PRE-SCHOOLCHARACTERISTICS AND LEARNING READINESS AMONG 5-6 YEARS OLD IN PUBLIC PRE-SCHOOLS IN KIMILILISUB-COUNTY BUNGOMA, KENYA

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education in Early Childhood Education of Masinde Muliro University of Science and Technology

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DECLARATION

This thesis is myown original work prepared with no other than the indicated sources and support and has not been presented elsewhere for a degree or any other award.

Signed ……. Date ……..……

Matsa Oduori Waswa

ECD/G/09/2015

CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance of Masinde Muliro University of Science and Technology a thesis entitled: **"Pre-schoolCharacteristics and Learning Readiness among 5-6 Years Old in Public Pre-schools in Kimilili Sub-county Bungoma County,Kenya."**

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DEDICATION

I dedicate my work to my sister Ruth Oduori Waswa who supported me morally and financially, my son Isaac Simiyu Kisiang'ani who encouraged me and gave me moral support. My daughters Rinna Lukela Kisiang'ani and Naomi Nasimiyu Kisiang'ani are also a great source of inspiration for me to complete this thesis.

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ABSTRACT

Learner readiness enhances academic achievement and predicts children's performance in the near future. Children who are ready are less likely to experience behavioral emotional problems score higher in reading, mathematics and fine motor skills than those who are not ready. Even though the government of Kenya is advocating for and ensuring all children participate in the pre-primary education through provision of financial and human resources, teachers are still struggling with learners from pre-schoolwho are not well prepared for grade one. This variation may be attributed to pre-schoolcharacteristics such as teacher characteristics, teaching and learning resources, nutrition support programmes among others no studies have attempted to investigate the causes in variation in learner readiness as there is no documentary evidence existing in Kimilili Sub-County explaining the causes in learner readiness .It is therefore on this basis that this study seek to investigate the effect of pre-schoolcharacteristics on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub –County Bungoma County Kenya. Specifically, the study seeks to establish the effect of: Teacher characteristics; teaching and learning resources; and nutrition programmes on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub –County Bungoma County Kenya. This study was guided by the Education Production Function Theory (EPFT) postulated by Coleman. The study adopted a survey research design, and targeted 3211 pre-schoolers and 55 pre-school head teachers in public pre-schools in Kimilili Sub –County Bungoma County Kenya. A sample of 356 pre-schoolers and 18 pre-schoolhead teachers were drawn from the population using stratified and simple random sampling techniques. A pre-school learners check list and pre-schoolhead teacher questionnaire and document analysis were used to generate data for the study. The questionnaire was validated using face and content validity during piloting and reliability were determined using split half technique at r= 0.7. Data was analyzed descriptively using means and percentages; and inferentially using multiple linear regression analysis by aid of SPSS version 21. Inferences were made at 0.05 level of significance on a two-tailed test. The regression analysis results indicate that teacher characteristics, teaching and learning resources and nutrition support programmes are significant in explaining variations in learning readiness among pre-schoolers. The study recommends that the Ministry of Education, County and Sub-County Education office and public pre-schoolsto ensure that pre-school teachers managing learners are qualified and attend more in service training. In addition pre-schools should be well equipped with learning resources and have well managed nutrition support programmes.

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LIST OF ABBREVIATIONS AND ACRONYMS

CSO	Curriculum Support Officer
DAP	Developmentally Appropriate Practices
DRC	Declaration on the Right of Children
ECCE	Early Childhood Care Education
ECDE	Early Childhood Development Education
ECERS	Early Childhood Environment Rating Scales
EFA	Education for All
EGRA	Early Grade Reading Assessment
EYE	Early Years of Education
FAO	Food and Agriculture Organization
HECDI	Holistic Early Childhood Development Index
ITERS	Infant Toddler Environment Rating Scales
KICD	Kenya Institute of Curriculum Development
KSRAT	Kenya School Readiness Assessment Tool
LMICS	Low and Middle Income Countries
MGD	Millennium Development Goal
MLR	Multiple Linear Regression
MMUST	Masinde Muliro university of Science and Technology
MOEST	Ministry of Education Science and Technology
NAEYC	National Association for the Education of Young Children
NASMLA	National Assessment System for Monitoring Learner Achievement
OCL	Observation Check List
PLRC	Pre-schoolLearning Readiness Check list
PSHQ	Pre-schoolHead teachers questionnaire

SAQMEQ	Southern Eastern Consortium for Monitoring Education Quality
SDG	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
TLR	Teaching and Learning Resources
UNCRCU	United Nations Conventions on the Rights of Children
UNESCO	United Nation Educational Scientific and Cultural Organization
UNICEF	United Nations Children Education Fund
USA	United States of America
USAID	United Agency for International Development
VLE	Virtual Learning Environment
WHO	World Health Organization
WFP	World Food Programmes

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Readiness to learn is one of the benefits of ECDE education which involves acquisition of specific skills required for learning such as cognitive, linguistic, social and motor skills, which are linked to later school completion. Specifically, pre-schoollearner readiness refers to the ability of the learner to smoothly and successfully transition, integrate into the pre-schoolenvironment, be able to meet its expectations and follow the established routines in order to acquire skills in learning competencies(World Bank, 2016).

The United Nations Children's Education Fund (UNICEF) defines learning readiness as preparation within schools which provides children with the learning and developmental capabilities needed in the later stage of learning (UNICEF, 2012). As pointed out by UNICEF (2012) these skills emanate from learner's immediate environment, which comprises of the skill-level of teachers, the availability of teaching and learning resources and support from parents and relatives to support learners to acquire knowledge and skills in all learning areas.

Early childhood environment provides valuable interactions which assist children to develop and acquire the necessary knowledge and skills needed for later learning inschool and as such, learners who attend poor quality ECEC are likely to have negative consequences in their academic performanceGronlund (2014). FurthermoreMorris,Mattera, Castells, Bangster & Raver (2014) asserts that the early learning skills that children acquire while in pre-schools are crucial in transition and adaptation of school curriculum content which will enable them in higher stages of learning.

A study done on the importance of ECE found that learners who attended pre-school performed better in learning competencies than those who did not attend any form of pre-school education and countries with good education systems stand better indicators on developments such as health status, reduced mortality levels, lower population growth and reduced crime later in life OECD (2012) & Glewe (2013). As further noted by UNESCO (2010), children who participate in high quality early childhood education programmes demonstrate gains in social, educational, health, and intellectual development. Elsewhere (Brito, Yoshikawa & Boller, (2011). Yoshikawa & Kabay, 2015), when early childhood programmes are low, they may do more harm than good to children.

A study by Green and Riddle (2012) provides evidence that early education experiences have substantial effects on cognitive skills and this determined by acquisition of basic literacy, numeracy and problem solving skills. This underscores the important role pre-primary school learning have on predicting later academic achievement of learners. Based on these findings, Linver, Davis-Kean and Eccles (2011), on the effectiveness of school systems revealed that school systems are overlooked in early years and yet what a child acquires during this period before commencing formal schooling in Grade One is important.

Pre-schools have a special role of preparing learners for later stage learning by imparting in them the skills they need to deal with learning tasks and processes. A young child's brain is full of innate potential, early years offer irreplaceable window of opportunity towards success in primary school and later in life (UNESCO, 2012). Quality early childhood education generates positive sequence in learning and lack of pre-primary education widens achievement gaps and restricts opportunities and children who fall

behind at young age in learning readiness never catch up with their peers perpetuating cycles and underachievement and high dropout rates that harm them into their youth (Britto, Yoshikawa & Boller,2011).

Based on the idea of "self-productivity", by which capabilities at one age enhance capabilities at later ages, Conti and Heckman (2014) argue that a high initial investment in early childhood education will improve skills in later periods, which in turn increases productivity. For this reason, early investment in children, lays the foundation for enhancing the productivity of later investments, can have substantial benefits compared to later investments alone. However, Conti and Heckman (2014) noted that early childhood interventions are not enough. To be effective, early interventions need to be followed up with investments in quality schooling and parenting.

The sustainable Development Goals (SGDs) and target 4.2 envisions that by; "*By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education."* In addition to SDG 4.2, the SDGs also recognize the need to *"substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing states"* (UNESCO, 2015). Specifically,it conveys a clear objective that children irrespective of their entry gender must have access to quality early childhood development education (UNICEF,2018).

According to Education for All Global Monitoring Report (UNESCO, 2014), approximately 250 million children in Low and Middle Income Countries cannot read, write or do basic mathematics. This includes more than 130 million children who have not acquired basic skills despite being enrolled inpre-schools. Further on the same note,

Pritchett (2013) & Robinson (2011) are among authors whose studies have revealed that improved access to education has tremendously failed due to low level of learning outcomes among school children. as such, Alderman and Bundy (2011), established that despite growth in ECD Centers, only (32%) of children access center ECD based programmes prior to primary schooling and there was significant difference among children who attended school and those who did not (Godwin, 2012).

Although early childhood education is aimed at providing holistic development of learners and such the Dakar conference 1990 and UNCRC 1989 legal instruments on the rights of children equally advocated for rights to basic education but as observed, As reported by the Universal Primary Education by 2015 this target is still far as seen there are wide regional variations in education and most learners have dropped out of school with South West Asia experiencing three quarters of the world's school drop outs.Hirst, Jewis, Sojo and Cavagh (2011) but there is a general convergence of thought among various academics and institutions concerned with promoting Early Years Education (EYE) that learner readiness among pre-schoolers is vital for the later achievements in school UNESCO (2010).

While defining Quality ECEC programmes, Clifford, Reszka& Rosebatch (2010), notes that quality ECEC involves teacher-child, peer-peer interaction with a friendly child environment which focuses mainly on how early teachers interact with learners during classroom interaction as measured by the rating scales such as Early Children Environment Rating Scales. This measures children's development in three areas including language, print awareness and reading as key in enhancing children's language and literacy performance. According to Sammons (2010) the ERS was used to measure the cognitive, social and behavoiural outcomes among learners to establish if they were

ready to learn but despite the recognition and its importance and benefits towards enhancing learning readiness, many children are lacking access to pre-school education (UNESCO, 2012).

Duncan (2013) in a study in Central Florida District in the United States indicated that high quality pre-schools equates to higher levels of learning in terms of reading and numeracy.On the same note a recent meta-analysis studies in America revealed that the availability of high quality ECE Centers has short and long term effects on pre-schoolers' cognitive and social development (Burchinal, Vandergfit, Pianta & Mashburn, 2010, Camili, Vargas, Ryan & Barnett, 2010).This sentiments were echoed by Li, Frarkas, Duncan, Burchinal & Vandell (2013) whose sentiments also revealed a close relationship between quality ECE programmes and long term educational success if quality ECE programmes are offered in pre-schools.High quality pre-school programmes for example at the Perry pre-school programme in Michigan showed tangible and intangible evidence of societal benefits which include reduced criminal life and improved quality of life when learning outcomes are good due to the foundation of learning right from pre-schools and therefore need for having school related characteristics that lead to school readiness (Vitaro, Barker, Brendgen & Tremblay, 2011).

Researchers in Florida in another study at the National Center of Education statistics 2013 report established that 56% of children aged 5 years and below were not enrolled in kindergartens but attended center based care (Noel, Stark & Redford, 2013). Walfogel, (2012) also observes that in the USA, variation in experience among school learners creates a gap in their academic performance and recommends the addressing of the gaps during the early years of learning.One other study by Vamstad (2016) pointed out why parents in Sweden preferred quality private schools unlike the public ones because of the

immense benefits realized in learning outcomes in all domains as aresult of quality learning programmes geared towards readiness in learning competencies. Specifically, Vandell, Belsky, Burchinal, Steinberg & Vandergrift (2010) further linked pre-school quality with higher cognitive development in learning readiness skills in learning areas such as literacy and numeracy.

In India out of school population fell more than 90% and the number of school drop outs has stalled since 2007 but as observed over 50 percent of pre-primary age children around the world, at least 175 million are not enrolled during these crucial years in pre-primary education with only one out of five children having access to quality pre- primary education and ECCE services are provided through three channels.Further Singh, (2014) in a cohort study in India revealed that children who attend high quality pre-schools scored high in tests when they begin grade one.

Despite recent improvements in access to schooling, it has been noted in Sub-Saharan Africa that literacy skills are still low and a large percentage of children fail to acquire literacy and numeracy skills early in the first three Grades of school (Gove & Guvelich, 2010; Uwezo 2013). Recent research on developing countries on Children's literacy in early grades of schooling showed that school based strategies meant to improve reading is hampered by poverty, poor health and enrolment hence delayed acquisition of these skills (Hungi, Ngware & Abuya, 2014). There is a correlation between the quality of ECE and the level of learning readiness in pre-schools in Botswana ,as observed by (Bose, 2011), learners who attended high quality pre-schools scored higher in learning competencies than those who did not attend such programmes while 2012, 21% of children in Sub-Saharan Africa has about 30 million children still not in school. (Valerio, Gracia, 2012).

In Tanzania Bazuka (2014) & Machumu (2013) in their studies which focused on the quality of pre-primary education established that there was minimal engagement of stakeholders in terms of quality to ensure readiness to learn. Similarly as revealed, Uganda's enrolment in pre-schools compared to Kenya's 53.5% and Tanzania's 35.5% and Rwanda at 29% was low particularly in rural areas which lack access to quality ECE programmes due to low parental involvement (Ejuu, 2012).As per Hungi & Ngware (2017) in a study targeting 89 primary schools, 2713 p6 learners and 297 teachers using cross sectional design, the multilevel analysis results showed that pre-school participation has positive impact on mathematics achievement of grade 6 pupils and beyond. Hungi & Ngware (2017),This results and arguments are inconsistent with (Hungi, 2011 & Uwezo, 2013) surveys which also revealed that in spite of remarkable improvement in pre-school of enrolment in rural setting in Uganda, little progress has been achieved in terms of learning readiness especially in rural areas.

In Kenya, despite the government's efforts in terms of provision of resources such as human and financial, many school going children lack quality ECDE services which can help them acquire learning skills in competencies. (Hungi, 2011).Based on this findings, the Kenya 2014, school census data also revealed that levels of enrolment especially among ECDE learners stands at 73.6% and 71.8% respectively. high enrolment is not translating into high levels of learning readiness (Ministry of Education, 2015).As noted further, a number of assessments and national surveys have also revealed that although Kenyan children access school, they were necessarily not learning as expected as more learners in Grade 3 were unable to comprehend short passages (Wasonga, Ogle & Wambua 2010., Mugo Kaburu, Limburo & Kimutai 2011).

The view of learning readiness as a key predictor to school readiness as examined by Behenke, Miller, Brown, Seifer & Dickstein (2011) equally teachers emotional and behavioral rating is key in enhancing learners' level of readiness to learn.Studies by O'Connell, Fox, Hinz and Cole, (2016) and Tayler, Ishimine, Cloney, Cleveland & Thorpe (2013)), suggest that the quality of the pre-school environment remains an important contributor to the success of pre-school programmes. There is broad consensus that quality involves both process elements such as the way children and staff interact, and structural factors such as child to staff ratios and teacher qualifications. For this reason, in 2011, Colombia launched a national strategy – 'De Cero a Siempre' ('from zero to forever') – to provide integrated, high-quality early childhood services to children under 6. However, it would take an estimated 74,000 qualified professionals to cover all the country's vulnerable children, while only around 7,500 professionals graduate in relevant fields each year. An additional 60,000 untrained mothers currently provide these services at the community level. (Bernal & Carnacho, 2012).

In Slovenia, there is a unitary early childhood education and care (ECEC) system which is part of the education system. Each pre-school class is led by a teacher and a teacher assistant (a position introduced in 1996). Although ECEC settings have been integrated with the education system, pre-school teachers continue to have a lower level of education and somewhat lower pay compared with school teachers. Pre-school teachers earn on average 3.28 times the minimum wage, while primary school teachers earn 3.4 times the minimum wage; while assistants earn around twice the minimum wage. (OECD, 2012)

In Kenya, a 2010 mapping of the child protection system found that the public sector employed only 400 children's officers – less than a third of those needed. Civil society

organisations employ similar workers who may fill some of the gaps, but they are unevenly distributed and not always regulated by or even registered with the government. The government responded by recruiting volunteer workers, creating questions around the quality of the ECE service. (Phogole, 2010).Arecent empirical study by Dubeck, Jukes and Okelo (2012) established that a significant number of Kenyan learners lack the required literacy skills which are needed for them to succeed in higher levels of learning. According to these authors, this learning gap is reflected in dismal performance of learning in Kenya Certificate of Primary Examination(KCPE) which is also associated with poor learning foundation.

On the same note one other study by Murungi (2013) in Kenya revealed that despite ECDE provision in mostpre-schoolspupils in Grade One are still lacking the necessary skills needed to manage Grade One syllabus.This sentiments established low level of learning in reading literacy and mathematical competencies among pre-school children. This assessment further revealed that many children in pre-schools and Grade 1to3 were not ready for learning because of high levels of absenteeism among teachers and learners. Further in Kenya for example other studies by (Uwezo 2013& 2016) & Wasanga, Ogle, Wambua (2010) linked poor performance in national examinations in Kenya to low levels of skills in language and inability to read fluently especially in early grades which affect later stages of learning.

This preparation occurs in various domains for instance, the first domain on learner readiness is the physical well-being and motor development of pre-schoollearners (Alotaibi, 2016). The physical wellbeing encompasses all the aspects that constitute good health such as nutrition, regular checkups, and enough sleep. Motor development means acquiring small skills such as building with legs, holding a crayon, or turning pages and

large movement skills such as walking upright and playing with others in the field. Activities for building motor skills allow children to build the strength of their upper body, refine their grasp, and nature their use of two hands.

The social and emotional development of pre-school children is the second domain in learner readiness whereby children should be able to take turns with others in carrying out different tasks, create and maintain meaningful relationships, control their emotions, and develop a positive self-image. The learning environment should thus provide opportunities for learners to participate in activities that enable them achieve social-emotional development. The activities should include exercises that follow the leads, cues, and preferences of children such as allowing them to read books that discuss feelings and social interactions (Alotaibi, 2016).

The third domain is where the learners' develop approaches to learning such as language development, curiosity, the ability to reflect on learnt ideas, confidence, and the learners' interests and attitudes (Bustamante, White, & Greenfield, 2017). Language development involves the ability of learners to use skills such as nonverbal system of communication. All these arguments are comparable to, (Chaudry, Morrissey, Weiland, & Yoshikawa, 2017), that language development in pre-schoolchildren includes sharing ideas, observations, and feelings in which they have opportunities to express themselves.

Cognition and general knowledge is the final domain in learner readiness. The learner should acquire basic knowledge of concepts and working of the environment in which they take part. For example, the learner should be able to understand basic concepts in learning competencies and in this regard, there are indicators such as teacher quality, availability of teaching and learning resources and health related programmes within the pre-schoolenvironment that are indicators of high quality ECEC programmes that lead to

school readiness among learners this include quality teachers, availability of teaching and learning resources and health related programmes such as nutrition support programmes Mitchell and Nikky (2010), Jomma, McDonell and Porbart (2011).

This indicators work hand in hand with certain features and in order for pre-schoollearners to have an improved level of readiness along the five domains, the school environment should have certain features.The first feature cites teacher behavior as an important factor within the pre-schoolenvironment that determines the level of learner readiness (Du Plessis, 2016). According to Du Plessis (2016), teacher behavior makes learners to think, compare, judge, anticipate, and believe in specific behavioral patterns that make them to want to read. For example, a teacher should appear to enjoy reading so that children identify with reading as an intriguing activity; hence, ready to engage in it with without straining.

Despite the complexities surrounding the issue of measuring teacher effectiveness, we can agree that effective teachers make an extraordinary and lasting impact on their learners' lives. For instance, research finds that students taught by highly effective teachers are more likely to attend college, live in better neighborhoods, and save more for retirement. If we replace a teacher who is in the bottom 5th percentile of effectiveness with an average teacher, the lifetime income of the class's students can increase by approximately $250,000 (Chetty, Friedman, & Rockoff, 2014).

