describes characteristics of communities, families and service that are known to be related to early development and learning; c) Direct assessment of learning and behaviour outcomes.

Read, Gardner and Mahler (1993) noted that universal themes are discernible in all quality settings. They include opportunities for children to play with others; manipulate materials and objects; discover what works; make mistakes; and, imagine and create. Read, Gardner and Mahler (1993) went further to identify specific characteristics of quality programmes for young children as physical environment of the centre, which includes buildings, equipment, and materials, number of children in a group, which should be small, good qualification of teachers and opportunities for their professional growth, good content and organization of space, and good use of time and schedule.

Galinsky (1988) in Galinsky (1991) notes that one of the most important ingredients of quality is the nature of the relationship between the teacher and the pupil. Another aspect of ECE programme quality according to Galinsky (1988) is the resources of childcare, which include adult-child ratio, group size, health and safety considerations, and professional preparation of

teachers. A third aspect of programme quality is the relationship with parents. Essa (1999), who also carried out a review of several studies on quality in early childhood programmes, cites Clarke-Stewart (1987) and notes that it appears that quality in early learning settings cannot be tied to single factors that can be easily isolated. Instead, quality depends on the presence of multiple components as well as on their interaction. The elements of quality mentioned by Essa (1999) are include the number of pupils in class and the pupil-teacher ratio; teacher-pupil interaction; grouping of mixed ages; programme's developmental appropriateness; staff qualifications; physical environment; staff consistency; respect and concern for staff; family involvement; and, quality as a combination of factors.

In a study on how learning environment affects children's cognitive development, Mwaura (2009) examined quality from dimensions of process, structure, and contextual variables. Wambua (2010) in a study on challenges faced in the provision of quality ECE in Kitui District, categorized the challenges into school-based and home-based. Moige (2012) in a study on the assessment of parents' level of satisfaction with quality of preschool education in Langata, Nairobi, categorized variables of quality into six groups namely: Type of school management/sponsorship; type of curriculum; availability of physical facilities; teaching-learning materials; availability of qualified teachers; and teacher-child ratio.

This study assessed the quality of ECE using three parameters, namely physical and social environment, teacher-pupil interaction, and parental involvement.

2.7.1 – Physical and social environment

Physical and social environment is the first of the three measures of quality used in this study. Many young children, particularly those aged 3-6 years, spend a large chunk of their waking hours in an early childhood programme. This time is shared between a room or the indoors and an outdoor area within a confined compound. In ECE, teaching and learning are not restricted to academic matters; the learning and teaching process is always at work. Learning is always taking place and is influenced greatly by the environmental set up. A chaotic and disorderly

environment, for instance, will result in learning that is markedly different from the learning derived from an orderly and calm environment. The physical and social environment has several indicators which include the following:

Space and Furnishing – This is one of the indicators of physical and social environment in ECE settings. To a big extent, room size will determine the kind and amount of material that can be accommodated in the space as well as the number of pupils. Education authorities in many education jurisdictions prescribe minimum space requirements per child in early education centres. For instance, in the US where education is not centralized, each state sets the minimum space requirements per pupil in preschools under its jurisdiction. A body known as the Council of Educational Facility Planners International offers its advisory recommendations on space requirements. This body is however quick to add that certain critical factors such as geography, curriculum, and type of building ought to be taken into account when determining classroom size. An authoritative voice on ECE matters in the US, the NAEYC states 35 square-feet of indoor space per child as its minimum space recommendation (Read, Gardner & Mahler, 1993).

Locally, the ECD Service Standard Guidelines (2006) recommends a minimum acreage for ECDE centres of 0.125 acres in urban areas. In urban slums the minimum acreage can be less than 0.125 acres. The service guidelines also recommend a standard classroom size of 8 metres by 6 metres that should hold a maximum of 25 children. It also recommends provision of a chair and table for the teacher as well as a cupboard in every classroom. This is of course in addition to children-size tables and chairs which must also be suitable and appropriate for use by pupils with special needs. With indoor space or environment, there are two important considerations. The first one is its fixed features. These features include the shape and size of the room, position of the door and windows, and any built-in space for storage such as shelves. The second consideration is the movable or semi-fixed features in the room. These features include the arrangement of material and furnishings, room texture and colour. All these have a bearing on how well the space is utilized.

An important aspect associated with space is the teacher-pupil ratio. While it is acknowledged that there is no definitive answer to the question of what the appropriate teacher-child ratio should be (Essa, 1999), literature does provide some suggested guidelines. For instance, the NAEYC (1991) guidelines for caregiver to child ratio is one caregiver for every eight to ten children (1:8 to 1:10) for those of preschool age, and depending on the size of the group (Morrison, 2007). The ECD Service Guidelines propose a teacher-pupil ratio of one teacher for every 30 pupils (1:30) for the 5-6-year age group and a ratio of one teacher for every 25 pupils (1:25) for 4-5-year age group. In addition, the ECD Service Guidelines require provision of an assistant teacher for each group.

Children who spend their entire day at preschool or full-day care require privacy. A provision for this requirement should therefore be made. This should take the form of secluded areas where children can be alone if they so desire. These areas can incorporate soft spots such as pillows, beanbag chairs, or rugs which afford children the chance to snuggle and find comfort. Children's creative efforts and other works should be displayed on bulletin boards and other wall spaces. Their thinking and planning will be reflected in those displayed works. The outdoor space should also be arranged with care and thought, taking into consideration the need of children and their developmental levels. Playgrounds in ECE will more often than not be equipped with the traditional structures that include metal slides, swings and climbing structures. Other playgrounds will be equipped with more contemporary playscapes. Playscapes can be used for a variety of activities, and they combine a number of different materials like plastic and wood. Outdoor equipment should provide suitable play space for young children. The large structures should be designed in more complex ways since the functions they serve are more or less fixed. They can, for instance, have open spaces below even as they cater for a variety of motor skills. Other children could then use the open spaces beneath for dramatic play. Play equipment also ought to provide graduated challenges. Children of different ages and abilities will then find activities which permit taking of safe risks to engage in. Promotion of social interaction and cooperation as opposed to competition among children should be an important consideration when it comes to play equipment. Wider slides encourage that encourage more than one child to slide down together, for instance, can replace narrower ones. Cooperative swinging and pushing

by several children can be increased by having tire swings. At the same time, provision should be made for privacy if children want to be alone.

Another important quality consideration how safe the equipment for outdoor play is. Outdoor play equipment must be properly and safely fixed to the ground. It should be devoid of any splintered pieces and sharp edges that can cause injury. It should be in good usable condition, and where bolts and nuts are used, they should be tightly fixed. Outdoor play equipment should have no openings that have the capacity to trap any part of a child's body. A lightweight material should be used to make seats for swings. Ensuring that equipment is of a size that is suitable for the children enhances safety further. The surfacing material under swings and climbing structures must also be taken into consideration to cushion the children in case of a fall. A variety of interesting, versatile and safe equipment is available. With this equipment the pupils will safely engage in free and unobstructed gross motor activity during outdoor play.

Besides being essential for muscle development in children, active play can also lead to development of long-term healthy habits (Seefeldt, 1984, in Essa, 1999). Play and games have characteristics that are tied to developmental appropriateness and readiness. Play is free from constraints of space, time and rule. The rewards of play are inherent in the play rather than dependent on winning. Children's play involves activities such as running, climbing, crawling, and throwing. Games can be considered to be more structured play. Time limitations and rules, which characterize games, can be altered to meet the needs of the players involved. Outdoor play should not just be a time for children to expend excess energy while teachers take a break. Lovell and Harms (1985, in Essa, 1999) outline some of the development and educational objectives that well-planned outdoor activities in a well-designed, safe playground can meet. These objectives are: i) A number of gross motor tasks at varying levels of challenge can be accomplished with proper and appropriate equipment. Some these tasks are lifting, balancing, skipping, climbing and crawling. ii) Important social skills can be developed and encouraged using outdoor play. Equipment like swings made out of tires, and which permit more than one child to swing at a time, can be used to improve the said social skills which include sharing,

cooperating and planning together. iii) Equipment and play can assist children develop and acquire important concepts. An understanding of spatial relations like up and down, in and out, is an example of a concept that play can help develop. Another example of a concept that can be taught using play is temporal relationships such as first and second, fast and slow. iv) Problem-solving strategies that require both social and physical skills can be enhanced using play and play equipment. One of the numerous ways this can be achieved would be to have the children figure out how to share a popular item, while another would be to require them to determine how to move a heavy object. v) Language, cognitive, social, motor and creative development can all be enhanced using play. Movable components of play such as ladders, climbing boxes and planks permit children to design new and different possibilities, improving their learning. vi) Play allows exploration which results in improved competences. This in turn facilitates development of independence and positive self-image in children.

Personal care routine – The manner in which children arrive and leave the centre is an important consideration in scheduling. The children can arrive and leave at about the same time or over staggered periods of time. The arrival or departure of children makes carrying out teacher-led activities hard because the teacher and other children are frequently interrupted. The arriving or departing child will also miss out on the full benefits of the teacher-led activity. Self-selected activities, in which children can control engagement and disengagement, are more beneficial during such times. On the other hand, in programmes where all children arrive at the same time, the first activity could be a teacher-initiated group time to introduce the plan for the day. As children arrive in the morning, they should be greeted and received as individuals. This kind of reception makes a child feel valued and it improves the child's attitude toward school. In addition the child gets a chance to converse and hence improve their language skills. The teacher gets a chance to check on each child's health and emotional status.

Almost every ECE programme includes at least one snack, if not several meals. Sharing food provides a unique opportunity for learning and socialization. A snack that is nutritionally sound and culturally relevant should be provided. A good programme should give the children an opportunity to serve (and often prepare) the snack themselves. Lunch should be made a relaxing

time and meals served family style, with children and teachers eating together. The children should set their own tables and decorate them with place mats and flowers they have made in the art centre or as a special project. They should also be involved in cleaning up after meals and snacks.

Children who want or need rest should be given an opportunity to do so. A time allocation of one to two hours for this is usually enough (Essa, 1999). Quiet activities should be provided for children who do need or cannot sleep on a particular day. Children should not be forced to lie on a cot or blanket if they cannot sleep, or have outgrown their need for an afternoon nap. Children need be taught safety and health practices like washing their hands before engaging in any food-handling activity. They should also be taught self-help and intrapersonal skills, and allowed to use the bathroom or toilet whenever necessary. They should be taught how to safely handle potentially-dangerous objects like scissors, office pins and knives. In addition, safety concerns should guide the equipping as well as the arrangement of an early learning classroom (Essa, 1999). Guidelines are often spelt out in building codes or safety regulations by relevant government agencies. Any electrical outlets present must be concealed safely and all built-in storage spaces and furniture should be devoid of pointed and sharp edges.

Language reasoning – Development of language and enhancement of literacy skills related to reading and writing are key goals of preschool. As such any good-quality ECE programme must have a learning centre with books and pictures. The centre or corner should look cozy, soft and inviting. It should be in cool colours (such as blue, green, lavender) which help provide a quiet setting. It should have contain cushions, book racks or shelves with book covers facing forward, and good lighting, preferably natural day light. This will enable children to explore books comfortably. Books included should reflect diversity of gender roles and cultural backgrounds, a variety of occupations, and special needs and abilities. A book and literacy centre must also have writing materials and pictures/picture dictionaries. Concepts and a range of abilities to be explored and learned at this centre include prewriting skills, letter recognition, awareness of print, motivation to read, ways to handle, use and appreciate books, joy and fun of reading and writing, reading with others, and making choices, such as on what to read and materials.

Activities – Materials for fine motor development is very important in an early education setting. Their presence or otherwise, as well as variety and adequacy, is therefore an indicator of quality. The muscles of the wrists and hands are used in small and precise movements, such as in sewing. Exercising and refining their movement and coordination is what fine motor development entails. Manipulatives are essential for fine motor development. Manipulatives are those materials which require to be manipulated in some way with the fingers and hands. Common examples of manipulative materials are small blocks, puzzles, table toys, beads and pegboards. A wide assortment of choices is now available from commercial construction toys. Manipulative sets that result in a single outcome should be avoided. This is because children are likely to quickly lose interest after assembling the pieces a few times, whereas more open-ended materials can be used over and over in an infinite variety of ways. Puzzles are among the most common manipulatives. Puzzles made from wood or rubber are the most durable, but hardy cardboard puzzles can extend the puzzle selection relatively cheaply. Many five- to eight-year-olds have the dexterity and enjoy interlocking puzzles with 25 to 50 pieces.

Children can also string beads of different shapes and sizes. They can assemble them according to a predetermined manner or in a random fashion. Bead stringing is a good way of improving sequencing and matching skills, besides it being an excellent activity for fine motor development. Pegboards can be made or purchased in a variety of sizes, with smaller holes and pegs for older children who have refined eye-hand coordination and manual dexterity. Small blocks can be found on a continuum of open-ended to structured small blocks. Wooden table blocks come in many shapes, similar to the larger unit blocks, and allow for many creative uses. Somewhat more structured are the variety of small block sets that are made up of house, buildings, and accessories and with which children can build cities, towns or farms.

Among the many functions that music serves is communication. Children are naturally and instantly drawn to music. As such it can be used in early learning to achieve a variety of goals such as physical, social and cognitive development. Music as an activity is more process-oriented, and can be used to teach skills and introduce concepts in the classroom in a way the

children will find fun (Essa, 1999). It can also be used to develop an aesthetic sense and creative expression in children. The early childhood programme should encourage spontaneous singing and teach a repertoire of new songs. Such songs should contain lyrics that are easy to understand, have unique rhythms, be repetitive and emphasize enjoyment for better effect. Constant motion is a common behaviour in small children. Movement activities therefore offer a perfect means of capitalizing on this natural behaviour in young children to attain desired ends. Movement activities can be used to exercise, develop concepts on time and space and their relationship, and stretching children's imagination. Movement activities take place spontaneously as well as in more planned ways. Movement by children usually mimics things in their immediate surrounding and reflects their experiences.

Rhythmic movement in time to music begins to show around age three, when children are more able to synchronize (McDonald & Ramsey, 1982, in Essa, 1999). With enough practice children are able to keep time to music. This emergent musical synchrony can be enhanced by marching to the music beats and clapping to the music. A good early childhood programme should therefore incorporate music since research on brain supports the use of music to encourage learning in all areas (Morrison, 2007).

Blocks are another aspect under activities dimension. Blocks are one of the most versatile and enjoyable material found in early childhood classrooms. Blocks vary in size and shapes and the material from which they are made. They can be used alone or in combination with other items, and allow for almost infinite range of play possibilities. Blocks provide many opportunities for motor development. Blocks provide children with opportunities to exercise and develop both their small and large muscles as they lift, stretch, bend, reach, turn, and manipulate and balance various types of blocks. Additionally, blocks promote concept learning (big and little, tall and short, over and under). They provide a natural method for learning about matching, differences, similarities and classification. They entail science and math concepts related to quantity, addition and subtraction, weight, and balance. Blocks can also facilitate growth in children's vocabulary, the concepts of size and shape, and enhance problem solving and creativity (Essa, 1999). They

also encourage role playing and cooperative play as opposed to solitary play. They also give children a sense of accomplishment, self-worth and satisfaction. Blocks are clearly a versatile medium that meets many needs and provides many opportunities for development in children. They are therefore expected to be present in adequate numbers and variety in all high-quality early childhood settings.

Dramatic play is another important aspect of activities that should be catered for in all high quality settings. This is best catered for by having a dramatic play centre in the classroom. Equipment and materials to be found here include small table and chairs, mirror, dolls of different ethnic groups and both genders, doll bed or crib, dress-up clothes for both genders, empty food containers, telephones, and dramatic play kits with props for selected themes. The materials, equipment, and the spatial arrangement of the dramatic play area should include and encourage diversity of play by including space for different roles. Dramatic play gives children an opportunity to indirectly engage in a several family, cultural societal activities and process. It also permits children to practice self-express and interact closely with peers. Dramatic play promotes children's understanding of processes and concepts, and also encourages creativity.

Nature/science is also an aspect of activities at early childhood settings. Young children are always questioning, observing, tasting, touching, and exploring. These are essential features of science and this implies that science occurs as a natural endeavour for young children. Scientific endeavour for young children entails a growing awareness of self and other living organisms, as well as the physical environment through exploration and the senses. For the young children at preschool, science is a reflective attitude toward an object of interest, a search for answers to interesting questions, even while engaged in play (Forman & Kaden, 1987, in Essa, 1999). In viewing science as part of the early childhood curriculum, the concepts ought to be concrete and observable due to cognitive abilities and limitations of young children. Children are fascinated by animals, humans and plant life, and are drawn to explore them and discover more. Interest in their own bodies and in bodily functions comes naturally to children. They also show interest in

caring for plants and animals and learning more about them. Science activities should therefore be provided for at preschool.

Math/Numbers is the last aspect of activities under consideration. Mathematical knowledge foundations is to be found in experiences such as exploration of objects and growing awareness of their relationships and properties. Numbers, classification, seriation, space and time, which are cognitive concepts that young children begin to acquire early on, all form an essential and critical part of mathematical knowledge development. Acquisition of information and these concepts occurs in many ways in the early childhood programme. Just about any activity in which young children engage involves one or several of these concepts. Children construct knowledge and build an understanding of mathematical principles when handle and manipulate materials. An essential part of growing knowledge is the ability to conserve, that is, recognize that objects remain the same in amount or number despite perceptual changes. Preschool-aged children usually are at an age where they may not have acquired this concept, but they need many concrete experiences on which to build the foundation for this skill as they transit to lower primary school. Materials that enhance acquisition of math knowledge and concepts must therefore be provided for in all early learning classrooms. Such materials range from the ubiquitous blocks, props for dramatic play, water, sand and a variety of manipulatives. Also important are items and materials that can be counted, grouped, matched and arranged in some logical order. The class may also contain a specific math learning centre, in which materials designed to encourage and enhance math concepts are collected and placed.

Interaction – Children of all ages and in all settings to some extent enjoy taking part in rough and vigorous play. Though other safety precautions will necessarily have been taken, supervision of gross motor skills during play is essential. Careful child supervision is a cornerstone of playground safety. The preschool teacher should not just supervise children's play but is also encouraged to participate as well. While refraining from unduly interfering, the teacher should help, model and show when it is appropriate. With careful observation and supervision of children's play, the teacher can get to know how they play and can figure out ways of structuring classroom activities so as to leverage on learning outcomes of play. Play gives the teacher

additional opportunities to interact closely with the pupils and offer guidance on appropriate pupil to pupil interactions. Children in early childhood programmes need a lot of interaction with adults as well as with peers. This enhances language and socio-emotional growth in children. Socio-emotional growth entails changes in the way an individual relates with others, variations in emotions, as well as changes in an individual's dominant way of thinking and behaving. Healthy and adequate teacher-child interaction also helps nurture positive self-concept and self-esteem.

Programme structure – The curriculum and activities at preschool are usually structured and fitted into the schedule. A schedule identifies all the events and activities of the day and specifies the time allocated to each of them. A schedule facilitates a variety of interactions such as pupil-pupil interactions and teacher-pupil interactions as well as interactions between small and large groups of children. A good schedule should take into account the developmental level of the target pupils, their interests and needs. A schedule provides predictability for both children and teachers. This predictable routine is essential in fostering a sense of security in young children. Early childhood education settings across education jurisdictions and programmes contain components and activities that are fairly standard. The ways in which these components are arranged and the duration allocated to each may, however, differ from programme to programme. The largest block of time daily should be allocated to pre-selected activities from which the pupils can make their selection. This component of a schedule is known as activity time. It is found in all preschool schedules across different programmes and curriculum models. Activity time is also variously referred to as self-selected learning activities, free play, play time, learning centre time, or other similar names. The names and design of this component connote that that the pupils are free to pick activities in which to engage. This is the part of the schedule in which many of the activities for creative, physical, language, cognitive, and social development are inserted. A wide range of well-planned activities can be placed here to reinforce and support curriculum theme and objectives. The activities planned for each day must facilitate the child's development of language, fine and gross motor, creative, cognitive and social skills.

Many early childhood settings will typically have at least one lengthy activity time block in the morning and one in the afternoon. Such time blocks should take at least 45 minutes, and can be

as long as 2 hours. This gives the pupils sufficient time to consider the available options, make their selection, engage in the activity picked, and bring the engagement with the activity to a satisfactory termination. A number of pupils may take part in more than one activity, while others will choose to spend the entire duration in one activity. The children mature with time and their attention span increases, which means that increasingly larger blocks of time will be required. The importance of an adequate-length time block for self-selected play has been confirmed by research findings. Christie, Johnsen, and Peckover (1988, in Essa, 1999) compared four- and five-year-olds' social and cognitive levels of involvement in play during a 15-minute and a 30-minute free play duration. Results showed that when the play period was longer, children engaged in more mature play. More specifically, in the longer play period, children engaged in considerably more group play than parallel or solitary play; in the shorter period, there was more onlooker and unoccupied behaviour. Similarly, there was significantly more constructive play where objects were used to make something during the longer play period.

Activity time blocks also allow the teachers to interact with children individually or in small groups. Social guidance, informal conversations, well timed questions, and careful listening gives teachers the chance to learn more about the children in the class, develop relationships, introduce or reinforce concepts, evaluate the children's understanding of concepts, or assess developmental status. Most programmes will also include one or more times when all of the children and teachers gather together. This large group time is referred to as circle, group, story time, or other similar terms depending on programme type. Large group time can be utilized to achieve one or more of a variety of aims. Some programmes have several group times, each serving a different purpose, for example, morning business (roll call, calendar), story, or music/movement. Group times offer the possibility of meeting a wide variety of objectives. They, for instance, can be used to introduce a new curriculum topic. Teachers can also use group times to gauge how well the children understand information and concepts (Essa, 1999). Other ways in which group times can be utilized is in games and relaxation exercises, for discussions, stories and books, songs and movement, socialization and dramatizations, poetry, sharing, planning and review, calendar or weather, and a variety of other activities better suited for the whole group (McAfee, 1985, in Essa, 1999). Reading of books or stories is among the most

popular and frequently observed circle activity. Group times are almost always teacher-initiated and led, although teachers often seek children's input. Older preschoolers do in fact enjoy and are competent in leading group activities. Young children learn better when they are actively involved. They will hence benefit more from activities that require their active participation and input, and which require flexible approaches to solving problems.

A good-quality early childhood programme should also cater for children with special needs. Special needs in children arise from innate conditions while others are acquired in the course of life in the first few months or years of life. These conditions make the children different from their chronological-age peers in terms of developmental milestones and skills. They might have a developmental delay, implying that they master tasks and acquire skills at a rate much lower than their peers. Certain children are classified as at-risk for delay. For these children it means there is a significant probability that problems will occur as a result of unfavourable environmental conditions like low weight at birth and poverty. If adequate and appropriate intervention strategies are put in place, children experiencing developmental delays can go on to do as well as their peers. Another category of children with special needs comprises those with an impairment or deficit. In this case such children experience a development that is not just slower but also different from that of their peers. In this category are children with mental and physical challenges, as well as those with visual and hearing impairments.