The growing body of research concerned with teacher effectiveness has reinforced the notion that specific characteristics and behaviors matter in teaching, in terms of student achievement as well as other desirable outcomes (Loeb, 2014). Looking across studies that examine the defining elements of effectiveness, a careful exploration of the research helps confirm which practices are vital. In a 2014 study, Loeb, Soland, and Fox asked, *"Is*

a good teacher a good teacher for all?" and found that teachers who are effective with English learners also tend to be effective with their non–English learner counterparts, and vice versa.

Similarly another correlation study in the United States of America revealed that the quality of the teacher and the ECE center determines the level of development language and communication (Dickson, Golinkoff & Hirsh-Pasek, 2010). According to Danielson (2014), teachers become passive when they are depending on teacher-centered lecture method compared to student centered learning. They also more focused on student understanding instead of encouraging learners with other elements such as classroom environment and two way communication. These elements are important in teaching because they are part of effective teachers' competency.The quality of education and performance of learners depends on teachers which reflected in the discharge of their duties (Alkharusi, Aldhafri, Alnabhani, & Alkalbani, 2014). Teachers also have been known as important influence on students' achievement as they play crucial role in educational attainment, and ultimately responsible for translating educational policies and principles into actions based on practices during interaction with the students (Akiri, 2013). Both teaching and learning processes depend on the teacher, thus no wonder an effective teacher has been conceptualized as one who produces desired results in the course of his/her duty as a teacher

Interestingly for Phogole (2010), while investigating teachers preparation and continuing professional development in Kenya established that there was poor reading as assessed by early grade reading (EGRA) that 14% of learners tested in English 19%, in Kiswahili 15%, in Gikuyu 20% in Dholuo in the last term of grade and could not read single word correctly. As such,(Welsh, Nix, Blair, Bierhman & Nelson, 2010) quality teachers help

learners in acquiring mathematical skills and basic problem-solving skills such as recognizing differences and similarities as examples of cognition skills.

One the other hand, print-rich learning environment is the second feature that enhances learner readiness in a pre-school. Such an environment is one that has numerous print materials such as reading books, charts, and other pictorial materials that children identify with, as they are encouraged and motivated to imitate their teacher's behavior and they gain pleasure and knowledge from the constant reading (Du Plessis, 2016).TheInternational Labour Office (2016) look at school environment as school leadership, in partnership with other stakeholders, responsible for creating and nurturing a school environment that is safe, fit for purpose and able to sustain good- quality education. This feature is hardly achieved in rural areas due to high and enduring levels of poverty that impact key aspects of the school environment – both the material and the learning cultures. On the material environment, UNESCO (2015)indicate that many schools in developing countries are poorly designed, constructed with low quality teaching and learning resources. Facilities are often badly laid out, are either too hot or too cold, or are dark, unhygienic, inaccessible, dangerous and generally not conducive to effective teaching and learning. These problems are not only the outcome of a lack of resources but also due to inappropriate standards, a lack of imagination, a poor understanding of the links between infrastructure provision and education delivery, and an incorrect perception that doing things differently is going to increase costs. Good design does not have to cost more – in fact it should improve overall value for money as well as making the whole school environment more welcoming and a place where teachers are supported and learning is encouraged (Alotoibi,2016).

The third feature that is positively connected to learner readiness is the availability of Developmentally Appropriate programmeswhich are holistic and have a positive effect of providing a safe environment that promotes physical, social emotional, aesthetics, intellectual and language development of children (NAEYC, 2016). The National Association for the Education of Young Children (NAEYC, 2016) in the United States of America also defines Developmentally Appropriate Practices (DAP) as learning process and effective ways to teaching that result into optimal learning and development. According to NAEYC (2016), teachers' roles include creating a caring community of learners; teaching to enhance development and learning; planning curriculum to achieve important goals; assessing children's development and learning and establishing reciprocal relationships with families.

The same author gives strategies teachers should use that include acknowledging what children do or say, encouraging persistence use of manipulation of teaching and learning resources, giving specific feedback rather than general comments; modeling attitudes, ways of approaching problems by giving children time to manipulate hands on activities, and behavior toward others; demonstrating the correct way to do something; creating or adding challenge so that a task goes a bit beyond what the children can already do; asking questions that provoke children's thinking, giving assistance; providing information, directly giving children facts, verbal labels, and other information and give directions for children's action or behaviour.

UNESCO developed the Holistic Early Childhood Development Index (HECDI) to monitor young children's well-being at both national and international levels (UNESCO, 2014). The HECDI sets targets and indicators. It adopts a holistic vision of early childhood which includes indicators of health, nutrition, protection, welfare and

education. The HECDI's main goal is to ensure that each child achieves their potential. It therefore presents four main objectives for young children's development, covering health, nutrition, education, social protection, poverty and parental support. The HECDI was used to monitor global progress in achieving EFA Goal 1 for 2015.Furthermore, poverty poses particular challengesfor indigent communities, as poor living conditions may compromise children's health and well-being due to poor nutrition, limited access to medical facilities and child labour (UNESCO, 2012).

In this regard, a World Bank study (2015) on school readiness among pre-schoolers in indicates that school readiness has immense benefits in as far as learning and cognitive development is concerned and one other academic-related programmes that enhance learner readiness in pre-schools, is nutrition support programmes. Which are aimed at improving the nutritional wellbeing of pre-school children which in turn improves physical and emotional wellbeing of learners. The impact of malnutrition on learner readiness in pre-schools is therefore, an issue that could be addressed through a robust nutrition support programmes that encourages pre-schoolers to stay in school especially in poor countries (Hattie, 2012).

This was found to be consistent with World Bank (2012) report which links nutrition with the level of learner readiness in pre-schools. It states that, nutrition support programmesis a social safety net which provides both educational and nutrition benefits especially to the vulnerable learners thus increasing enrolment rates, reducing absenteeism and improved food security at the household level.On the same note the World Food Programmes(WFP,2013) on the implementation of SDG1 and 2 goals in Ghana, specified the need for nutrition support programmes and basic education but pre-schools

are still facing challenges in terms of attendance and completion of grades due to hunger (Hussein ,2014).

In Malawi, both the Ministry of Health (MoH) and Ministry of Gender, Children, and Social Welfare (MoGCSW) employ community health workers. However, those employed by the MoH focus on health care and nutrition, while those working with the MoGCSW concentrate on child protection and development. Differences in population coverage and uncoordinated work schedules mean that these services – and associated messages about child development are not delivered in an integrated way. (Phogole, 2010).

Similar studyby Alderman (2012) in NorthernUganda on nutrition support programmes revealed a significant increase in enrolment and attendance among pre-schoolers ,while in Kenya, nutrition support programmes is one of the rights provided for children in the Constitution (2010) to enhance participation and performance in schools.These sentiments are inconsistent with Osman (2015) and Omukubi (2017) whose study findings in Bungoma County revealed significant relationship between nutrition support programmes and learning readinessamong pre-schoolers in attendance, English and literacy skills.

According to the Uwezo Kenya Sixth Learning Assessment Report (2016), Bungoma County is one of the counties with the largest population of learners enrolled inEarly Years of Education programmes (EYE), but as reported by Uwezo (2013) and (2016) it has low levels of learner readiness in pre-schoolsin terms of reading and writing and this problem goes up to grade one two and beyond. The reports further indicated that only 15.4% of class 3 pupils can do class 2 works, 13.0 % of class 3 pupils can do class 2 work in rural areas, and 24% in urban areas of the county.

It is on this basis that this study investigated selected pre-schoolcharacteristics to establish variations in learner readiness in public pre-schools in Kimilili Sub- County Bungoma County Kenya because if this variations are not established those without access to quality EarlyYears Education programmes will continue to be unable to cope with the demands of primary education and will have difficulty in adjusting to formal learning, interacting with other children and learning new social skills. This also has adverse effect on the learner's social wellbeing. The empirical data from this research is important in establishingthe pre-schoolcharacteristics that account for variations in pre-schoollearner readiness in public pre-schools in Kimilili Sub-County in order to provide data that can be used to inform policy in ECDE.

1.2 Statement of the Problem.

School readiness enhances academic development and predicts children's future. Children who attend quality pre-schools ready to learn are likely to succeed academically and experience less behavioral and emotional problems in future. Anumber of the features that predict learner readinessinclude teacher characteristics, teaching and learning resources and nutrition support programmes (Kleeck &Scheele,2010).Effective pre-schools maintain a strong educational focus but viewed academic and social development as equally important.Children who attend high quality pre-school programmes are likely demonstrate gains in social, emotional, educational, health and intellectual development in future (Vandell, Belsky, Burchinal,Steinberg & vendergrift 2010).

In Bungoma existing surveys such as the one documented in the Uwezo Kenya Sixth Learning Assessment Report (2016) noted alarming low levels andinadequacy in learner readiness in terms of numeracy and literacy skills among 5-6 years old in Bungoma County. According to this report, 17.2% and 20.4% of the learners were unable to identify

letters and weak in numeracy skills respectively compared to other counties in Western region.

Statistics in the Uwezo assessment Report (2016), suggestthat, little progress is being made in this County. The latest Uwezo report of 2016 further indicate that 16 out of100 and 18out of 100 children aged 5-6 years cannot identify letters and numbers respectively in Western region compared to 2 out of 100 and 3 out of 100 in Nairobi.Generally the report also indicated that Western region ranks low in literacy and numeracy skills compared to others. While Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift valley recorded 3.8, 7.5, 7.5, 1.7, 15.8, 10.9, 11.7 literacy skills respectively among 5-6 olds, Western region trails with 15.8. The region also trails with 18.3 in numeracy skills compared to 7.8, 9.9, 11.1, 3.3, 17.0, 11.9, 11.8 for Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift valley respectively. Within the Western region, Bungoma County has 17.2% and 20.4% for those unable to identify letters and numbers respectively compared to Busias' 9.1 and 12.1, Kakamegas' 17.6 and 18.5 and Vihigas' 14.2 and 19.3 respectively.

In order to achieve the Sustainable Development Goal 4.2 by 2030 that require access to quality Early Childhood Development Care and pre-primary education, it is necessary that pre-schoolcharacteristics that are attributes to variations in pre-schoolers' readiness in Bungoma County be identified. Hence the need for research and analysis exercise targetingpre-schools within Kimilili Sub-CountyBungoma County on learners' readiness to establish pre-schoolcharacteristics that are attributes to variations in pre-schools learners in Kimilili Sub-countyBungoma County be identified to inform decision and policy making.

1.3 Purpose of the Study

The purpose of this study was to investigate the effect of pre-schoolcharacteristics on learning readiness among 5-6 years old pre-schoolchildren in public pre-schools in Kimilili Sub-County of Bungoma County Kenya.

1.4 Objectives of the Study

The main objectives of this study were:

i. To determine the influence of teacher characteristics on learning readiness among5-6 yearspre-schoolchildren in publicpre-schools in Kimilili Sub-County, Bungoma County.

ii. To establish the influence of teaching and learning resources on learning readiness among 5-6 years old pre-schoolchildren in public pre-schools in Kimilili Sub- County, Bungoma County.

iii. To investigate the influence of nutrition support programmes on learning readiness among 5-6 years pre-schoolchildren in public pre-schools in Kimilili Sub -County, Bungoma County.

1.5 Research Hypothesis

1. Ho_1: Pre-schoolteacher characteristics have no statistically significant influence on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County Bungoma, Kenya.
2. Ho_2: Pre-schoolteaching and learning resources have no statistically significant effect on learning readiness among 5-6

years old in public pre-schools in Kimilili Sub-County Bungoma, Kenya.

3. Ho_3: Pre-schoolnutrition support programmes have no statistically significant effect on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub -County Bungoma, Kenya.

1.6 Justification of the Study

Early Childhood Education enables learners to acquire the necessary knowledge, skills and attitude that make them productive citizens. The transition between early childhood and primary school is widely considered a crucial period in children's development. Early childhood environment provides valuable interactions that assist children in developing appropriate school-readiness skills that enable them to transit to formal schooling.

The most important research question is whether ECE Centers are effective at preparing children for entry into formal schooling. This relates to whether the quality of the pre-schoolcontributes to children's school readiness. This may have a positive or negative impact on the pre-schoolers future life chances, income and wellbeing. Therefore, it is important that pre-schoolcharacteristics that affect learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Bungoma are identified so as to provide data that can assist in the realization of educational sustainable development goals and Vision 2030, Nationaland International policypapers.

1.7 Significance of the Study

This study aims at providing the government, early years of education,pre-schoolteachers, parents, pre-schoolersand other education partners with data on the

effect of pre-schoolcharacteristics on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County Bungoma, Kenya. This would provide a basis for which policy intervention for training and placement of ECD teachers in early childhood development centers in Kenya can be implemented. This may equalize opportunities for pre-schooler's readiness in public early childhood development centers in Kenya.

Secondly, the findings on the effects of teaching and learning resources on learning readiness among 5-6 year-olds in public pre-schools in Kimilili Sub-County may provide the necessary data to the government, early childhood development centers, ECD teachers, parents, pupils, and other education stakeholders. Thevalid and key indicators on the characteristics of pre-schoolfor example teaching and learning resources and how they impact on the learning readiness. This may form the basis on which policy interventions can be imitated by the government, development partners, and other stakeholders in investing in teaching and learning resources in ECD centers in Kenya and provide pre-schoolers with the favorable environment to learn maximally. The effect is that it may be used to improve the level of readiness amongpre-schoolers as they transit to class one. Besides, such targeted investment in teaching and learning resources may empower ECD teachers to understand which ECD learning resources provide the highest returns in the level of readiness among pre-schoolers. In the long run, the quality of education improves when pre-schoolers join class one when they have the requisite learning skills, and it contributes to the realization of Sustainable Development Goals (SDGs).

Thirdly, it is hoped that this study may provide information on the nutrition support programmes and their positive impact on public pre-schoollearning readiness in Kimilili Sub-County. The data will assist the government, ECD teachers, parents and

other stakeholders to align policy with the needs of pre-schoollearners to prioritize nutrition support programmes. ECDcenters will thus have ECDcenters that have effective nutrition support programmes that enhance learner readiness.

Finally, the findings on the effect of teacher characteristics, teaching, and learning resources, and nutrition support programmes on learning readiness among 5-6 year-olds in public pre-schools in Kimilili Sub-County. In addition, the findings mightform the basis of debate for further studies and revision by students and scholars in the field of early childhood development.

1.8 Scope of the Study

The study was restricted to 5-6 years old pre-schoolersand pre-schoolhead teachers in public pre-schools in Kimilili Sub-County Bungoma, Kenya. The study specially sought to establish the effect of pre-schoolcharacteristicson learning readiness among 5-6 years old in public pre-schools in Kimilili Sub-County, Bungoma Kenya.

1.9 Limitations of the Study

The following were the major limitations of the study:

Some pre-schoolhead teachers were not willing to provide information for fear of victimization especially on teacher characteristics use of teaching and learning resources and nutrition support programmes. The researcher explained to the pre-schoolhead teachers the importance of this study.

The study population reduced as some declined to take part in the study while others did not return the questionnaires.The researcher dealt only withthose respondents who were willing to take part in the research as per the research ethics.

Time for this study was limited.The researcher therefore ensured that data was collected within the time frame allocated for data collection.

There were communication problems as some roads were impassable due to a lot of rain in the study area.The researcher hired motorcycles and made sure data was collectedbefore noon.

The sample size was small and it was difficult to find the significant relationship from the data .Other researchers need to base the same study on a larger sample size to end up with correct results.

There was lack of prior research studies on this topic in Kimilili Sub-County Bungoma Kenya and however the researcher borrowed literature from the globe, Africa and regional.

1.10 Assumptions of the study

The study was guided by the following basic assumptions:

i. That 5-6 years old learning readiness in public pre-schools in Kenya highly depends on pre-schoolcharacteristics.

ii. That the data obtained on 5-6 years old learning readiness in sampled public pre-schools using the KSRAT were accurate and reliable.

iii. That pre-schoolhead teachers in the selected public pre-schools were sincere with the information solicited for the study.

iv. That pre-schoolhead teachers in public pre-schools are all trained similarly, have equal opportunities for professional development and teaching experience.

1.11 Theoretical framework

This study adopted the Input-Output Model of schooling known as the Educational Production Function (EPF) (Hanushek, 1995). The origin of Education Production Function emanates from the Coleman Report of 1966 which postulated the education process as the achievement of individual students directly related to a series of inputs and that the inputs you put into the system will determine the outcome but in Kenya especially Kimilili Sub-County, is not giving us the results we need. According to Hanushek, the EPF basically postulates that the educational outcomes are a function of a variety of inputs that are injected into the education process. Education is thus a production process that uses physical, human and financial resources in the production of educated people.

This study abstracts from this function and investigated the effect of pre-schoolcharacteristics on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County. As an educational outcome learning readiness among the 5-6 years old is a function of many factors among others; pre-schoolteacher characteristics, pre-schoolteaching and learning resources; and pre-schoolnutrition support programmes. These factors work independently and interdependently with other factors (pre-schoolers characteristics and pre-schoolbackground) which in this study will be treated as controls to affect the 5-6 years old learning readiness in pre-schools. Therefore, a simple Education Production Function for this relationship would be the education output as measured by the 5-6 years old learning readiness as a function of inputs such as pre-schoolteacher characteristics, pre-schoolteaching and learning resources; pre-schoolnutrition support programmesand the controls (pre-schoolerscharacteristics),where teacher characteristics such as age,gender, teachers experience, teachers highest professional development, terms of employment,

teachers salary,teaching and learning resources and the availability of nutrition support programmes meant to improvepre-schoolers learning meanscore.

However, according to Psacharopoulos and Woodhall (1985), such a function differs from a perfect economic production function in that education is extremely complex and many interrelated variables affect the quantity and quality of output. Empirical assessment of this theoryinvolved the use of Multiple Linear Regression (MLR) Model. The model linked the 5-6 years old learning readiness to pre-schoolteachers' characteristics, pre-schoolteaching and learning resources; and pre-schoolnutrition support programmes while controlling for other variables (pre-schoolers characteristics and pre-schoolcharacteristics background). This theoretical aspect is explained in a conceptual ideology in Figure 1.1.

1.12. Conceptual Framework

This study was guided by a conceptual framework that illustrates the inter relationship between the independent and the dependent variable together with the controls. The 5-6 years old learning readiness is dependent on pre-schoolcharacteristics other factors held constant. This relationship is shown in Figure 1.1.