It has become increasingly evident that children with special needs benefit from early intervention. A common practice today is the provision that children with physical challenges be placed in the least restrictive environment. This is to say that such children should be placed in settings that cater for their unique needs and at the same time resemble as much as possible settings for children without the physical challenges (Spodek & Saracho, 1994, in Essa, 1999). This concept has led to the expansion of inclusion, the integration of children with special needs into regular programmes. Inclusion, however, may not be the best option in all cases. Careful consideration is necessary before a decision can be made to integrate a child with special needs into a regular classroom. Inclusion in education is based on the belief that young children, whether or not they have special needs, have fewer differences than the similarities they share

(Wilderstrom, 1986, in Essa, 1999). A good inclusion programme allows children with special needs to benefit from experiencing success in many activities that are developmentally appropriate. Interaction with their peers, who act as both friends and models, and exposure to the numerous opportunities for incidental learning offered by this interaction, offer additional benefits to the children with special needs. At the same time, children without special needs also benefit from inclusion. These children get to realize that other children who may differ from them in some way are still far more like them than they are different. This is an effective way to reduce stigma. Although inclusion has many potential benefits, the benefits don't accrue automatically. Inclusion demands careful preparation, planning, modification, evaluation, and support for it to be successful.

Most ECE teachers will probably find themselves in a situation where they are required to handle one or more pupils with special needs in their class. If there is no outright case of special needs, there might be a case of a pupil who appears to face challenges consistently in one or more developmental areas. This will definitely bother the teacher.

One of the most common cases of special needs in early learning is children with physical and motor challenges. Physical and motor challenges can be experienced over a wide range from a child who is a bit clumsy to one who has no muscular control. These challenges result from a variety of causes, which include genetic defects, orthopaedic problems, damage to the central nervous system and brain dysfunctions. Adaptive gear and equipment can enhance and improve functional skills for some pupils. Generally, specialists should make decisions regarding appropriate corrective strategies. The preschool teacher, however, should be able to and will be called upon to help pupils with adaptation to new equipment or to carry out special procedures on the child. Helping children with special needs feel as involved and independent as possible is critical. Strategies that can improve involvement and independence include leaving paths and ways free of obstruction to children using crutches and wheelchairs, modifying ongoing activities to enhance participation, and placing equipment and materials within their reach (Cook, Tessier, & Armbruster, 1987, in Essa, 1999).

2.7.2 – Teacher-pupil interaction

The nature of the interaction that occurs between the teacher and the children at preschool is one of the indicators of quality that has been used in several studies (Crosser, 2005). It is, in fact, touted as one of the most crucial indicators of quality. If this interaction is not wholesome and nurturant a wonderful physical environment would be of little use. Additionally, typically a day at preschool revolves around the teacher-pupil interaction. Galinsky (1988) cited in Galinsky (1991) notes that one of the most important ingredients of quality is the relationship between a child and teacher-caregiver in whatever setting. Parents also understand the importance of relationships and report that the kind and quality of attention a child receives strongly affects their decision in selecting one arrangement over another. The NAEYC accreditation process gives prominence to the type and quality of interactions between pupils and teachers at the preschools it accredits.

Dimensions of the teacher-pupil interaction or relationship include the teaching relationship, disciplinary relationship, and stability of relationships. In a good-quality early childhood programme, the teacher is expected to show love and respect for all children, and to educate all children to the full potential. Irrespective of the setting, preschool teachers and institutional caregivers are teaching children every moment, both formally and informally. The way this teaching is done makes a difference in the child's development. Studies on disciplinary relationships show that the techniques parents use directly affect the individual child's later development. These findings are applicable to early childhood programmes. Children are more likely to develop self-control and to show more cooperation, compliance and consideration for others if reasoning is used, that is, if the teacher explains how the child's behaviour affects others. The same outcomes are seen in children if problem-solving skills are taught.

Daly, Byers and Taylor (2006) reviewed a study by Gottman (1997) on the strategies that parents use to handle children's emotional behaviour at home. The findings indicated that parents employ four different styles of approach in dealing with emotional behaviour. These styles of

approach are: i) A critical approach – marked by active parental criticism when children show undesirable negative emotions. ii) A dismissive approach – parents who use this approach usually treat children's negative emotion as a trivial issue, or totally ignore the children. iii) A laissez-faire approach – this approach has parents failing or refusing to provide guidance and support to the child even as they accept the child's negative emotions. iv) A supportive approach – this is characterized by parents accepting children's negative emotions, acknowledging them and going further to demonstrate understanding. Although these approaches apply to parents, they can also be applied to anyone who cares for children, including preschool teachers. Children can be assisted to develop empathy with others, and also to better understand and control their own feelings by having their parents and other caregivers actively participating in emotional coaching that offers support to negative feelings. Daly, Byler and Taylor (2006) found that children who experience emotional coaching are physically healthier, have fewer behaviour problems, sustain relationships better, and show less violence.

The parenting styles of approach identified by Gottman (1997) are similar to those that Baumrind (1971, 1996, in Santrock, 2011) had identified earlier. Baumrind (1971, 1996), a leading expert and scholar on parenting, identified four parenting styles. These styles are authoritative style, authoritarian style, indulgent style and neglectful style. Baumrind (1996) also recommends to parents and caregivers not to be overly punitive (authoritarian) nor aloof (neglectful). Instead, parents and caregivers ought to set clear limits and expectations for children by developing rules while at the same time being nurturant and supportive. It is also instructive to note that hundreds of research studies support this view (Chen, 2009, in Santrock, 2011).

A positive and healthy teacher-pupil interaction is therefore important for positive child outcomes to be realized. These outcomes are in the different dimensions of child development and make up the different domains of school readiness. Teacher-pupil interaction is the second measure of quality of ECE in this study.

2.7.3 – Parental involvement

The home and family is a critical setting and context in children's education and development. The home and family lays the base on which all future and further education and learning grows. Parents and families consequently exert a significant influence on the direction and shape that education and care of children take. This rather obvious fact has long been acknowledged by educators such as Pestallozi who observed that the teaching of their parents will always be of utmost essence for children (Powell, 1989). Parents influence outcomes in their children directly, in addition to passing on values and creating motivation for schooling in them. These values and motivation may in turn impact on outcomes in the child. Parental involvement incorporates the various ways in which parents participate in their children's education-related activities both in school and at home. This involvement can take on or more different forms, which include volunteering to help with a specific task in or out of class, participating in discussions about school or the child, helping the child with homework, or assisting school management in making decision on school matters. The goals for children's education and development are attained better when significant adults in a child's life, in this case teachers and parents, adopt a consistent and commonly agreed upon approach on how they deal with the child. Cooperation also makes a child's separation from home and entry into the new setting smoother. This cooperation and partnership has been found to have positive outcomes in the child, and also to be beneficial to the parents. A review of studies carried out by Creswell (2012) indicates that parental involvement seems to produce benefits in children and these benefits last beyond preschool and are carried through to high school. However, parental involvement techniques are most often employed by early childhood and primary school teachers, according to studies (Caplan, Hall, Lubin & Fleming, 1997) reviewed by Crosser (2005).

Parental involvement activities usually focus on encouraging parents to read to children at home and help in the classroom. Higher levels of parental involvement takes place when children are young, and the involvement decreases as children move up the classes (Caplan et al., 1997; Izzo, Weissberg, Kasprow & Fendrich, 1999). This is actually a good situation given the centrality and importance of early childhood experiences, and the observed benefits of parental involvement.

Fathers and mothers also appear to be involved in somewhat different ways. In homes with both parents, mothers appear to be more involved than fathers. One study, reviewed by Crosser (2005), indicated that in two-parent homes, 27% of fathers are highly involved compared to 56% of the mothers (National Centre for Education Statistics (NCES), 1997). When mothers were involved children had higher achievement. But in addition if fathers were also highly involved, children had higher achievement yet (Viadero, 1997). In general, it is found that fathers are less involved than mothers (Fagan & Palm, 2004).

The picture emerging suggests that there is overwhelming agreement that involving parents in children's education can have definite positive impact on their achievement at preschool. Research has consistently indicated that strong and long-term support to children from parents and other adults at home, as well as from adults at school, increases their success in school. Involving parents in children's learning activities at home is one parental involvement type that many educators believe is important in the child's learning. Gordon (1978, in Santrock, 1994) suggests that parents of children in the early grades can play six key roles: teacher at home, volunteer, paid employee, audience, decision maker, and adult learner. These roles have the potential to influence not just the parents' behaviour and their children's schoolwork, but also the quality of schools and communities.

Epstein (1998) reviewed by Crosser (2005) identified six levels of parental involvement. These levels include activity both in and out of the classroom. These are: One, parenting level – at this level the school helps families to understand child development and appropriate parenting to promote the child's development. Schools learn from families as well, with the duty to understand the family culture, ways of interacting and values. Two, communicating level – at this level Epstein indicates that two-way communication is preferred to one-way communication in which the school simply tells or notifies parents. Two-way communication may include such methods as phone calls, meetings and email. Three, volunteering level – this brings parents into direct contact with schools and pupils in a variety of passive and active roles. Parents may volunteer to monitor or even direct an activity, or simply act as audience for an impromptu

puppet skit or listen to a child read. Four, learning at home level – at this level, parents work with their children on curriculum-related tasks at home. This could see parents assist with or supervise completion of homework. Parents may be provided with literacy bags or suggested activities for learning at home. Parents may also be encouraged to read to their children or complete activities such as math puzzles. Five, decision-making level – here we have leadership as a member of an advisory council, parent/teacher organization, or school committee. For example, parents may sit on textbook selection committees or take active roles in helping to develop a parent handbook. Six, collaborating with the community level – this revolves around coordinating services for families within the community. A parent might, for instance, liaise with the health department nurses to offer immunizations at school site, notify parents with eligible children and promote the programme.

It is generally accepted that there may not exist one universal model of involving parents that would satisfy all the needs that the different stakeholders may have. Research findings, however, indicate some level of involvement at whatever degree is preferable to a situation of zero or no involvement at all. For example, dropping out of school has been associated with parents who are less involved, seldom attending events or helping with homework and, instead, punishing poor grades (Caplan et al., 1997). A national survey of public schools by NCES (1998) in the United States found that opportunities for participation in decision-making were reported less often, and parent involvement tended to decrease in schools with high poverty and high minority enrolment. Creating opportunities to enhance parental involvement is therefore a way of raising quality of ECE.

2.8 – Primary school readiness and quality of ECE programme

Laying the foundation for later learning, and ensuring success in the same, is a major goal of ECE. Since the quality of ECE programme has implications on child outcomes, it is the expectation that it will have implications on primary school readiness, a key outcome in the child. In fact, school readiness is singled out as a sufficient and acceptable way of gauging outcomes in children during their early learning years (Janus, 2007). When children enrol at

school when being school ready, their chances of achieving more academically are greatly improved. There is a growing recognition that possessing school readiness skills by the time they enter school confers definite advantages to children which increases their chance of succeeding (Morrison, 2007). Obviously all parents would want their children to enjoy greater academic success. Academic success itself has been positively associated with better economic and social conditions, as well as with improved health outcomes (Zuckermann & Halfon, 2003).

Children who do less well in readiness tests are, later on, more likely to repeat a grade and to drop out of school (Brooks-Gunn, Klebanov, & Duncan, 1996). Okeng'o (2007) cites a study by Raver (2002) which found that pupils lacking school readiness skills are more likely to face challenges at school, and another study by Cairns, Cairns and Neckermann (1989) which found that children lacking school readiness skills face the danger rejection by their peers. Such rejection could in turn result in low self-esteem. This can easily set the child up in a vicious cycle of child not being ready, which causes rejection and low self-esteem, which in turn makes the child incapable of being school ready. It therefore becomes imperative to ensure that children are ready for school as they graduate from preschools. Enroling a child who is not ready for school can actually result in negative outcomes. Mishra (2008) adds that mastering of basic cognitive skills by children late provides a weaker foundation on which further and future learning is to be built. Morris (1993) also observes that success or failure in the early years of schooling can exert a life-long influence on self-image.

2.8.1 – Quality of physical and social environment and school readiness

The quality of the physical and social environment in ECE has a direct impact on primary school readiness. Nusia (2010) found that the preschool physical environment, teaching/learning resources, language used as a medium of instruction, teacher-child ratio, and attendance duration affect the smooth transition from preschool to class one which eventually affects academic performance of class one learners. Essa (1999) in a review of literature on effects of the physical environment found that research shows that the physical environment affects the behaviour of children (Thomson & Ashton-Lilo, 1983). It has generally been argued that when a teacher is

responsible for a large number of pupils, the quality of care given is affected negatively. Essa (1999) has reviewed studies addressing this assumption. The findings show that indeed the teacher-child ratio significantly affects children's behaviour and child-teacher interactions (Phillips& Howes, 1987; Howes, 1987). For instance, where the teacher is in charge of a big group of young children, the teacher and children engage in less verbal interaction compared to when the teacher is in charge of a smaller number of children. Conversations tend to be brief and routine and contain more prohibitions (Smith & Connoly, 1981, in Essa, 1999). Affirming each young child and recognizing their uniqueness and worth as individuals, and giving them individual attention, are significant and essential considerations in providing good quality care and education in ECE. When a teacher is responsible for a large number of children, giving them such attention becomes difficult, and the teacher instead becomes more concerned with controlling and managing the group.

A meta-analysis of studies on class size reported by Crosser (2005) indicates that small classes of fewer than 20 pupils were related to short-term, small gains that were greatest in the early grades. Those gains were particularly beneficial to children from disadvantaged backgrounds (Biddle & Berliner, 2002). In the mid-1980s the state of Tennessee in the United States undertook a four-year study to find out whether small classes were really better after all. This study has been cited as one of the best-designed studies in the history of educational research. The project studied children in three different classroom conditions: standard classroom with one teacher and 20 or more children; standard classroom plus the supplement of an untrained, full-time assistant; and small class of about 15 children per teacher. There were 79 schools, 328 classrooms and 6300 pupils, and all district types were included in the study, and the children spent four years in the same class configuration (Finn & Achiles, 1990). The children took a standardized achievement test. When scores of children in standard classes were compared to those in standard classes supplemented with a teacher's aide, there were no differences in scores. But children in the small classes of 15 made significant gains in achievement in all the areas tested. And those scores got better and better the longer pupils had been in small classes. The largest gains were for minorities and children who attended inner-city schools. Gains were equal for boys and girls and the achievement gains were long-term. Even when children went back to standard-size classes in

the upper grades, they maintained the advantage (Biddle & Berliner, 2002). The best indication came later with the realization that the benefits were truly lasting. By the time the students had reached high school, children who had been in small classes had better grades, fewer grade retentions, and fewer dropouts than children who had been in the standard classes of 20 or more. Additionally, the small class students took more advanced-level courses; more of the small class students took college entrance tests; and more of the small class students were in the top quarter of their high school classes. The positive effects of small classes were largest for children who had been considered to be at a disadvantage (Finn & Achiles, 1990).

As to whether there's enough space or not will have a lot to do with density and the kind of activity expected in the space. Research has also indicated negative outcomes associated with overcrowding. Some of these negative outcomes are inhibited privacy, increased aggressive behaviour, stress and arousal, overstimulation, and loss of control (Tanner, 2000, in Crosser, 2005). Overcrowding may also increase aggressive behaviour and inhibit social interaction and involvement (Essa, 1999). Due to this scholars have provided some guidelines for maximizing the effective use of space. Phyfe-Perkins (1980, in Essa, 1999), carried out a review of studies that sought to examine the influence of physical arrangements on children's behaviour, and offers some helpful principles. Research shows that children engage in a wider variety of social interactions, greater language usage, and more originality on innovative rather on traditional playgrounds (Essa, 1999).

The International Association for the Evaluation of Educational Achievement (IEA) supported an extensive study that sought to explore the influence that structural quality and process quality of community early learning settings may exert on children's language and cognitive development between ages 4½ to 7. Process quality comprises the features that pupils experience directly at preschool on a daily basis. They include equipment and furnishing in the outdoor and indoor space, materials for use in literacy, science and math activities, dramatic play, art and fine motor. Structural quality refers to aspects of the programme that are controlled via enactment of policies. Aspects under structural quality include the number of pupils and teachers in each

classroom, academic requirements for teachers and their training, and any other services that the programme provides to children and their families.

The IEA study, unprecedented in scope, was carried out in 15 different countries around the world. The original sample comprised over 5000 children in more than 1800 early education settings in the 15 participating countries (Schweinhart & Fulcher-Dawson, 2009). Some important findings that were consistent across all countries emerged. These findings include: One, when the main types of activities that children engaged in were freely chosen by the children from those proposed by the teacher, language performance of the children at age 7 improves the most. The second highest influence was from physical and expressive activities, while pre-academic activities had the third highest influence on language development. Two, cognitive performance at age 7 was better for children who spent little time in activities for the whole group where the same activity was proposed by the teacher for all children. Three, preschools that had a greater variety and number of materials and equipment produced pupils with better cognitive performance at age 7.

Another study found pupils enroled in centres that met more minimum standards in the areas of class size, teacher-pupil ratio, caregiver educational level and training had higher achievements in language, cognitive and social competency in comparison to pupils in centres that met fewer of the standards (Landry & Cooper, 2014). Howes (1990, in Landry & Cooper, 2014) found that children's adjustment to school later on was positively associated with the number of minimum standards a preschool met in class size, teacher-pupil ratio, physical space and caregiver training. Contrasting results have also been obtained. For instance, Mashburn et al., 2008, in Landry & Cooper, 2014) sought to determine whether having classrooms serving 4-year-olds and which met nine of the minimum standards of structural quality translated to improvements in child development across 11 US states. The results showed that none of the standards had an influence on child development. As observed by Landry and Cooper (2014), research investigating the specific features of ECE that positively affect multiple dimensions of school readiness has produced mixed evidence.

2.8.2 – Quality of teacher-pupil interaction and school readiness

The quality of teacher-pupil interaction has been widely utilized as a measure of early learning quality. Similarly, several studies on the influence of teacher-pupil interaction on school readiness have been conducted. The relationship between a child and an adult is known to be an important and essential path for information and energy that result in changes in abilities that eventually find expression in school readiness. During interactions and relationships with adults, experiences on which school readiness develops occur across multiple domains and at several levels. These experiences build belief and motivational systems that create interest in printed words that hold information and meaning. These experiences also enhance linguistic and cognitive development, as well as developing attentional mechanisms.

Several studies on the effect of quality of teacher-pupil interaction on child outcomes have been reviewed by Galinsky (1991). In one of these studies by Philips, McCartney and Scarr (1987), it was found that when children are asked questions, talked to, and encouraged to express themselves, they develop better socially, and are more likely to be considerate. The children in the study were also rated higher in intelligence and task-oriented. The teaching environment was found to be more predictive of a child's achievement than social class background.

Circumstances in which children are either bored or pressured in early learning settings are undesirable. In another longitudinal study reviewed by Galinsky (1991), Vandell and colleagues found that 4-year-olds who attended programmes in which they spent time aimlessly wandering around were more likely at 8 years to have developmental problems, which include less acceptance by peers, having poorer conflict resolution skills and being less socially competent (Vandell, Henderson and Wilson, 1988). Another study reviewed is the 1990 landmark National Child Care Staffing Study by Whitebook, Howes and Phillips, which found that there is a higher probability of finding children engaged in aimless wandering in programmes with high rates of staff turnover. This feature is a signal of lower programme quality and was associated with programmes offering low staff salaries, fewer benefits and poorer working conditions. Children

in such programmes did less well on tests of both social development and language development, critical areas for later achievement and schooling.

Vandell and Powers (1983) found that in higher quality programmes, children had many more positive interactions with staff than in lower quality programmes. Finkelstein (1982) showed that when teacher-caregivers are trained in behaviour management techniques, the frequency of the children's aggressive acts is lowered. The ways that teacher-caregivers handle young children's aggression can lead to increased or reduced aggression. Lesser quality programmes are more likely to have staff who do not have the knowledge and understanding to deal effectively with young children's normal assertions of power and prowess. Several other studies to determine the benefits of a positive teacher-pupil interaction style have been reviewed by Morrison (2007). In this review, Morrison (2007) finds that cognitive development, healthy emotional adjustment and better social attachment all improve when a young child enjoys relationships that are supportive and positive, especially in the earliest years of life (Bowlby, 1969; Stern, 1985).

Mwaura (2009) found positive teacher-child interaction to be positively and modestly correlated with the quality of the teaching/learning environment, while negative styles of teacher-child interactions were negatively correlated with the quality of the pedagogic ecology. In a series of studies from infancy through third grade by Howes and Richie (2002) and cited by Santrock (2011), it was noted that positive relationships between the teacher and pupils were related to a number of positive child outcomes. Santrock (2011) also cites another study by Thomson and Goodman (2009) which found that children who have a warm, positive relationship with their teachers have a more positive attitude toward school, are more enthusiastic about learning and achieve more in school. A longitudinal study undertaken in New Zealand by Wylie (1998, in Siraj-Blatchford, 2004) indicate that by age 6 the learning achievements of children were influenced by factors that included the quality of pupil-teacher interactions.

Crosser (2005) has also reviewed studies on teacher-child interaction. Crosser (2005) found that more instances of laughter and smiling were recorded in classrooms in which teachers participated in children activities and engaged with them, were more supportive of the children, and interacted positively with them (Hestenes, Kontos & Bryan, 1993). In contrast where the teacher interacted minimally with the children, very little laughing or smiling was observed. The degree of closeness of the relationship between the teacher and the pupil at preschool was demonstrated to be fairly good at predicting later social skills (Peisner-Feinberg et al., 2001). Research suggests that positive early relationships between children and alternate caregivers may be laying the foundation for good later relationships between the children and other figures of authority. Byler and Taylor (2006) also found that research indicates that children who experience emotional coaching do better academically.

Landry and Cooper (2014) conclude that relationships support various domains of school readiness including self-regulation and cognitive development, and subsequently early achievement. Relationships achieve this by providing conversation and language stimulation, direct phonological content and information, and co-regulation of attention. Early learning settings in which time, behaviour and attention are properly regulated through interactions with teachers results in more gains on a number of school readiness outcomes.

2.8.3 – Quality of parental involvement and school readiness

Parental involvement by preschools is another parameter of quality of ECE. More involvement of parents in their children's education has potential positive influence on school readiness. Creswell (2012) in a review of studies on parental involvement observes that for some time now, findings from several studies have indicated that parental involvement is crucial in enhancing learning and outcomes in young children (Henderson & Mapp, 2002). The same review indicates that parental involvement has been correlated with higher achievement, increased attendance, improved attitudes, fewer discipline problems, fewer grade retentions, higher aspirations, and fewer dropouts (Caplan et al., 1997; Henderson & Mapp, 2002; Shaver & Walls, 1998; Fan &

Chen, 2001; Hara & Burke, 1998; Miedel & Reynolds, 1999; Epstein, Clark, Salinas, & Sanders, 1997).

In a meta-analysis Fan and Chen (2001) reviewed quantitative studies that examined achievement of children and parental involvement. A moderate relationship was found. Fan and Chen went on to point out that they found parent expectations for their child's achievement to be a significant factor. Another review reported by Crosser (2005) is one by Carter (2003) who analyzed and summarized a decade of parental involvement research. Crosser (2005) confirmed the conclusion that involvement of parents is related to numerous positive outcomes for pupils. Higher levels of parental involvement has been linked to children doing better in school, irrespective of family economic status, age, gender or any other known factors of interest. For example, findings from Miedel and Reynolds (1999) who investigated parental involvement in an inner-city Chicago setting indicated a relationship between parental involvement and the child's reading ability, fewer incidents of class repetitions and less need for education remedial. Hara and Burke (1998) also studied inner-city elementary pupils and found significant pupil reading gains which were associated with parental involvement. In addition to the children making achievement gains, the parents also appeared to have developed more positive attitude toward teachers, education and their own interest in learning for themselves. Similar findings relating involvement in school to more positive attitudes toward teachers were reported by Caplan, Hall, Lubin and Fleming (1997). Parents who were actively involved rated the teacher's teaching ability higher after they became involved.