The conceptual framework for this study presents the relationship between pre-schoolcharacteristics and 5-6 years old learning readiness in public pre-schools in Kimilili Sub-County Bungoma, Kenya. In these relationship pre-schoolcharacteristics is the explanatory variable as measured by the pre-schoolteacher characteristics, teaching and learning resources, and nutrition support programmes. The relationship is shown in figure **1.1**

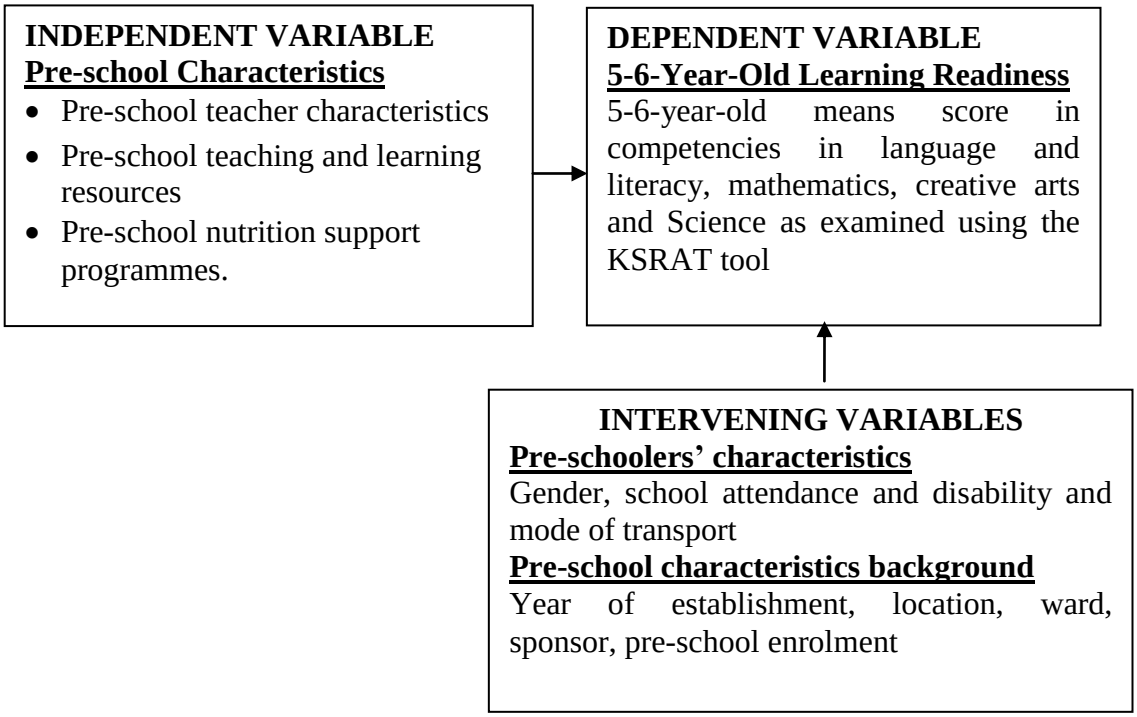

Figure 1. 1: Conceptual Framework

Source: Researcher Concept, 2019

The outcome variable is the 5-6 years old learning readiness as measured by the 5-6-year-old means score in competencies in language and literacy, mathematics, creative arts and Science as examined using the Kenya School Readiness Assessment Tool (KSRAT).

From the foregoing it is apparent that pre-schoolteacher characteristics, teaching and learning resources and nutrition support programmes may positively or negatively affect the 5-6 years old learning readiness in public pre-schools in Kimilili Sub-County Bungoma, Kenya. It is expected that public pre-schools with highly trained teachers with pedagogical skills, well equipped facilities, appropriate curriculum delivery practices and well established nutrition support programmes have higher mean scores of 5-6 years old

learning readiness compared to those without. The magnitude and the direction of the effect of the explanatory variable on the outcome variable will be established using the multiple linear regression models. However, this effect may be influenced by other variables such as pre-schoolers' characteristics (Gender, school attendance and disability and mode of transport) and pre-school background characteristics (year of establishment, location,ward,sponsor,class size and sponsor) . These variables will be treated in this study as control variables and their effect will be established using the multiple linear regression.

1.11 Operational Definition of Terms

Learning Readiness

Refers to the ability of the learner to exhibit skills in language literacy, creative arts, numeracy, and scientific competencies as measured by the KISRAT tool in readiness in preparation for grade one.

Pre-schoolcharacteristics

Pre-schoolcharacteristics refer to teacher characteristics teaching and learning resources andpre-school nutrition support programmes.

Pre-schoolers

Pre-schoolers refers to learners aged 5-6 years old in public pre-schools

Pre-schoolteacher characteristics

Pre-schoolteachers'characteristics refers to information relating to their gender, age, experience, and years of deployment in the current school, level of education, employment status, and workshops attended on pre-schooling and gross salary.

Pre-schoolers/textbook ratio

Refers to total number of pre-schoolcore books divided by the total number of pre-schoolers.

Pre-schoolNutrition Support programmes

Refers to availability, status of the frequency of meals, types of meals, special dietary consideration for religious and/or cultural dietary and status of safety guidelines meant to alleviate short term hunger, improve nutrition, cognitive level and attention span of learners.

Pre-schoolers' population

Refers to the total number of pre-schoolers in a pre-school.

Teaching and learning resources

Teaching and learningresources refers toPre-schoolerstextbook ratio, pre-schoolers'/space ratio, class size, flash cards/pre-schoolers ratio, charts, play field/pre-schoolers ratio and swing/pre-schoolers ratio.

Teacher/pre-schoolers ratio

Refersto the total number of pre-schoolers divided by the total number of pre-schoolteachers in a given pre-school.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

A wide range of literature discusses various aspects that enhance pre-schoolreadiness. This literature review, therefore, entails empirical findings on the concept of learning readiness among pre-schoolers as a vital aspect of childhood education, the role of teacher characteristics, availability of teaching and learning resources within a pre-schoolenvironment, and the availability and quality of nutritionsupport programmes on learning readiness. The chapter opens with a discussion on global concept of learner readiness and ends with summary of literature and identification research gaps.

2.1 The Concept of School Readiness

Learner readiness has received significant scholarly attention in childhood education research. According to Kleeck and Scheele (2010), the experiences in the early childhood years of a child vitally determine the level of readiness among pre-schoolers for later-stage education. They consider the whole concept of readiness for pre-schoolers to be centered on their ability to use the social, cognitive, literacy, and emotional skills in the later stages of learning especially lower primary school. Conversely, the absence of inadequacy of these skills in school-going children at the lower primary level, therefore, indicates a poor state of learner readiness at pre-schoollevel.

The United Nations Children Fund (2015) defines school readiness as having two major characteristic features on three dimensions. The two features are gaining competencies and transition. The three dimensions on which these two features are based are children, ready families, and ready schools. With regard to school readiness, these three dimensions are intertwined such that they enable learners to be both proficient and

prepared because they exist within the larger ecological learning system that enhance learner readiness (UNICEF, 2015)

As for UNESCO (2015) it is increased attention on the early years of education for all children though there is realization of adequate readiness among pre-schoolers has been sluggish across regions. The report also cites an inadequacy of particular factors such as family learner's environment, school facilities, and the implementation of developmentally appropriate education policies and practices. Learner readiness is achieved by creating a system comprising of separate parts that collaborate to make children physically and neurologically ready for primary learning whereby pre-schools need to be equipped with resources, teachers, supportive families, and a supportive community in order to enhance learner readiness (UNICEF, 2015).

While not enough is yet known about how to scale-up effective interventions in early childhood (Global Child Development Group, 2011), one thing is clear: the quality of early childhood services, and ultimately the outcomes for children and families, depend on a well-supported and empowered early childhood teaching workforce. Children and families face growing challenges that require a comprehensive approach in designing and implementing programmes, with better integration of services and high professionalism of those working in them.

According to Sak (2016)in a study that compared the views of the concept of school readiness held by 50 pre-service pre-school teachers and 50 pre-service primary teachers. Data were collected through a semi-structured interview protocol, and the word-list and key-words-in-context techniques were used for qualitative data analysis. Findings showed that pre-service pre-school teachers and pre-service primary teachers have similar views related to school readiness. Both emphasised that school readiness may be defined through the lens of developmental domains, and exhibited broad agreement that the most

effective people in the school-readiness process were parents. On the other hand, some differences between the pre-school respondents and the primary school respondents were identified. For instance, when defining school readiness, enhancing all developmental skills of children was mostly emphasised by the primary group.

In North Carolina, children who spend time in pre-schools are termed ready in learning nurturing and early brain development (Burger, 2011).This was found to be consistent with Anne (2010) who equally found out that early literacy skills were positively related to learning readiness and points out that children who are most likely to develop reading problems are those who begin school with low oral skills, less phonology awareness and letter knowledge. This type of learners are likely to continue experiencing reading problems even primary grades and beyond. In consistent with this argument, Gove&Guvelich(2011) equally revealed that when children get a poor start in reading, they rarely catch up and this problem may persist even in higher levels of learning.

There is solid body of evidence which shows that foundations of learning are built in early years of education before a child crosses to primary. Children start school with some life experience while some grow up in houses in which books are read to them to help them develop early reading writing skills and knowledge. However, children from low Socio economic status tend to have fewer books Sankoff and Gramer (2012) and enjoyable then those who did not have prior experience emotions of children towards school teacher and classmates and desire to learn. Contrary as they will need time to adapt to school, furthermore, differences will occur in learning competencies

According to Burger (2010) learners who start school with prior knowledge in reading and writing skills are favoured by the pre- school. Curriculum in terms of cognition level in learning competencies. Early childhood experience in reading and writing has positive outcomes prior to primary school education. As for Phogole (2010) on Kenya early grade

reading assessment findings report 2010 teachers who continuously developed professionally had deeper knowledge and understanding on reading and mathematical skills in pre-school hence enhancing academic achievement of learners and therefore recommended for need for continuous review of teachers curriculum and practice.

The south Africa situation as far as ECE is concerned has experienced lack of government involvement .This situation has been persistent since the establishment of the first pre-school (Maringe and Prew, 2015)the government took charge of implementing ECE took charge of implementation programmes to selected while south African children while ignoring other racial groups In the year 2001 the south African government piloted a project to find out the challenge facing ECE so as to come up with strategies to improve the quality of ECE in order to close the variance in provision (Maringe and Prew, 2015)

In Kenya there exist greater variations in the structure of ECDE environment. These variations probably have contributed to the varying readiness among pre-schoolers in ECDE in Kenya. For instance, Weveti (2017) study in Embu, and the Uwezo (2013) and (2016) reports on other counties in Kenya and specifically BungomaCounty indicated worrying statistics on the level of learning readiness. The Uwezo learning assessment reports revealed that as much as about 1 million children attend pre-schoolonly 7 out of 10 pre-schoolers in class one two three or even up to class eight lack literacy and numeracy skills.

Teaching and learning reduces teachers' verbal presentation and use of chalk to write on the blackboard, makes learning more attractive and interesting and enhances their intellectual and emotional capacities (Nikky, 2010).Notably, teaching and learning resources are crucial to any successful teaching and learning process worldwide (Onyango, 2014). These resources aid and support the teacher to effectively transfer the content to the pre-schoollearner (Wanyama and Mwonga, 2012) .One other study by

Bota, Sitati & Ndung'u (2017) in yetanother studytargeting theprovision of teaching and learning resources in the Early Education centers in Kakamega County revealed the need for stakeholders to provide teaching and learning resources which are improvised and locally available to aid teaching and learning in pre-schools.

According to WFP (2013), pre-school nutrition support programmes provides direct support to poor families contributes to child's readiness to learn and ability to participate in the educational process supports children from vulnerable families. As per (Busljeta,2013), nutrition support programmes impacts positively on pre-schoolers in terms of their physical development, health, learning and cognitive development with the micronutrients provided tackling deficiencies among children who lack nutrients such as vitamin A and iron.

In Bungoma County, Osman (2015) and Omukubi (2017) areamong the few authors whose studies aimed at ascertaining the effect of pre-schoolnutrition support programmes andthe level of learner readiness in the county.As pointed out by Omukubi, the level of learner readiness in the county had tremendously improved because of reduction in poverty, improved food security, and parental involvement in nutrition support programmes though learners level of communication and literacy levels was still lowand as established furtherby Osman, despite the existence of nutrition support programmes in pre-schools, they are still of low quality and this impacts negatively on learner's readiness in pre-schools.

Therefore, basing on this findings, it was necessary to establish factors leading to variations in pre-schoolers' readiness in Kenyan pre-schoolsspecifically in Kimilili Sub-County, Bungoma County because those without access to qualitypre-schoolprogrammes will continue to be unable to cope with the demands of primary education and will have

difficulty in adjusting to formal learning, interacting with other children and learning new social skills thus compromising learner readiness.

2.2 Teacher Characteristics and Learning Readiness

According to National Association for the Education of Young children (NAEYC, 2016) the most important characteristics for pre-schoolteachers include enthusiasm, passion for children, patience and humour, possess, a degree in early childhood, be creative and flexible. Echoing this argument, Jennings (2015), the teachers' role is creating a conducive environment socially and emotionally in order to enhance learners' success in academics. On the same note Dalii (2014) on pre-school teacher's qualification established teacher's level of qualification as a key contributor in facilitating learning readiness in pre-schools.

In fact target 4.c of the Sustainable Development Goals recommends that: "By 2030, there should be substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small- Island developing States." In relation to this target, *the Education 2030 Framework for Action states that governments should "make teaching an attractive, first-choice profession with continuing training and development by improving teachers' professional status, working conditions and support, and should strengthen policy dialogue mechanisms with teacher organizations"* (UNESCO, 2015).

Based on the same sentiments according to Hanushek (2010) notes that less experienced teachers are less effective in instruction than experienced ones in terms of learners' academic performance. On yet a similar argument by Sammons (2010) on pre-school teacher quality revealed that highly qualified teachers tend to inspire those of lower

qualifications when they work together as they impart in them knowledge and skills needed for better learning outcomes.

Teachers who are dissatisfied with their jobs and are poorly motivated are not likely to perform well. The poor behaviour and performance of teachers is reported to have reached crisis levels in some countries. The key indicators of this are low and declining learning outcomes, high rates of teacher attrition and teacher absenteeism, low time-on-task, frequent strikes and other forms of industrial action, and widespread teacher misconduct improved incentives and working and living conditions for teachers should be a top priority in almost every country (Bennell, 2011).

One other elements of teacher quality include how teachers deliver the curriculum content in learning areas in class and `the ability to create a conducive learning environment for learning (Pramling and Pramling Samuelson,in press,2011).Similarly,Litjens and Taguma (2010) are among authors who argued that there is strong evidence that high rich environment and quality pre-school teachers leads to better learning outcomes among pre-schooler and therefore advocated for subjecting teachers to continuous workshops with an aim of keeping them updated in methods, curriculum delivery and skills in subject knowledge to help them practically during instruction in the classroom.

Studies investigating the implementation of new teaching styles (e.g., differentiated instruction, Suprayogi, Valcke, & Godwin (2017) indicate a strong influence of individual characteristics such as self-efficacy for positive attitude formation on implementation processes (Wan,2015).Attitudes towards the reform have been shown to significantly influence the use of performance data feedback (Koch, 2011). Attitude formation was reliably predicted by self-efficacy (Trempler,Schellenbach-Zell,& Gräsel, 2012) as well as by contextual factors such as credibility and usefulness of the information provided (GroßOphoff, 2013).

According to Zeitler, Heller& Asbrand (2012), understanding and implementing the concept of competence-based teaching was easier for teachers with a constructivist understanding of teaching and learning, while teachers with instructions views were more likely to avoid competence-based changes. This is also backed by results of Wan (2015), who reported that the implementation of differentiated instruction was strongly associated with attitude formation which, in turn, facilitated implementation. Attitudes towards educational reforms have been reported to be predominantly negative and highly ambivalent (Ungar, 2016) which is driven by the fact that elements and role changes of educational reforms are often evaluated as ambiguous.Education, in particular higher education (Dahmann & Anger, 2014), has been found to crucially influence personality characteristics by fostering favorable characteristics with regard to the specific profession.

Whereas White (2014) on longitudinal NICHD early child care research network study on 800 children from birth to 54 months found out that teachers' educational attainment predicted teachers' behavior which in turn predicted children's social and cognitive outcomes. Further White (2014) on the investigation of early education teacher qualifications revealed that teachers with bachelors of education degree in early childhood education have significant standards inlearners' outcomes in terms of linguistic and child outcomes in early childhood education.

Consequently, Howe,Jacobs,Vukelich and Recchia (2012) in their correlation study in the United States of America revealed that development programmes for ECE teachers were related to quality delivery of mathematics concepts during instruction. Notably, Roorda, Koomen, Spilt, and Oort (2011) are also among authors whodemonstrated through a meta-analytic study that teacher-learner relationship produced better results in terms of learner readiness. The study entailed a sample of 99 student's right from pre-schoolto

high school. The findings upon analyzing the data, positive teacher-student's relationships and school engagement are statistically associated with higher achievement in the higher grades. The study, therefore, indicated the need for pre-schools to invest more in capacities that enhance learner readiness.

Similarly Strong (2018) on a study investigating 24 centers from eight counties in California on qualities of effective teachers revealed that teachers behaviours attributed to learner achievement and other measures for effectiveness and teachers preparation personality and practice determine the achievement of learners in pre – schools and classes where teachers interacted more with children showed more improvement in learner attendance and performance.

One other study from England by Siraj-Blatchford (2010) on the effectiveness and quality of pre-school teacher linked teacher qualityto higher academic performance and teachers with low levels of qualifications were related to less learning outcomes especially in social and emotional domains. In 2015 Sweden, among the pre-school teachers employed to teach pre-schools, only 39% were professionally trained and certified Skolverket (2017).In view of the foregoing, Persson (2015), noted that quite a number of thepre-school teachers who were working in high socio-economic levels had higher academic qualifications than those working in low socio-economic areas thus causing variations in learner readiness in learning competencies across Sweden.

In New Zealand, the quality of ECEC is related to the quality of the teacher and this has prompted education policy makers to ensure more teachers are registered for more training to enable them deliver quality classroominstruction (OECD, 2014).Recently, Raikes(2015) &Yoshikawa &Kabay (2015) investing in pre-schoolteachers and providing opportunity for in-service courses are key indicators in achieving quality pre-schoolprogrammes. As pointed out earlier Yoshikawa (2015),teachers who attend in-

service courses stand better chances of enhancing earners' literacy skills. This is in consistent with Chaudry, Morrissey, Weiland, and Yoshikawa (2017) study which established that subjecting teachers to in-service courses in public pre-schools improved learning in class in terms of teacher-learner interaction, thus enhancing learnerreadiness in literacy skills.

As such in Mexico, teacher recruitment is based on professional qualification due to its effectiveness on classroom instruction in pre-schools (Estrada, 2013).Further as noted in Pakistan, teachers in publicpre-schoolsearn less than those in private schools hence a demotivation towards teaching and learning (Bau& Das, 2014).In addition (ILO, 2012) in South East Asia,lack of quality teachers in pre-schools is one of the challenges that needs to be addressed in order to realize high levels of learning readiness.

In developing countries in Sub-Saharan, variations in access to in-service courses comprises the level of learning readiness in schools (OECD, 2014). Previous reviews by Sun, Rao and Pearson (2015) indicate that inadequate professional development and low wages are some of the challenges facing and impacting negatively on learning readiness levels in pre-schools because teachers engage themselves other economic activities at the expense of learners.According to Adedeji and Oliniyan (2011), on improvising the conditions of teachers and teaching in rural Schools across Africa countries found out between 30-50 percent of pre-schoollearners could not read, write and lacked numeracy skills confidently as a result of poor quality teaching and schooling . equally research teachers in Africa (2016) report number 21 for ILO in Rwanda, teachers who are dissatisfied with their Jobs and are poorly motivated are not likely to perform well in curriculum delivery, thus results into declining outcomes, high rate of teachers attribution and teachers absentee with low time on task and frequent strike (Bennell,2011)

On yet a similar argument Martinez, Naudeau, and Pereira (2012) in a report adopted by the World Bank cited teacher behavior as among issues that affect pre-schoollearner readiness in Mozambique which discourages pre-schoolenrolment in the rural settings. As a result, the report finds higher enrolments from among urban and affluent families, which then causes low levels of learner readiness in pre-schools. In Ghana, for instance, Buabeng-Andoh (2012) empirically showed through a correlation analysis that low knowledge of information communication technology among teachers is responsible for the low level for learner readiness in using ICT in later-stage learning. Buabeng-Andoh (2012), therefore, recommended learner-centric instructional materials and continuous teacher training as the solution for the low learner readiness in pre-schools.

In Kenya, the National Assessment System for Monitoring Learner Achievement (NASMLA, 2010) on learners' academic achievement results revealed thatpre-schoollearners who were taught by teachers with higher professional qualifications and teaching experience performed better in learning competencies than those who were taught by those with lower professional qualifications .Echoing this argument, ECDE teacher training programmes by the government and other education partners has contributed towards increased teacher training in Kenya as a way of closing this existing gap (Okengo, 2011. Similarly Bunyi, Wangia,Magoma &Limboro (2013)in Kenya, teachers who participated continuously in professional development had deeper knowledge and understanding of reading and mathematics of pre-schoollearners therefore enhancing academic achievement in key leaning areas therefore need to review of teachers'curriculum and practice.

In Kenya, Weveti (2017) observes that pre-schoolchildren improve their performance in class when teachers adopt a positive attitude. The author made the observations in a study

targeting Embu County, which also has low levels of learner readiness as also indicated in the Uwezo (2016) Report.This author asserts that teachers experience and additional qualifications are among the qualifications needed in addition to the attitudinal disposition of teachers if learner readiness is to be realized. A positive attitude, Weveti observes, has the intrinsic effect of motivating teachers to employ the most effective skills and resources during lessons. As a result, pre-schoollearners exposed to teachers with a positive work attitude enhance learner readiness because they acquire the most from their learning experiences**.**

As such Ngei (2015) in an educational journal in Dagoretti Kenya on pre-schoolperformance in mathematics competency alsoestablished that pre-schoolteachers' academic qualifications, attitude and experience towards work areamong teacher characteristics that affect performance in Mathematics in pre-schools. On the same note, one other observational study in Kenya by (Ngware, Oketch & Mutisya, 2014) on learning readiness in pre-schoolsrevealed a strong relationship between teacher characteristics and learner achievement in instruction.

Elsewhere, Ndung'u (2014) considers teachers as a vital source of learning motivation for pre-schoollearners. Considering that intellectual and cognitive growth are essential for enhancing learning readiness, Ndung'us' findings in a study targeting Starehe Sub-County, Nairobi, are worth noting. It involves a descriptive survey design based on Maslow's Needs Theory. The study finds that teaching experience and academic qualifications collectively correlate with high levels of motivation among pre-school children. The author, therefore, recommended continuous learning as a way to impart motivational skills among teachers. When pre-school children are motivated to learn, they improve their level of readiness for later-stage learning activities. Although ECDE services were devolved in 2010 to ensure quality ECDE Programmes for all children,

some challenges such as poor and irregular teachers' pay has compromised teachers commitment towards preparing learners for transition to primary schools (Republic of Kenya, 2010).

On the same note as earlier observed, Isaboke (2018) on teacher preparedness in integrating information and communication and technology in pre-schools, Nyamira County Kenya has established that teachers attitudes, training and teaching experience and level of self-efficiency had a positive and significant effective on integration of ICT inteaching anlearning in pre-schools. Although many studies done have established that teacher characteristics is among things that enhance learning readiness, the extra teacher programmes in Kenya has revealed low levels of learning in both mathematics and language test scores (Duflo, Dupas & Kemer ,2012).

Notably, in Kenya, Ndung'us study in Starehe Sub-County, Wevetis' study in Embu are among authors that addressed teacher experience and academic qualifications as the major teacher characteristics that enhance learner readiness but there is no documented study in Kimilili Sub-County Bungoma County that demonstrate how teacher characteristics affects learner readiness especially among pre-schoolchildren aged 5-6 years old and this studies had different research designs, study sampling styles and population. Hence there was need for a study on this variable.

2.3 Teaching and Learning Resources and Learning Readiness

UNESCO (2014) defines teaching and learning resources (TLRs) as concrete and tangible resources for supporting student learning. As for Strauss (2015), resources used in teaching pre-schoolers should be such that meet their learning needs adequately. On the other hand, Lewis,O 'Reilly ,Khuu & Pearson (2013) further revealed that the use of visual aids in instruction enhanced acquisition of knowledge and retention especially in learning competencies. Consequently as revealed by Lyons (2012), teaching and learning

resources motivates learners to acquire skillsin literacy, numeracy and science and art and craft learning competencies during learning.

Learning can be effective where there is recognition of inherent capabilities and assets of rural people is respect for indigenous knowledge, which may be endemic in particular rural communities. School curricula can include knowledge rooted in community practices; for example, science and mathematics curricula can extend students' and teachers' notions of the history of knowledge in rural communities by illustrating alternative ways of thinking about knowledge through use of teaching and learning resources(Hewson, 2014).

There are strong indications from language development studies that children must learn in their home languages to promote learning. Initial teacher education should provide skills to cope with bilingual language situations, where indigenous languages or dialects prevail. This requires that initial teacher education, in at least the basic education phase, provides for a bilingual approach that ensures continued teaching in a child's mother tongue alongside the introduction of a second language, ideally throughout the primary grades (UNICEF, 2014).

In addition, as pointed out by Nikky (2010), the use of a variety of teaching and learning resources during instruction enhances acquisition of learning readiness skills. Based on this argument one other study conducted on the effectiveness of teaching and learning resources on learning readiness in pre-schools established that the use of textbooks during classroom instruction enhances learner's attention and participationin class (Krishnarative & White, 2013). Similarly on the same note, according to Reynolds (2011) teaching and learning resources enhances among others acquisition of mathematical knowledge, skills and concepts hence need for provision.

According to ECCE South Eastern Asia (2018), a teacher understands the child's holistic development and learning. These are competencies related to ECCE teachers' theoretical and practice- based knowledge and understanding of child development and learning.The teacher practice –based knowledge enable one to i) demonstrate understanding of the rights of the child; ii) show respect for individual learners, and places the child at the Center of teaching and learning activities; iii) equip oneself with knowledge on holistic child development and learning, including theories on early childhood development; iv) equip oneself with knowledge of relevant laws, policies, and standards on early childhood care and education. v) Explain relevant knowledge on child development and learning to colleagues, parents, and other ECCE stakeholders; vi) recognize that children develop at different paces and have diverse needs, interests, and potentials vii) be able to observe and describe the range of developmental (e.g. cognitive, linguistic, physical, social, emotional, and spiritual) characteristics of a child. viii) Identify children who are at risk/or and have special needs. ix) Understand that a child develops in the context of his/ her family and community (UNESCO, 2012).

Teacher competence facilitates child development and learning. These are competencies that facilitate child development and learning, including the use of assessment tools, techniques, and results to support child development and learning. The teacher should be able to i)Design and implement developmentally-, linguistically-, and cultural-appropriate and gender-sensitive practices in classroom management, based on approved national curricular guidelines or frameworks, ii) Uses knowledge of child development and learning to plan, design, and implement ECCE programmes, iii) Promote and provide opportunities for play to support child's development and learning, iv) Promote and implement developmentally-appropriate classroom management activities, strategies, and practices for different profiles of learners, V) Utilize differentiated play-based activities

and teaching and learning strategies that encourage creative and critical thinking, decision-making, problem-solving, and children to be active learners, vi)Use appropriate tools, strategies, and technologies, including ICT, to facilitate development and address different developmental needs of children. vii) Prepare, incorporate, and adapt the use of cultural knowledge and indigenous/locally-produced learning materials in the design of lessons and activities to enhance indoor and outdoor learning experiences, viii)Communicate using the child's mother tongue/first language in teaching-learning instructions, ix) Monitor, record and reflect on each child's progress and development according to approved early learning development standards, x) Uses assessment results to inform the design of future activities, xi) Use assessment results for referrals of children at risk and children manifesting significant delays or other special needs for further diagnosis, support and intervention, xii) Uses assessment results to evaluate and determine interventions for child transition and readiness for primary education (Alotoibi, 2016).

On the international stage, authors have adequately shown through empirical studies and other study designs that teaching and learning resources should be adequate in pre-schools as a way to improve learner readiness. Further Behrman, (2011) in the United States on the assessment of learning environments in early childhood, focuses on teaching science among pre-schools as an area that requires emphasis on teacher's to employ both instructional and learning resources that support the need for learners to acquire concepts learnt and retain. As pointed out byBehrman (2011) earlier on the importance of teaching and learning resources during instruction in science and despite increased funding and investment in early science education in the United States, there is lack of appropriate fundingand assessments on the quality of instructional teaching and learning resources used during classroom instruction in some pre-schoolshence need for

employing resources that are inclined towards maximum learning and knowledge acquisition in pre-schools. Behrman's conclusion therefore was that pre-schools should focus on increasing funding for teaching and learning resourcesin all pre-schools as a way of helping learners' access science-relevant related skills in pre-schools.

As pointed out by many authors,teaching and learning resources are important in classroom instruction, but as such, theyshould be variety andnot be limited to the ones used in classroom interaction alone. It is on this basisthat certain authors examining the extent to which Dutch teachers employed differentiation practices in Kindergartens, Dijkstra, Walraven, Mooij, and Kirschner (2016) asserted that teachersneed a variety of resources that measure the level of cognitive and socio-emotional development of pre-schoollearners so that they align teaching practices with learner abilities. The authors further observe in another study that high-ability pre-schoolers in the Netherlands end up underachieving because of teachers'use of instructional materials in Kindergartens which tend to focus more on raising the learning level of low-ability students than differentiating their learning experiences. Dijkstra, Walraven, Mooij, and Kirschner (2016) therefore, suggest that need to use reading resources that contain information on pedagogical content knowledge (PCK) to guide them in differentiating teaching practices with the learning needs of learners.

Research conducted by the Programme for International Student Assessment (2014) found that the practices of good teacher competency has a direct relationship with the parental involvement and enable to help students to excel in their learning. Johnetta, Storey, and Zhang (2011) also stated that when teachers are considered as partners to the parents, it gives beneficial development to the students and collaboration between teachers and parents not only builds significant positive relationship between them, but bring positive impacts on students academically and non-academically (Abd Razak,

Zuwati & Umi Kalsum, 2013; Beamish, Meadows & Davies, 2012; Currie- Rubin & Smith, 2014; Reece, Staudt, & Ogle, 2013).

Since communication has become part of teacher competency, it is important for the teachers to improve their skills to gain parents support and trust towards school. Close communication between teachers, parents and students can bring positive impacts by motivating students to have better relationships and encouraging students to become more successful in their achievement. Through this transformation, the communication between teachers and parents will create a unique relationship where they can work together to produce something that is very useful for students and school achievement.

Stimulating early childhood development is essential to reverse the effects of poverty and early deprivation and maximize the development of a child's innate potential. Therefore, the need to support early childhood development practitioners is acute in Sub-Saharan Africa because of the massive under provision of early childhood development facilities (ILO, 2014). Interestingly, studies across Africa equally indicate the vital role that teaching and learning resources play in the enhancing of learner readiness in pre-schools. In South Africa, for instance, Van Rensburg (2015) investigated the extent to which the availability of teaching and learning resources in a South Africa pre-schoollevel referred to as Grade R have on their readiness to undertake learning tasks when they join primary school. Using a standardized school readiness test, Van Ransburg demonstrated that inadequate pre-schoolteaching and learning resources was a compounding factor to other factors such as the lack of adequate teacher qualifications that affected the level of learner readiness in most South African pre-schools.

According to Guajandro (2011), teacher characteristics, low teacher motivation and lack of regular school attendance are some of the challenges facing the implementation of

ECE in Ghana with other reports by the Ghana ministry of education reports indicating low quality education and as such, Kraft, Blazar&Hogan (2017) advocated for the need of improving teachers job satisfaction and wellbeing if they have to do well in curriculum delivery.In support of this view as noted in Ethiopia by Abdo and Semela (2010) in their study, low use of teaching and learning resources among teachers during instruction contributes to low levels of learning readiness among pre-schoolers. Consequently, as established by Jakayinta (2012) in a study in Nigeria, teaching and learning resources aids learners retention and discovery of more facts when provided and used in teaching and learning.

Equally, the African Population Research Health Research Center project report by Ngware, Hungi, Kitsao, Wekuto, Mutisya andMuhia (2016) cited low level of learner readiness in Kenya pre-schools due to lack of adequate teaching and learning resources in teaching and learning during instruction. On further investigation, other empirical studies in Kenya have also gained interest in the need for pre-schools to invest in more teaching and learning resources as a way to improve learner readiness and echoing this argument. Nusia(2010) while researching in Igembe South District Eastern Province then, found that among things in pre-schools which affect learning readiness is lack of and availability of teaching and learning resources.Equally, Chacha (2018) is among authors who established in a study in Tigoni zone Limuru Sub-County Kiambu that when picture books are used in teaching and learning, learners' literacy skills are enhanced.

As such, Achola, Gudo and Odongo (2016) are among the recent authors to use a descriptive study design to examine the need for appropriate and adequate teaching and learning resources in pre-schools in Kisumu County as an issue that has far reaching implications on learner readiness. The authors focus on oral skills as an area of learning, and they examine the implications of teaching and learning resources on learner

readiness in terms of oral skills. The oral skills they examine include repetition of letters, the ability of a learner to write dictated words, and to repeat verbally dictated words. The study indicates that learners exposed to a variety of teaching and learning materials exhibited better skills in the said oral skills than the ones found to be unexposed to these materials.

Onyango (2014) study asin an earlier argument agrees with these findings but with a specific focus on the level of learner readiness from pre-schoolto lower primary level of education. In a study focusing on Rachuonyo Sub-County, Homa Bay County, Onyango finds that the transition rate of learners from pre-schoolto upper primary increases when teachers use appropriate teaching and learning resources. The authors are, however, not very specific about the teaching and learning resources that teachers should use in improving the competence of learners during the transition stage between pre-schooland lower primary.

Additionally, Abaya (2014) is more specific on the need for teachers to use appropriate teaching and learning resources. The author cites community, printed, audio and visual aids as the instructional materials that pre-schoolteachers should use. The study focuses on Matungu Division, Kakamega County in which the Abaya finds, through a descriptive survey that pre-school learners exposed to community visual, audio, and printed materials have a higher mastery of content in number work, which translates to improved learner readiness for later-stage learning.

Other challenges are that few authors in Kenya have focused on the issue of teaching and learning resources as an implementation imperative for pre-schoollearning programmes and furthermore, on the same note, the African population and Health Research Centerhave the same findings in a project report submitted by Ngware, et al., (2016). The report indicates that Kenya is among the African countries with a low level of learner

readiness in its pre-schools. The report cites a lack of teaching and learning resources that enable teachers to focus on individual learners. Additionally in support of this argument, Likoko, Mutsotso and Nasongo (2013) in their study on effect of adequacy of teaching and learming resources in Bungoma South Sub-County Kenya, established that learning outcomes is better when teaching and learning resources are adequate.

On the other hand on the sameSub-County, Chililia (2019) in an educational journal on the effectiveness of instructional materials in Bungoma South Sub-County revealed lack of teachers using teaching and learning resources in ECD during instruction. The studies reveal current resources employed by teachers in Kenya focus mainlyon group learning. On assessing the research gaps addressed by the Kenyan authors cited in this literature, importantly, none of this studies addressed the vital aspect of how the availability and use of teaching and learning resources affect learner readiness in pre-schools, specificallyamong learners aged 5-6 years old in public pre-schools in Kimilili Sub-County, Bungoma County Kenya and some used private pre-schools and kindergartens, different research designs and study population.

2.4 Nutrition Support Programmesand Learning Readiness

According to United Nations Children's Fund (2012) nutrition support programmes are vital social safety in developing countries in Africa which target learners from low socio-economic levels and impacts positively towards high enrolment and attendance of pre-schoolers. According to Azubuike and Utalo(2019),nutrition support programmes have the potential to improve learner's school participation, learning and cognitive outcomes. As for Jomaa, McDonell and Porbart (2011), hungry children are likely to drop out of schooland are more likely to absent themselves from school more often. The World Health Organization (2012) also considers nutrition support programmes as those consisting of foods that meet learner's needssuch as alleviating short term hunger,

improve health, cognitive development, and attention of learners, affective domain and attention span of learners. Consequently, Britto, Proloux, Yousafzai, Mathews, Vaivada and Macmillan (2017) nutrition support programmes are vital in promoting education and achievement of Sustainable Development Goals (SDGs).

According to Joma et al., (2011), Nutrition support programmes (SFPs) are intended to alleviate short-term hunger, improve nutrition and cognition of children, and transfer income to families. On their study to explore the impact of SFPs on nutritional, health, and educational outcomes of school-aged children in developing countries revealed relatively consistent positive effects of nutrition support programmein its different modalities on energy intake, micronutrient status, school enrollment, and attendance of the children participating in SFPs compared to non-participants. There was less positive impact of nutrition support programmes on growth, cognition, and academic achievement of school-aged children receiving NSPs compared to non-school-fed children.

In support of this view, it is noted that nearly every country in the world has some form of nutrition support programmes in place where children are provided with meals, snacks at school or take home ratios (WFP, 2013).On the same note as pointed out by Buttenheim, Alderman and Friedman (2011) in a world Bank policy research paper, nutrition support programmes provides school children with calories and nutrients which enable them health and resist infectious diseases.Furthermore,Jomma,McDonell and Porbert (2011) in their study established that undernourished children perform poorly in academics compared to those who are healthy hence need for provision for nutrition support programmes to enhance learning.

Scholars argue that children's physical and mental health must be addressed in the early years, as proper early years intervention programmes avert challenges in the future. Concerning physical health, most programmes are directed towards overweight children ,

as almost one third of children in Europe face obesity (Cattaneo, Monasta, Stamatakis, Lloret, Castetbon, Franken, Manios, Moschonis, Savva, Zaborskis, Rito, Nanu, Vignerová, Caroli, Ludvigsson, Koch, Serra-Majem, Szponar, Van Lenther, & Brug, 2010).This view is supported by Buttenheim,Alderman and Friedman(2011) who equally associated the provision of nutrition support programmes to increased participation improvement in cognitive abilities and reduction of infectious diseases among pre-schoolers.

Furthermore, children are affected by challenges in their relationships with peers and self-esteem (Smith & Hart, 2013). Cattaneo et al., (2010) have identified a lack of research and data about infants in pre-school.Whereas Hebbeler, Spiker and Kahn(2012) acknowledged that, although these early intervention programmes had been implemented for over 25 years in the US, there were broad differences in accessibility by states and the process of eligibility. The policies and assessment tools focused on specific areas for improvement, rather than on functional specific recommended practices to be implemented in the settings. The work with families during this first educational stage prepares children for early years educational levels. It includes support for families through mental health promotion, including emotion regulation, social competence and behaviour functioning for children, and preventing stress, depression or anxiety and caregiver strain for parents. Particularly effective were programmesdelivered principally by community-university collaboration, promoting innovative structures (Bagner, 2014).

The U.S.A is among developed countries which started nutrition support programmes with an aim of combating severe malnutrition among pre-schoolers to increase the enrolment and attendance among learners from low socio-economic backgrounds (WFP, 2010).This sentiments were echoed byother recent studies carried out in by Lawson (2012) in Michigan which indicates that nutrition support programmes increased learners'

attendance and academicperformance especially in key learning areas in kindergartens.Similarly one other study in Sri Lanka in pre-schools on the state and implementation of nutrition support programmesrevealed high enrolment rates among learners when this programmes was operational(He, 2010). Additionally in Guyana, Inter-land community based nutrition support programmes showed consistent positive effects on school participation and better learning outcomes (Ismael, Jarvis & Borja-vega, 2012).As such it has been noted that countries with food education systems have better indicators on health, maternal health,low infant mortality rate and population growth as well as reduced crime (Glewe, 2013). However as noted by Robert and Kovalskys (2011) Argentina is one of the developed countries facing limited funding and this compromises the quality of meals provided making learners to suffer malnutrition.

In developing countries several studies haveshownincreased school attendance among girls especiallywhen nutrition support programmes are provided (Africa, 2011). Nutrition is currently one of the ways that African countries use to seek and meet educational goals for children at the lower stages of learning (Sarr, Fernandes, Banham, Bundy, Gillspie, Machamon & Drake 2017), for instance, observes using an analysis of educational sector plans across Sub-Saharan Africa that African governments are invariably aware and cognizant of evidence-based, contextually designed nutrition programmes. The authors therefore underscore the need for pre-schools to have adequate nutrition support programmes geared towards enhancing learner readiness as among the major goals that African government seeks to achieve as a way to enhance educational achievement in later-stage learning.

Successful programmes offer a range of activities that cover health and cognitive development as well as home care. An example is the Ntataise programmes, which operates in rural areas and on farms in South Africa. Activities include play sessions

for children and their parents to encourage parents and caregivers to learn more about child developmental stages, early stimulation and child care. Ntataise facilitators assist communities with advice on child nutrition, health, immunization and birth registration and refer parents to local government services. Where necessary, they make follow-up visits to the homes of those parents and caregivers who require additional support (Ntataise, 2013).