In a 15-state survey covering 200 superintendents in the US, Kessler-Sklar and Baker (2000) found that parental involvement activities were reported more frequently by superintendents of districts with high numbers of at-risk students. That is an encouraging finding because numerous studies have indicated that parental involvement is correlated with positive transitions to kindergarten. This is especially true for children who are disadvantaged and faced with the danger of school failure (Marcon, 1999; Kreider, 2002; Miedel & Reynolds, 1999; Starkey & Klein, 2000). The effects may be long-term too, as indicated by a study that followed 1205 urban

kindergarten pupils up to third grade (Izzo et al., 1999). The children and their parents' involvement levels were monitored over three years. Teachers then rated the quality of their interaction with parents, how often they had contact with parents, engagement in educational activities at home, and participation level in school activities. Although all variables were moderately correlated with children's achievement, the strongest relationship to academic success was the engagement of parents in educational activities at home.

Parental involvement seems to have more impact in the early learning years. It, however, also impacts on older children. From the literature reviewed, it is clear that quality of ECE influences school readiness. As Morrison (2007) observes, an analysis of research findings shows that low-quality early care for all children is linked to poorer school readiness and lower achievement on expressive language skills as well as receptive language skills tests.

2.9 – Theoretical framework for the study

This study is based mainly on Bronfenbrenner's theory of human development, and also on the theoretical perspectives of Piaget and Vygotsky regarding learning by young children. Bronfenbrenner's theory is categorized as an ecological theory, in which emphasis is given to the role of social contexts in development. Bronfenbrenner (1979) presents a new theoretical approach to investigating human development. This approach offers a novel way of conceptualizing the individual, the setting in which the individual exists, and the consequent interaction between the setting and the individual. Most investigations of development in institutions have focused on cognitive and behavioural outcomes in the individual. Not much effort has been directed at exploring the immediate physical and social context in which the individual lives and learns. Not much is known about the complex nature of activities, roles and relations that are part and parcel of institutional settings (Bronfenbrenner, 1979).

The role of context has grown in interest to educational and developmental psychologists. There are contextual effects, both internal and external, to the developing individual. Bronfenbrenner's

theory also specifically adresses children's socioemotional development, and is one of the most comprehensive theories on social contexts in which children develop (Santrock, 2011). This ecological theory mainly deals with the significant persons who have an influence on the development of children and on the social contexts in which the children live. The theory puts forward the idea of five environmental systems that range from close interpersonal interactions or the direct interactions between a child and social agents to the influence exerted on child development by the wider societal characteristics such as culture.

The five systems in Bronfenbrenner's theory are: i) Microsystem – the setting in which an individual lives or spends a considerable amount of time such as school, family/home, neighbourhood and peers. It is here that the individual has most of their direct personal interactions with other individuals who include parents, siblings, teachers, peers and classmates. The individual child in this setting considered to be actively engaged in constructing the setting and not passively receiving information and experiences.

ii) Mesosystem – this involves the linkages or relations between different microsystems in a child's world. Illustrations of mesosystem at work is the interactions or connections between family and school experiences, or family and peer experiences, or school and church experiences. For instance, a child who has faced parental rejection may have problems developing positive relationship with teachers or peers at school. What happens in one microsystem (the home) affects what happens in another microsystem (the school).

iii) Exosystem – this is where experiences in another setting, in which the pupil has no active role, exerts an influence on what the pupil and teachers experience in their immediate setting. For example, decisions and activities of institutional managers/boards, local authorities, etc. will have a direct effect on what goes on in a school, which the pupils and teachers experience directly. Another illustration is where a mother's experiences at her place of work may affect her relationship with members of her nuclear family. Changes at her place of work may occur and may occasion her to travel more. This might bring conflict with her spouse, and the resultant stress could alter the existing parent-child interaction pattern.

iv) Macrosystem – this system comprises the influence from the broader cultural setting in which an individual lives. Culture is a widely-encompassing term that incorporates the roles of socioeconomic factors, ethnicity, beliefs, customs and values of the society, behaviour patterns, on child development.

v) Chronosystem – in this system are the sociohistorical conditions under which the pupil grows and develops, or the ways in which transitions and life events are patterned over the course of life. For instance, today's children are living and learning in settings that are vastly different from those that their parents and grandparents were exposed to as children. Children today are exposed to computers and other information technology devices, and are more likely to live and school in locations that are more urbanized. Another example is provided by studies on the effects of divorce on children. Research findings indicate that the harmful effects of divorce on children usually reach their maximum levels in the first year after the divorce. Findings also indicate that boys are affected more than their sisters. After about two years of the divorce, there is more stability in family life. The sociocultural circumstances of today make it more likely for girls pursue a career as compared to three or four decades ago. The chronosystem consequently has a major influence on the lives and education of children in these and other ways.

Bronfenbrenner's theory allows an exploration of the influence of an individual's immediate and wider settings on their development. It also illustrates how different contexts of a child's lives are interconnected. This provides motivation and validation for teachers and caregivers on why they must be concerned with not just what happens in the classroom but also with what takes place in the child's family, neighbourhood and peer group.

This ecological model by Bronfenbrenner (1979) aptly agrees with the developmental path and conditions surrounding child development in a preschool setting. Currently children spend a considerable amount of time at preschool, usually all day. In this microsystem we have interactions between the child and other individuals, who include the teacher, peers, institutional staff and management. All these interactions, both formal and informal result in some learning

and development in the child. There is also interaction between the child and the physical environment, which includes physical space, equipment, furniture, play materials and learning materials. The school setting also influences and is turn influenced by the child's home, family and neighbourhood representing the mesosystem aspect of the ecological environment. These linkages have an impact on child development and outcomes. Increasingly today parents and teachers are partners in many aspects of child rearing and socialization. In fact, parental or family involvement is recognized as an element of ECE programme quality. Studies have demonstrated that children gain more when teachers and parents have open communication and mutual respect, and share a common commitment to advance best interests of children (Essa, 1999).

At the exosystem level, decisions and activities by various entities, in which the child and teacher have no direct role, profoundly affect what the teacher and child do at school. These entities include the managers/owners or sponsors of the ECE centre, local authority and central government. Interactions between teachers, between teachers and management and other staff also affect child experiences and consequently outcomes. The economic, cultural and social conditions in society also have an impact on children in preschool. These resultant child-environment and intersystem interactions constitute the child experiences. Their degree of adequacy or appropriateness is hence a measure of the quality of the ECE programme. The quality is in turn expected to have implications on child outcomes, a major one of which is primary school readiness. One of the strengths of Bronfenbrenner's theory is that it is one of the most comprehensive theories that addresses the social environments within which young children live, develop and learn. Though Bronfenbrenners's theory did no initially give due importance to innate child characteristics that might influence outcomes, Bronfenbrenner and Morris (2006) modified the original framework (Landry & Cooper, 2014). They added a proposition that elaborates the ways in which child development is influenced by quality of the environment. This proposition argues that the associations between ECE quality and school readiness can be mitigated by other environmental characteristics as well as pupil characteristics. This addition strengthens the theory further.

Jean Piaget's theoretical perspective is relevant to this study too. The theory stipulates how growth and development in the cognitive domain of school readiness takes place. When a child is confronted with new information or experience, the child must adapt so as to fit it within the psychological structure (Driscoll & Nagel, 2002). New information or experience causes an upset within existing mental structure since it does not fit in. Adaptation then occurs to return the mental structure back to equilibrium. Adaptation is facilitated by the twin processes of accommodation and assimilation. Accommodation is at work when, to incorporate new experience or information, formation of a new concept or the modification of a schema occurs. Schema was Piaget's term that denotes mental representations of experience or concepts, around which an individual adapts and organizes their environment. Assimilation, on the other hand, occurs when the child attempts to fit the new experience or information into an existing concept or schema. Accommodation leads to a qualitative change that manifests as development, while assimilation manifests as growth, which is a quantitative change. Organization supports the process of adaptation. Organization governs the relationships between the new information and experiences that have been adapted.

Piaget was a stage theorist. He proposed that each stage of development was marked by unique and different cognitive abilities and characteristics. Piaget's four stages of cognitive development are: (i)Sensorimotor period (0-2 years) - Motor behaviour characterizes this stage, and through it the child forms schemata. (ii)Preoperational period (2-7 years) - This stage covers the preschool years. Although thinking is not yet logical, language and other forms of representation develop here. A defining feature of this stage is development of internal mental representation. This permits a child to think of objects even when the objects are not physically present. The child's world-view is still egocentric. Seriation, role play and early classification start developing here. (iii)Concrete operations period (7-11 years) - Here the child develops the concept of conservation and reverse operations and apply logic. (iv)Formal operations period (11-15 years) - This stage is marked by sophisticated, abstract thinking. Logical reasoning skills are well developed. These four stages proposed by Piaget mainly deal with growth in cognitive abilities. However, the ideas can also find application in moral, social and physical development as well as in mathematical learning. Piaget's theory is quite elaborate on cognitive development in young children. However, this theory has been criticized for not giving enough emphasis to the

role played by language and social interactions between children and their peers and also with adults on their learning (Whitebread, 1996).

Vygotsky's theoretical ideas also inform the theoretical framework of this study. Vygotsky's ideas emphasize the role of social interactions, cultural and historical contexts in learning and development of children (Morrison, 2007). Vygotsky argued that complex thinking in young children develops via mechanisms that are similar to those in which a society transmits its culture. This mechanism is social interaction. During these social interactions between young children and adults or older peers, experiences are shred and as a result the young ones acquire skills and gain knowledge. Social interactions therefore facilitate cognitive development in children. The new skills and information are acquired within what Vygotsky refers to as the zone of proximal development. Zone of proximal development is a term Vygotsky used for that level at which a young child is unable to accomplish a given task alone because it is too difficult, but can manage with support from an adult or an older child. Young children of preschool age can and do acquire many skills through guided assistance from adults. This assistance should be adjusted to match the skill level of the child, and is withdrawn gradually as the child's mastery of the task improves.

The ideas put forward by Vygotsky have gained new relevance in early learning. In attempting to determine the appropriate zone of proximal development for each pupil, the long-held notion of individualization and individual differences in early childhood learning is validated. Besides providing a setting that is stimulating, and in which the pupils actively participate and explore, Vygotsky's theory proposes that early learning teachers promote discovery through explaining, modeling and providing suggestions that match the zone of proximal development of each child. Through developmentally appropriate interactions and materials, teachers are able to model desired behaviours and assist children acquire necessary skills and knowledge to bring about school readiness.

2.10 – Conceptual framework for the study

This study examined the influence of quality of ECE programme on primary school readiness of preschool pupils. A conceptual framework for the study is given in Figure 1.

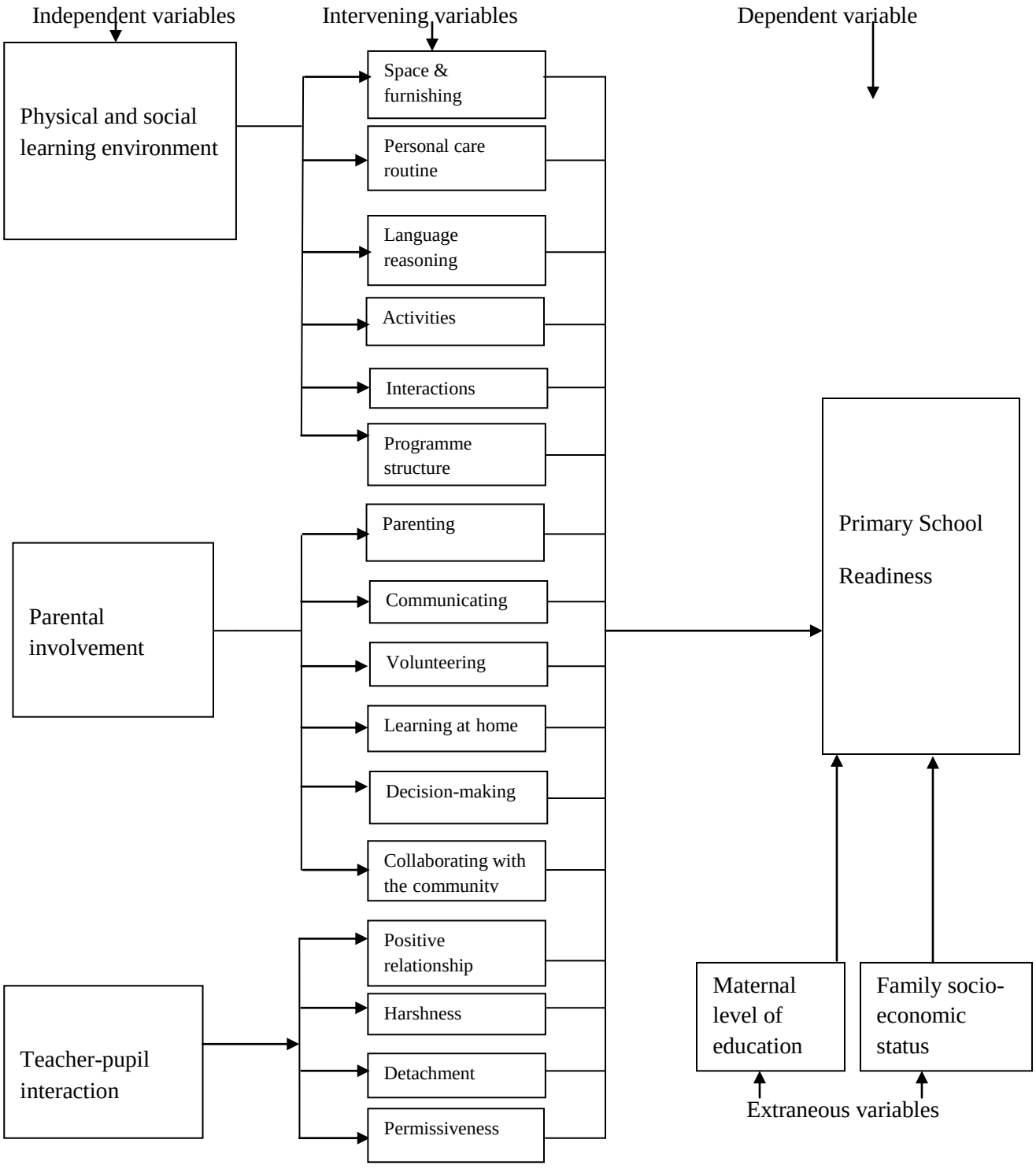

Figure 1: Conceptual framework for the study

The dependent variable is primary school readiness, which is presumed to be related to and influenced by the three independent variables. The independent variables are physical and social learning environment, parental involvement, and teacher-pupil interaction. The indicators of quality of the physical and social learning environment are space and furnishing; personal care routine; interactions; language reasoning; programme structure; and activities. Positive-relationship, harshness, detachment, and permissiveness dimensions of the teacher-pupil interaction are the indicators of the quality of this interaction. The extent of parental involvement is indicated by examining the involvement at each of six levels of involvement namely parenting level; communicating level; volunteering level; learning at home level; decision-making level; and, collaborating with the community level. The three measures of quality, i.e., physical and social learning environment, teacher-pupil interaction, and parental involvement are related to and influence the pupil's cognitive, language, social, emotional, physical and motor development. These developments combine to indicate the pupil's primary school readiness. Maternal level of education and family socioeconomic status are extraneous variables in this study.

2.11 – Gap in knowledge

This study sought to fill gaps in knowledge in the area of primary school readiness and the factors that influence it. The New Zealand Ministry of Education commissioned a comprehensive review of literature on long term benefits of quality ECE. This review by Smith et al. (2000) and cited by Podmore (2009), and which cut across international studies, concludes that there is continuing need for more in-depth examination of specific components of, and processes within, local quality early childhood programmes. After a review of literature on quality of early childhood programmes, Crosser (2005) also notes that, even though we have substantial evidence supporting the link between the quality of a programme and the effects on children, there is a need for more research regarding the relationship of outcome to standards. This apprehension is also expressed by Mishra (2008) who laments that there is a deficiency in data on teaching and learning inputs and how these can be used to influence child outcomes in early learning. The situation is even more acute in the local Kenyan context. Muiru (2006) observes that the Kenyan education system impresses on teachers and examiners to expect

learners to aim for academic excellence in school. Despite these high and good expectations, Muiru (2006) adds that little research has been done to examine how young children acquire cognitive skills and factors that influence their development in preschool classrooms. Roopnarine and Metindogan (2006), in a review of Swadener, Kabiru and Njenga (1997), noted that studies on early learning in Kenya highlight the state of early childhood education but make no serious attempt to deal with evaluations of social and cognitive outcomes. In addition, not many studies have examined the issue of school readiness locally. One of the few that this researcher came across was a study by Ngaruiya (2013). This study by Ngaruiya (2013) sought to explore the effects of family socioeconomic status on preschool children's primary school readiness. The knowledge and insights generated by this study contributes towards efforts to fill this acknowledged gap in knowledge.

CHAPTER THREE
METHODOLOGY

3.1 – Introduction

In this chapter the methods used in undertaking the study are discussed. This includes a discussion on research design, population, sampling procedure and sample size, instruments, validity and reliability, procedure for data collection, data analysis, and ethical considerations.

3.2 – Research design

The research design for this study was correlational research. According to Fraenkel and Wallen (2009), correlational research design can also be referred to as associational research. In this design, relationships between two or more variables are examined without any intention of manipulating the variables. In its most basic form a correlational study would explore the possibility of a relationship between only two variables. Relationships amongst more than two variables are also possible and common. In correlational research, data about two or more quantifiable variables is collected. The data is then subsequently used to determine whether, and if so, to what extent, a relationship exists between the variables.

Fraenkel and Wallen (2009) add that correlational studies may be undertaken to achieve one or the other of two basic aims. One of these aims is to formulate an explanation of an important human behaviour. The second aim is to permit the prediction of a likely outcome. Correlational studies usually examine a number of variables (such as physical and social environment, teacher-pupil interaction, parental involvement) suspected to bear a relationship to another major and complex variable (such as school readiness) with the aim of unearthing relationships.

Suter (2006) defines correlational research as a design that is not experimental and which tries to establish relationships between variables. It does this by measuring individual differences. Gay, Mills and Airasian (2009) on their part view a correlational research as one which is designed to explore whether and how certain variables are related, or to test hypotheses on expected relationships. A correlational study utilizes a correlation coefficient to indicate the extent to

which two or more quantitative variables are related. Several different correlation coefficients exist, with Pearson coefficient of correlation, *r*, being one of the most common (Suter, 2006). A correlational study does not prove that one variable cause the other. In other words it does not establish a case of cause and effect per se. Many correlational studies, however, are designed to provide insights into cause and effect (Fraenkel & Wallen, 2009). A correlational study can also be structured in a way that strengthens the possibility of causation. One of the ways this can be done is by allowing a time lapse between measurement of the study variables. If a correlation of sufficient magnitude is established between two variables, it becomes tenable to predict one variable if the other one is known.

In certain disciplines like developmental psychology, it is difficult and probably unethical in certain instances to design an experimental study. Still, a lot can be revealed or learnt by examining relationships among several variables. Correlational research design was found to be appropriate for this study since it was not practical or even ethical to manipulate or arrange for occurrence of a factor or factors believed to have a significant relationship with or to influence outcome in pupils. It is also suitable for investigation of variables believed to be related to and to have an influence on a more complex variable such as development and learning. It is recommended that the measurement scales used in correlations should be at least interval scales, but other correlation coefficients are available to handle other types of data.

3.3 – Target population

A target population comprises a group of entities, which could be individuals or organizations, with certain common characteristics that a researcher can identify and study (Creswell, 2012). The target population for this study was 1135 preschools in Nairobi County preparing pupils for entry into class one. The pupils enroled in those preschools, their teachers, and their parents were active study participants. The pupils were those who would be joining primary class one in the following year, and are typically aged 5+ years. The distribution of preschools in Nairobi County is given in Table 2.

Table 2: Distribution of preschools in Nairobi County by school type

Location	City County standalone Day Nursery	Public primary school preunit	Private	Nonformal	**Total**
Dagoretti	1	23	16	58	98
Embakasi	5	20	20	102	147
Kamukunji	1	17	7	8	33
Kasarani	0	25	13	277	315
Langata	1	12	15	74	102
Makadara	5	26	6	12	49
Njiru	0	19	0	168	187
Starehe	5	26	5	72	108
Westlands	3	19	18	56	96
Total	**21**	**187**	**100**	**827**	**1135**

Source: Nairobi City County Government (2015)

3.4 – Sampling procedure and sample size

A sample may be considered to be a sub-set of the population that the researcher is interested in (Cresswell, 2012). The sample possesses the same characteristics as the population of interest, the target population, such that the researcher plans to generalizing the findings from the sample to the target population. A list of all the preschools was obtained from the Education Department of the Nairobi City County government and was used in sampling.

Mixed sampling techniques were used in the study. The preschools to be included in the study were picked from each of the nine sub-counties in Nairobi County. The sub-counties were therefore purposively sampled so that all regions of Nairobi were represented. One preschool in each sub-county was sampled from each of the four school types. For the City County standalone day nursery schools, purposive sampling was used to pick schools in Langata, Dagoretti and Kamukunji as each of these areas had only one preschool from this category. Kasarani and Njiru had no preschools in this category, and so a second school was picked from each of Starehe and Embakasi to make up for Kasarani and Njiru. This yielded nine schools from this category.

From the public primary school category, private school category, and the nonformal school category, one school each was picked from each of the nine sub-counties. The selection was done using simple random sampling using lists of schools in each of the categories for each of the nine sub-counties. This yielded a total of 36 preschools from the four categories. An additional three preschools were also picked and included to make up for any school that might subsequently become unavailable to the researcher for one reason or another. The additional three were one public primary preunit, one private preschool and one nonformal preschool. This gave a final preschool sample size of 39.

For correlational studies a minimum sample size of 30 is considered acceptable (Fraenkel & Wallen, 2009). Larger samples, however, would be preferable as they are likely to provide more meaningful results. Gay, Mills and Airasian (2009) also agree with the sample size of 30 being the minimally acceptable size for a correlational study.

The preschools sampled are given in Table 3.

Table 3: Sampled preschools by type

Type of preschool	Frequency	Percent
Public City County day nursery	9	23.08
Public primary school preunit	10	25.64
Private preschool	10	25.64
Nonformal preschool	10	25.64
Total	**39**	**100.00**

At each of the sampled preschool four pupils in their final year of preschool were randomly selected from the class register. The sampling was done using stratified sampling technique, where the pupils in the class were stratified into two strata, that is, boys and girls. This was to ensure that equal or nearly equal numbers of male and female pupils were included in the study. Two boys and two girls were then selected using simple random sampling technique from the respective strata at each preschool. A figure of four pupils per preschool was judged to be a fair representation. This yielded a pupil sample of 156. One parent of each pupil sampled was in turn purposively sampled to be a study participant. From an expected maximum of 156 parents, 150 were available to the researcher. The teacher handling the sampled pupils was also purposively sampled to become a study participant. This yielded a sample of 39 preschool teachers.

The distribution of pupils, preschool teachers and parents sampled is given in Table 4.