The state of nutrition support programmes in developing countries is wanting and according to Ghosh (2013) this has resulted into malnutrition in developing countries which is viewed as one of the challenges impairing cognitive development among learners.In South Africa (Dei, 2014)nutrition support programmes were funded through a conditional grant that is transferred to provinces according to the National Treasury (2013) as well as other directives from the Department of Education and National Treasury. According to Dei (2014) in another study on an evaluation of nutrition support programmes in South Africa demonstrated that nutrition Support Programmes have the potential to improve nutrition, health, enrolment, attendance and cognitive development of pre- school leavers however there are still challenges arising from effective monitoring and evaluation, geographical location of the school and other implementation flaws which consequently place programmes at risk and as noted further poverty was high and affected and denied pre- school children right to primary health care, basic education adequate nutrition, safe water and sanitation (Phogole,2010).

On further investigation, African studies on the role of adequate nutrition on enhancing learner readiness among pre-schoolers do not just focus on Sub-Saharan Africa alone but in South Africa as well, and as cited by Jomma, Mc Donell, Porbat &Sandler (2011), in South Africa school nutrition support programmes are designed to reduce short term hunger and increase learning capacity as they increase test scores in learning.As such a

report by WFP on the impact of nutrition supportprogrammes in Senegal established that lunch provided through canteens reduced the level of dropouts among learners in pre-schools (Diagne, Sokhna & Diallo, 2014). Similarly WASH reporting on Health and Nutrition interventions in Egypt on the effectiveness of nutrition support programmes established reduced diarrhoea and other illnesses and absenteeism among learners in pre-schools (Talaat, Afifi, Dueges, Ashry, Martin, Kandeel Mahareb & El-sayed, 2011).Equally Yunusa (2012) in a study in Nigeria is among authors who revealed that the availability and provision of nutrition support programmes increases enrolment and reduced absenteeism among pre-school children.

Based on this argument,one other author who demonstrated the importance of nutrition support programmes in Africa is Diab (2015), an Egyptian author that documented how a nutritional guideline for kindergarten teachers promotes the physical growth of pre-school children. The study was conducted in Egyptian city of Shebin El-kom City Menofia at a private and public kindergarten in which 15 teachers and 240 children between ages 3 and 6 were selected to take part in the study. Diab (2015) used three study tools to analyze the effect of a functional nutritional guideline in a pre-schooland indicated a statistically significant relationship between the teacher's knowledge of nutrition and the use of post educational nutritional guideline and the physical wellbeing of pre-schoolchildren.Astudy on nutrition support programmes on class attendance in South Buricha district Ethopia using a cross sectional research design established that this programme enhanced attendance hence need to provide to other insecure areas (Samson,Carol &Nigatu,2018).

In East Africa according to Yunusa (2012) in another study in Tanzania on pre-schoolnutrition support programmes, pre-schoollearners who participated in school breakfast programmes in nutrition programmes showed improved significant growth in academics in class. On the same note Ekaju (2011) study in Ekumi district in Uganda

revealed that nutrition support programmes addresses hunger, malnutrition and disease among pre-schoolers thus improving their academic performance, a reason why they are valuable because they keep learners in schools ready to learn.

One other study by Ramadhani (2014) to find out whether or not the Nutrition Support Programmes enhanced the school enrolment, attendance and performance in selected primary schools in Singida District, Tanzania, using questionnaire, interview, and focus group discussion, analyzed data using frequencies of particular responses which were presented using tables and graphs with a sample of 171 respondents, 9 head teachers,45 teachers, 72 pupils, 45 parents, 1 that was arrived at using random, purposive and snow ball procedures respectively. The study established that there was an increase in school enrolment and attendance and increased test scores due to provision nutrition support programmes and few schools noticed static in terms of school enrolment and attendance due to poverty, long distance and poor negative attitude towards education. Similarly, nutrition support programmes in Mluduzi Ward in Tanzania, showed increased test scores, enrolment and reduced absenteeism among pre-schoolers and therefore recommended the involvement of the government, donors and parents to ensure sustainability (Maijo,2019).

According to the Kenyan constitution (2010) although nutrition support programmes is among the child rights meant to improve learner's health, attendance, enrolment and retention of learning competencies, this essential programmes is lacking in some pre-schools as they are not operational in most pre-schools especially in rural and marginalized areas and has negative effects on learning readiness among pre-schoolers (UNESCO, 2012) and (Aila, 2012). To enhance the participation and performance of learners in pre-schools, the government of Kenya through the ministry of Education

Science and Technology (MOEST), developed school health policy in 2008 whose rationale was to improve learners health and nutrition (Republic of Kenya, 2015).

In KenyaLawson (2012) learners benefited from either on the site meals or take home results. Munyiri (2010) reporting Kenya, Parents are supposed to support nutrition support programme through provision of equipment and materials and volunteer to cook and serve meals.According to Chepkwony, Kosgei and Kariuki in their cross sectional survey (2013), learners who participate in nutrition support programmes perform in academics better than those who do not participate.Finan (2010) reporting on the state and provision of nutrition support programmes in semi –arid areas in Kenya by WFP, revealed increased learner enrolment, attendance and high test scores and therefore recommended provision.Additionally, Munyiri (2010) is also among authors in Kenya who established the need of parents in supporting the nutrition support programmes through provision of equipments,food stuffs and volunteer to work as cooks and serve to help keep children in school to acquire skills in learning competencies.

Wekesa (2015) on yet another study in Garissa revealed the importance of nutrition support programmes. Wekesa asserted that this programmes improved learner attendance and recommended for adequacy in food provision.As reported by Kajuju (2017) on the investigation of nutrition support programmes on pupils participation in primary school education in Samburu East Constituency, Samburu County Kenya established that the type of nutrition support programmes provided had a strong influence on participation of learners thus need to be diversify it and increase it portions served.

As noted in Kiambu County by Emikinor (2014), the level of school enrolment dropped from 130,000 in 2013 to 118,000 in 2014 after nutrition support programmes were withdrawn from someschools resulting into low levels of learning readiness.

According to Kiilu and Mugambi (2014), targeting 30 schools using descriptive statistics found out that nutrition support programmes in pre-schools are not as effective because parental involvement and support is low therefore recommended the need of the government to participate so as to enhance enrolment and attendance of learners. Munuhe (2014) in one other study on challenges facing nutrition support programmes in Isinya Division Kajiado,County found that the state of infrastructure within outside the beneficiary pre-schools had hundred beneficiary access to nutrition support programmes, accordingly the hindrances include lack of tarmac roads, in accessibility to clean drinking water sources lack of permanent dwelling structures within the pre-schools and there was over enhance on donors and government support instead of communitiescoming up with convenient sustainable programmes. Chepkwony, Kosgei &Kariuki (2013) nutrition support programmes in Roreti Division Bureti District Kenya established increase in academic performance among learners especially those who participate in this programmes.

As pointed out by Osman (2012) and Omukubi(2017) in their educational journals in Bungoma South Sub-County and Kanduyi Sub-Countyin Bungoma respectively on the effect of pre-schoolnutrition support programmes as a vital safety net that enhance attendance,enrolment and learning readiness in scientific and literacy skills however there exist a gap that this research filled as there was absence of existing documented literature and valuable informationgiving a comprehensive picture on the effect of nutrition support programmes among pre-schoolchildren aged 5-6 years on learning readiness in Kimilili Sub-County Bungoma County Kenya where most of the studies used different research designs such as descriptive, cross sectional, mixed and research designs and some had different study population, methodologies and sampling styles and used policy research papers .

2.5 Summary of the Literature Review and Gap Identification

The chapter opens with a discussion on global concepts of learner readiness in ECD Centers and ends with local concepts on learner readiness in ECD Centers in Kenya, Bungoma County and Kimilili Sub-County.

The literature review indicates significant convergence of findings among authors who employed different methodology in examining the effect and impact of pre-schoolcharacteristics, teacher characteristics, and teaching and learning resources, pre-schoolnutrition support programmes from global to local level. Some used longitudinal study frameworks while others employed descriptive study designs and there were flaws on the methodologies used. The statistical differences in the significance of varying outcomes across different variables the authors use varies with the hypotheses they intended to prove on pre-schoolcharacteristics, teacher characteristics, teaching and learning resources and nutrition support programmes as vital factors that affect the level of learner readiness in pre-schools located in the chosen jurisdictions. The general concurrence among authors is that teacher characteristics are centered on their motivational behavior that influences learners and their ability to apply teaching skills during instructions and in guiding them to use learning resources well. They also concur that the availability of teaching and learning resources in pre-schools is critical for proper learner readiness, a nourishing nutrition support programmes as beneficial for the developmental betterment of pre-schoolers.

The World Bank (2016) report, learner readiness is the foundation to quality education that is strongly linked to later skill development, acquisition of learning competencies and academic success which children need to stay in school and has numerous benefits which reduces dropout rates and increases academic outcomes, but the significant aspect to note, however, is the differences among authors on the methodology and specification

of variables related to factors or any documented evidence that exists touching on Kimilili Sub-County with regard to the extent to which the current state of pre-schoolcharacteristics such as teacher characteristics, teaching and learning resources, and nutrition support programmes affect learner readiness among five to six years old pre-school children in Kimilili Sub- County Bungoma County Kenya.

This paper, therefore, filled the gap by evaluating the relevance, utilization, and adequacy of existing pre-schoolcharacteristics, teacher characteristics and nutrition support programmes The teacher characteristics and its affects learning readiness among 5-6 years old pre-schoolers had different research designs ,some studies used private pre-schools in their study with different sampling styles and population with no evidence on documented evidence on this variable in Kimilili Sub-county Bungoma Kenya.

On teaching and learning resources on literature done, the gap that exists is that there is no documented literature on this particular topic on the effect of teaching and learning resources on learning readiness among pre-schoolers aged 5-6 years old in public pre-schoolsand as noted, different research designs study population were used in the cited studies.

On nutrition support programmes from the literature reviewed, different research designs other than the one used by the researcher were used, policy research papers were used with different study sample size, descriptive, cross sectional and mixed research designs statistical collection tools were different and so farthis studies do not address and have no documented evidence on how nutrition support programmes in public pre-schools among 5-6 years old pre-schoolers in Kimilili Sub-county in relation to learning readiness.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a description of the research design of this study. It also gives a detailed explanation of research approach and data collection strategies to be used, it starts with research design, study area, study population, sample size and sampling procedures, data collection instruments, pilot study, validity and reliability of research instruments , ethical considerations and data analysis.

3.2 Research Design

This study used a survey research design. According to (Creswell, 2014), survey design is a research design that allows a researcher to collect data by interviewing or administering a questionnaire to a sample of individuals. Therefore, this design can be used when collecting information about peoples' attitudes, opinions, habits or any of the variety of education or social issues (Creswell, 2014). This design was considered ideal for this study since itwas usedto collect data within a short period of time using questionnaires to measure associations or relationships between the independent variables and the dependent variables bycollecting both quantitative and qualitative data that were analyzed descriptively and inferentially in order to measure association or relationship between the independent and the dependent variables(Gravetter &Forzano, 2011). The independent variables were pre-school teacher characteristics, pre-school teaching and learning resources and pre-school nutrition support programmes while the dependent variables were 5-6 years old learning readiness in the following competencies, language and literacy, mathematics, creative arts and science.

3.3 Study Site

The study focused on Kimilili Sub-CountyBungoma Kenya, which is among the nine Sub-Counties of Bungoma County. It is located on the slopes of Mt. Elgon with its headquarters in Kimilili town. The major roads in the area are the Kimilili-Kitale road, the Kimilili- Misikhu road, and the Kimilili-Kapsokwony road, which are tarmacked. The study area's location coordinates are 34^0N and 33^0E. Its neighboring Sub-Counties include Bungoma North, Webuye East, Sirisia, Bumula, and Chwele. According the 2009 Census by the Kenya National Bureau of Statistics, it has a population of 10,251 people. Kimilili Sub-County has 55 public pre-schools, which have a total of 3,211 pre-schoolers. It is inhabited by the Bukusu, Iteso, and Sabaot communities with other minority immigrants residing mostly in Kimilili Town. The area's major economic activity is small scale cash crop and subsistence crop and dairy farming. This area is important in this study because of the Uwezo sixth learning assessment report (2016) which showed an alarming low level of learning readiness in pre-schools among 5-6 years old pre-schoolers in Bungoma County. This study therefore sought to establish the effect of pre-schoolcharacteristics and learning readiness among 5-6 years old pre-schoolers' in Kimilili Sub- County to find out the causes of variations in learning readiness.

3.4. Study Population

Study population is a group of individuals in a study. In a clinical trial, the participants make up the study population (Malhotara & Dash, 2013).

The study sampled 3211 pre-schoolers, 55 pre-schools and 55 pre-schoolheadteachers in Kimilili Sub-County.Therefore, the total targeted population for the study was 3266. The 5-6 years old pre-schoolers were targeted to gather information on their learning readiness

and pre-schoolers' characteristics (gender, pre-schoolattendance, status of disability and mode of transport).

The pre-schoolhead teachers were considered valuable as they were to provide information on pre-schoolteacher characteristics, pre-schoolteaching and learning resources, pre-schoolnutrition support programmes and pre-schoolbackground. The distribution of the study population is presented in Table 3.1.

Table 3. 1:Population of Pre-schoolers' and Head teachers by Pre-schoolWard and Gender

	Pre-schoolWard				
Category	Kibingei	Kimilili	Maeni	Kamukuywa	Total
Pre-schools	14	14	12	15	55
Preschool head teachers	14	14	12	15	55
Pre-schoolers	824	791	774	822	3,211

Source: Kimilili Sub-County Education Office, 2018

3.5 Sample Size and Sampling Procedures

Sample size determination is the act of choosing the number of observations or replicates to include in a statistical sample. The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. In practice, the sample size used in a study is usually determined based on the cost, time, or convenience of collecting the data, and the need for it to offer sufficient statistical power (Creswell, 2014).

The sample size of the 5-6 years old pre-schoolers and the pre-schoolhead teachers that will be used in this study will be determined using the formula prescribed by Yamene (1967), p. 887 as follows;

$$n = \frac{N}{1 + N(e)^2}$$

Where n= sample size; N is the population size; e is the level of precision (0.05)

Sample size therefore can be found by;

$$n = \frac{3211}{1+3211(0.05)^2} = 356$$

The distribution of the study sample is presented in Table 3.2.

Table 3. 2: Sample of Pre-schoolers' and Head teachers by Pre-schoolWard

	Pre-schoolWard				
Category	Kibingei	Kimilili	Maeni	Kamukuywa	Total
Pre-schools	4	4	4	6	18
Head teachers	4	4	4	6	18
Pre-schoolers	92	87	86	91	356

Source: Study Population by Pre-schoolZone Mapping Data

This study used stratified, purposive, proportionate sampling equal to size (PPS) and simple random sampling techniques to derive the study sample. 18 pre-schools and 18pre-schoolheadteachers were sampled purposively for this particular study. The 18pre-schools in Kimilili Sub-County were stratified by wards namely Kibingei4, Kimilili 4, Maeni 4 and Kamukuywa 6 pre-schools respectively. Proportionate Equal Size (PPS) was used in

this study to sample boys and girls and pre-schoolhead teachers according to gender (male and female) this ensured that all the sub-groups in the population are considered (Kothari, 2013). Simple random sampling using lottery method was used to sample 356pre-schoolers from thefour wards. Therefore, a total of 18 public pre-schools, 18 pre-schoolhead teachers and 356 pre-schoolers were sampled for this study. Therefore, a total sample of 374 comprising of 18 pre-schoolhead teachers and 356 pre-schoolers participated in the study.

3.6 Data Collection Instruments

This study used questionnaire, document analysis and observation check list as the main tools for collecting data.

3.6.1 Pre-schoolLearners' Readiness Check list (PLRC)

A questionnaire is a random of enquiries, the responses to which are recorded by the respondents (Kumar, 2011).A pre-schoollearners readiness check list was designed for all the sampled pre-schoolers to collect data on learners' level on learning competencies. This study modified the Kenya Schools Readiness Assessment Tool (KSRAT) 2015 developed by the Ministry of Education to assess pre-schoolers' readiness in pre-schools. The tool was modified to reflect the relevant issues of this study. The KSRAT is a standardized tool used by the Ministry of Education to collect information on pre-schoolers learning readiness based of five major components namely: Pre-schoolers competencies in language and literacy, mathematics, creative arts, physical Science and life skills. Therefore, this study modified the KSRAT to measure pre-schooler's competencies in language and literacy, mathematics, creative arts and science using a score of 1-5 marks with 5=Excellent; 4=Very Good; 3=Good; 2=Satisfactory; 1=Fair with a maximum score of 50 for each of the 10 items for a

given competency.The PLRC was considered by virtue of the large population sampled. Besides, PLRC was cheap to administer as it enabled the researcher to collect a lot of data within the shortest time possible (Creswell, 2014).

The PLRC were self- administered and solicited information on pre-schoolers learning readiness using competencies in language and literacy, mathematics, creative arts and science as examined using the KSRAT tool and the pre-schoolers' characteristics (gender, pre-schoolattendance, status of disability and mode of transport).

3.6.2 Pre-schoolHead Teachers Questionnaire (PSHQ)

A questionnaire was also designed for all the sampled pre-schoolhead teachers.This tool was designed to collect data on objectives one, two and three.

For the same reason the PSHQ enabled the researcher to collect data within the shortest time (Saunders &Thornhill, 2012). The PSHQ was self- administered and solicited information on pre-schoolteacher characteristics, pre-schoolteaching and learning resources, pre-schoolnutrition support programmes and pre-schoolbackground.

3.6.3 Document Analysis Guide

Document analysis guide is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic (Saunders&Thornhill, 2012). This tool was designed to collect data on availability of teaching and learning resources and information on nutrition support programmes.

A check list was designed to guide the researcher on areas where document analysis was required on documents available in the sampled schools. Therefore, document analysis done on the teacher information forms record to ascertain teachers'

characteristics (gender, age, experience, years of deployment in the current school, level of education, employment status, workshops attended on pre-schooling and gross salary); pre-school teachingand learning resources (pre-schoolers enrolment, teacher / pre-schoolratio, pre-schoolers / textbook ratio, pre-schoolers / space ratio, class size, number of classes, flash cards / pre-schoolers ratio, charts, play field / pre-schoolers ratio and swing / pre-schoolers ratio, status of parental support by the parents to acquire additional materials); and nutrition programmes (Status of nutrition support programmes, frequency of meals, types of meals, special dietary consideration for religious and / or cultural dietary and status of safety guidelines). Document analysis was also done on school attendance registers to determine the total number of day's present of the sampled pre-schoolers. The data collected was used in the triangulation of the information solicited from pre-schoolers and pre-schoolhead teachers and was analyzed descriptively and inferentially.

3.6.4 Observation Check list

Observation check lists are a list of items systematically recorded or checked off by the observer (Saunders &Thornhill, 2012). OCL saves time for data collection. This research tool was used to collect data on pre-schoolteaching and learning resources and nutrition support programmes. Data collected through OCL was analyzed through descriptive statistics refer to table 4.2.

3.7 Pilot Study

Kumar (2011) defines pilot study as a study preceding the main study.A pilot study was carried out in 5 pre-schools in the Sub-county that were not used in the study. A total of 50 pre-schoolers; 10 from each of the 5 pre-schools were sampled. In addition, 10 pre-schoolhead teachers were also purposively sampled for piloting. The data

solicited were used to analyze the reliability of the pre-schoolers' questionnaire (PLRC) and pre-schoolhead teachers' questionnaire (PSHQ). In addition, the data was analyzed to aid in establishing the appropriateness of the proposed test statistics for data analysis and presentation. Piloting was also used to train the research assistants on the procedures of actual data collection, coding and data entry.

3.7.1 Validity of Research Instruments

Validity is the ability of research instruments to measure what they are supposed to measure (Creswell, 2014). This study employed face and content validity to validate the PLRC and PSHQ by the help of the supervisors.Content validity is the degree to which a test variable measures a variable it purports to measure while face validity is simply the appeal and appearance of the instrument (Cox,2017). Therefore, the supervisors examined carefullythe items in PLRC and PSHQ to ascertain that they are clear, meaningful, and relevant to the respondents to ensure that they adequately measure the domain under study (ibid). Thereafter, the researcher made necessary adjustments to the PLRC, PSHQ and the observation check list as per the supervisors' advice so as to ensure that items in the PLRC and PSHQ yield the required data for this study.

3.7.2 Reliability of Research Instruments

Malhotara &Dash (2011) posits that reliability is the extent to which a questionnairetests, observation or measurement procedure produces consistent results or stability of scores under similar circumstances. This study used split-half test technique to test the reliability of the PLRC and PSHQ using data obtained from the pilot study. The PLRC and PSHQ were coded separately. The PLRC and PSHQ were separately randomly divided into two halves using an even-odd number approach. The

Cronbach's Alpha reliability was established for the PLRC and PSHQ respectively and compared to the set threshold of 0.7. A reliability of score of 0.85 and above for PLRC0.7 and PSHQ 0.85respectively were considered high to make the instruments reliable for generating data for this study (Kothari,2013).

Table 3. 3: Chronchbachs Reliability Test Statistics

Variables	Chronbachs alpha	Number of items
Pre-schoolTeachers Characteristics	0.695	9
Pre-schoolTeaching And Learning Resources	0 .696	9
Pre-schoolNutrition Support Programmes	0 .688	15
Language /Literacy Competencies	0 .865	10
Mathematical Competencies	0 .865	10
Creative Arts Competencies	0 .865	10
Scientific Competencies	0 .865	10
Total		73

Source: Survey Data 2019

3.8 Data Collection Procedure

Before collecting data, the researcher sought an introductory letter from Masinde Muliro University of Science and Technology to obtaina research permit from the National Commission for Science, Technology and innovations (NACOSTI). The permit was used to seek permission from the County Commissioner Bungoma County, Bungoma County director of Education and Kimilili Sub-County Education

Office. The researcher was given permission by the Sub –County Education office in Kimilili to proceed to the respective pre-schools. The researcher sought permission from the headteachers of the respective pre-schools to inform them on the study ,the subjects involvedand the study instruments and requested them to seek permission from parents to allow and consent forms were filled to allow their children to take part in this study, the researcher identified and trained 18 research assistants diploma holders in ECD, one each for the sampled 18 pre-schools on methodology of data collection and ethical issues in data collection. The research assistants were tasked with administering the PSQ and conduct document analysis while the researcher administered the PSHQ and the observation check lists. The researcher made sure that the research information was not shared by administering the research tools as per ward on the same day.

At the same time an appointment was made on when to administer the questionnaires. On the material day, the PSQ, PSHQ and observation check lists were self-administered in the presence of the research assistants and the researcher and collected on the same day. All the participants were thanked for their time and cooperation.

3.9 Ethical Considerations

According to Kothari(2014), research ethics aid in reconciliation and protection of conflicting values and interests. In order to undertake the study, the researcher obtained a research permit from the National Commission for Science, Technology and Innovations (NACOSTI). This is because a permit is a requirement by law in Kenya before carrying out research. The permit was then circulated to the Bungoma County education officer, the Kimilili Sub-County Education officer and the pre-

schoolhead teachers of the sampled pre-schools. Consent from the pre-schoolers' parents and pre-schoolhead teachers to participate in the study were sought after informing them about the purpose of this study, the instrument to be used and the information solicited. Only those pre-schoolers and pre-schoolhead teachers willing to participate in the study were engaged.The respondents were adequately briefed on how to respond to the questionnaire and assured of the confidentiality of the information solicited.

None of the respondents were required to write their names on the questionnaire. The data collected was only used for the purpose of this study. In no way did the researcher bribe or use other unconventional means to generate information for this study. Acknowledgement and credit was given to all contributions to this study. In addition, citing of intellectual resources and property used in this study was done to avoid plagiarism.

3.10 Data Analysis

The data from the pre-schoolers and pre-schoolhead teachers was appropriately coded and keyed in the computer to generate a data set for the study. The data was then cleaned. The data set was then subjected for analysis using the SPSS version 21. The explanatory variables in this study werepre-schoolcharacteristics (Pre-school teacher characteristics, pre-schoolteaching and learning resources and pre-schoolnutrition support programmes). The control variables were pre-schoolers' characteristics (Gender, pre-schoolattendance, status of disability and mode of transport) and pre-schoolbackground (Year of establishment, location, sponsor, class size, ward, enrolment and status). The outcome variable was the 5-6-year-old learning readiness means score in competencies in language and literacy, mathematics, creative arts and science as examined using the KSRAT tool

Data collected for objective one was used test the null hypothesis that pre-schoolteacher characteristics have no statistically significant effect on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub-County,Bungoma Kenya. The explanatory variable (pre-schoolteacher characteristics) has multiple variables which are either ordinal or interval whereas the outcome variable (learning readiness among 5-6 years old) is interval. This study was therefore used multiple linear regression (MLR) to model the effect of pre-school teacher characteristics on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County Bungoma , Kenya. Multiple linear regressionsare considered appropriate since the study was able to establish the magnitude and the direction of the effect of the explanatory variable on the outcome variable.

In model 1, this study assessed the effect of pre-schoolteacher characteristics on learning readiness among 5-6 years old. In model 2, the study assessed the effect of pre-schoolteacher characteristics on learning readiness among 5-6 years old while controlling for pre-schoolers' characteristics and pre-schoolbackground**.** In the model, the positive sign of the coefficient indicated increased effect of the explanatory variable on the 5-6-year-old learning readiness while the negative sign indicated decreased effect of the explanatory variable on the 5-6-year-old learning readiness. The value of the coefficient of the explanatory variable signifies the magnitude of its effect on the 5-6-year-old learning readiness. The significance of the relationship between a given explanatory variable and the outcome variable will be tested at p = 0.05 on a two tailed test.

Similarly, data collected for objective two was used to model the effect of pre-school teachingand learning resources on learning readiness among 5-6 years old in public

pre-schools in Kimilili Sub- CountyBungoma Kenya using multiple linear regressions (MLR). In model 1, this study assessed the effect of pre-schoolteaching and learning resources on learning readiness among 5-6 years old. In model 2, the study assessed the effect of pre-schoolteaching and learning resources on learning readiness among 5-6 years old while controlling for pre-schoolers' characteristics and pre-schoolbackground.

Finally, data collected for objective three was used to model the effect of pre-schoolnutrition support programmes on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Kenya using multiple linear regressions (MLR). In model 1, this study assessed the effect of pre-school nutrition supportprogrammes on learning readiness among 5-6 years old. In model 2, the study assessed the effect of pre-school nutritionprogrammes on learning readiness among 5-6 years old while controlling for pre-schoolers' characteristics and pre-schoolbackground. The summary of statistical data analysis is presented in Table 3.4.

Table 3. 4: Summary of Statistical Data Analysis

S/No	Objective	Independent Variable	Dependent Variable	Statistical Tool
1	To determine the effect of pre-schoolteacher characteristics on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Kenya	pre-school teacher characteristics (Nominal, ordinal and interval)	Learning readiness among 5-6 yearsold (Interval)	Multiple Linear Regression (MLR)
2	To establish the effect of pre-schoolteaching and learning resources on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Kenya	Pre-school teaching and learning resources (Nominal, ordinal and interval)	Learning readiness among 5-6 years old (Interval)	Multiple Linear Regression (MLR)
	To establish the effect of pre-schoolnutrition support programmes on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Kenya	Pre-school nutrition supportprogrammes (Nominal, ordinal and interval)	Learning readiness among 5-6 years old (Interval)	Multiple Linear Regression (MLR)

Source: Author, 2018

CHAPTER FOUR

PRESENTATION, INTERPRETATION AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the research findings, their interpretation and discussion. The organization of this chapter is based on the objectives that guided the study. The findings are presented in line with the three research objective which are: To determine the influence of teacher characteristics on learning readiness among pre-schoolchildren in public pre-schools; to establish the effect of teaching and learning resources on learning readiness among pre-schoolchildren in public pre-schools and to investigate the influence of nutrition support programmes on learning readiness among pre-school children in publicpre-schools in Kimilili Sub-County, Bungoma County. The results of this study are presented in form of tables and discussed as per the objectives after the demographic data and description of the variables used in the study

1.2 Demographic Data and Variables used in this Study

This section presents data on distribution of teacher respondent and descriptive statistics of variables used in the analysis of data.

4.2.1 Distribution of Pre-schoolHead teachers and Pre-schoolers

A total of 18 pre-schoolhead teachers and 356 pre-schoolers were sampled to participate in the study. The distribution of pre-schoolhead teachers and pre-schoolers is presented in Table 4.1.

Table 4. 1: Distribution of Pre-schoolHead Teachers and Pre-schoolers

Respondents	Sample size	No. of Respondents	Percentage
Pre-schoolhead teachers	18	16	88.89%
Pre-schoolers'	356	344	96.63%
Total	374	360	96.26%

Source: Field Data, 2019

As reflected in Table 4.1, out of the 356 questionnaires administered to pre-schoolers, 344 (96.63%) were used for data analysis while 12 (3.37%) were either wrongly filled, incomplete and others were not returned. Hence, these questionnaires were excluded from data analysis. Also 16 (88.89%) of the pre-schoolhead teachers were required to fill questionnaires. In establishing the minimum response rate percentage, Creswell (2014) observed that a 50 per cent response rate is adequate, 60 percent good while the response rate of above 70 per cent very good. Based on this assertion, the current study's response rate of 96.26% is therefore very good. The recorded high response rate can be attributed to the data collection procedures where the researcher pre-notified the participants of the intended and intention of the study, utilized a self-administered questionnaire where the respondents completed the questionnaires and were collected shortly afterward and the researcher made follow up calls to clarify queries as well as prompt the respondents to fill the questionnaires.

4.2.2 Description of the Items used in the Analysis of Data

This study used a total of twentysix (26) items in the analysis of data. The description of the items is presented in Table 4.2.

Table 4. 2: Description of Items Used in the Analysis of Data

Item label	N	Range	Min	Max	Mean	Scale
Teacher characteristics						
Gender of pre-schoolteacher		344; M=30, F=314				Nominal
Age of pre-schoolteacher	344	19	32	51	40.21	Interval
Pre-school teachers' teaching experience	344	10	1	11	5.4	Interval
Pre-school teachers' highest professional training	344				37.796	Interval
Employer of pre-schoolteacher	344	BOM= 56; County Govt= 328				Nominal
Total number of workshops attended by the teacher	344	18	0	18	7.15	Interval
Pre-schooltotal monthly earning	344	20000	12000	32000	27323	Interval
Pre-school teaching& Learning Resources						
Total number of pre-schoolteachers in pre-school	344	3	2	5	2.92	Interval
Total number of classes in pre-school	344	1	2	3	2.43	Interval
Total number of core course books	344	160	1	161	18.18	Interval
The area covered by school in hectares	344	1	1	2	1.16	Ratio
Total number of flash cards in pre-school	344	250	0	250	86.39	Interval
The total area of playfield in your pre-school	344	3	1	4	1.97	Ratio
Total number of swings in your pre-school	344	20	0	20	1.18	Interval
Total number of blocks for teaching mathematics in pre-school	344	300	0	300	26.95	Interval
The total number of visual aids Available in school	344	240	0	240	29.72	Interval
Nutrition Support Programmes	Yes	%	No	%		
Does your school have nutrition support programmes	344	100	0	0		Nominal
Do all pre-schoolers benefit from the nutrition support programmes?	311	90.4	33	9.6		Nominal
Are food varieties for pre-schoolers changed regularly?	67	19.5	277	80.5	31.41	Nominal
Are teachers fully involved in the school nutrition support programmes in your pre-school?	287	83.4	57	16.6	32.06	Nominal
Are parents fully involved in the school nutrition support programmes in your pre-school?	201	58.4	143	41.6	29.66	Nominal
Does your pre-schoolprovide a special dietary:	33	9.6	311	90.4	33.52	Nominal
Are pre-schoolers allowed to bring supplementary meals	103	29.9	241	70.1	31.636	Nominal
Does your pre-schoolhave a licensed cook?	227	66	117	34		Nominal

Does your pre-schoolhave a dining hall?	51	14.8	293	85.2		Nominal
Does your pre-schoolhave a source of clean water	243	70.6	101	29.4		Nominal
Average	169	49.18	175	50.82		Nominal
Average amount contributed by parents			295.95			Interval
Pre-schoolLearning Readiness						
Language and literacy competencies	344	39	11	50	31.41	Interval
Mathematics competencies	344	40	10	50	32.06	Interval
Creative & arts competencies	344	37	13	50	29.66	Interval
Scientific competencies	344	36	14	50	33.52	Interval
Pre-schoolers overall competency Mean score	344	34	16	50	31.636	Interval

Source: Field Data, 2019

From Table 4.2 the items used in the data analysis were interval, ratio or nominal. Out of the twenty six items, eleven (11) were interval, two (2) were ratio and thirteen (13) were nominal. The outcome variable for the study was the pre-schoolers learning readiness and was measured at interval scale with a mean of 31.636. The three independent variables namely: Teacher characteristics, pre-schoolteaching and learning resources andpre-school nutrition supportprogrammes are either interval, ratio or nominal scale and used in the analysis of objective1, 2 and 3 respectively.

The descriptive statistics in Table 4.2 show that a large proportion of respondents were females (91.3%) compared to their male counterparts suggesting that gender disparities in training teachers at pre-schoollevel persist despite the various measures put in place to address this. Besides, the data in Table 4:2 does indicate that mean age of pre-school teachers is 40.21. This results imply that most of the pre-school teachers are of youthful age and energetic to impact positively on pre-schoolers learning readiness. In addition, the descriptive statistics in Table 4:2 indicate that on average teachers had five years and above teaching experience. The results suggest pre-school teachers in the sub-county have adequate teaching experience. This can have a positive effect on pre-schoolers learning

readiness. The statistics also indicate that most of the pre-school teachers' had their highest training as diploma with a mean year of schooling of 37.796.

The descriptive statistics in Table 4.2 also show that a larger percentage (95.36%) of pre-school teachers were permanently employed by the county government hence had a stable job and salary. This has a net effect on pre-schoolers leaning readiness. In addition, the descriptive statistics in Table 4.2 indicate that on average the pre-school teachers attended a minimum of seven workshops during the study period. This is a good indicator of constant pre training and service which may have a positive effect on their teaching skills and attitudes at pre-schoollevel. The descriptive statistics in Table 4.2 also indicate that pre-school teachers average monthly earning was 27,000 shillings.The teacher characteristics variables (gender, age, experience, professional training, employer, workshops attended and monthly salary) are modeled using the multiple linear regressions to establish their effect on pre-schoollearning readiness. The results are presented in section 4.3.The second variable of the study is pre-school teachingand learning resources. As shown in Table 4.2; the descriptive statistics indicate that on average there were two teachers, 2 classrooms; 18 core course books, 1 hectare of land, 86 flash cards, 2 hectares of playground, 1 swing, 27 blocks for teaching mathematics and 30 visual aids per pre-school. The pre-school teachingand learning resources variable is modeled in objective two to establish its effect on learning readiness. The results are presented in section 4:4.

The third variable of the study is pre-school nutrition supportprogrammes. The descriptive statistics in Table 4.2 show that all the sampled pre-schools have a nutrition support programmes and that 90% of pre-schoolers benefit from nutrition support programmes. However, a small proportion (19.5%) of pre-schools is provided with a

variety of foods despite the fact that a large percentage (83.4%) of teachers participates in drafting pre-school nutrition supportprogrammes for the pre-schools. The descriptive statistics in Table 4.2 also indicate that more than half (58%) of pre-schools involve parents in nutrition support programmes. However, the pre-schools rarely provide special dietary. In addition, descriptive statistics in Table 4.2 indicate that 30% of pre-schools encourage pre-schoolers to carry supplementary nutrition in order to support pre-school nutrition support programmes. In addition, the descriptive statistics in Table 4.2 show 78% of pre-schoolsprovide clean water for pre-schoolers and that 66% of these pre-schools have a licensed cook. However, most of the pre-schools do not have a dining hall for pre-schoolers to use. This may negatively affect their pre-school nutritionsupport programmes as pre-schoolers are left to feed in the open. The descriptive statistics in Table 4.2 indicate that most of the pre-schools offer quality meals, which are consistent and adequate. In addition, on average parents contribute an average of Ksh 295.95 towards school nutrition support programmes in the pre-schools. The pre-school nutrition support programmes variable is modeled in objective three to establish its effect on learning readiness. The results are presented in section 4.5.

The outcome variable in this study is the pre-schoolers learning readiness which is measured on an interval scale. The descriptive statistics in Table 4.2 indicate that on average pre-schoolcompetencies in language and literacy competencies, mathematical competencies, creative and art competencies and scientific competencies were 31.41, 32.06, 29.69 and 33.52 respectively out of the 50 possible learning competencies. The most performed competency was scientific competences and the worst performed was creative art competency. The descriptive statistics in Table 4.2 also show that the mean competency level for pre-schoolers is 31.636 out of 50. This represents a 63.27% average competency for the pre-schoolers which is above average. This statistics indicate that pre-

schoolers in the sampled schools had prerequisite learning competencies. This variable is used in the analysis of objective 1, 2 and 3 and the results are presented in section 4.3, 4.4 and 4.5.

4.3 The Influence of Teacher Characteristics on Learning Readiness among Pre-school children in Public Pre-schools

The first objective of the study was to determine the influence of teacher characteristics on learning readiness among pre-schoolchildren in publicpre-schools in Kimilili Sub-County, Bungoma County. The null hypothesis tested was pre-school teacher characteristics have no statistically significant influence on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County Bungoma, Kenya. This study therefore modeled the effect of teacher characteristics on learning readiness among pre-school children in public pre-schools using multiple linear regression analysis.

In the model, the value of the coefficient indicates pre-schoolers learning readiness. The positive and negative signs of the coefficient indicate increased and decreased pre-schoolers learning readiness respectively. The significance of the relationship between a given independent variable and the dependent variable is tested at p=0.05. The result of the multiple regression model is presented in Table 4.3.

Table 4. 3: Multiple Regression Analysis Results on the Influence of Teacher Characteristics on Pre-schoolers Learning Readiness

Model	Unstandardized Coefficients		Standardized Coefficients	T	p value
	B	Std. Error	Beta		
(Constant)	54.705	3.317		16.491	0.000
Age of pre-school teacher	-0.162	0.065	-0.129	-2.48	0.014
Pre-schoolteachers' teaching experience	0.166	0.156	0.055	1.065	0.288
Pre-schoolteachers' highest professional training	1.500	0.564	0.128	2.659	0.008
Total number of workshops attended by the teacher	0.381	0.101	0.204	3.759	0.000
Pre-schoolteacher total monthly earning	0.000	0.000	-0.523	-9.356	0.100

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.566	0.321	0.311	6.12577

a. Dependent Variable: Pre-schoolers Overall Competency Score

Source: SPSS Output, 2019

The results of the regression analysis in Table 4.3 indicate that the constant of the regression is statistically significant indicating that the variables fit in the model were able to predict the outcome variable. The variables in the model (age of pre-school teacher, pre-school teachers' teaching experience, pre-school teachers' highest professional training, total number of workshops attended by the teacher and pre-schooltotal monthly earning) were able to predict 0.311 (31.1%) of the variation in pre-schoolers learning readiness. The rest was accounted by other variables not in the study.

The results of the regression analysis in Table 4.3 indicate that the variables; age of pre-school teacher, pre-schoolteachers' highest professional training and the total number of workshops attended by the pre-schoolteacher were statistically significant in explaining the variation in pre-schoolers' learning readiness while the variablespre-schoolteachers' teaching experience and pre-schooltotal monthly earning were not. This study therefore rejected the null hypothesispre-schoolteacher characteristics have no statistically significant influence on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Bungoma Kenya. The results indicate that a number of pre-school teacher characteristics were statistically predicted to influencepre-schoolers' learning readiness.