Table 4: Distribution of sampled pupils, preschool teachers and parents by school type

Type of preschool	No. of preschools sampled	No. of pupils per school sampled	Total no. of pupils sampled	No. of teachers per school sampled	Total no. of teachers sampled	No. of parents per school sampled	Total no. of parents sampled
Public City County Nursery	9	4	36	1	9	4	36 expected but 32 available
Public primary school preunit	10	4	40	1	10	4	40 expected but 39 available
Private preschool	10	4	40	1	10	4	40 expected but 39 available
Nonformal preschool	10	4	40	1	10	4	40
Total	**39**	**-**	**156**	**-**	**39**	**-**	**150**

3.5 – Research instruments

Four data collection instruments were used in this study. These were Early Childhood Environment Rating Scale, Teacher-pupil Interaction Rating Scale, Parental Involvement Questionnaire, and Primary School Readiness Test. These instruments are briefly described in this section.

3.5.1 – Early Childhood Environment Rating Scale

The Early Childhood Environment Rating Scale is a rating scale that was used to collect data on the physical and social environment at the ECE centre. It has six dimensions or sub-scales. These are space and furnishings; personal care routines; interactions; activities; language reasoning; and, programme structure. Each sub-scale or dimension has several indicators, which were rated as follows: Absent/Missing/Not available [AB] =(1); Some attempt/Moderately provided for [SA]= (2); and, Adequate/Adequately provided for/Present & Adequate [PA]= (3) depending on whether the desired equipment/material/activity is lacking, is moderately available/provided for, or is adequately available/provided for.

The first sub-scale/dimension, space and furnishing, has eight indicators. The second sub-scale, personal care routine, has seven indicators. The third sub-scale is language activities, and it has three indicators. The fourth sub-scale is activities, and it comprises six indicators. The fifth sub-scale is interactions, and is made up of four indicators. The sixth and last sub-scale is programme structure and it consists of four indicators. This instrument was adapted from the Early Childhood Environment Scale. This Early Childhood Environment Scale was developed in 1980 by Harms and Clifford (Johnson, 1987). Harms' and Clifford's (1980) instrument contains 49 items that constitute seven sub-scales or dimensions. These sub-scales are personal care routine; furnishings and children's displays; creative activities; experiences on language reasoning; gross and fine motor activities; adult needs; and, social developments. Harms, Clifford and Cryer (1998) carried out some revision on the original Harms' and Clifford's (1980) instrument. Adaptations of Harms' and Clifford's (1980) instrument have been used extensively by different researchers including Mwaura (2009) and Sylva et al (2003). The instrument developed by Harms and Clifford (1980) was found to be quite comprehensive and most suitable for adaptation

for this study. Adaptation and modification included editing out creative activities and adult needs dimensions. These were judged to be uncommon in our preschools and difficult to rate objectively.

Other instruments that have been developed for assessing the quality of early childhood environment include one developed by Getz and Berndt (1982, cited in Johnson, 1987). It quantifies the physical features of play provisions in a preschool or day-care centre. This instrument focuses on three different dimensions of the physical environment of an activity centre typically found in ECE settings. Each dimension deals with the quality of play resources available to young children. Dimensions refer to accessibility and visibility of provisions for play, the degree of variation in complexity level, and the availability of alternative selections for play options. On this instrument play units or activity centres can be classified into three types: simple, complex and super.

Another instrument reviewed is the Dimensions of Teaching-learning Environments. This instrument for assessing the early-learning teaching and learning environment was developed by Jones in 1977 (Nolan, 2002). It describes the physical setting and teacher's behaviour along four dimensions. The four dimensions are soft-hard, intrusion-seclusion, simple-complex, and high mobility-low mobility. These dimensions are viewed along a continuum and the instrument explores possibilities of arranging environments within them. The National Association for the Education of Young Children in the US has also developed accreditation criteria and procedures. They contain standards for early childhood programmes set by the profession. A section of these standards describes nine aspects of the physical environment. The scale focuses on the interactions between pupils and teachers, arrangement of the environment, and selection of materials (Isenberg & Jalongo, 2006).

3.5.2 – Teacher-pupil Interaction Rating Scale

This instrument is a rating scale that was used to record the quality of the teacher-pupil interaction at the preschool. It comprised 26 items regarding different aspects of the interaction between the teacher and his or her pupils. Each item is rated on 3-point scale (never, sometimes, and very much) indicating how much each item is true or characteristic of the teacher. The items make up four subscales. These are: i) Positive-relationship - this subscale measures the degree of warmth and enthusiasm, and appropriateness of the interaction pattern. ii) Harshness - this subscale assesses the level hostility, criticism, harshness and threats in the interaction style. iii) Detachment - this measures the teacher's level of non-involvement and non-interest in pupils. iv) Permissiveness - this last sub-scale gauges the level of the teacher's tolerance of misbehaviour in and out of classroom.

The first sub-scale, positive relationship, has 10 items or indicators. The second sub-scale is harshness, and it comprises seven items. The third sub-scale is detachment, and it contains five items. The fourth sub-scale is permissiveness, and it comprises four items. The instrument has been adapted from Arnett (1989) who based her adaptation on Baumrind's theoretical model of socialization (Santrock, 2011). Diana Baumrind (1971, 1996 in Santrock, 2011) was a leading authority on parenting and used a similar instrument to rate child-caregiver interactions, from which she identified the four widely known parenting styles of authoritarian, authoritative, neglectful, and indulgent. Baumrind (1971, 1996) advises parents to formulate rules to govern children's behaviour while also being supportive and nurturant for the best outcome in children. This closely matches authoritative style of parenting. Chen (2009) in Santrock (2011) points out that numerous research findings support the views of Baumrind.

3.5.3 – Parental Involvement Questionnaire

The Parental Involvement questionnaire was used to collect information from one parent of each preschool pupil included in the study on the level to which the school involves them and the family in the education of their child. The instrument measures the extent of parental involvement in the six levels or types of involvement identified by Epstein, et al. (2009). These levels include activity both in and out of the classroom.

The levels are: i) Parenting level – this type of involvement helps families and parents to do a better job of parenting and improve the home setting so that it supports the child's learning better. Schools and teachers in turn get a better understanding of their pupils' families. ii) Communicating level – this level of involvement ensures that effective two-way communication between the school and home is maintained. Pupil progress and school activities form the bulk of this communication. iii) Volunteering level – at this level volunteers are organized to support pupils and the school. Parents get opportunities to volunteer their time and skills at various times and in different locations at school. The parents may assist in as well out of class. iv) Learning at home level – this level of involvement enhances parents' and families' participation in their children's homework tasks and other curriculum-related activities. v) Decision-making level – this type of involvement purposes to include parents as participants and stakeholders in school decisions. It also supports the development of parent leaders and representatives. vi) Collaborating with the community level – at this level of involvement, strategies for coordinating services and resources from the community for parents, pupils and the school are put in place. The school also provides services to the community.

Several other instruments that were reviewed during the development of the Parental Involvement Questionnaire include other instruments that have been developed by Epstein and associates (Epstein, et al., 2009). One of them is Parent Survey of Family and Community Involvement in the Elementary and Middle Grades (Sheldon & Epstein, 2007). This instrument measures current levels of family involvement as well as parents' reports of strategies put in place by schools to enhance family involvement. The skills, responsibilities and attitudes of parents towards school are also measured by this instrument.

Another instrument that guided the construction of the Parental Involvement Questionnaire is the School and Family Partnerships: Surveys and Summaries Questionnaires for Parents. This instrument was developed by Epstein and Salinas (1993). It measures current involvement of families and desired family involvement, amongst a host of other variables. Koech (2010) and Ndani (2008) also used similar instruments which they had adapted from Epstein (1993).

3.5.4 – Primary School Readiness Test

This instrument was used to assess the pupil's school readiness, that is, the pupil's readiness to fully participate in learning activities and experiences offered at class one and reap maximum and desired benefits thereof. The test has six sub-scales, each measuring a different aspect or dimension of school readiness. These sub-scales are cognitive dimension, language dimension, social-emotional dimension, adaptive dimension, physical and motor dimension, and approaches to learning dimension. The instrument was developed by the researcher after extensive review of descriptions of various readiness tests and also the KIE Early Childhood Development and Education syllabus.

The school readiness tools reviewed in the development of the Primary School Readiness Test include one developed by Ngaruiya (2013). Ngaruiya's (2013) Pre-school Children's School Readiness Rating Scale does not have cognitive and psychomotor competency dimensions, with the developer arguing that cognitive competency is implied in language competency. This researcher, however, felt cognitive competency is too crucial for overall school success to be subsumed in language competency, while psychomotor competency is an important competency that is too often given less attention than it deserves. The two domains were therefore included in and are well-represented in the Primary School Readiness Test.

School readiness expectations should not be based on a narrow checklist that focuses on only one or two dimensions of development. As Santrock (1994) observes, such a narrow focus – only considering language or cognitive skills, for example – ignores the complexity and multidimensionality of children's development. Costenbader, Rohrer and Difonzo (2000, in Crosser, 2005) have identified a list of domains that they suggest are suitable to test at kindergarten entrance. They include cognitive development, speech and language development, physical health, hearing and visual perception, knowledge of basic concepts, gross and small muscle development, socialization, and self-help.

Another school readiness tool reviewed is the Early Development Instrument (EDI). Janus and Offord developed the EDI in 2000 (Janus, 2007). The EDI comprises five domains of readiness. These domains are physical health and well-being; cognitive and language development; social competence; emotional maturity; and, general knowledge and communication skills. These five domains are covered by 104 items completed by the teacher for each child. This instrument was normed on over 16,000 children in Canada. The EDI is a comprehensive tool, but the researcher felt it contains too many details and some constructs that are difficult to observe or measure, such as anxious and fearful behaviours, to successfully adapt it for this study. Physical health and well-being would also be problematic to assess without bringing in a medical expert. EDI was also developed for children in a different cultural setting and education jurisdiction. However, ideas and items that cut across cultures and are applicable to the local context were infused into the Primary School Readiness Test. Such items include those on language and cognitive development, which were modified to fit in with the local ECE curriculum.

The development of the Primary School Readiness Test followed a systematic approach suggested by Benson and Clark (1983, in Creswell, 2012). This approach suggests the identification of the purpose and target group the instrument is to serve as the first step. The next step involves a review of literature, followed by writing the items or questions as step three. The fourth and last step involves testing of the instrument using persons with similar characteristics to the study target sample. These steps were followed in the development of the Primary School Readiness Test, and the instrument was discussed with a panel of experts comprising the supervisors and early childhood education practitioners.

3.6 – Piloting

Three preschools, which were 7.5% of the sample size, were selected for use in piloting. These comprised of one City County day nursery school, one public primary school and one private school. The preschools were randomly picked from the list of schools, avoiding those that had been included in the sample. The Early Childhood Environment Rating Scale was completed for each of the three preschools during piloting. A Teacher-pupil Interaction Rating Scale was

completed for the teacher in charge of the pupils in their final year of preschool at each of the three pilot schools. Three pupils were randomly selected for piloting from each of the three preschools, giving a total of nine pupils. One parent of each of these pupils was selected for piloting, giving a total of nine parents.

Piloting provided useful insights that were used to address any deficiencies identified in the instruments. The pilot test participants were asked to point out any areas of the instruments or data collection procedure that they felt were not clear or those that would lead to an improvement of the same. Any issues of both commission and omission were also noted. Reviewers then examined the completeness of the instruments. This was one way to determine the instruments' content validity. Feedback from the piloting was used to do minor final alterations and modifications on all the four instruments, and the end product of the pilot test was revised instruments ready for use. Two research assistants were recruited and trained to assist with data collection starting with the piloting.

3.7 – Validity

The validity of a research instrument refers to how well the instrument measures what it is designed to measure. This in turn allows appropriate interpretation of the findings or scores about a concept or construct obtained using the instrument (Creswell, 2012). Validity therefore connotes correctness, appropriateness and meaningfulness attached to the inferences arrived at. In general, validity is assessed on a continuum. That is to say that a research instrument may be highly valid, moderately valid, or generally valid (Gay, Mills & Airasian, 2009). Four types of validity are generally discussed by researchers and scholars. These are: (i) Consequential validity (ii) Construct validity (iii) Criterion-referenced validity (iv) Content validity.

Content validity type was used to assess the validity of the four instruments used in this study. Content validity assesses the validity of an instrument through item validity and sampling validity. Item validity was enhanced by ensuring that each instrument contained only items that were relevant to the measurement of the intended content area or variable of interest. Sampling

validity was enhanced by ensuring the test or instrument sampled the total content area being tested or measured adequately. For the Primary School Readiness Test the KICD/NACECE syllabus was utilized. Expert judgment of item and sample validity, rather than by statistical means, is used to assess validity. A panel of experts comprising of the two university supervisors and three preschool teachers carefully reviewed the process used to develop and adapt the instruments as well as the instruments themselves.

The panel of experts suggested a number of modifications to the instruments. These included changing words and letters in the Primary School Readiness Test meant for the pupils to read into lower case after the preschool teachers pointed out that the pupils are first exposed to and are more versed with lower case letters. Another modification in the Readiness Test was removal of a task that required pupils to demonstrate ability to lace one shoe from the adaptive domain as that task was already present in the physical and motor domain, where it was testing for small muscle and psychomotor development. In the Early Childhood Environment Rating Scale, a modification was suggested to include a number of specific activities that pupils usually engage in using outdoor gross motor equipment to facilitate more precise measurement of this indicator. After the suggested modifications were made, the panel of experts reviewed the four instruments and adjudged them to be of strong and satisfactory validity to be used for the intended purpose.

3.8 – Reliability

Reliability of a research instrument indicates the extent to which the instrument measures whatever it is measuring consistently. High reliability indicates that scores from the instrument in question remain stable and consistent over time. When administered more than once at different times, the scores should remain the same or nearly the same if the instrument is reliable. Types of reliabilities include stability reliability (also called test-retest reliability), equivalence reliability (also called equivalence-forms reliability), internal consistency reliability, and scorer/rater reliability. The reliability of a research instrument is normally stated using a numerical value known as a reliability coefficient. Scorer or rater reliability method was used to

determine the reliability of the four instruments used in this study. This was done during the piloting phase.

Scorer reliability is evaluated by having two individuals independently observe and score the same target behaviour of the same subject or the same variable of interest during the same observation period. The scores of the two observations are thereafter compared. A percentage of agreement between the observers is calculated. During the piloting phase, the researcher and a research assistant each completed the Early Childhood Environment Rating Scale for each of the three preschools, a Teacher-pupil Interaction Rating scale for each of the three preschool teachers, a Parental Involvement Questionnaire for each of the nine parents and a Primary School Readiness Test for each the nine pupils. The percentage of agreement between the observations was worked out for each subject by dividing the smaller score by the bigger one and expressing it as a percentage. An average score was then worked out for the three schools, the three preschool teachers, the nine pupils and the nine parents.

This procedure yielded sorer reliabilities for the four instruments as follows: Early Childhood Environment Rating Scale – 87.4 %; Teacher-pupil Interaction Rating Scale – 79.6%; Parental Involvement Questionnaire – 81.6%; and Primary School Readiness Test – 80.8%. Miltenberger (2008) offers a guideline on rater reliability by suggesting that the lowest acceptable reliability is 80%, although higher reliabilities are preferred. Fraenkel and Wallen (2009) argue that a reliability coefficient of at least 0.70 is generally acceptable for research purposes, though a higher value would also be preferable. As a percentage 0.70 would translate to 70%. Using these guidelines, the reliability levels of the four instruments used in this study were judged to be acceptable and satisfactory.

3.9 – Procedure for data collection

Before embarking on data collection, the researcher applied for research permits and authorization from the National Commission for Science, Technology and Innovation

(NACOSTI) and the Nairobi County Government Education Department. After this authorization was received the process of data collection commenced.

The Early Childhood Environment Rating Scale was completed by the researcher for each preschool while observing the different aspects of the physical and social environment, which includes the classroom, outdoor as well as activities and interactions. A few items, specifically those collecting the centre background information, required direct responses from the teacher and the headteacher. The physical and social environment rating scale section involved observing the classroom, the outdoors, activities and interactions, and rating them on the scale depending on whether the said indicator is absent/missing, moderately provided for, or present and adequate.

The Teacher-pupil Interaction Rating Scale was completed by the researcher while observing the teacher interacting with pupils during classroom and outdoor activities. It involved rating the interaction between the teacher and her/his pupils based on several predefined interaction dimensions, depending on whether the interaction pattern occurred very much, sometimes or never occurred.

The Parental Involvement Questionnaire was completed during a face to face session with one parent of each pupil that was sampled. The parents were engaged in the school or at the gate in the morning as they dropped off their children to school. For various reasons that included the parent being in a rush in the morning, the fact that in private schools most pupils use school transport, and the fact that some preschool pupils report to school accompanied by their elder siblings, it was not possible to have a face to face session with some parents at school. Such parents were engaged later on phone and the questionnaire completed.

The Primary School Readiness Test was administered by the researcher in collaboration with the preschool teacher to individual pupils. Most of the items in the test involved giving a specific task to the pupil, and rating the pupil's performance on the task. The pupil was rated as having full ability in performing the task, having some ability or no ability. The last sub-scale in the test, on approaches to learning, required the researcher to rate the pupil on certain attributes that are crucial to the process of learning.

3.10 – Data analysis techniques

Data analysis encompasses the description of trends, comparison of groups or trying to relate study variables using statistical analysis. A statistic is the value calculated for a sample drawn from a population. The data collection instruments for this study had scales of measurement that are largely interval and ratio scales. Various statistical analysis methods were used to analyse the data collected in this study.

Pearson product-moment correlation statistical analysis was used to examine the relationship between primary school readiness and each of the parameters of quality. These measures of quality were physical and social learning environment, teacher-pupil interaction, and parental involvement. Regression analysis was used to explore the combined influence of the various indicators making up each of the three measures of quality. These indicators are the sub-scales in the three measures of quality. The physical and social environment measure of quality has space and furnishing; personal care routine; activities; language reasoning; interactions; and, programme structure. The teacher-pupil interaction measure of quality has the indicators positive interaction; harshness; permissiveness; and, detachment. The third measure of quality, parental involvement, has the indicators for involvement at parenting level; communicating level; volunteering level; decision-making level; learning at home level; and, collaborating with the community level.

Frequency distributions and percentages were used to organize demographic data on study participants. The alpha or level of statistical significance selected was 0.05. The Statistical Package for the Social Sciences (SPSS), however, sometimes uses a statistical significance level of 0.01 for some of the statistical analyses it carries out. SPSS version 20 was used to carry out the statistical analysis.

3.11 – Ethical considerations

Ethical considerations and concerns in research are meant to ensure that scientific enquiries and studies are done using procedures that offer the best possible protection to the participants and also to the researchers (Clough & Nutbrown, 2007). Ethical guidelines also ensure that study participants are involved on a voluntary basis and with their informed consent, and also ensure that the participants' identities and personal information are handled in confidence. Part of ethical considerations in research entails obtaining permission and authority from various entities to conduct research.

Permission and authority to conduct the study was sought from the relevant government agencies. The government agencies were the NACOSTI and the Nairobi City County Education Department. An application for research permit and authorization was made to each of these two government agencies. Permission in form of research permit and authorization was subsequently obtained from the government agencies. Next, permission was obtained from the headteachers of all the sampled schools. For private preschools, permission was also obtained from the school proprietor. Through preschool heads and teachers, parents of the pupils who had been sampled were contacted. The parents were required to sign a Consent and Authorization Form, indicating their willingness to take part in the research and also their authorization allowing their child to be included in the study. Before giving their consent, all relevant disclosures were done. These included being informed that their own and their child's participation was voluntary, that the study posed absolutely no known risks or discomforts to either them or their child, and that the anonymity of the study participants would be assured and protected. Although a Research Consent Form had been prepared, when the relevant disclosures were done, and the parents were

informed that the full extent of their child's involvement would take place at school, they were content to give their consent and authorization verbally as they themselves were being interviewed. Those parents who were not available for immediate face to face interview were also content to give their consent on phone.

CHAPTER FOUR

FINDINGS AND DISCUSSION OF RESULTS

4.1 –Introduction

In this chapter the findings and results of the study were presented. These emanate from the analysis of data collected. The findings were then examined in light of findings from similar or related studies, and discussed appropriately. This chapter was organized under the following sub-headings: Instrument return rate; demographic characteristics of study participants; relationship between quality of physical and social environment and school readiness; relationship between the combination of indicators of quality of physical and social environment and school readiness; relationship between quality of teacher-pupil interaction and school readiness; relationship between the combination of indicators of quality of teacher-pupil interaction and school readiness; relationship between quality of parental involvement and school readiness; relationship between the combination of indicators of quality of parental involvement and school readiness; and, conclusion.

4.2 – Research instrument return rate

A few instruments were not returned or completed as envisaged. The research instrument return rate is given in Table 5.

Table 5: Research instrument return rate

Instrument	Sample size	Number completed	Percentage return rate
Early Childhood Environment Rating Scale	40	39	97.5
Teacher-pupil Interaction Rating Scale	40	39	97.5
Parental Involvement Questionnaire	160	150	93.8
Primary School Readiness Test	160	156	97.5

The instrument return rate was fairly high. One preschool whose operators had previously consented to being used for data collection rescinded that decision at the last minute. This had the consequence of lowering the expected sample size of preschools by one, preschool teachers by one, parents by four and pupils by four. In another preschool all four parents were unavailable for the Parental Involvement Questionnaire completion, while two were unavailable at another different preschool. All sampled pupils in the 39 preschools were available for administration of the Primary School Readiness Test.

4.3 – Demographic characteristics of study participants

These main study participants were the preschool teachers, pupils and the parents. The key demographic characteristics of the participants are presented in this section.

4.3.1 – Demographic characteristics of teachers

The demographic characteristics of preschool teachers presented here are the highest educational qualification, age, length of teaching experience, and gender.

The highest educational qualification characteristics of teachers are given in Table 6.

Table 6: Highest educational qualification of preschool teachers

Highest educational qualification	Frequency	Percentage
Form 4/KCSE	2	5.13
Certificate	12	30.77
Diploma	21	53.84
Degree	4	10.26
Total	**39**	**100.00**

Academic qualification of preschool teachers has implications on quality of ECE and consequently might affect school readiness. Zigler, Styfco and Gilman (1993), in Driscol and Nagel (2002) concluded that the largest threat to quality in early education is found in staffing, and that the quality of a programme is related directly to the quality of the staff. Bredekamp (1989) in Galinsky (1991) indicate that experiences with NAEYC's accreditation system shows that developmentally appropriate activities and practices at preschool are more likely to take place if teachers have a combination of formal education and training in early education. Finkelstein (1982) in Galinsky (1991) found that when teacher-caregivers have training in behaviour management techniques, the frequency of children's aggressive incidents is lowered. The Effective Provision of Preschool Education (EPPE) study in the United Kingdom identified particular indicators of quality, one of which is having practitioners who possess the knowledge on how children learn and an understanding of the early-years curriculum (Bruce, 2010).

A big percentage of the preschool teachers sampled have educational qualification of a minimum of certificate. This indicates a good quality on that indicator, but since we have an adequate pool of trained preschool teachers, those without professional training should not be handling pupils.

The age characteristic of the preschool teachers sampled is presented in Table 7.

Table 7: Age of preschool teachers

Age (years)	Frequency	Percentage
21 – 25	4	10.8
26 – 30	7	18.9
31 – 35	4	10.8
36 – 40	8	21.6
41 – 45	7	18.9
46 – 50	5	13.5
51 – 55	2	5.4
Total	**37**	**100.0**

Two respondents did not indicate their age. The age of preschool teachers can have implications on quality of the teacher-pupil interaction, and also on the kind of activities that the teacher proposes for the pupils. According to Morrison (2007), there are four dimensions to being a highly-qualified professional. These are educational attainment, professional practice, public presentation, and personal characteristics. The personal characteristics dimension comprises qualities such as being energetic and in good mental and physical health.

The majority of the teachers (94.6%) are aged 50 and below. Preschool pupils are very energetic and active, and it would take a big toll on the teachers if they are not energetic themselves and in

good physical health. Having many teachers aged 50 and younger therefore means there is a workforce that is equipped to cope with the very high levels of activity typically expected of preschool pupils, which is in turn expected to bode well for quality.

The demographic characteristic of length of the teaching experience of the sampled preschool teachers is presented in Table 8.

Table 8: Length of teaching experience of preschool teachers

Length of teaching experience (years)	Overall		At current preschool	
	Frequency	Percentage	Frequency	Percentage
Less than 2	0	0	4	10.3
2 – 4	6	15.4	17	43.6
5 – 7	7	17.9	4	10.3
8 – 10	3	7.7	7	17.9
11 – 13	1	2.6	1	2.6
14 – 16	11	28.2	4	10.3
17 – 19	2	5.1	1	2.6
20 – 22	3	7.7	1	2.6
23 – 25	5	12.8	0	0
26 – 28	1	2.6	0	0
Total	**39**	**100.0**	**39**	**100.0**

Overall 33 of the 39 teachers (84.5%) had a teaching experience of 5 years and more. This shows a fairly well experienced group of teachers. This is an indicator of high quality as many years of experience ordinarily produces a highly skilled practitioner. Read et al. (1993) observes that learning to teach seems to occur in developmental levels just as children go through stages of

development. Read et al (1993) cite Katz (1972) who has proposed one way to look at developmental stages that teachers of young children may experience.

The first stage may be one of survival, in which teachers may be surprised at the disconnect between their high hopes and the realities of day-to-day work with children. Next is consolidation, when the teachers pull together what they have learned and look forward to gaining more skills in working with individual children. Then may come renewal, when teachers begin to look for ideas about new materials, procedures, and approaches. Teachers reach a stage of greater maturity after several years. They feel free to develop their own ideas and to become more creative in teaching. They become more concerned about the philosophy underlying the practice of ECE. The longer a teacher has worked, the higher the likelihood of their reaching this stage of maturity. In ECE where all areas of development are interrelated, and children are learning something at any given point in time, creativity in teaching becomes a very effective strategy. Teachers with many years of teaching experience are therefore expected to be excellent with young children, enhancing quality of ECE and subsequently school readiness.

The demographic characteristic of gender of the preschool teachers is presented in Table 9.

Table 9: Gender of preschool teachers

Gender	Frequency	Percentage
Male	1	2.6
Female	38	97.4
Total	**39**	**100.0**

Nearly all the teachers who were handling the pupils in their final year of preschool were female. Indeed, of the 39 schools in the study, only one had a male teacher. This scenario is, however, not unique to Nairobi or even the country. It appears to be a global phenomenon. For instance, national figures in the United Kingdom indicate that only 2.8% of nursery teachers are male,

while the proportion of male childminders is 1% (Department of Education and Skills (DfES), 2002, in Clough & Nutbrown, 2007).

Clough and Nutbrown (2007) reviewed a study by Cook (2005) which sought to establish the reasons for the low number of men in the early childhood workforce. In the review Cook (2005) found four main reasons that are often advanced to explain the overwhelming underrepresentation of men in the early childhood workforce. These are: (i) Career issues which include pay, status and employment conditions (ii) Gender-biased attitudes where a career in early childhood workforce is seem as an extension of mothering (iii) Fear of discrimination from family, employers, colleagues and parents (iv) Fear of false allegations of child abuse. Cook (2005) demonstrated that a bigger number of females wanted to work with children, and that males and females saw careers involving young children as being a natural choice for women. Young males would rather follow a different career as they find children stressful and annoying. Males feel they do not have the patience to work with young children and they believe that young children prefer the company of women.

Having more female teachers in preschools might confer certain advantages that come from their being the more natural choice for working with children and their natural ability to handle young children. The young children, however, need role models of both genders. This is important for appropriate gender identification and gender role development in the pupils. More and more children today are growing up in single-parent homes. More often than not the single parent is the mother. Such children would therefore benefit immensely from a close relationship with a significant male figure of authority such as a teacher. Absence of or low number of male teachers at preschool might therefore have some implication on quality of ECE.

4.3.2 – Demographic characteristics of parents

The demographic characteristics of parents presented here are highest educational attainment, age, gender and marital status.

The demographic characteristic of parents' highest educational attainment is presented in Table 10.

Table 10: Highest educational attainment of parents

Highest educational attainment	Frequency	Percentage
University education	13	8.7
Mid-level college	20	13.4
Secondary education	69	46.3
Primary education	42	28.2
None	5	3.4
Total	**149**	**100.0**

Of the 150 parents for whom the questionnaire was completed, one did not indicate their highest educational attainment. The majority of the parents had at least primary school education. A parent's level of education has been shown to have a significant impact on the quality of ECE and subsequently school readiness. This impact can be both direct and indirect. For instance, a longitudinal study by Peisner-Feinberg et al. (2001) and cited by Crosser (2005) sought to determine if there were any long-term impacts on children's social and cognitive skills associated with the quality of child-care by following children from ages 4 to 8. The results indicated an association between high-quality preschools and long-term benefits in children. More importantly, the researchers analyzed the children's achievement based on maternal level of education. Maternal level of education is frequently used as an indicator of family socioeconomic status. The analysis revealed that the quality of early learning experiences was more important for children whose mothers had a lower level of education. This means that the children who were most at risk also had the most to gain from enhanced quality of early child care and education. Parents, a majority of who are actually mothers, with a highest educational attainment of secondary school and lower can be considered to make up the less educated category. This category comprises 116 of the 149 parents, which is 77.9%. This means that the children of this 77.9% of the parents have the most to gain from a high quality ECE.

Ndani (2008) found that participation and involvement by parents in preschools increases as the level of education increases. In ECE settings parental involvement is itself a measure of quality. It therefore follows that if many parents are highly educated, the level of involvement will be high. This will in turn translate into high quality ECE. With 102 of the 149 parents (68.4%) having a minimum of secondary school education, it would appear that majority of the parents have an education attainment that enhances the quality of ECE their children receive.

The demographic characteristic of age of parents is presented in Table 11.

Table 11: Age of parents

Age	Frequency	Percentage
18 – 23	5	3.38
24 – 29	50	33.78
30 – 35	33	22.30
36 – 41	38	25.67
42 – 47	17	11.49
48 – 53	1	0.68
54 and older	4	2.70
Total	**148**	**100.00**

Two parents did not disclose their ages, giving a total of 148 respondents. The age of a parent can have a slight and indirect bearing on the quality of ECE. When a parent is too young, for instance, she may not have good child caring skills. The kind of care she gives to the child at home would in turn affect the child's experiences at school. If a parent is much older than the average parent of a preschool child, she may be too fatigued to accord the child adequate care at home. This too would affect the child's experiences at school. Many times parents feel anxious about the behaviour of their children. As Read et al. (1993) observed, parents who are older than the average parent of preschool child, or who have professional experience unrelated to young children may have had little background to help them understand a child's growth impulses. Such parents are likely to see failure in their children as a reflection of their own failure. Parents in the age brackets between 30 and 53 are like to have good parenting skills, being not too young

and not too old. These are individuals who are likely to already be well established in their careers, at least for those who work. They are also likely to have accumulated valuable parenting skills, probably having already had one or more older children. This category of parents constitutes 89 of the 148 parents (60.14%), indicating a big proportion of parents likely to possess good parenting skills.

The gender characteristic of parents is presented in Table 12.

Table 12: Gender distribution of parents

Gender	Frequency	Percentage
Male	33	22
Female	117	78
Total	**150**	**100**

The majority of the parents available for completion of Parental Involvement Questionnaire were female. This is probably due to the fact that in most households, even when both parents are present, mothers are usually charged with the responsibility of dropping their children to school in the morning, and also picking them up at the end of the school day. Since most parents were engaged by the researcher as they dropped their children at preschool, it would be expected that majority of the parents who completed the questionnaire would be mothers.

In the case of single parent households, which could result from divorce, separation, or having never married, in almost all the cases it is the mother who retains custody of the children.

Ndani (2008) also noted gender imbalance in parents' participation in preschools. When equal numbers of male and female parents were invited to their children's preschool, those who actually turned up constituted 73.3% of women and 26.7% of men. Under these circumstances, the mother has primary responsibility of providing not just nurture and care, but also of disciplining the child, and assisting the child with homework. Because of the way mothers respond to young children, they are in a position to provide better care compared to fathers. Though males can make fairly effective parents as the primary caregivers, the way they respond to young children makes females more adept at caring for young children. A study by Niva

(1996) and reviewed by Clough and Nutbrown (2007) indicated that men's natural ability to care for young children is doubted by female workers in childcare.

Having many of the parents with primary responsibility for nurture and care of the pupils being mothers means the children will comparatively be receiving high quality care. This will definitely in turn impact positively on the children's success at school. It must be pointed out, however, that this should be viewed and considered in the context of reasons for the father's absence. This is to say, whether the father is not involved because of work commitments, neglect or desertion of parental responsibility, among other possible explanations. For proper gender identification and role development, young children need both parents in their life. Though having a father at home is no guarantee of meaningful paternal involvement with the offspring, engagement with an accessible, dependable and caring father has been found to enhance a sense of confidence and trust in children, and to significantly improve their social development (Bretherton, Golby & Page, 1993, in Santrock, 1994).

The demographic characteristic of marital status of parents is presented in Table 13.

Table 13: Marital status of parents

Marital status	Frequency	Percentage
Married	115	77.2
Single	29	19.5
Divorced	1	0.7
Separated	2	1.3
Widowed	2	1.3
Total	**149**	**100.0**

One parent did not wish to disclose their marital status, yielding a total of 149 respondents. The marital status of parents can have significant impact on several areas of a child's life, including achievement at school and can impact directly on school readiness. The stress of divorce process and the obstacles facing single-parent families are many and sometimes formidable. The process

begins with a negative public image. Divorced parents are usually regarded as being defective and viewed as failures by the general public. The term broken homes, which is commonly used, continues to reinforce the negative stereotype associated with single parent and their children. When divorce occurs, the parent who gets custody of the children is now faced with the functions of a family such as economic, support, and socialization on their own. Many of these parents need to work outside the home and hence the time available for family functions is limited.

In addition to society's tendency to treat the single parent as deviant or abnormal, their families suffer prejudice when they are held to the same expectations to which two-parent families are held (Howard & Johnson, 1985, in Driscoll & Nagel, 2002). Research reviewed by Driscoll and Nagel (2002) shows that during and after divorce children often show changes in behaviour (Hetherington, 1988, 1989). Young children experience new fears, sadness, anger, and heightened anxiety. Some studies have found children of divorced parents to be more dependent, demanding, unaffectionate and disobedient in behaviour than children from intact families (Hetherington, Cox & Cox, 1976, in Driscoll & Nagel, 2002). These are behaviours that would directly affect learning and development of the children, and consequently impact on school readiness.

In general single-parent families, particularly those in which the mother does not remarry, remain disadvantaged in economic status, health and housing conditions. This disadvantage will certainly have an impact on the quality of ECE children from such families receive. In many female-headed families, poverty or reduced income results from divorce. Even in the absence of actual divorce process, that is, in cases where the mother was never married, many single mothers face numerous disadvantages. The resultant poverty faced by single-parent families can be associated with most of the challenges faced by single-parent households. These challenges include serious financial constraints. If this situation persists the first five years of life, children grow with an IQ deficit of more than nine points regardless of family structure (Coontz, 1992, in Driscoll & Nagel). As Read et al. (1993) noted, some divorced or separated parents have to alert the preschools to the threat of the child's abduction by the noncustodial parent. This is particularly in cases where the divorce process was messy or is ongoing. Children in female-

headed families often lack live-in father role model. The single parent may also not have the time to be engaged at a level of involvement in their child's learning that they consider desirable or as they would want to. Clearly, the parent's marital status will have an impact quality of ECE and school readiness.

4.3.3 – Demographic characteristics of pupils

The demographic characteristics of pupils are presented in this section. The characteristics presented are age and gender.

The demographic characteristic of age of pupils is presented in Table 14.

Table 14: Age of the pupils

Age	Frequency	Percentage
4 years	11	7.3
5 years	84	55.6
6 years	38	25.2
7 years	12	7.9
Older than 7 years	6	4.0
Total	**151**	**100.0**

The ages of five pupils could not be ascertained and so were not indicated. The ideal and prescribed age of pupils in their final year of preschool is 5 years. The ECD Service Standard Guidelines for Kenya (Republic of Kenya, 2006) prescribes that all children shall be eligible for admission to standard 1 after their sixth birthday, or if their birthday falls within the first term (January – March). More than half of the sampled pupils fell in that age.

The age of the pupils can affect quality of ECE as well as school readiness. Some evidence shows that a narrow age range in a group may heighten competitiveness among children and offer less chance for the learning that come from being with children who are both younger and older (Read et al., 1993). This means that this group of pupils taken as a whole offers a more enriched environment for learning with the wider age range.

On the other hand, as noted by Read, et al. (1993), teachers may find it easier to provide opportunities adapted to each child's needs when the age range is within a year. This implies that a wide age range becomes a drawback because it becomes difficult to cater for individual differences. However, chronological age is not the only measure of maturity. The range in levels of development is large in any group, whatever the age range. In a family type or mixed age group the younger children have the opportunity to learn through watching and playing with older children. The older children, in turn, may gain from assisting and playing with the younger ones. Cooperative play appears to occur more easily. The mixed age group requires the guidance of a skilful teacher at times to prevent the younger children from continually taking passive roles and to prevent the older children from interfering with the play of younger children. Patterns of relating to siblings at home may be repeated at school.

In ECE practice today there has emerged the issue of trickle-down curriculum. This is where the preschool curriculum is taking on an academic look and resembling class one curriculum more and more. Crosser (2005) observes that when curriculum is a poor fit for younger children, the older ones seem to be more academically successful because they are better able to meet the increased expectations. Mishra (2008) also observes that late acquisition of basic cognitive skills impacts negatively on learning in future. Late school enrolment is a common occurrence in developing nations. In sub-saharan Africa, about 20-40% of class one pupils are two or more years older than the prescribed age (Mishra, 2008). Enrolment at class one while being overage is actually common in many developing nations of the world. Many factors contribute to this, including children's participation in family economic activities and difficulty of walking to distant schools. This can however have negative impacts on school readiness.

The demographic characteristic of gender of the sampled pupils is presented in Table 15.

Table 15: Gender of the pupils

Gender	Frequency	Percentage
Male	79	50.6
Female	77	49.4
Total	**156**	**100.0**

The near-parity in representation between the two genders was by design. Appropriate sampling techniques were used to obtain equal or very nearly equal numbers of male and female pupils. Not much can be said about the demographic characteristic of pupil gender and its implication on quality of ECE. Gender can however have implications on school readiness.

According to the cognitive developmental theory of gender initially developed by Kohlberg (1966) elaborated by Santrock (1994), gender typing in children occurs when children essentially organize their world based on their consistent self-perception as male or female. This will happen after the children form a concept of gender. This suggests that gender typing can have a great influence on the choice of activities that children opt to engage in, and this could have implications on school readiness.

Gender schema theory, on the other hand, posits that what governs a person's attention and behaviour is internal motivation that yearns to conform to gender-based stereotypes and sociocultural standards (Levy, 1991; Rose & Martin, 1993, in Santrock, 1994). Gender is influenced by biological, social and cognitive factors. Consensus is growing in gender research that there has often occurred some exaggeration in the reported gender differences (Hyde, 1981, in Santrock, 1994). When dealing with gender differences, it would do good to take cognizance of three important considerations. One, that any observed differences are based on averages, rather than being an all males against all females situation. Two, significant overlaps exist even in areas that report gender differences. Three, observed differences may be rooted in sociocultural factors, biological factors, or both.

There are many physical differences between females and males. For example, males on average grow to be 10% taller than females. According to a classic review of gender differences, Maccoby and Jacklin (1974, in Santrock, 1994) there was some evidence males possess better

math skills and also better visuospatial ability, while females have been shown to possess better verbal abilities. Maccoby (1987) however reviewed the conclusions about a number of gender aspects and made some revisions. The study noted that research evidence accumulated over the years now points to gender differences in verbal abilities having virtually disappeared. Differences in math skills and visuospatial ability, however, still persist. A number of researchers in the gender area point out that there are more cognitive similarities than differences between females and males. They also believe that the differences that have been reported have been exaggerated.

Research has also shown that most males are more active and aggressive than most females (Maccoby, 1987; Maccoby & Jacklin, 1974, in Santrock, 1994). The consistent difference in aggression often appears in children's development as early as 2 years of age. With regard to helping behaviour, Eagly and Crowley (1986, in Santrock, 1994) argue that female gender role enhance helping that is driven by the need to nurture and care. Male gender role, on the other hand, leads to helping that is motivated by the desire to be courteous and considerate towards the opposite gender. Demonstration of prosocial behaviour was one of the items in the social-emotional dimension of the school readiness test in this study. For some areas of achievement, gender differences are so huge they can best be described as nonoverlapping. For example, in certain sports there are no known top female players, and majority of all registered nurses are female. In contrast, many measures of achievement-related behaviours do not show gender differences. Girls, for example, show just as much persistence at tasks. Task persistence was one of the items in the approaches to learning dimension of the school readiness test used in this study.

Though there is a generally accepted stereotype about females being more emotional than males, research findings indicate minimal differences between males and females in terms of the way they experience emotion. Females and males frequently display the same facial expressions. When they keep diaries about experiences in their life, their emotional experiences are described in similar ways and using the same language. For many emotional experiences, research indicates little difference between the genders. Jealousy, love, anxiety, grief, embarrassment and anger are equally likely to be experienced by both genders (Tavris & Wade, 1984, in Santrock,

1994). Going beyond stereotypes, gender seems to really matter in understanding emotions, especially when the context, beliefs about emotion and the specific emotional experiences are taken into account (Shields, 1991, in Santrock, 1994). Female-male differences in emotion are more likely to occur in contexts that highlight social roles and relationships (Brown et al, 1993, in Santrock, 1994). Tannen (1990, in Santrock, 1994) argued that the way girls and boys are socialized as they grow up produce differences in the way they talk with each other. Even when they grow up in the same neighbourhood, or indeed in the same household, boys and girls grow up in vastly different word-world. Parents, siblings, peers, teachers, and other adults talk to girls and boys differently. And the differences in the way they are talked to begin early in their development.

In conclusion, as can be seen, gender differences can have an impact on school readiness in the pupils by affecting certain aspects that contribute to readiness. No attempt was made in this study, however, to analyze effect of gender on performance in the school readiness test.

4.4 – Relationship between quality of the physical and social environment and school readiness

A Pearson product-moment correlation analysis was carried out to examine the relationship between quality of the physical and social environment and school readiness. The results of this analysis are presented in Table 16.

Table 16: Pearson product-moment correlations for quality of the physical and social environment with school readiness

		Quality of physical and social environment
School readiness	Pearson Correlation	.442**
	Sig. (2-tailed)	.005
	N	39

**. Correlation is significant at the .05 level (2-tailed).

The Pearson correlation coefficient was found to be $r = 0.442$. This correlation is significant at the 0.05 level. This means that the first null hypothesis is rejected. There is a significant relationship between quality of the physical and social environment and primary school readiness in preschool pupils in Nairobi County. This finding agrees with the findings of various studies which have found that the quality of the physical and social environment is significantly related to various child outcomes. Some of these studies have been reviewed by Galinsky (1991). One of them is the National Day Care Study done in the 1970s and which found that children in classes with smaller numbers were more involved in activities, more verbal and less aggressive. Children in smaller classes also made the greatest gains in standardized test of learning and vocabulary (Ruop, Travers, Glantz & Cohen, 1979). Phillips and Howes (1987) report that most of the studies have found that adult-child ratio exerts a significant influence the behaviours of both the adult and the child in child care.

The National Child Care Staffing Study (NCCSS) (Whitebok, Howes & Phillips, 1990) found that a smaller number of children per care-giver was related to more developmentally-appropriate activities. A review by Essa (1999) also indicated a significant influence of teacher-pupil ratio on the teacher-pupil interaction as well as on the behaviour of the pupil (Phillips & Howes, 1987; Howes, 1987). Where the ratio was high, that is, a big number of children per teacher, less verbal interactions between adults and children were recorded. More verbal interactions occurred with fewer children per teacher. Mwaura (2009) also found that a preschool pupil's cognitive development could fairly accurately be predicted using the quality of their preschool's pedagogical ecology as a predictor variable. A study by Tanner (2000) and reviewed

by Crosser (2005) has linked overcrowding in classrooms to stress, overstimulation, arousal, reduced privacy, loss of control and aggression.

The findings are also in agreement with what is reported by Schweinhart and Fulcher-Dawson (2009). Schweinhart and Fulcher-Dawson (2009) report important findings that were consistent across the different countries in which the cross-cultural study was conducted. One of the findings was that when the main types of activities that children engaged in were freely chosen by the children from those proposed by the teacher, language performance of the children at age 7 improved the most. The second highest influence was from physical and expressive activities, while pre-academic activities had the third highest influence on language development. A second finding was that cognitive performance at age 7 was better for children who spent little time in activities for the whole group where the same activity was proposed by the teacher for all children. A third finding from Schweinhart and Fulcher-Dawson (2009) was that preschools that had a greater variety and number of materials and equipment produced pupils with better cognitive performance at age 7.

Another study with findings similar to this study's is Landry and Cooper (2014). Landry and Cooper (2014) reported that pupils enroled in centres that met more minimum standards in the areas of class size, teacher-pupil ratio, caregiver educational level and training had higher achievements in language, cognitive and social competency in comparison to pupils in centres that met fewer of the standards. Howes (1990) in Landry and Cooper (2014) found that children's adjustment to school later on was positively associated with the number of minimum standards a preschool met in class size, teacher-pupil ratio, physical space and caregiver training.

4.5 – Relationship between the combined indicators of quality of physical and social environment and school readiness

A multiple regression analysis was done to explore the combined influence of the various indicators of quality of physical and social environment on school readiness. The results of this analysis are presented in Table 17.

Table 17: Combined influence of indicators of quality of physical and social environment on school readiness

	Unstandardized coefficient B	Sig.
(Constant)	2.103	.000
Space and furnishing	.071	.493
Personal care routine	-.045	.527
Language reasoning	-.054	.572
Activities	.134	.021
Interactions	.105	.358
Programme structure	-.011	.879

R = 0.545: R^2 = 0.297

The multiple regression analysis yields a value of R = 0.545 and R^2 = 0.297. R indicates the strength of the correlation between the combination of independent variables and the dependent variable. The correlation between the combination of the six dimensions of quality of the physical and social environment, that is, space and furnishing, personal care routine, language reasoning, activities, interactions, and programme structure, and school readiness was therefore R = 0.545. This correlation is fairly strong and positive. The combination of the six indicators of quality of the physical and social environment and school readiness is thus positive and fairly strong. This is consistent with other studies that found positive correlations between various aspects of physical and social environment and child outcomes.

These studies include the review by Galinsky (1991), which found that children in classes with smaller numbers were more involved in activities, more verbal and less aggressive. In addition, children in smaller classes also made the greatest gains in standardized test of learning and vocabulary (Ruop, Travers, Glantz & Cohen, 1979). Phillips and Howes (1987) also noted that most of the studies have found that adult-child ratio significantly influences the behaviours of both the adult and the child. The NCCSS noted that a smaller number of children per care-giver was related to more developmentally-appropriate activities.