The results of the regression analysis in Table 4.3 indicate that the age of the pre-school teacher was predicted to reduce the pre-schoolers' learning readiness by 0.162 points. Suggesting that a one year increase in a teacher's age reduces the pre-schoolers' learning readiness by 0.162 points. This results imply that older teachers have a negative effect on pre-schoolers' learning readiness. This can be explained by the fact that young teachers are outgoing and motivated to try different learning experiences. For example, Weveti (2017) in Embu County observed that pre-schoolchildren improve their performance in class when teachers adopt a positive attitude. Weveti further observed that positive attitude has the intrinsic effect of motivating teachers to employ the most effective skills and resources during lessons. As a result, pre-schoollearners exposed to teachers with a positive work attitude enhance learner readiness because they acquire the most from their learning experiences**.**

The results of the regression analysis in Table 4.3also show that pre-school teachers' highest professional training is predicted to increase the pre-schoolers learning readiness

mean score by 1.500 points. Suggesting that a one year increase in a teacher'sprofessional training increase the pre-schoolers learning readiness by 1.500points. This results imply that as teachers progress in their academic endeavours the knowledge and skills they gain are beneficial to pre-schoolers learning readiness. This implies that teachers with diploma in ECD are predicted to produce better learning outcomes compared to ECD certificate holders. For example, Ndung'u (2014) study considered teachers as a vital source of learning motivation for pre-schoollearners. Ndungu's study finds that teaching experience and academic qualifications collectively correlate with high levels of motivation among pre-school children. The author, therefore, recommended continuous learning as a way to impart motivational skills among teachers.

The results of the regression analysis in Table 4.3 further show that pre-school teachers' total number of workshops attended is predicted to increase the pre-schoolers learning readiness mean score by 0.381points. The results indicate that a unit increase in the number of workshops attended by the pre-school teacher improves the pre-schoolers learning readiness by 0.381points. This results imply that more the pre-school teachers progress attend workshops the more they gain new knowledge and skills that may be beneficial to pre-schoolers learning readiness.

The study findings are similar to a number of studies done. For example, Chaudry, Morrissey, Weiland, and Yoshikawa (2017) also established that subjecting teachers to in-service courses in public pre-schools improves learning in class and teacher-learner interaction, which enhances learner readiness because they acquire more literacy skills. Similarly, ILO(2012) in East South Asia study indicatedthat teacher quality is one of the challenges that needs to be addressed if high levels of learning readiness is to be realized. In Kenya Weveti (2017) in a study in Embu, equates learner performance to teachers'

attitude more time in academic activities and with more years of experience have a distal and proximal experience on learners.

4:4 The Influence of Teaching and Learning Resources on Learning Readiness among Pre-school children in Public Pre-schools

The second objective of the study was to establish the effect of teaching and learning resources on learning readiness among pre-school children in public pre-schoolin Kimilili Sub- CountyBungoma Kenya. The null Hypothesis tested was pre-schoolteaching and learning readiness have no statistically significant effect on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub -County, Bungoma Kenya. This study therefore modeled the effect of teaching and learning resources on learning readiness among pre-schools using multiple linear regression analysis

In the model the value of the coefficient indicates pre-schoollearning readiness. The positive sign and negative signs of the coefficient indicate increased and decreased pre-schoolers learning readiness respectively. The significance of the relationship between a given independent variable and the dependent variable is tested at p= 0.005. The result of the multiple regression models is presented in Table 4:4.

Table 4. 4 Multiple Regression Analysis Results on the Influence of Teaching and Learning Resources on Pre-schoolers Learning Readiness.

Model	Unstandardized Coefficients		Standardized Coefficients	T	p-value
	B	Std. Error	Beta		
(Constant)	45.238	2.862		15.805	0.000
Total number of pre-school teachers in pre -school	0.012	0.562	0.001	0.02	0.984
Total number of classes in pre-school	-6.442	0.934	-0.433	-6.898	0.000
Total number of core course books	-0.023	0.023	-0.122	-.997	0.320
The area covered by the pre-school in hectares	4.811	1.36	0.238	3.537	0.000
Total number of flash cards in pre-school	-0.058	0.009	-0.452	-6.772	0.000
The total area of play field in your pre-school	0.235	0.333	0.038	0.705	0.481
Total number of swings in your pre-school	-0.74	0.101	-0.415	-.7.336	0.000
Total number of blocks for teaching math's in pre-school	0.057	0.009	0.445	6.623	0.000
The total number of visual aids available in pre-school	0.024	0.015	0.202	1.596	0.111

Model	R	R Square	Adjusted RSquare	Std. Error of Estimate
1	0.605	0.366	0.349	05.95063

a. Dependent Variable: Pre-schoolers Overall Competency Score

Source: SPSS Output, 2019

The results of the multiple regression analysis in Table 4.4 indicate that the constant of the regression is statistically significant indicating that the model was able to predict the outcome variable. The results is the Table 4.4 indicate that more than half of the teaching and learning variables; the total number of classes, the area covered in hectares, the total number of flash cards, the total number of swings and the total number of blocks for teaching mathematics in pre-schoolwere statistically significant in explaining variations in pre-schoolers learning readiness. However, the other four remaining variables; total number of pre-school teachers, total number of core course books, the total area of play

field in yourpre-schooland the total number of visual aids available in a pre-school,were notstatistically significant in explaining variations in pre-schoolers learning readiness.

The teaching and learning resources variables in the model were able to predict 0.349 (34.9%) of the variation in pre-schoolers learning readiness. The rest was accounted by other variables not in the study. Therefore, this study rejected the null hypothesis that pre-school teachingand learning resources have no statistically significant effect on learning readiness among 5-6 years old in publicpre-schools in Kimilili Sub- County Kenya. The results indicate that a number of teaching and learning resources were able to account for variations in pre-schoolers learning readiness.

The results of the regression analysis in Table 4.4 indicate that the variables; the total number of classes, the total number of flash cards and the total number of swings in a pre-schools were predicted to reduce the pre-schoolers' learning readiness mean score by 6.442, 0.058 and 0.74 respectively. The results imply that if a pre-schoolclasses, flashcards and swings reduced by one, the pre-schoolers' learning readiness mean score would reduce by 6.442, 0.058 and 0.74 points respectively. This implies that the availability of classes, flashcards and swings in a given pre-schoolimproves pre-schoolers' learning readiness.

However, the variables (the area covered in hectares and the total number of blocks for teaching mathematics) in pre-schoolwere predicted to increase pre-schoolers' learning readiness by 4.811 and 0.057 points. The results imply that one unit increase in hectares covered by the pre-schooland blocks for teaching mathematics, predicts improvement ofpre-schoolers' learning readiness mean score by 4.811 and 0.057 points respectively. The results therefore imply that when pre-schoolers have adequate space their learning readiness is enhanced given that at this level children learn through play. The same

applies for blocks for teaching mathematics which simplify mathematical concepts and abstracts.

A number of studies have cited the role of teaching and learning resources on learners learning readiness. For example, UNESCO (2014), teaching and learning resources aids instruction in class, Behrman (2011) emphasises the need for teacher's to employ both teaching and learning resources that support the need for adequate learner readiness. However Van Rensburg (2015) study results in South Africa pre-schools demonstrates that inadequate pre-school teachingand learning resources as a compounding factor to other factors such as the lack of adequate teacher qualifications that affected the level of learner readiness in most South African pre-schools. Achola, Gudo, and Odongo (2016) study in Kisumu indicates that learners exposed to a variety of teaching and learning resources exhibited better skills in the said oral skills than the ones found to be unexposed to these materials. Similarly, Onyango (2014) Rachuonyo study findings indicate that the transition rate of learners from pre-schoolto upper primary increases when teacher use appropriate teaching and learning resources. Ngware, et al., (2016) report indicates that Kenya is among the African countries with a low level of learner readiness in its pre-schools. The report cites a lack of teaching and learning resources that enable teachers to focus on individual learners. Therefore, some scholars have emphasised the need for teaching and learning resources in pre-schools. Chililia (2019) study as indicated in a journal onteachers attitude and use of instructional materials in Bungoma South Sub-County also revealed that though the use of teaching and learning resources in classroom instruction is important but there is lack of use in class especially in this Sub-County.

4.5 The Influence of Nutrition Support Programmeson Learning Readiness amongPre-schools Children in Public Pre Schools

The third objective of the study was to investigate the influence of nutrition support programmes on learning readiness among pre-school children in publicpre-schools in Kimilili Sub-County, Bungoma Kenya. The null hypothesis tested was pre-school nutrition supportprogrammes have no statistically significant effect on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Bungoma Kenya. This study therefore modeled the effect of pre-school nutrition support programmes on learning readiness among pre-school children in public pre-schools using multiple learner regression analysis.

In the model, the value of the coefficient indicates pre-schoolers learning readiness. The positive sign and of the coefficient indicates increase and decreased pre-schoolers learning readiness respectively. The significance of the relationship between a given independent variable and dependent variable is tested at p=0.05. The result of the multiple regression analysis is presented in the Table 4.5.

Table 4. 5: Multiple Regression Analysis Results of the Influence of Nutrition Support Programmes on Pre-schoolLearning Readiness

Model	Unstandardized Coefficients		Standardized Coefficients	T	P- value
	B	Std. Error	Beta		
(Constant)	46.361	1.347		34.422	0.000
Do all pre-schoolers benefit from the nutrition support programmes	-7.146	0.427	0.448	-16.719	0.000
Are food varieties for pre-schoolers changed regularity?	7.299	0.5	0.616	14.597	0.000
Rate your pre-school nutrition feeding programmes	3.127	0.36	0.453	8.68	0.000
Are teachers fully involved in the nutrition support programmes in your pre-school	-15.347	1.318	-1.215	-11.64	0.000
Does your pre-school provide a special dietary	-3.513	0.404	-0.22	-8.706	0.000
Are pre-schoolers allowed to bring supplementary Meals	6.525	0.305	0.636	21.373	0.000
How do you rate the quality of meals in your Pre-school nutrition support programmes	-0.582	0.289	-0.076	-2.013	0.045
How do you rate the consistency of meals your pre-school nutrition support programmes	-7.273	0.276	-1.522	-26.341	0.000
How do you rate the adequacy of meals in your pre-school nutrition support programmes	-17.532	0.403	-1.842	-43.522	0.000
Does your pre-school have a licensed cook	2.675	0.369	0.27	7.252	0.000
Does your pre-school have a dining hall	5.214	0.36	0.395	14.465	0.000
Does your pre-school have a source of clean water	6.039	0.807	0.586	7.488	0.000

Model	R	R Square	Adjusted RSquare	Std. Error of Estimate
1	.277[a]	0.077	0.074	7.09845

a. Dependent Variable: Pre-schoolers Overall Competency Score

Source: SPSS Output, 2019

The results of the multiple regression analysis in Table 4.5 indicate that the constant of the regression is statistically significant indicating that the model was able to predict the outcome variable. The results in Table 4.5 indicate all the variables of the pre-school nutrition support programmeswere statistically significant in explaining variations in pre-schoolers learning readiness.

The pre-school nutritionsupport programmes variables in the model were able to predict 0.074(7.4%) of the variation in pre-schoolers learning readiness. The rest was accounted

For by other variables not in the study. Therefore, this study rejected the null hypothesis that pre-school nutritionsupport programmeshave no statistically significant effect on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County Bungoma Kenya. The results indicate that all the variables of the pre-schoolnutritionsupport programmesaccount for variations in pre-schoolers learning readiness.

The results of the regression analysis in Table 4.5 indicate that the variables; if all pre-schoolers benefit from the nutrition support programmes, if teachers are fully involved in the nutrition support programmes, ifpre-schoolprovide a special dietary, the rating of the quality ofpre-schoolmeals, the rating of consistency of pre-schoolmeals and the rating of adequacy of pre-schoolmeals were predicted to reduce the pre-schoolers learning readiness mean score by 7.146, 15.347, 3.513, 0.582, 7.273 and 17.532 respectively. For instance the results indicate that if no pre-schoolnutritionsupport programmes in a pre-school, the pre-schoolers mean is predicted to reduce by 7.146, if teachers are not involved in pre-schoolnutrition programmes, the pre-schoolers mean is predicted to reduce by 15.347 point. Besides, if the ratings for the quality, consistency and adequacy

of pre-schools meals are low, the pre-schoolers mean score is predicted to reduce by 0.582, 7.273 and 17.532 respectively.

Similarly, the results of the regression analysis in Table 4.5 indicate that the variables; if food varieties for pre-schoolers changed regularity, the rating for thepre-schoolnutrition programmes, ifpre-schoolersare allowed to bring supplementary meals, ifpre-schoolhave a licensed cook, if apre-schoolhave a dining hall and if apre-schooler have a source of clean water were predicted to improve the pre-schoolers learning readiness mean score by 7.299, 3.127, 6.525, 2.675, 5.214 and 6.039 respectively. Therefore, if pre-schools changed their meals regularly, their pre-schoolers mean is predicted to increase by 7.299 points. If pre-schools allowed supplementary meals, this would results to a 6.525 points increase in pre-schoolers mean score. The results clearly indicate the affirmative of the pre-schoolnutrition support programmes variables would result to an improvement inpre-schoolers mean score.

The study findings are similar to a number of studies done. As for Confessor (2014) meals provided at school makes learners to be focused and attentive in class. Diab (2015) in Egypt, teacher involvement in designing nutritionsupport programmesguidelines results into enhanced physical development. These findings indicate that exposing pre-school children to quality nutrition programmes improves their learning productivity(UNICEF, 2012) and (WHO, 2012). However, Gosh(2013) study findings point to the fact that nutrition support programmesin pre-schools is one of the challenges effecting the learners level of cognitive development and emphasized on the need of quality, balanced and adequate pre-school nutrition supportprogrammes.

On the same note results as documented by Wekesa (2015) in a study in Garissa County Kenya revealed that rations and adequacy of nutrition support programmes was key in

sustainability of thisprogrammes.This is in consistent with other studies by Osman (2012) in Bungoma South Sub-CountyandOmukubi (2017) study in Kanduyi Sub-Countyon nutrition support programmes and learner readiness revealed the need to enhance this programmes to enable learners to acquire more literacy and scientific skills in learning areas.

Table 4. 6: Pre-schoolHead Teachers Responses on Pre-schoolBackground

Year	Count	Percentage (%)
1970-1980	3	16.7
1980 – 1990	4	22.2
1990 – 2000	6	33.2
2000 – 2010	3	16.7
2010 – 2020	2	11.1
TOTAL	18	100.0

Source: Field Data (2019)

Information from Table 4.6 indicates that majority of the pre-schools in Kimilili sub-county were established between the year 1990 and 2000 (33.3%). This indicate that most of thepre-schools started between 1990-2000 stand a better chance of preparing learners to be ready for the next grade because early childhood programmes has been operational in this are for quite some time.

Table 4. 7: Pre-schoolHead Teachers Responses on Pre-schoolLocation

Location	Count	Percentage (%)
Municipality	4	22.2
Outside Municipality	14	77.8
TOTAL	18	100.0

Source: Field Data (2019)

The information in Table 4.7 indicates that 14 pre-schools in Kimilili Sub-County are

located outside the Municipality (77.8%) and 4 pre-schoolslocated inthemunicipality (22.2%). This indicatesthat schools there are more pre-schools outside themunicipality and this implies that they stand a better chance of preparing morelearners for grade one more than those outside the municipality.

Table 4. 8:Pre-school in Kimilili by Sponsorship

Sponsor	Count	Percentage (%)
Catholic	6	33.3
Protestant Municipality	7	38.9
Government	2	11.1
Others	3	16.7
TOTAL	18	100.0

Source: Field Data (2019)

Information from Table 4.8 further indicates that7 of pre-schools are sponsored by the Protestants (38.9%), 6 pre-schools (33.3%) are sponsored by the catholic, 3 pre-schools are sponsored by other faiths(16.7%) and 2 are sponsored by the government (11.1%) This indicates that the level of learner readiness in this sub-county is determined by the sponsor of the pre-schools and the area has more protestants who are in agreement with they offer ECDE education thus high protestant sponsored schools. On the other hand , the Catholics are also in agreement with learning in this area based on the 3 RS therefore it was established that Pre-schools sponsored by the protestants and Catholics stand a better chance of offering education geared towards preparing learners for grade one.

Table 4. 9:Pre-schoolers by Gender

WardGender		
Male	Female	
Kibingei	49	47
Kimilili	45	42
Maeni	46	40
Kamukuywa	47	44
TOTAL	187	169

Source: Field Data (2019)

The information in Table 4.9 indicates that there were 49 male and 47 female pre-schoolers,Kimilili had 45 male and 42 female pre-schoolers,Maeni ward had 46 male and 40 pre-schoolers and Kamukuywa had 47 male and 44 female pre-schoolers. This implies that there are more male learners in pre-schools compared to female learners. This is an indication of gender imbalance in pre-schoolsas there are more male learners than female ones.This gender ranges implies that school readiness varies in this area of study as more boys are ready than girls. This could because of socio cultural set ups of the area under investigation and can be justified by the rites observed in this area which indicate that boys have a higher social stand than girls.

Table 4. 10:Pre-schoolers Date of Assessment

Ward	Date of Assessment
Kibingei	12/03/2019
Kimilili	13/03/2019
Maeni	14/03/2019
Kamukuywa	15/03/2019

Source: Field Data (2019)

Pre-schoolers in the four wards were assessed between 12/03/2019 to 15/03/2019 as per ward. Pre-schoolers were assessed as follows.Kibingei ward on 12/03/2019,Kimilili ward

on 13/03/2019 Maeni ward on 14/03/2019 and Kamukuywa wardon 15/03/2019.This implies that there was no collusion on data collected and no bias in data obtained as the respondents had no time to share the research information prior to assessment and the researcher therefore collected valid data for findings on the research topic.

Table 4. 11:Pre-schoolers by Date of Birth

Date of Birth	Count	Percentage (%)
2009	1	0.3
2010	2	0.6
2011	1	0.3
2012	1	0.3
2013	149	43.3
2014	195	56.7
2015	10.3	

Source: Field Data (2019)

The results from Table 4.10 indicate that most pre-schoolers are 5-6 years old in this Sub-County with few aged between 7-10 years. This shows variations in the age of pre-schoolers in this Sub-County .This may imply that the effect of the post -election violence of 2007 -2008 may have led to trauma among parents which led to low birth rates in the years 2009-2012 and also as observed ,birth rates increased during 2013 to 2014. This indicates that there are more learners aged between 5-6 years old in this Sub-county which is a recommended age for learners in pre-schools according to ECD policy framework of (2006), hence ready to learn.

Table 4. 12: Special Needs in Pre-schools

Location	Count	Percent (%)
Kibingei	2	28.6
Kimilili	1	14.3
Maeni	2	28.6
Kamukuywa	2	28.6
TOTAL	7	100

Source: Field Data (2019)

Results from Table 4.10 indicate that there were 2 special needs cases each among pre-schoolersin Kibingei, Maeni and kamkuywa(28.6%) and 1 special case in Kimilili municipality.This shows a sharp improvement in Kimilili on special needs which may mean that Kimilili enjoys a better learning environment as compared to other wards.There is also a possibility that cultural factors in this area affect the rural setting whileparents in town think of the importance of taking special needs children for early intervention hence good readiness to learn.

Table 4. 13:Pre-schoolers Percentage Attendance.

Location	Count (Days)	Percent (%)
Kibingei	170	49.4
Kimilili	175	50.9
Maeni	160	46.5
Kamukuywa	170	49.4
TOTAL	675	100

Source: Field Data (2019)

From results in Table 4.11, the total numbers of days attended by pre-schoolers was 160-170 days on average compared to the required 190 days per year. The results in table 4.11indicate that most pre-schoolersin Kimilili ward on average attended school (50.9%), Kibingei (49.4%), Kamukuywa (49.4%) and Maeni (46.5%).This implies that thelevel of

attendance in other wards other than Kimilili was below average a clear indication that most pre-schoollearners may not be really ready for grade one hence need to sensitize parents and guardians on the importance of regularschool attendance among learners.