A review by Essa (1999) also indicated that the interactions between the pupil and the teacher, as well as the pupil's behaviour, are influenced significantly by the teacher-pupil ratio. In situations where the classroom has a big number of pupils per teacher, less teacher-pupil verbal interaction takes place. Mwaura (2009) also found preschool pupil's cognitive development could be predicted fairly well using the quality of pedagogical ecology of the preschool. A study by Tanner (2000) and reviewed by Crosser (2005) showed a link between overcrowding in classrooms and stress, overstimulation, arousal, reduced privacy, loss of control and aggression.

The findings are also in agreement with what Schweinhart and Fulcher-Dawson (2009) found. Schweinhart and Fulcher-Dawson (2009) report important findings that were consistent across the different countries in which the cross-cultural study was conducted. One of the findings was that when the main types of activities that children engaged in were freely chosen by the children from those proposed by the teacher, language performance of the children at age 7 improved the most. The second highest influence was from physical and expressive activities, while pre-academic activities had the third highest influence on language development. A second finding was that cognitive performance at age 7 was better for children who spent little time in activities for the whole group where the same activity was proposed by the teacher for all children. A third finding from Schweinhart and Fulcher-Dawson (2009) was that preschools that had a greater variety and number of materials and equipment produced pupils with better cognitive performance at age 7.

Another study with findings similar to this study's is Landry and Cooper (2014). Landry and Cooper (2014) reported that pupils enroled in centres that met more minimum standards in the areas of class size, teacher-pupil ratio, caregiver educational level and training had higher achievements in language, cognitive and social competency in comparison to pupils in centres that met fewer of the standards.

R^2 = 0.297 obtained from the regression analysis means that the six dimensions of quality of physical and social environment explain 29.7% of the variance in primary school readiness. The values of the unstandardized coefficient B reveal that space and furnishing, activities, and interactions all have a positive influence on school readiness, with activities and interactions showing the strongest positive and the second strongest positive influence on school readiness. This finding is in agreement with the findings of other studies that have shown a positive influence of different aspects of the physical and social environment on child outcomes. These studies include Schweinhart and Fulcher-Dawson (2009) who reported the highest positive influence from activities on language development in preschool pupils, while physical and expressive activities had the second highest influence on language development. Schweinhart and Fulcher-Dawson (2009) also reported that pupils who spent less time on common activities proposed for all by the teacher had better cognitive performance, while availability of a greater variety and higher number of materials and equipment was associated with better cognitive performance in preschool pupils.

On the other hand, personal care routine, language reasoning, and programme structure exert a negative influence on school readiness. It means that when all the six dimensions of the physical and social environment are combined and considered together, personal care routine, language reasoning and programme structure seem to have an inverse influence on school readiness. This finding contradicts the conclusion from studies that have found positive influence of aspects of physical and social environment on child outcomes. These three dimensions of physical and social environment that exert a negative influence on school readiness have aspects that may produce a feeling of being constrained or restricted in choice of what to do among the pupils, and

this could explain their inverse influence on school readiness. For instance, personal care routine contains items on meal and nap. Many preschools require all children to lie down quietly during nap times, even if they do not require or have sleep. Early childhood experts discourage putting children in situations where they are either bored or pressured (Galinsky, 1991), and recommend that children who do not need or have sleep at nap times to be allowed to engage in alternative activities (Essa, 1999). Lunch and snack times is another activity under personal care routine where pupils are required to observe certain behaviour codes, again with the possibility of causing negative influence on aspects of child outcomes.

Language reasoning dimension of physical and social environment has requirement for communication between teacher and pupils to be in formal language. This could produce a feeling of being pressured to conform to set language policy among the pupils. Programme structure dimension of physical and social environment contains a provision for availability of a daily schedule or time table. If this schedule is too crammed with activities that do not offer the children much choice it could lead to its exerting a negative influence on child outcomes as well. Riley (2007) observes that features of effective ECE provision include encouraging pupils to explore their environment. This would be difficult to achieve within a very rigid daily schedule. Siraj-Blatchford (2009) also notes that excellent early education settings are those that manage to strike a balance between teacher-led and pupil-initiated activities, play and interactions. A schedule that is too laden with teacher-led activities, play and interactions might therefore be counterproductive to desired child outcomes. This might be the situation when all six dimensions of physical and social environment are considered together.

4.6 – Relationship between quality of teacher-pupil interaction and school readiness

The quality of the teacher-pupil interaction was assessed at four sub-scales measuring four dimensions of the interaction. These dimensions are positive relationship, harshness, detachment and permissiveness. A high aggregate score or mean score for the positive relationship sub-scale denotes a good, positive or desirable style of interaction, which connotes good quality ECE. A high aggregate score or mean score on the harshness, detachment and permissiveness sub-scales,

on the other hand, indicates a bad, negative or undesirable style of interaction, which implies low quality ECE. Getting one overall score for this instrument would therefore not be logical. Consequently, the scores for the teacher-pupil interaction were obtained separately for each of the four sub-scales, and then each correlated in turns with primary school readiness. The results of these correlations using the Pearson product-moment correlation statistical analysis are presented in this section.

4.6.1 – Relationship between quality of positive-relationship dimension of teacher-pupil interaction and school readiness

A Pearson product-moment correlation analysis was carried out to examine the relationship between quality of the positive-relationship dimension of teacher-pupil interaction and school readiness. The results of that analysis are presented in Table 18.

Table 18: Pearson product-moment correlations for positive-relationship with school readiness

		Teacher-pupil interaction: Positive-relationship
School readiness	Pearson Correlation	.522**
	Sig. (2-tailed)	.001
	N	39

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

The Pearson correlation coefficient is $r = 0.522$. This correlation is significant at the 0.01 level. This indicates that there is significant positive correlation between quality of the positive-relationship dimension of the teacher-pupil interaction and primary school readiness. The part of the second null hypothesis dealing with positive-relationship dimension of teacher-pupil interaction is therefore rejected. There is a significant relationship between quality of positive-relationship dimension of the teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County. The finding of positive relationship between the positive-relationship dimension of the teacher-pupil interaction and primary school readiness is logical since positive-relationship is a good and desirable style of interaction. This finding is also consistent with

findings of similar studies. One of these is a study by Howes and Richie (2002), cited by Santrock (2011). Howes and Richie (2002) linked positive teacher-child relationships to several positive child outcomes. Over time experts have attempted to come up with a personality profile of a good teacher. This task is however made difficult by the complex nature of education and learning, personality and individual differences (Sadker & Sadker, 1991, in Santrock, 1994). Nonetheless, some teacher traits are associated with positive pupil outcomes more than others. Among these are enthusiasm, warmth, and awareness of individual differences (Gage, 1965, in Santrock, 1994).

Goodenow (1993, in Santrock, 1994) observes that children's achievement is greatly influenced by teacher's support. Bowlby (1969) and Stern (1985) are cited by Morrison (2007) as reporting that supportive and positive relationships during a child's earlier years of life positively influences social attachment, cognitive development and also healthy emotional development. Crosser (2005) has also reviewed studies on teacher-pupil interactions and found similar findings. One of these studies reports that when teachers support children properly, engage with them and their activities more positively, more instances of laughing and smiling were recorded in the classrooms as compared to classrooms where teachers ignored or had minimal interaction with the pupils (Hestenes, Kantos & Bryan, 1993). How close the teacher-pupil relationship is at preschool was also shown to be a very good predictor of the child's later social skills (Peisner-Feinberg et al., 2001, in Crosser, 2005).

Cameron, Connor and Morrison (2005) in Landry and Cooper (2014) found that good interactions between children and adults at preschool fosters more positive gains on several outcomes related to school readiness. Mashburn et al. (2008) in Landry and Cooper (2014) also report that sensitive teachers who create a positive climate in the classroom help enhance pupil performance in standardized tests of literacy skills in class one, while Bryant et al. (2002) in Landry and Cooper (2014) report that the same teacher traits can help predict the pupils' engagement in the classroom across all classes.

The positive-relationship dimension of the teacher-pupil interaction therefore influences school readiness.

4.6.2 – Relationship between quality of harshness dimension of teacher-pupil interaction and school readiness

A Pearson product-moment correlation analysis was carried out to examine the relationship between quality of the harshness dimension of teacher-pupil interaction and school readiness. The results of that analysis are presented in Table 19.

Table 19: Pearson product-moment correlations for harshness with school readiness

		Teacher-pupil interaction: Harshness
School readiness	Pearson Correlation	-.454**
	Sig. (2-tailed)	.004
	N	39
**. Correlation is significant at the 0.01 level (2-tailed).		

The Pearson correlation coefficient for harshness and primary school readiness was found to be r = -0.454. This correlation is significant at the 0.01 level. The part of the second null hypothesis dealing with harshness dimension of teacher-pupil interaction is therefore rejected. There is a significant relationship between quality of harshness dimension of the teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County. Harshness is a negative or undesirable pattern of interaction. The finding of an inverse relationship indicated by negative value of the correlation coefficient between it and school readiness is therefore logical and expected. When harshness is high it would be expected to impact negatively on child outcomes.

As harshness is an undesirable style of interaction, this finding is therefore consistent with the findings of numerous other studies that have found a positive relationship between positive, desirable styles of interaction and positive child outcomes. For instance, Howes and Richie (2002) in Santrock (2011) have linked positive teacher-child interactions to positive child outcomes.

Research indicates that the disciplinary techniques parents and teachers use have an impact on children's subsequent development. Daly et al. (2006) reported that research shows that children who receive emotional support and coaching do better academically and are better at sustaining friendships as compared to children who are actively criticized by caregivers. Sylva eta al (2003) report that big level of child development noted in the most effective settings were correlated with behaviour policies where teachers support pupils in being assertive and teacher-pupil interactions that involve open-ended questions that expand the child's thinking. It is clear that this pattern of interaction cannot occur in a classroom where the teacher is harsh to the pupils. Pupils are more likely to develop self-control, be considerate of others, become more compliant and cooperative if reasoning is used, and if the effect of the child's behaviour on others is explained, and if the child is taught problem-solving skills (Galinsky, 1991). High levels of harshness would prevent this from occurring.

4.6.3 – Relationship between quality of detachment dimension of teacher-pupil interaction and school readiness

A Pearson product-moment correlation analysis was carried out to examine the relationship between quality of the detachment dimension of teacher-pupil interaction and school readiness. The results of that analysis are presented in Table 20.

Table 20: Pearson product-moment correlations for detachment with school readiness

		Teacher-pupil interaction: Detachment
School readiness	Pearson Correlation	-.509**
	Sig. (2-tailed)	.001
	N	39
**. Correlation is significant at the 0.01 level (2-tailed).		

The Pearson correlation coefficient for detachment and school readiness was found to be r = -0.509. This correlation is significant at the 0.01 level. The part of the second null hypothesis dealing with detachment is consequently rejected. There is a significant relationship between

quality of detachment dimension of teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County. Detachment also connotes a negative, undesirable style of interacting between a teacher and a pupil. A detached teacher is neither warm nor demanding, and is not likely to pick important warning signs from pupils who may be having academic or behaviour problems because they do not connect with the children. An inverse relationship between detachment and school readiness indicated by the negative correlation coefficient is therefore expected and logical. This implies that this finding is also in agreement with that by Howes and Richie (2002) who reported a link between positive interactions and positive child outcomes.

Whitebook, Howes and Phillips (1990) in Galinsky (1991) report that children in settings where they were likely to be engaged in aimless wandering performed more poorly on tests of both social development and language development, which are essential areas for later achievement. Aimless wandering by pupils could result from the teacher being detached from the children.

4.6.4 – Relationship between quality of permissiveness dimension of teacher-pupil interaction and school readiness

A Pearson product-moment correlation analysis was carried out to examine the relationship between quality of the permissiveness dimension of teacher-pupil interaction and school readiness. The results of that analysis are presented in Table 21.

Table 21: Pearson product-moment correlations for permissiveness with school readiness

		Teacher-pupil interaction: Permissiveness
School readiness	Pearson Correlation	.055
	Sig. (2-tailed)	.740
	N	39

The Pearson correlation coefficient for permissiveness and school readiness was found to be r = 0.055. This correlation is not significant at the 0.01 level. The part of the second null hypothesis dealing with permissiveness is therefore accepted. There is no significant relationship between quality of permissiveness dimension of teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County. The correlation coefficient obtained is close to zero, suggesting a weak or no relationship between permissiveness dimension of teacher-pupil interaction and primary school readiness.

While it is alright to permit children a degree of freedom to explore and experiment, too much permissiveness is counterproductive. Permissiveness is in reality a negative and undesirable style of interaction between a preschool teacher and pupils. The logical expectation, therefore, is that permissiveness will be negatively correlated with positive child outcomes. Research findings indicate that permissiveness in the classroom has been associated with negative outcomes such as low cognitive and emotional empathy development (Aunola et.al., 2000, in Wikispaces Classroom), as well as low academic achievement and school involvement and higher rates of aggression (Meteyer & Jenkins, 2009, in Wikispaces Classroom). The finding of a positive relationship between quality of permissiveness and school readiness therefore seems to contradict the findings of other studies which found a positive relationship between positive interaction styles and positive outcomes. Such studies include Howes and Richie (2002).

This discrepancy can be attributed to the ambivalent nature of permissiveness as exercised by a teacher. Permissiveness has the potential to be both a desirable or undesirable pattern of interaction, the subtle distinction arising out of degree or intention. It is a tough balancing act for a teacher handling dozens of pupils to allow them a degree of freedom to explore and experiment and at the same time set limits to ensure disruptive behaviours are not permitted. As Phelan (2005) points, a permissive teacher is warm and supportive, since he or she would like to be helpful. Warmth and support are good traits, but such teachers are poor at setting limits for children. Teachers may therefore be displaying behaviours of permissiveness that fall on all points of a continuum, giving rise to the said ambiguousness in determination and a correlation coefficient very close to zero.

4.7 – Relationship between the combined indicators of quality of teacher-pupil interaction and school readiness

A multiple regression analysis was done to explore the combined influence of the various indicators of quality of teacher-pupil interaction on school readiness. The results of this analysis are presented in Table 22.

Table 22: Combined influence of indicators of quality of teacher-pupil interaction on school readiness

Model	Unstandardized Coefficients	
	B	Sig.
(Constant)	2.453	.000
Teacher-pupil interaction: Positive relationship	.129	.177
Teacher-pupil interaction: Harshness	-.074	.511
Teacher-pupil interaction: Detachment	-.073	.322
Teacher-pupil interaction: Permissiveness	-.008	.890

R = 0.568; R^2 = 0.322

The multiple regression analysis yields a value of $R = 0.568$ and $R^2 = 0.322$. The correlation between the combination of the four dimensions of quality of the teacher-pupil interaction, that is, positive-relationship, harshness, detachment, and permissiveness, and school readiness was therefore 0.568. That is a fairly strong correlation and is consistent with the various studies that have found positive and strong correlation between quality of teacher-pupil interaction and child outcomes. These studies include Howes and Richie (2002); Peisner-Feinberg et al. (2001);

Cameron, Connor and Morrison (2005); Sylva et al. (2003); Meteyer and Jenkins (2009); and Mashburn et al. (2008).

R^2 = 0.322 means that the four dimensions of quality of teacher-pupil interaction explain 32.2% of the variance in primary school readiness. The values of the unstandardized coefficient B reveal that harshness, detachment, and permissiveness all have a negative influence on school readiness, while positive-relationship has a positive influence on school readiness. This is again consistent with others studies which showed positive aspects of teacher-pupil interactions to have a positive influence on school readiness, while negative aspects of teacher-pupil interactions have negative influence on child outcomes. These studies include Hestenes, Kantos and Bryan (1993); Stern (1985); and, Goodenow (1993).

4.8 – Relationship between quality of parental involvement and school readiness

A Pearson product-moment correlation analysis was carried out to examine the relationship between quality of the parental involvement and school readiness. The results of that analysis are presented in Table 23.

Table 23: Pearson product-moment correlations for parental involvement with school readiness

		Parental involvement
School readiness	Pearson Correlation	.073
	Sig. (2-tailed)	.662
	N	38

The Pearson correlation coefficient for parental involvement and school readiness was found to be r = 0.073. This correlation is not significant at the 0.01 level. The third null hypothesis therefore fails to be rejected. There is no significant relationship between quality of the parental involvement and primary school readiness in preschool pupils in Nairobi County. Though the relationship between parental involvement and school readiness is not significant, a slight and positive correlation is obtained. This suggests some weak and positive relationship between

quality of parental involvement and school readiness. In this respect, this finding is consistent with other studies that have found positive association between parental involvement and child outcomes.

For example, a review of studies on parental and family involvement by Hull, Goldhaber and Capone (2002) indicates agreement in a big way that the involvement of families in children's education can produce a positive impact on their achievement (Henderson, 1987; Keiff & Wellhousen, 2000). Morrison (2007) argues that what happens at home significantly affects the trajectory of development and learning since learning begins at home. Studies reviewed by Crosser (2005) also indicate positive correlations between parental involvement and child outcomes. For instance, parental involvement has been correlated with higher achievement, improved attitudes, better attendance, less discipline problems, fewer grade retentions, higher aspirations, and fewer dropouts (Caplan, Hall, Lubin, & Fleming, 1997; Epstein, Clark, Salinas, & Sanders, 1997; Henderson & Mapp, 2002; Shaver & Walls, 1998; Fan & Chen, 2001; Hara & Burke, 1998; Miedel & Reynolds, 1999).

Low or moderate correlations between parental involvement and child outcomes have also been reported by other studies. For instance, Crosser (2005) reviews such studies and reports on a meta-analysis by Fan and Chen (2001) who reviewed quantitative studies examining parental involvement and achievement of children. They found a moderate relationship. The study by Izzo, Weissberg, Kasprow and Fendrich (1999) also found a moderate correlation between child's achievement and several variables. These variables were the quality of parent-teacher interactions, the frequency with which parent-teacher contact occurred, parental participation in educational activities at home, and parents' level of participation in school activities. Koech (2006) also reported low levels of parent-teacher partnerships. Ndani (2008) reported that the participation of community members was low. Ndani (2008) further offered reasons for this low community participation as lack of awareness on the need and areas to participate in, and lack of invitation.

Low and moderate correlations between parental involvement and primary school readiness, as well as the finding of a not-significant correlation, may be the result of influence of cultural and

ethnic values. In studies reviewed by Crosser (2005), it is concluded that cultural and ethnic values affect how parents view education and what they believe their role ought to be in promoting the education of their children (Mapp, 2002; Martinez & Valazquez, 2000; Peng & Wright, 1994; Henderson & Mapp, 2002). Those values and beliefs shape the nature of parental involvement, making it more diverse and unique. The family's concept of education may also differ from the school's view. The mean for parental involvement was 2.108 for private schools, 2.088 for public schools, and 2.072 for nonformal schools. This is consistent with Kangara (2010) who found parents' involvement in private ECD centres was better than in public ECD centres.

Ritter, Mont-Reynaud and Dornbusch (1993), reviewed by Crosser (2005) identified reasons for low levels of parental involvement, which may also explain the low levels of parental involvement noted in this study. One of these reasons is a history of unpleasant experiences at school. This makes parents reluctant to spend time in a school environment. Parents may also harbour a distrust of institutions in general, or school in particular. Some parents reported that when teachers questioned them about their child, they interpreted the questions as being disrespectful. Other parents reported that they were not involved because they felt they did not possess the necessary language skills. This can be particularly true of parents with low levels of education. In this study it was found that only 22.1% (N=149) of the parents had a post-secondary school education.

4.9 – Relationship between the combined indicators of quality of parental involvement and school readiness

A multiple regression analysis was done to explore the combined influence of the various indicators of quality of parental involvement on school readiness. The results of this analysis are presented in Table 24.

Table 24: Combined influence of indicators of quality of parental involvement on school readiness

Model	Unstandardized Coefficients	
	B	Sig.
(Constant)	2.500	.000
Parenting level	.049	.310
Communicating level	.046	.437
Volunteering level	.093	.075
Learning at home level	-.028	.597
Decision making level	-.145	.001
Collaborating with the community level	.045	.352

$R = 0.330$; $R^2 = 0.109$

The multiple regression analysis yields a value of $R = 0.330$ and $R^2 = 0.109$. The correlation between the combination of the six indicators of quality of the parental involvement that is, parenting level, communicating level, volunteering level, learning at home level, decision-making level, and collaborating with the community level, and school readiness was therefore 0.330. R^2 value indicates that the six indicators of quality of parental involvement explain 10.9% of the variance in primary school readiness.

The analysis also reveals that parenting level of involvement, communicating level, volunteering level and collaborating with the community level all exert a positive influence on primary school readiness in preschool pupils in Nairobi County. Volunteering level of parental involvement was found to exert the strongest positive influence on primary school readiness in preschool pupils in Nairobi County, followed by parenting level. The finding of positive influence by these four levels of parental involvement on school readiness is consistent with studies that have linked parental involvement to positive child outcomes. These studies include Hull, Goldhaber and Capone (2002), Crosser (2005) and Morrison (2007).

The analysis also indicates that decision-making level of parental involvement and learning at home level have an inverse influence on primary school readiness in preschool pupils in Nairobi

County. Decision-making level exerts the higher negative influence on school readiness. The finding of negative influence of decision-making level and learning at home level of parental involvement on school readiness is in contradiction with studies that have found a positive impact of parental involvement on child outcomes. One of these studies is Morrison (2007) which noted that engaging parents to directly work with their children at home on activities related to learning was one of the most effective ways of involving parents.

The finding of an inverse influence by decision-making and learning at home levels on school readiness may be due to the way early childhood education is currently structured and implemented locally. Most low income families see education of their children as a worthwhile investment and a route of their current situation of economic and financial hardship. In their attempt to give their children a head start in life, they may go overboard in their attempt to get involved at the learning at home level. Mwoma (2009) identified parental involvement activities as including talking about school work, checking whether the child has school work to do, and giving advice on home work. In our exam-oriented education sector today, many parents will do anything to ensure their child succeeds in school. Some parents will therefore succumb to the temptation to practically do the homework for their children or to provide all solutions with the belief that they are giving their child an edge. This style of learning at home involvement can, however, prevent the child from developing and learning optimally. This would then explain the inverse influence exerted by learning at home level on school readiness. As observed by Lareau and Horvat (1999) in Crosser (2005), low income families show involvement more at home while more affluent households tend to be involved more at school. Fan and Chen (2001) in Crosser (2005) also noted that the expectations of parents for their children's achievement was an important consideration. Fan and Chen (2001) also found evidence that these expectations may be associated with the type of involvement and frequency that parents opt to seek for themselves.

In both private and public preschool parents fund the bulk of the services to their children. In private schools the fee charged pays for everything, including teachers' salaries. In City County Day Nursery schools, the teachers are employed by the county government but the parents pay a user fee for their children. In public primary schools, the national and county governments are

yet to post preschool teachers in a majority of the schools including those in Nairobi County. The parents consequently foot the teachers' wage bill. Under these circumstances, it would be expected that parents will demand a bigger say in decision-making at their children's preschool. With many parents being from the low socioeconomic class and with post-secondary school education, they might be demanding and getting too much involvement at decision-making level. This involvement might have surpassed the optimal level and now be having a negative impact on the quality of the decisions made. This might then manifest as inverse influence on school readiness.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 – Introduction

In this chapter a short, simple and clear summary of the study is presented. This entailed a summary of the main points on how the study was done, a summary of the findings, and recommendations.

5.2 - Summary of the study and findings

This study set out to explore the influence of quality of early childhood education on primary school readiness in preschool pupils in Nairobi County. Quality of early childhood education was assessed using three parameters, namely the physical and social environment, teacher-pupil interaction, and parental involvement. Primary school readiness was assessed by use of a readiness test. This gave the four research instruments used in this study. These were Early Childhood Environment Rating Scale, Teacher-pupil Interaction Rating Scale, Parental Involvement Questionnaire and Primary School Readiness Test.

The study used an associational correlational research design. The study sample comprised of 39 preschools, 39 preschool teachers, 150 parents and 156 preschool pupils. Pearson product-moment correlational analysis and multiple regression analysis were used to analyze the data collected. The findings indicated that there exists a significant relationship between the quality of the physical and social environment and primary school readiness in preschool pupils in Nairobi County. A second finding was that there exists a significant relationship between each of three dimensions of quality of teacher-pupil interaction and primary school readiness in preschool pupils in Nairobi County. These three dimensions are positive-relationship, harshness and detachment. The fourth dimension, permissiveness, was found to be only slightly correlated with primary school readiness in preschool pupils in Nairobi County. This relationship was found to not be significant. The third major finding of this study was that the relationship between quality of parental involvement and primary school readiness in preschool pupils in Nairobi County was found to be not significant.

5.3 – Conclusions

In conclusion, it is noted that two of the three measures of quality of ECE used in this study have significant relationships with primary school readiness in preschool pupils in Nairobi County. Even where a significant relationship was not reported, there still exists a relationship between the quality of ECE or its indicator and primary school readiness in preschool pupils in Nairobi County. This means that quality definitely has an influence on school readiness in preschool pupils. Enhancing and maintaining the highest standards of quality in preschools should therefore be a priority for all stakeholders in early learning. This is especially crucial in light of the overwhelming evidence linking early learning to benefits that are long term in general, and also high quality ECE to positive child outcomes in particular. High quality early learning helps to lay a solid base on which later success in school and also lifelong-learning will be built.

5.4 – Recommendations

From the results and findings, a number of recommendations are made. These touch on recommendations that have implications for policy, those that touch on teachers and preschools, those that would be beneficial to parents, and those for further research.

5.4.1 – Recommendations for policy

This study recommends that relevant government agencies in charge of licensing of preschools and ensuring high standards are maintained be strengthened through bigger financial allocation and better staffing. This is to ensure that they only license preschools that meet the set minimum standards of quality in the areas of physical and social environment and teacher qualification, as well as teacher-pupil ratios. Quality of physical and social environment and also teacher-pupil interaction were shown to be highly and significantly correlated with primary school readiness in this study. Once preschools are up and running, the quality assurance department should ensure high quality standards are maintained through regular visits to the school.

Parental involvement was found to be not significantly correlated with school readiness. May be this is due to low and uncordinated parental involvement practices. This study consequently recommends that parental involvement be enhanced through policy changes that shall require

preschools to put in place measures that make it mandatory for them to involve parents, and to give them specific information on how to help, what to do and how to get involved.

The preunit classes at public primary schools were observed to be poorly resourced. This study recommends that both county and national governments should join hands to recruit trained teachers on permanent and pensionable terms for these classes and also provide them with teaching and learning materials.

5.4.2 – Recommendations for teachers and preschools

This study recommends that schools ensure that they only enlist the services of properly trained teachers. Such teachers will most likely possess the skills and knowledge required for them to engage in the proper and desired styles of teacher-pupil interactions since this feature of early learning has been shown to significantly influence school readiness. This knowledge and skills will also enable the teachers to recognize and guard against undesirable styles of teacher-pupil interactions. Managers and heads of preschool should ensure that teachers receive regular in-service training to keep their skills and knowledge up-to-date. Teachers and the heads of preschools should also strive to maintain the highest possible standards of quality in physical and social environment for maximum benefit to the pupils. Schools should also try and involve parents more but within levels where their involvement influences child outcomes to optimal levels.

5.4.3 – Recommendations for parents

This study recommends that parents volunteer more at preschools in consultation with teachers. Volunteering level of parental involvement was found to have the strongest positive influence on school readiness. At the same time, this level of parental involvement also had the lowest frequency of occurrence, that is, it is the level that was reported by parents as happening the least. It is also recommended that as parents get involved at the learning at home level, they should guard against being too helpful to a point that could be detrimental to desired child outcomes.

5.4.4 – Recommendation for further research

For further research, this study recommends that other studies be conducted to further investigate the relationship between quality of parental involvement and primary school readiness which

was found to be not significant in this study. A second recommendation for further research is that more research should be carried out to determine what other factors might be related to school readiness or other positive child outcomes. As the variables that are highly and significantly related to school readiness, physical and social environment and teacher-pupil interaction should be investigated further in a causal-comparison study to determine true cause-effect. With such studies we could extend the interpretation to predicting school readiness using quality measures as predictor variables.

REFERENCES

Aila, P.H. (2000). *Factors influencing the use of visual aids in pre-schools in Asego Division of Homa Bay District.* Unpublished M.Ed. thesis, Kenyatta University.

Alexander, R. (2008). *Education for all: The quality imperative and the problem of pedagogy*. London: University of London.

Arasa, J.N. (2004). *Cognitive correlates of English reading achievement among standard three Pupils in the slums of Nairobi*. Unpublished PhD thesis, Kenyatta University.

Bentin, S., Hammer, R., & Cahan, S. (1991). The effects of aging and first grade schooling on the Development of phonological awareness. *Psychological Science, 2*(4), 271-274.

Bickel, D.D., Zigmond, N., & Strahorn, J. (1991). Chronological age at entrance to first grade: Effects on elementary school success. *Early Child Resources Quarterly, 6*(2), 105-117.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge: Harvard University Press.

Brooks-Gunn, J., Klebanov, P.K., & Duncan, G.J. (1996). Ethnic differences in children's intelligence Test scores: Role of economic deprivation, home environment, and maternal characteristics. *Child Development, 67*(2), 396-408.

Bruce, T. (Ed.) (2010). *Early childhood: A guide for students*. London: Sage Publications.

Butcher, H., & Andrews, J. (2009). How well am I doing on my outcomes? In R. Eke, H. Butcher & M. Lee (Eds.), *Whose child is it? The roles of children, adults and policy makers* (pp. 35-65). London: Continuum.

Clough, P., & Nutbrown, C. (2007). *A student's guide to methodology: Justifying enquiry*. London: Sage Publications.

Creswell, J.W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*. Boston: Pearson Education.

Crosser, S. (2005). *What do we know about early childhood education? Research based practice.* New York: Thomson Delmar Learning.

Daily Nation correspondent (2013, August 2). Are our children learning? Nairobi: Nation Media Group, p.13, col. 1-3.

Dale, B.G., van der Wiele, T., & van Iwaarden, J. (2007). *Managing quality (5th ed.)*. Oxford: Blackwell Publishing.

Daly, M., Byers, E., & Taylor, W. (2006). *Understanding early years theory in practice*. London: Heinemann.

Denboba, A., Hasan, A., & Wodon, Q. (Eds.) (2015). *Early childhood education and development in Indonesia: An assessment of policies using SABER*. Washington, DC: World Bank Group. Retrieved June 24, 2016, from http://dx.doi.org/10.1596/978-1-

4648-0646-9

Dinga, J.N. (2011). *Cognitive strategy use for explicit and implicit text meaning by urban, peri-urban and rural primary school pupils in Kisumu Municipality*. Unpublished PhD thesis, Kenyatta University.

Driscoll, A., & Nagel, N.G. (2002). *Early childhood education, birth – 8: The world of children, families, and educators*. Boston: Allyn & Bacon.

Eldering, L., & Leseman, P.P.M. (Eds.) (1999). *Studies in education and culture: Effective early childhood: Cross-cultural perspectives (1)*. New York: Falmer Press. Retrieved June 25, 2016, from online e-book site ebrary.com

Epstein, et al. (2009). *Six types of involvement: Keys to successful partnerships*. Retrieved July 2, 2014, from http://www.csos.jhu.edu/p2000/nnps_modelschool/sixtypes.htm

Essa, E.L. (1999). *Introduction to early childhood*. New York: Delmar Publishers.

Fraenkel, J.R., & Wallen, N.E. (2009). *How to design and evaluate research in education*. New York: McGraw-Hill.

French, D.C. (1988). Heterogeneity of peer-rejected boys: Aggressive and nonaggressive subtypes. *Child Development, 59,* 976-985.

Galinsky, E. (1991). The costs of not providing quality early childhood programs. *Annual*

Editions: Early Childhood Education 91/92, 12, 233-240.

Gay, L.R., Mills, G.E., & Airasian, P. (2009). *Educational research: Competencies for analysis and applications (9th ed.)*. New Jersey: Pearson Education.

Githuthwa, H.W. (2011). *An investigation into the problems faced in the development of early childhood education in Kenya: A case of Lari, Kiambu County*. Unpublished M.Ed. thesis. Kenyatta University.

Gronlund, G. (2014). *Make early learning standards come alive: Connecting your practice and curriculum to state guidelines (2nd ed.)*. Minnesota: Redleaf Press. Retrieved June 25, 2016, from online e-book site ebrary.com

Huizingh, E. (2007). *Applied statistics with SPSS*. London: Sage Publications.

Hull, K., Goldhaber, J., & Capone, A. (2002). *Opening doors: An introduction to inclusive early childhood education*. Boston: Houghton Mifflin.

Isenberg, J.P., & Jalongo, M.R. (2006). *Creative thinking and arts-based learning*. New Jersey: Pearson Prentice Hall.

Janus, M. (2007).The Early Development Instrument: A tool for monitoring children's development and readiness for school. In M.E. Young & L.M. Richardson (Eds.), *Early child development:From measurement to action* (pp.183-201). Washington: The

International Bank for Reconstruction and Development.

Johnson, J.E. (1987). Evaluation in early childhood education. In J.L. Roopnarine & J.E. Johnson (Eds.), *Approaches to early childhood education* (pp. 15-33). Columbus: Merill Publishing.

Joshi, A.R., & Gaddis, I. (Eds). (2015). *Preparing the next generation in Tanzania: Challenges and opportunities in education.* Washington, DC: World Bank. Retrieved June 18, 2016 from http://dx.doi.org

Kabiru, M., & Njenga, A. (2009). *Foundations of early childhood development and education and curriculum development*. Nairobi: Focus Publishers.

Kangara, H.W. (2010). *Factors influencing parents' participation in early childhood development and Education in preschools: A case of Lioki zone, Githunguri District.* Unpublished M.Ed. thesis, University of Nairobi.

Kariuki, M.W. (2002). *Perception of teachers on the impact of early childhood education programmes on the social-emotional readiness of pre-schoolchildren in selected three provinces of Kenya*. Unpublished PhD thesis, Egerton University.

Kerlinger, F.N., & Lee, H.B. (2000). *Foundations of behavioural research (4th ed.)*. Belmont: Cengage Learning.

KIE, (2008). *Early childhood development and education syllabus*. Nairobi: KIE.

Kivuva, L.A. (1996). *Professional qualities of teachers in ECE: A comparative study of Nairobi pre-school institutions by sponsorship*. Unpublished M.Ed. thesis, Kenyatta University.

Koech, P.K. (2010). *Parent-teacher partnerships for enhancing preschool children's education in Uasin Gishu District, Kenya*. Unpublished PhD thesis, Kenyatta University.

Kothari, C.R. (2004). *Research methodology: Methods and techniques (2nd ed.)*. New Delhi: New Age International Publications.

Kwena, J.S.A. (2007). *An investigation into selected factors on academic self-concept among primary school pupils in Bondo*. Unpublished PhD thesis, Kenyatta University.

Landry, S.H., & Cooper, C.L. (Eds.) (2014). *Wellbeing in children and families: A complete reference guide Vol.1*. Wiley-Blackwell. Retrieved June 18, 2016, from online e-book site ebrary.com

Maeke, E.M. (2003). *Secondary school dropout in Kilome Division, Makueni District, Kenya*. Unpublished M.Ed. thesis, Kenyatta University.

Makatiani, M.I. (2008). *A comparative study of policy implementation in ECTE institutions in Kenya*. Unpublished PhD thesis, Kenyatta University.

Maringe, F., & Prew, M. (2015). *Twenty years of education transformation in Gauteng 1994 to*

2014: An independent review. Cape Town: Africa Minds. Retrieved June 25, 2016, from online e-book site ebrary.com

Mbungu, T.M. (2005). *A study of factors causing indisciplined behaviour and teachers' reaction towards the same in secondary schools of Magumoini Division of Meru South District.* Unpublished M.Ed. thesis, Kenyatta University.

Meisels, S.J. (1999). Assessing readiness. In R.C. Pianta & M.J. Cox (Eds.), *The transition to kindergarten* (pp. 39-66). Baltimore: National Centre for Early Development and Learning.

Miltenberger, R.G. (2008). *Behaviour modification: Principles and procedures (4th ed.).* Belmont: Wordsworth Cengage Learning.

Mishra, R.C. (2008). *Encyclopaedia of education, Vol.I*. New Delhi: APH Publishing Corporation.

Moige, O.N. (2012). *Assessment of parents' level of satisfaction with the quality of preschool education in Langata District, Nairobi County, Kenya.* Unpublished M.Ed. thesis, Kenyatta University.

Morris, C.G. (1993). *Psychology: An introduction (8th ed.)*. New Jersey: Prentice Hall.

Morrison, G.S. (2007). *Early childhood education today*. New Jersey: Merill/Prentice Hall.

Mugo, C.N. (2005). *An investigation of problems inhibiting access to effective participation in pre-school education of Central Division in Embu District (Kenya).* Unpublished M.Ed. thesis, Kenyatta University.

Muiru, S.W. (2006). *Relationship between Nakuru Municipality pre-school children's cognitive performance in modified CATM test and their teacher's categories of verbal behaviour.* Unpublished M.Ed. thesis, Kenyatta University.

Muthoni, A.N. (2006). *Challenges facing provision of early childhood education in Gachoka Division of Mbeere District, Kenya.* Unpublished M.Ed. thesis, Kenyatta University.

Mwaura, P.A.M. (2009). *Quality of pedagogic ecology and its effect on cognitive development of children from community-based pre-schools in Kenya, Uganda and Zanzibar*. Unpublished PhD thesis, Kenyatta University.

Mwoma, B.T. (2009). *Paternal involvement in children's education: An implication of children's performance at preschool in Gucha District, Kenya*. Unpublished PhD thesis, Kenyatta University.

Naughton, G.M. (2003). *Shaping early childhood: Learners, curriculum and contexts*. Berkshire: Open University Press.

Ndani, M.N. (2008). *Relationship between community participation and preschool microsystems in Thika District, Kenya.* Unpublished PhD thesis, Kenyatta University.

Ngaruiya, S. (2013). *Effects of family socio-economic status on pre-school children's primary school readiness in four districts in Kenya*. Unpublished PhD thesis, University of Nairobi.

Nolan, Y. (2002) (Ed.). *BTEC national: Early years*. Oxford: Heinemann Educational.

Nusia, K.H. (2010). *The effects of transitional factors from pre-school into class one on performance in public schools in Kangeta Division, Igembe South District, Eastern Province, Kenya.* Unpublished M.Ed. thesis, University of Nairobi.

Ogamba, J.K. (2011). *The role of quality assurance and standards officers in enhancing primary school teachers' effectiveness in Marani District, Kenya*. Unpublished M.Ed. thesis, Kenyatta University.

Okeng'o, L.N. (2007). *Identification of cognitive maturity among 5-6 year olds using selected Psychological tests in Westlands division of Nairobi.* Unpublished PhD thesis, Kenyatta University.

Phelan, T. (2005). Teaching style and classroom management. *Parent Magic Newsletter, July 2005.* Retrieved July 24, 2016, from http://www.parentmagic/

Podmore, V.N. (2009). Questioning evaluation quality in early childhood. In A. Anning, J. Cullen & M. Fleer, *Early childhood education: Society and culture* (pp.158-168). London: SAGE Publications.

Read, K., Gardner, P., & Mahler, B. (1993). *Early childhood programs: Human relationships and learning.* Orlando: Harcourt Brace College.

Republic of Kenya (2004). *A policy framework for education, training and research: Sessional Paper No.1*. Nairobi: MoE.

Republic of Kenya (2006). *Early Childhood Development Service Standard Guidelines for Kenya.* Nairobi: MoE.

Republic of Kenya (2006). *National early childhood development policy framework*. Nairobi: MoE.

Republic of Kenya (2012, December 21). *Release of results of the SACMEQ III monitoring of learner achievement at class 6 in Kenya.* Daily Nation, pp. 44-45, col. 1-2. Nairobi: Nation Media Group.

Republic of Kenya (2016, June 10). *Towards an inclusive, equitable, quality education and 21st Century skills.* Daily Nation, pp. 48-49, col. 1-3. Nairobi: Nation Media Group.

Riley, J (2007) (Ed.). *Learning in the early years 3 – 7 (2nd ed.).* London: Sage Publications.

Roopnarine, J.L. & Metindogan, A. (2006). Early childhood education research in cross -national perspective. In B. Spodek & O.N. Saracho (Eds.), *Handbook of research on*

the education of young children (pp. 555-571). New Jersey: Lawrence Erlbaum Associates.

Roumeliotis, P. (2011). *Parenting and behavioural issues: School readiness, preschool and kindergarten*. Retrieved August 8, 2011, from http://www.drpaul.com/behaviour/schoolreadi.html

Santrock, J.W. (1994). *Child development (6th ed.)*. Dubuque: Brown & Benchmark.

Santrock, J.W. (2008). *Children.* New York: McGraw-Hill.

Santrock, J.W. (2011). *Educational psychology*. New York: McGraw-Hill.

Schweinhart,L.J., & Fulcher-Dawson, R. (2009). Early childhood education. In G. Sykes, B. Schneider, D.N. Plank & T.G. Ford (Eds.). *Handbook of education policy research* (pp.876-888). New York: Routledge.

Seyfried, H. (1969). School readiness in Austria: Problems, attempts at solution and results. In K. Ingenkamp (Ed.), *Developments in educational testing – The proceedings of an international conference held under the aegis of the Pedagogisches Zentrum, Berlin (Vol. 2)*, (pp. 19-28). London: University of London.

Shonkoff, J.P., & Phillips, D.A. (Eds.) (2000). *From neurons to neighbourhoods: The science of early childhood development.* Washington, D.C.: National Academy Press.

Siraj-Blatchford, I. (2009). Quality teaching in the early years. In A. Anning, J. Cullen & M. Fleer, *Early childhood education: Society & Culture (2nd ed.)*, (pp147-157). London: Sage Publications.

Summers, D.C.S. (2010). *Quality (5th ed.)*. New Jersey: Prentice Hall.

Suter, W.N. (2006). *Introduction to educational research: A critical thinking approach*. California: Sage Publications.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., Taggart, B., & Elliot, K. (2003). *The effective provision of preschool education project: Findings from preschool period summary of findings.* Retrieved August 21, 2012, from www.ioe.ac.uk/cdl/eppe/pdfs/eppe_brief2503.pdf

UNESCO (2007). Policy review report: Early childhood care and education in Brazil. *Early Childhood and Family Policy Series*, 13.

UNESCO Institute of Statistics (2015). *Statistics on education*. Retrieved June 25, 2016, from www.uis.unesco.org

UNICEF (2011). *Basic education and gender equality: School readiness*. Retrieved August 8, 2011, from http:www.unicef.org/education/index_44888.html

Wambua, G.J.M. (2010). *Challenges faced in the provision of quality early childhood education*

in Kitui District, Kenya. Unpublished M.Ed. thesis, Kenyatta University.

Washington State Office of Superintendent of Public Information (2008). *A guide to assessment in early childhood; Infancy to 8*. Retrieved August 24, 2013, from http//www.mybookezz.com/ebook.php?u

Whitebread, D. (Ed.) (1996). *Teaching and learning in the early years*. London: Routledge.

Wikispaces Classroom (2016). *Parenting styles and child outcomes*. Retrieved July 23, 2016, from https://hdf600.wikispaces.com

Woodhead, M. (1996). *In search of the rainbow*. Netherlands: Van Leer Foundation.

Young, M.E., & Richardson, L.M. (Eds.) (2007). *Early childhood development: From measurement to action*. Washington, DC: World Bank Publications. Retrieved July 9, 2016, from online site ebrary.com

Zuckermann, B., & Halfon, N. (2003). School readiness: An idea whose time has arrived. *Paediatrics,111*(6), 1433-1436.

Appendices

Appendix I – Early Childhood Environment Rating Scale

PART A: CENTRE BACKGROUND INFORMATION

1.ECE Centre Code _____

2.Location _____ Sub-county _____

3.Type of centre: Public ( ) Private ( )

(a)County Govt. Day Nursery ( ) (a)Private proprietor ( )

(b)Central Govt. Primary ( ) (b)Faith-based organization ( )

Non-formal ( )

Any Other _____

4.Type of curriculum: NACECE ( ) KHA ( ) Montessori ( ) IIEP ( )

(If curriculum is hybrid tick more than one as applicable)

5.Highest qualification of centre Head/Manager_____

6.(a) Gender of centre Head/Manager: Male ( ) Female ( ) (b)Age _____

7.School fees charged per term: (a)Less than Ksh 1000 ( )

(b)Ksh 1000 – 2000 ( )

(c)Ksh 2001 – 4000 ( )

(d)Ksh 4001 – 7000 ( )

(e)Ksh 7001 – 10,000 ( )

(f)Above Ksh 10,000 ( )

8.Total pupil enrolment: (a) Current _____

(b) 2014 _____

(c) 2013 _____

9.Current number of teachers: (a) Male _____ (b) Female _____

10.Qualification of teachers: Number of teachers whose highest qualification is:

(a) DICECE/KNEC certificate _____ (b) Diploma _____ (c) PTE_____

(d) Undergraduate degree _____ (e) Masters _____ (f) Others _____(specify)

11.Teachers' duration of stay at centre: Number of teachers who have been here for:

(a) Less than 1 year _____ (b) 1 – 2 years ____ (c) 2 – 3 years_____ (d) 3 – 4 years ____

(e) 4 – 5 years ____ (f) 5 -6 years ____ (g) More than 6 years _____

12.Curent total number of permanent non-teaching staff_____

13.Distribution of non-teaching staff: Number of non-teaching staff working in/as:

(a) Office____ (b) Kitchen/Food___ (c) Security____ (d) Cleaning/Maitenance_____

(e) Driver___ (f)Any other (specify)_____

14.ECE Centre funding: Other sources of funds besides fees _____

PART B: ECE PHYSICAL AND SOCIAL ENVIRONMENT

Space	Indoor space: Area of room: Less than 6m by Less than 4m [1]__ { ___m x ___m} 6 - 7.9m by 4 - 5.9m [2]__ 8m by 6m [3]__ (Measure the length of the room and score accordingly) Space for privacy…….. AB [1]__ {Look for provision of quiet, private place in class SA [2]__ where children can be alone if they so wish} PA [3]__ Outdoor space: Space for gross motor play……. AB [1]__ {Look for provision of big, open space outside the class SA [2]__ where children can freely run, jump and chase each other} PA [3]__

Furnishing	Gross motor equipment…….. AB [1]__ {Look out for equipment that allows children to climb, SA [2]__ swing and slide} PA [3]__ Number of pupils in room …….. 35 and more [1]__ {Obtain the number of pupils who are ..Between 26 and 34 [2]__ permanent and regular members of the ...25 and below [3]__ class from the register} Child-appropriate size furniture for play and learning …AB [1]__ {Look out for chairs and tables/desks that are of a size that SA [2]__ makes it easy, convenient and safe for the children to use} PA [3]__ Furnishing for relaxation and comfort…… AB [1]__ {Look out for provision of a soft place with comfortable SA [2]__ seats different from regular classroom furniture, pillows PA [3]__ or carpets/mats where children can snuggle and find comfort} Child related display…… AB [1]__ {Look out for letters, numbers, pictures and children's SA [2]__ creations displayed on bulletin boards and walls in class} PA [3]__
Personal care routine	Greetings/departing …….. AB [1]__ {Look out for presence of teacher in school in the morning SA [2]__ to receive and greet the children as they arrive; and for the PA [3]__

	presence of some formal activity to signal end of the day} Meals: Snack/tea…… AB [1]__ {Look out for whether the children are provided with SA [2]__ snack/tea/porridge at some point between arrival and PA [3]__ lunch} Lunch ……..... AB [1]__ {Look out for whether the children are provided with SA [2]__ lunch} PA [3]__ Nap rest/sleep …… AB [1]__ {Look out for provision in form of cots, blankets or SA [2]__ mattresses for all children or those who may need a nap} PA [3]__ Health practices……... AB [1]__ {Look out for presence of morning health check during SA [2]__ early morning greeting or after, and children washing PA [3]__ hands after using the bathroom and before eating} Safety practices: School…….. AB [1]__ {Look out for presence of watchman and perimeter wall SA [2]__ or secure fence which does not allow the children to leave PA [3]__ compound other than through the gate}

	Personal/self……..… AB [1]__ {Check out for whether children are aware of how to safely SA [2]__ handle potentially dangerous objects like razors and hot PA [3]__ objects}
Language reasoning	Books and pictures…… AB [1]__ {Look out for presence of text books and pictures in class} SA [2]__ PA [3]__ Formal use language…… AB [1]__ {Does the teacher communicate with the pupils using SA [2]__ formal language (English or Kiswahili)? PA [3]__ Encouraging pupils to communicate ..…….. AB [1]__ {Is there a conscious and deliberate effort by the teacher to SA [2]__ encourage pupils to communicate both amongst themselves PA [3]__ and with their teachers?}
Activities	Fine motor…… AB [1]__ {Look out for activities that promote fine motor skills in SA [2]__ pupils. These include play with table toys, puzzles, beads, PA [3]__ pegboards, small blocks and board games – any 3 are sufficient} Music and movement…… AB [1]__ {Is music and movement part of the activities the pupils SA [2]__

	engage in?} PA [3]__ Blocks……AB [1]__ {Are blocks of different shapes and sizes part of the SA [2]__ materials in the classroom?} PA [3]__ Dramatic play…….. AB [1]__ {Does the classroom have an area set aside and equipped SA [2]__ for dramatic play? It should have dramatic props around PA [3]__ familiar theme(s)} Nature/science…… AB [1]__ {Does the classroom have a nature/science corner where SA [2]__ materials that promote acquisition of science concepts are PA [3]__ kept? Look out for materials like plants and charts with science-based diagrams} Maths/Numbers…….. AB [1]__ {Does the classroom have a math/number corner where SA [2]__ material that promotes learning math concepts is kept? Look PA [3]__ out for charts and materials/items that can be compared, grouped, counted, matched or placed in a logical order}
Interactions	Supervision of gross motor skills……. AB [1]__ {When children are out playing there should be a teacher SA [2]__

	watching over them or interacting with them throughout} PA [3]__ Staff-pupil interactions……. AB [1]__ {There should be lots of formal and informal interactions SA [2]__ between the teacher and individual pupils or pupils in PA [3]__ small groups} Interaction among pupils…… AB [1]__ {There should be plenty of opportunities for pupils to SA [2]__ interact both in class and outside} PA [3]__ Interaction between pupils and other stakeholders…… AB [1]__ {There should be some opportunity for pupils to safely SA [2]__ interact with non-teaching staff, visitors and parents of PA [3]__ other children}
Programme structure	Schedule…….. AB [1]__ {A daily programme schedule/time table should be SA [2]__ available} PA [3]__ Free play……. AB [1]__ {The daily schedule should have this component also known SA [2]__ as activity time, self-selected learning activities, play time, PA [3]__ or learning centre time. It is a time when the pupils choose which activity to engage in}

	Group time……..... AB [1]__ {Look out for this component of the day's schedule that is SA [2]__ also called circle, story time, group, large group time, and PA [3]__ which involves all of the children and teachers gathering together} Provision for children with disabilities/special needs.…… AB [1]__ {Look out for presence of a teacher trained in special needs, SA [2]__ and presence of wide, gently sloped ramps with handrails} PA [3]__

KEY: AB [1] – Absent/Missing/Not available SA [2] – Some attempt/Moderately provided for
PA [3] – Adequate/Adequately provided for/Present & adequate.

Appendix II: Teacher-pupil Interaction Rating Scale

PART A: BACKGROUND TEACHER INFORMATION

1.ECE Centre Name _____

2.ECE Teacher Code _____

3.(a)Gender _____ (b) Age_____

4.Highest qualification: _____

5.Any other relevant course/training attended in the last 12 months _____

6.Teaching experience: (a) Overall _____ (b)At current centre _____

7.Employment tenure: Permanent [ ] Temporary [ ] Fixed contract [ ]

8.For each of the statements below, indicate whether you agree or disagree with it by ticking the response that best describes your feeling:

(a)I am happy with my work here

Agree [ ] Uncertain [ ] Disagree [ ]

(b)I believe my work is important

Agree [ ] Uncertain [ ] Disagree [ ]

PART B: INTERACTION RATING SCALE

For each of the interaction dimensions in the table below, select the option that best describes how the teacher interacts with his/her pupils.

Key: 1=Never 2=Sometimes 3=Very much

Interaction dimension	1	2	3	Any comments
1.Teacher shows warmth when talking to the pupils				
2.Teacher is constantly critical of the pupils				
3.Teacher pays close attention when pupil speaks to her/him				
4.Teacher values obedience in pupils highly				

5.Teacher appears detached or distant from pupils				
6.Teachers appears to enjoy being with the pupils				
7.When punishing a pupil, teacher explains reasons for rule they contravened				
8.Teacher urges pupils to attempt new tasks and experiences				
9.Teacher does not try to exert too much control over the pupils' activities				
10.Teacher talks with hostility or irritation to the pupils				
11.Teacher appears enthusiastic about the activities and efforts of the pupils				
12.Teacher attempts to control the pupils by threatening them				
13.Teacher spends sizeable portion of time doing things that don't involve interaction with pupils				
14.Teacher identifies and attends to pupils as individuals				
15.Teacher is slow to reprimand pupils after misconduct				
16.Teacher speaks with pupils on a level they can understand				
17.Teacher punishes pupils without any explanation				
18.Teacher is firm with pupils when it is necessary				
19.Teacher encourages prosocial behaviour such as sharing and cooperating amongst pupils				
20.Teacher is quick to find fault with pupils				
21.Teacher does not show much interest in the				

activities of pupils				
22.Teacher is quick to prohibit many of the things the pupils want to do				
23.Teacher does not carry out close supervision on the pupils				
24.Teacher expects the pupils to display self-control such as no disrupting group or teacher-led activity, or wait in line calmly for their turn				
25.Teacher purposes to maintain better eye contact with pupil when speaking to them by kneeling, bending, or sitting at their level				
26.Teacher shows undue harshness to pupils when scolding or prohibiting them				

Thank you very much for participating in this study and for your time.

Appendix III: Primary School Readiness Test

PART A: PUPIL BIO DATA

1.ECE Pupil Code _____

2.(a)ECE Centre Name _____ (b)Sub-county _____

3.(a)Date of birth _____ (b)Age_____ (c)Gender _____

4.ECE Teacher's Code _____

PART B: READINESS TEST

SECTION I – COGNITIVE DIMENSION	Yes/ Able [3]	Some Ability [2]	No/Un-able [1]
(a) Is the pupil able to rote count from 1 to 50?			
(b) Is the pupil able to recognize the number: 3, 6, 8, 5, 9, 7, 4, 2. {Pick any two and show the pupil in turns}			
(c) Using the objects provided, is the pupil able to put together objects of sum 7?			
(d) Using the objects provided, is the pupil able to sort and group them according to colour? {Objects of 4 different colours}			
(e) Can the pupil identify correctly which, between a bicycle and a car, moves faster?			
(f) Can the pupil name any one external part of the human body?			
(g) Can the pupil correctly state the use of the part named in (f) above?			
SECTION II – LANGUAGE DIMENSION			
(a) Can the pupil recognize all three of the following letters: a, d, r?			
(b) Is the pupil able to correctly read this word: cat ?			

(c) Can the pupil name the colour of this object (Blue, Red or Green object)? {Pick one and show the pupil}			
(d) Can the pupil correctly write down the word Boy (when the word is read out)**?**			
(e) Can the pupil recite all the letters of the alphabet in their correct order?			
(i) Can the pupil read the following letters, showing ability to read from left to right (Recognition that we read from left to right)? t x b m q e s			
SECTION III – SOCIAL-EMOTIONAL DIMENSION			
(a) When you grow up you want to become**……** {Look out for ability to identify a recognizable career/job}			
(b) When you become a big boy/girl, what tasks would you like to help your mum with at home? {Look out for ability to identify a chore/task consistent with their gender}			
(c) To which group of Kenyans do you and your family belong? (I) African (II) White/Caucasian/European (III) Arabs (IV) Asians			
(d) Who is your best friend? {Check for ability to identify clearly a friend in class or at home}			
(e) Why do like your best friend? {Look for ability to offer a positive or socially acceptable reason}			
(f) Does the pupil frequently engage in prosocial behaviour? (Forming friendships, shairing, giving, helping, giving comfort, empathizing, sympathizing, behaving in friendly, generous ways, etc.)			
(g) Does the pupil display appropriate self-control? (Waiting for their turn in line, not retaliating when provoked/aggrieved by another child, etc.)			
SECTION IV – PHYSICAL & MOTOR DIMENSION			

(a) Is the pupil able to run on the spot for about 20 seconds?			
(b) Can the pupil stand on one leg for about 10 seconds?			
(c) Can the pupil jump up a few times (about 4) following instructions?			
(d) Can the pupil colour a drawn figure within margins with minimal instances of colour overshooting figure boundary? {Max 2 instances for full ability}			
(e) Can the pupil successfully lace one of their shoes?			
(f) Can the pupil successfully catch a bean bag (or any other small, soft object) thrown from a distance of about 2 metres?			
SECTION V – ADAPTIVE DIMENSION			
(a) Is the pupil able to wash hands before eating and after toilet use? {Can ask pupil to demonstrate how they do it}			
(b) Is the pupil able to use handkerchief to wipe nose? {Ask pupil to demonstrate}			
(c) If you are in class and suddenly need to use the toilet, tell me what you will do**.** {Check for ability to recognize the necessity of getting permission from the teacher}			
(d) You are walking from school alone, and you meet a stranger who tells you to follow him/her to their place so that they can give you sweets. Tell me what you will do. {Is the pupil able to recognize that strangers can be dangerous and she/he should keep off them when alone?}			
(e) Tell me your name and where you live. {Check for ability to state at least two of their names and to identify by name where they reside. Ask for place of residence again after short interval to confirm that they didn't mention a random place}			
SECTION VI – APPROACHES TO LEARNING DIMENSION			
Please rate the pupil on the following attributes:	Never [1]	Sometimes [2]	Often [3]

(a) Attentiveness (Not easily distracted from task at hand)			
(b) Task persistence (Nearly always accomplishes tasks in spite of difficulty, does not give up easily)			
(c) Eagerness to learn (Displays curiosity and questioning)			
(d) Flexibility (Quick to adjust to a novel experience)			
(e) Organisation (Can organize the activities of a group to carry out a definite purpose)			

Thank you very much for participating in this study and for your time

Appendix IV: Parental Involvement Questionnaire

A: BACKGROUND DATA

1.Parent Code_____

2. (a)Age _____ (b)Gender_____ (c)Marital status _____

3.Place of residence _____

4.Highest academic qualification _____

5.Occupation/Profession _____

6.Matching ECE Pupil Code _____

7.Name of ECE centre where pupil is enrolled _____

8.How many times have you spoken (on phone or in person) to your child's teacher this term? _____

9.How far is your child's preschool from home? (a) Less than 1 km [ ]

(b) Between 1 and 2 km [ ]

(c) Between 2 and 5 km [ ]

(d) More than 5 km [ ]

B: PARENT'S LEVEL OF INVOLVEMENT

For each of the statements below, indicate the option that best describes your situation/opinion in relation to your child and his/her preschool.

Statement	Never [1]	Sometimes [2]	Frequently [3]
1.Do you ask preschool teacher about things you can do to improve your child's discipline and behaviour			
2.When you meet or during parents' meetings, does the teacher give you information on how children learn and grow			
3.Does the teacher visit your home to see how your child and the family are doing			

4.Does the teacher encourage you to inform him/her of any major developments or changes in the family/at home			
5.Does the teacher give you feedback on how your child is fairing at school			
6.If you notice any major change in your child in his/her academics or behaviour do you inform the teacher			
7.Does the teacher inform you if your child is feeling unwell at school			
8.Does the school inform you of any major changes that occur in school such as changes in school programme.			
9.Does the school provide you with opportunities and encourage you to volunteer and assist the teacher in class activities			
10.Does the school provide opportunities and encourage you to volunteer around the school such as with cooking and cleaning			
11.Do you volunteer to go and talk to the pupils at school about an issue in which you have a passion or are well knowledgeable in			
12.Does the teacher ask you to assist in the preparation of teaching aids like charts, diagrams or collecting bottle tops			
13.Does the teacher recommend that you assist your child with homework			
14.Does the school give you information on how you can create an environment at home that supports learning			
15.Does the school require you to check your child's homework			
16.Does the school involve you in curriculum-related decisions concerning your child			
17.Do you participate in AGM/PTA meetings			

18.Does the school involve you in major decisions regarding the running of school			
19.Does the school help to develop and appoint parent leaders and representatives			
20.Does the school encourage you to share ideas with the headteacher regarding the running of the school			
21.Does the school avail its facilities like space, room and equipment for use by parents even for non-school related functions			
22.Does the school invite members of the neighbouring community – not just parents – during school functions like sports			
23.Does the school organize field trips where pupils visit resources such as market, dispensary, farms, in the neighbourhood to learn			
24.Are members of the school community (teachers, non-teaching staff) free with and friendly to members of the neighbouring community (not necessarily parents)			

Thank you very much for your time.

Appendix V: Scoring guide for Early Childhood Environment Rating Scale

Part B: Early childhood physical and social environment

Space	Indoor space: Use the tape measure to determine the length and width in metres of the classroom and score according to the determined area**.** Space for privacy: Look for provision of quiet, private places where children can be alone if they so wish. These could be a corner with large pillows, a cozy spot in the library area, a designated rocking chair with cushions, etc. Outdoor space: Space for gross motor play: Look out for provision of space outside the class where children can play and exercise large muscles of the legs, arms, back, and shoulders. The space should allow for large body movements by the children, i.e., it should allow them to slide, climb, swing, crawl, hang, balance, jump and run. Gross motor equipment: Look out for equipment that allows children to slide, climb, swing, crawl, hang, balance, jump and run. These include fixed structures such as swings, slides, climbers, play house, as well as movable equipment and materials such as tires, planks, cardboard boxes, crates, ladders, ramps, balance beams, hollow blocks, ropes, balls, etc. Number of pupils in room: Count the number of pupils or obtain the number from the class register and score accordingly.
Furnishing	Child-appropriate size furniture for play and learning: Look out for availability of chairs, desks, tables, etc. that are of a size that makes it easy, convenient and safe for the children to use. Typically, these should be smaller than the furniture in primary school classroom. Furnishing for relaxation and comfort: Look out for provision of a soft place where children can snuggle and find comfort. This could include comfortable seats different from regular class furniture, carpets, mats, pillows, etc. Child related display: Look out for child-related display like letters and numbers, children's creations on bulletin boards and wall space.
Personal care routine	Greetings/departing: Look out for whether the teacher greets the

	children and talks to parents as the children arrive in the morning; and whether there are formal activities to signal the end of the day, such as the children gathering their belongings and the teacher bidding the children good bye. Meals: Snack/tea: Look out for whether the children are provided with snack/tea at some point between arrival and lunch time. Lunch: Look out for whether the children are provided with lunch. Nap rest/sleep: Look out for whether provision has been made for children who may need a nap or sleep. This includes cots and blankets. Health practices: Look out for presence of morning health check during early morning greeting, good-health practices like washing hands after using the bathroom and before eating. Safety practices: School: Is the furniture and built-in storage units in school safe with no sharp edges and loose parts? Is there a watchman/gateman? Do doors have child-proof locks? Is there at least two exits in each class to be used in case of emergency? Are electrical outlets covered? Personal/self: Are children taught safe ways of handling potentially-dangerous tools and objects like knife, razors, needles, hot objects etc?
Language reasoning	Books and pictures: Look out for presence of books and pictures in class. Formal use of language: Is there an attempt to use formal language amongst pupils and between pupils and teachers? Encouraging pupils to communicate: Is there a conscious and deliberate effort by teachers to encourage pupils to communicate both amongst themselves and with their teachers?
Activities	Fine motor: Look out for activities that promote fine motor skills in pupils. These include use of manipulative materials such as table toys, puzzles, beads, pegboards, small blocks, and board games. Music and movement: Is music and movement part of the activities?

	Blocks: Are blocks of different shapes and sizes part of the materials in the classroom? Dramatic play: Does the classroom have an area set aside and equipped for dramatic play (known as a learning centre, interest or activity area)? Dramatic play props include home-related kitchen, living room and bedroom items; a selection of dolls, doll bed or crib, dress-up clothes, and mirrors; displays and pictures of people of all ages and different ethnic groups engaged in common household activities; dramatic play props revolving around other familiar themes such as health care, shopping, and recreation. Nature/science: Look out for activities and materials that promote acquisition of science concepts. Biological science concepts can be acquired through a variety of activities and materials such as activities on parts of the body and what they can and cannot do; concept of growth and change (which can be enhanced through baby pictures, growth charts, and visits from children's younger siblings); care for the body through everyday self-help skills; observing and learning about animals and plants in the immediate environment; field trips to nearby animal habitats such as a zoo or farm; having an animal as a temporary guest in the classroom. Physical science concepts (Physics) can be learnt through a variety of activities and materials such as blocks, outdoor equipment, water and sand, and manipulatives; throwing objects such as ball and rolling objects down an incline; acting on objects to create movement such as rolling on rollers, jumping, tilting, dropping, blowing, sucking, pulling and swinging; variety of old mechanical objects to take apart. Cooking activities are filled with examples of chemistry concepts. Cutting, mixing, blending, heating, cooling, baking, boiling and adding sugar or salt and stirring all teach concepts on properties, composition, and changes in substances. The classroom may also contain a specific science learning centre in which materials designed to encourage and enhance science concepts are collected. Maths/Numbers: Look out for materials that lend themselves to acquiring math concepts. These include blocks, sand and water implements, dramatic play props such as dishes and cooking utensils, a variety of manipulatives, art and woodworking materials, and a variety of other items that can be compared, grouped, counted, matched, or placed in a logical order. The classroom may also contain

	a specific math learning centre in which materials designed to encourage and enhance math concepts are collected.
Interactions	Supervision of gross motor skills: This may be done through guiding children's behaviour, taking opportunities to teach concepts, encouraging exploration and problem-solving. Safety concerns are addressed by the teacher through scanning, keeping an eye on the entire outdoor play area, paying attention to the fronts and backs of swings, slides, climbing equipment and wheeled toys like tricycles. Staff-pupil interactions: Look out for both formal and informal interaction between the teacher and individual pupils or pupils in small groups. Free play provides the teacher with an excellent opportunity to learn more about the pupils in the class, develop relationships, introduce or reinforce concepts, evaluate the children's understanding of concepts, or assess developmental status through social guidance, informal conversations, well-timed questions, and careful listening. Interaction among pupils: Look out for naturally occurring opportunities for children to be sympathetic and helpful to peers; to learn strategies to help them initiate and continue social interactions, to negotiate and to settle conflicts. Look out for deliberate provision by the teacher of ample time and space and appropriate materials to facilitate social interaction and formation of friendship - a special type of peer relationship. Look out for a continuous buzz of conversations between children. Interaction between pupils and other stakeholders: Look out for interaction between pupils and non-teaching staff, visitors, managers, parents other than their own, etc. This can take the form of verbal and non-verbal communication, play, sharing stuff, offering help, etc.
Programme structure	Schedule: A daily programme schedule should be available. This may vary for different age groups of children and must include activities such as arrival, group time, activity time, cleanup time, snack, small group activity, outdoor time, lunch, nap, rest and departure. Free play: Look out for this component in the day's schedule. The largest block(s) of time each day should be reserved for planned activities from which the children can select (duration should be at least 45 minutes and can be as long as 2 hours). Free play is also called activity time, self-selected learning activities, play time,

	learning centre time or other similar names that connote that the children make choices about the activities in which they engage. Group time: Look out for this component in the day's schedule. Also called circle, story time, group, large group time, or other similar names, it involves all of the children and teachers gathering together. Most programmes will have one or more of these group times which can be used for many purposes such as roll call, stories and books, music/movement, introducing a new curriculum topic, probing children's comprehension of concepts and information, discussions, finger plays, socialization, poetry, games, dramatizations, sharing, relaxation exercises, planning and review, calendar or weather. Provision for children with disabilities/special needs: Look out for provision of equipment, materials and facilities to cater for needs of children with special needs. These include wide paths and entries to accommodate wheelchairs, shelves which are easily accessible, wide, gently sloped ramps with handrails, sling swings that provide secure body support, and teachers trained in special needs.

Appendix VI: Research Consent Form for Parents

Title: Influence of quality of early childhood education on primary school readiness in preschool pupils in Nairobi County, Kenya**.**

Dear Sir/Madam,

I am a PhD student at the University of Nairobi undertaking research in early childhood education as entitled above. As part of my research I will need to involve pupils enrolled in preschools in Nairobi.

The institution where your child is enroled has been selected as one of the participating schools during the field work. Your child has also been selected to take part in the research exercise. For every pupil selected for the study, the parent/guardian automatically becomes a research participant as well.

Participation in the research is voluntary and every participant has the right to withdraw from the research at any time for whatever reason. The participants also have the right to ask questions about the research before participating or during the study.

All information obtained from the participants will be used solely for research purposes. Your name and that of your child will not be associated with the research findings in any way, and only the researcher will know your identities. All information will be treated with utmost confidentiality.

The extent of your involvement is as follows:

- Your child will be given a primary school readiness test at school during the normal school hours with the help of his/her regular teacher.
- You will be asked several questions and the researcher will complete a questionnaire regarding your child's school and education. This session will be conducted face to face or on phone in case you are not available for a face to face meeting.

  There are no known risks posed by this research either to you or your child. Potential benefits include increasing our knowledge on how children learn and grow.

CONSENT:

I, _____(your name), parent/guardian to _____ (your child's name), grant consent and authority to the researcher to involve my child and myself in this research.

Signature:_____ Date:_____

Thank you very much for your time and cooperation.

David N Mungai – PhD student, University of Nairobi.