Table 4. 14: Means of Transport to School

Means of Transport	Count	Percent (%)
Public vehicles	10	2.9
Private Vehicles	3	0.9
Walking	329	95.6
Bodaboda	2	0.6
Total	**344**	**100.0**

Source: Field Data (2019)

The results in table 4.12 indicate 329 ofpre-schoolers in this Sub-County walk to school(95.6%), 10 use public vehicles to get to school (2.9%), 3 use private vehicles as a means of transport (0.9%) and 2 use bodaboda to get to school (0.6%). This implies that this area may have an economic challenge that impacts negatively on the good modes of transport to school and as realized from the schedule above, most learners get to school tired and worked up to learn and may not as such enjoy learning and this may impact negatively on their level of readiness to learn.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of the study was to establish the effect of pre-schoolcharacteristics on learning readiness among 5-6 years old pre-school children in public pre-schools in Kimilili Sub-County of Bungoma County Kenya. Therefore, the present study

Summarized the research findings along the themes: the influence of pre-schoolteacher characteristics, pre-school teachingand learning resources and pre-school nutrition supportprogrammes on learning readiness among pre-schoolchildren in public pre-schools in Kimilili Sub- County, Bungoma County. This chapter therefore presents a summary of the findings of the study, the conclusions reached as well as the recommendations made. Finally, suggestions for further research are given.

5.2 Summary of Research Findings

This section presents the summary of research findings as established in chapter four. The section presents a summary of the demographic data for the respondents in section 5.2.1. Besides, a summary of the research findings on the influence of:pre-schoolteacher characteristics on learning readiness among pre-school children in publicpre-schools in Kimilili Sub- County, Bungoma Kenya, pre-schoolteaching and learning resources on learning readiness among pre-schoolchildren in public pre-schools in Kimilili Sub-County Bungoma , and pre-school nutrition supportprogrammes on learning readiness among pre-schoolchildren in public pre-schools in Kimilili Sub- County, Bungoma County is presented in sections5.2.2, 5.2.3 and 5.2.4 respectively.

5.2.1 Demographic Data

The findings indicate that the study had a response rate of 96.26%. The high response rate can be attributed to a well organised data collection procedure.

5.2.2 Influence of Teacher Characteristicson Learning Readiness among Pre-schoolChildren in Public Pre-schools

The multiple regression analysis resultsshowedthat the teacher characteristics variables; age of pre-schoolteacher, pre-schoolteachers' highest professional training and the total number of workshops attended by the pre-schoolteacher were statistically significant in explaining 31.1% of the variation in pre-schoolers learning readiness. The age of pre-schoolteacher was predicted to reduce the pre-schoolers mean score by 0.162 while the pre-schoolteachers' highest professional training and the total number of workshops attended by the pre-schoolteacher were predicted to increase the pre-schoolers mean score by 1.500 and 0.38points respectively.

However, the variables pre-schoolteachers' teaching experience and pre-schooltotal monthly earning were not important in explaining variations in pre-schoollearning readiness. This study therefore rejected the null hypothesispre-schoolteacher characteristics have no statistically significant influence on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- County, Bungoma Kenya.It was established that teacher characteristics is key in enhancing learning readiness this means that teacher development professional development is key in enhancing learning readiness and this means that every time the pre-schoolteachers are employed,professional qualification and development must be put into consideration.

5.2.3 Influence of Teaching and Learning Resources on Learning Readiness among Pre-school Children in Public Pre-schools

The multiple regression analysis results showed that showed that more than half of the teaching and learning rsources variables; the total number of classes, the area covered in hectares, the total number of flash cards, the total number of swings and the total number of blocks for teaching mathematics; in pre-schoolwere statistically significant in explaining variations in pre-schoolers learning readiness. However, the other four remaining variables; total number of pre-schoolteachers, total number of core course books, the total area of play field in your pre-schooland the total number of visual aids available in a pre-school, were not statistically significant in explaining variations in pre-schoolers learning readiness. The teaching and learning resources variables in the model were able to predict 0.349 (34.9%) of the variation in pre-schoolers learning readiness. Therefore, this study rejected the null hypothesis that pre-schoolteaching and learning resources have no statistically significant effect on learning readiness among 5-6 years old in publicpre-schools in Kimilili Sub-county Bungoma Kenya. The results indicate that a number of teaching and learning resources were able to account for variations in pre-schoolers learning readiness.

The results indicate that the variables; the total number of classes, the total number of flash cards and the total number of swings in a pre-schoolwere predicted to reduce the pre-schoolers learning readiness mean score by 6.442, 0.058 and 0.74 points respectively while the variables; the area covered in hectares and the total number of blocks for teaching mathematics in pre-schoolwere predicted to increase pre-schoolers learning readiness by 4.811 and 0.057 points respectively. From this study, it was reported and found out that pre-schools with a lot of teaching and learning resources had better

learning outcomes.This means that it is important that every time a teacher interacts with learners during instruction, must supply and use teaching and learning resources, they should be part and parcel duringteaching and learning in ECD.

5.2.4Influence of NutritionSupport Programmes on Learning Readiness among Pre-school children in Public Pre-schools

The results of the multiple regression analysis showed that all the items of the pre-school nutrition support programmes were statistically significant in explaining variations in pre-schoolers learning readiness and were able to predict 0.074 (7.4%) of the variation in pre-schoolers learning readiness. Therefore, this study rejected the null hypothesis that pre-school nutrition support programmes have no statistically significant effect on learning readiness among 5-6 years old in public pre-schools in Kimilili Sub- CountyBungoma Kenya.

The results of the regression analysis indicated that the variables; if all pre-schoolers benefit from the pre-schoolnutrition support programmes, if teachers are fully involved in the school nutrition support programmes, if pre-schoolprovide a special dietary, the rating of the quality of pre-schoolmeals, the rating of consistency of pre-schoolmeals and the rating of adequacy of pre-schoolmeals were predicted to reduce the pre-schoolers learning readiness mean score by 7.146, 15.347, 3.513, 0.582, 7.273 and 17.532 points respectively. However, the nutrition support programmes items; if food varieties for pre-schoolers changed regularity, the rating for the pre-schoolnutrition programmes, if pre-schoolers are allowed to bring supplementary meals, if pre-schoolhave a licensed cook, if a pre-schoolhave a dining hall and if a pre-schooler have a source of clean water were predicted to improve the pre-schoolers learning readiness mean score by 7.299, 3.127, 6.525, 2.675, 5.214 and 6.039 respectively. The results clearly indicate the affirmative of

the pre-schoolnutritionsupport programmes variables would result to an improvement in pre-schoolersmean score.Empirical studies both international and local have demonstrated that nutrition support programmes enhance attendance,enrolment, reduce learners hunger, makes learners healthy and attentive in class when provided. This implies that pre-schools where this safety net is provided has high levels of learning readiness therefore nutritionsupport programmes must be implemented in all ECD centers if readiness to learn has to be realized.

5.3 Conclusions

The study sought to explore the factors that were influencing pre-schoolers learning readiness in public pre-schools in Kimilili Sub-county Bungoma County Kenya.Three factors were investigated into namely: teacher characteristics,teaching and learning resources and nutrition support programmes to assess pre-schoolers learning readiness and the following conclusions were drawn from the results of the study and it can be concluded that teacher characteristics,teaching and learning resources and nutrition support programmes played a significant contribution towards pre-schoolers readiness in terms of Language and literacy, mathematics competencies, creative arts competencies and scientific competencies and as presented in chapter four following the themes developed from the objectives of the study the following conclusions were made.

5.3.1Influence of Teacher Characteristics on Learning Readiness among Pre-school children in Public Pre-schools

The multiple regression analysis results showed that selected teacher characteristics(age of pre-school teacher, pre-schoolteachers' highest professional training and the total number of workshops attended by the pre-schoolteacher) were significantly associated with pre-schooler’s learning readiness at the 95% level. It was concluded that pre-

schooler's learning readiness in pre-schools in Kimilili Sub –CountyBungoma Kenyawas predicted positively or negatively by selected teacher characteristics variables.

5.3.2Influence of Teaching and Learning Resources on Learning Readiness among Pre-school children in Public Pre-schools

The multiple regression analysis results showed that selected teaching and learning resources (the total number of classes, the area covered in hectares, the total number of flash cards, the total number of swings and the total number of blocks for teaching mathematics) in pre-schoolwere statistically significantly associated with pre-schooler's learning readiness at the 95% level. It was concluded that pre-schooler's learning readiness in pre-schools in Kimilili Sub-County, Bungoma Kenya was predicted positively or negatively by selected teaching and learning variables.

5.3.3Influence of Nutrition support programmeson Learning Readiness among Pre-school children in Public Pre-schools

The multiple regression analysis results showed all pre-school nutritionprogrammes variables in the model were statistically significantly associated with pre-schooler's learning readiness at the 95% level. It was concluded that pre-schooler's learning readiness in pre-schools in Kimilili Sub- County Bungoma, Kenya was predicted positively or negatively the nutrition support programmes.

5.4 Recommendations

The following recommendations were made from the conclusions drawn from the themes under the main objectives of the study.

The multiple regression analysis results showed that selected teacher characteristics (age of pre-school teacher, pre-school teachers' highest professional training and the total number of workshops attended by the pre-school teacher) were significantly associated with pre-schooler's learning readiness at the 95% level. It therefore recommended that the

Ministry of Education and the County government Bungomashould develop a policy framework that help incorporate pre-schoolers teachers age,pre-school teachers' professional training and pre-schoolers teachers in-service training while employing pre-schoolers in Kimilili Sub-County Bungoma , Kenya. It is also recommended that Ministry of Education and the County government Bungoma should encouragepre-school teachers to further their professional development so as to enhance their knowledge, skills and pedagogy. It is also recommended that that Ministry of Education and the County government of Bungoma should organize in-service training courses for pre-school teachers to continuously improve their knowledge, skills and pedagogy.

The multiple regression analysis results showed that selected teaching and learning resources (the total number of classes, the area covered in hectares, the total number of flash cards, the total number of swings and the total number of blocks for teaching mathematics) were significantly associated with pre-schooler's learning readiness at the 95% level. It therefore recommended that the Ministry of Education and the County government Bungoma should develop a policy framework that help to improve and adequately equip pre-schoolsin Kimilili Sub- County Bungoma, Kenya with teaching and learning resources that are associated with pre-schoolers learning readiness in

The multiple regression analysis results showed all the variables of thenutrition support programmes were significantly associated with pre-schooler's learning readiness at the 95% level. It therefore recommended that the Ministry of Education and the County government Bungoma should develop a policy framework that help improve the pre-school nutrition support programmes in all pre-schools in Kimilili Sub- County Bungoma, Kenya. This can be done through implementation of innovative state policies and initiatives to enhance Child and Adult Care Food Programmes (CACFP) nutrition

standards in child-care settings through guidelines and recognition programmes, supported by training and technical assistance.

5.5 Suggestions for Further Research

This study suggested the following areas for future research.

i. A study on pre-schoolcharacteristics and learning readiness among 5-6 years old in public pre-schools in other counties in Kenya.

ii. A study on pre-schoolteaching and learning resources and learning readiness among 5-6 years old in public and private pre-schools in Kenya.

iii. A study on pre-schoolnutrition support programmes andlearning readiness among 5-6 years old in Public and private pre-schools in Kenya.

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APPENDICES

Appendix 1: Permission Letter to Collect Data

P.O. Box 190-50100

Date: _____

The Pre-schoolHead Teacher, _____

Dear Sir/Madam

Re: Data collection for research purposes

I am a student at Masinde Muliro University of science and Technology pursuing a Master's Degree in Early Childhood Education. I intend to carry out a research entitled: Pre-schoolCharacteristics and Learning Readiness among 5-6 Years Old in Public Pre-schools in Kimilili Sub –County Bungoma, Kenya. Your pre-schoolhas been randomly sampled to participate in the study. The purpose of this letter is to kindly request you to allow me administer pre-schoollearners readiness check listto 5-6 year old pre-schoolers and pre-schoolhead teachers in order to gather information for the study. The information obtained will be treated with utmost confidentiality.

Find attached a research permit from NACOSTI and authorization letter from the Bungoma County Education Director and Kimilili Sub-County Education Officer.

Thank you.

Yours faithfully

Matsa Oduori Waswa

Appendix 2: Pre-school Head Teachers Questionnaire (PSHQ)

QID QUESTIONNAIRE ID **[FOR OFFICIAL USE]** | | | | |

SID PRESCHOOL ID | | | | |

PRE-SCHOOL HEAD TEACHER QUESTIONNAIRE (PSHQ)

SECTION 1: INTRODUCTION AND CONSENT FROM RESPONDENT

Good morning/afternoon/evening sir/madam. You have been randomly sampled from 55 preschool head teachers in Kimilili Sub-County to participate in the survey: **Pre-School Characteristics and Learning Readiness among 5-6 Years Old in Public Pre-Schools in Kimilili Sub-County Bungoma, Kenya**. The data you provide will not cause any disadvantage to you and will be kept confidential and used only by the researcher for the purpose of this study. Data will be summarised and reported in aggregate terms. If you accept to complete this questionnaire, you will be doing so voluntarily and the researcher appreciates your time. The questionnaire is self-administered and you are requested to be as forthright and as honest as possible with your responses. It will take you about 40 minutes to complete this questionnaire. For anonymity, please do not indicate your name or preschool name on this questionnaire.

1.1 Would you like to participate in the survey? 1=YES; 2=NO | |

[IF 1=YES, PROCEED TO SECTION 2]

1.2 Kindly indicate the reason why you would not wish to participate in this survey?

1=DO NOT HAVE TIME; 2=THIS SURVEY WON'T CHANGE ANYTHING;

3=NOT INTERESTED; 6=OTHER (specify) _____ | |

[IF 1.1 IS NO, RETURN QUESTIONNAIRE TO THE SURVEY TEAM]

SECTION 2: PRE-SCHOOL TEACHING AND LEARNING RESOURCES

2.1 Indicate the total number of pre-schoolers in your pre-school

Male Female

2.2 Indicate the total number of preschool teachers in your preschool

2.3 Indicate the total number of classes in your preschool

2.4 List the total number of core course books in the following subjects:

Language Maths Art & craft Science

2.5 Indicate in square meters the total area of all your preschool classes:

2.6 Indicate the total number of flash cards in your preschool

2.7 Indicate in square meters the total area of playfield in your preschool

2.8 Indicate the total number of swings in your preschool

2.9 Indicate the total number of blocks for teaching maths in your preschool

2.10 How many visual aids do teachers prepare in a term for teaching the subjects:

Language Maths Art & craft Science

SECTION 3: PRESCHOOL HEALTH AND FEEDING PROGRAM

3.1 Does your preschool nutrition support programme ? 1=Yes; 2=No

3.2 Do all preschoolers benefit from the nutrition support program? 1=Yes; 2=No

3.3 Are food varieties for preschoolers changed regularly? 1=Yes; 2=No

3.4 Rate your preschool nutrition programme? 1=poor, 2=Average; Above average; 4=Excellent

3.5 Are teachers fully involved in the nutrition support programmes in your preschool? 1=Yes; 2=No

3.6 Are parents fully involved in the nutrition support programmes in your preschool? 1=Yes; 2=No

3.7 Does your preschool provide a special dietary: 1=Yes; 2=No

3.8 Are preschoolers allowed to bring supplementary meals? 1=Yes; 2=No

3.9 How do you rate the quality of meals in your pre-school nutrition support programmes?

1=Poor 2=Averag 3=More than average 4=Excellent

3.10 How do you rate the consistency of meals in your pre-school nutrition support programmes?

1=poor 2=Averag 3=More than average 4=Excellent

3.11 How do you rate the adequacy of meals in your pre-school nutrition support programme?

1=Adequate 2=Inadequate

3.12 Does your preschool have a licensed cook? 1=Yes; 2=No

3.13 Does your preschool have a dining hall? 1=Yes; 2=No

3.14 Does your preschool have a source of clean water? 1=Yes; 2=No

3.15 How much per term do parents contribute fo the nutrition support programme?

SECTION 4: PRESCHOOL BACKGROUND

4.1 When was your preschool established? (DD/MM/YYYY)

4.2 How do you describe the location of your preschool

1=Within municipality 2=Outside municipality

4.3 Who is the sponsor of your preschool: 1=Catholic; 2=Protestant; 3=Government; 4=Others

SECTION 5: RECCOMENDATIONS

5.1 Explain one thing that you think can be done to improve teaching and learning resources in preschools.

5.2 Explain one thing that motivates you to provide preschool teaching and learning resources in preschool.

5.3 Explain one thing that you think can be done to improve pre-school nutrition support

programmes

5.4 Explain one thing that motivates you to provide pre-school nutrition support programme

SECTION 6: PRE-SCHOOLTEACHERS CHARACTERISTICS

	6.1	6.2	6.3								6.4								6.5						
			D	D	M	M	Y	Y	Y	Y	D	D	M	M	Y	Y	Y	Y	D	D	M	M	Y	Y	
A																									
B																									
C																									
D																									
E																									
F																									
G																									
H																									
I																									
J																									

KEY

6.1 Pre-school teacher name identified by letter A,B……..J other than the pre-schoolhead teacher

6.2 Sex 1=Male; 2=Female

6.3 Date of Birth

6.4 Date of first appointment

6.5 Date of posting in the current pre-school

6.6 Total years of professional training e.g. BED graduate =16

6.7 Employment status: 1=BOM; 2=County Government

6.8 Total number of workshops attended since deployment as a pre-school teacher

6.9 The gross monthly pay of a pre-school teacher

SECTION 7: HEAD TEACHER BACKGROUND INFORMATION

[WRITE 01 FOR DD AND 07 FOR MM IF CAN'T REMEMBER]

7.1 Date of completing this questionnaire (DD/MM/YYYY)

7.2 Indicate your Sex 1=Male; 2=Female

7.3 Kindly provide your Date of Birth (DD/MM/YYYY)

7.4 What is the date of your first appointment (DD/MM/YYYY)

7.5 What is the date of your posting to current pre-school(DD/MM/YYYY)

7.6 What is your total years of professional training e.g. ECD diploma =14

7.7 Indicate total number of trainings in ECD undertaken since deployment

7.8 Indicate your Employer 1=BOM; 2=County Government

7.9 Ward of your pre-school:1=Kibingei; 2=Kimilili;3=Maeni;4=Kamukuywa

Appendix 3: Permission Letter to Collect Data from learners

Masinde Muliro University
Box 191-50100
Kakamega
Kenya

To The Parent
Through
Pre-School Head Teacher of …….. Pre-School
Kimilili Sub- County
Bungoma Kenya

Dear Parent

RE: REQUEST FOR YOUR SON/ DAUGHTER TO TAKE PART IN THE STUDY

I am a masters student at Masinde Muliro University I wish to conduct a study in which your son/ daughter's pre-schoollearning readiness abilities will be assessed in the in the first term of 2019. The purpose of the study is to investigate pre-schoolcharacteristics and

learning readiness among 5-6 years old in public pre-schools in Kimilili Sub-County Bungoma County.

The assessment will take 40 minutes and will be done at the convenience of the child within the Pre-school center. To help me, I request that you allow learners to respond to the items in the Pre-schoolers Learners Readiness Check list. I promise to keep the responses confidential.

Please note that you can withdraw your son or daughter from participation in this study if you feel uncomfortable.

I have read and understood the intention and purpose of this study. Please (tick)

I agree ☐ I Disagree ☐

That my son / daughter participate in the study
Signature ……..
Parent's Name…….
Contact ……. Email…….
For more information contact me on ……..

APPENDIX 4: PRE-SCHOOLERS LEARNERS READINESS CHECKLIST

PRE-SCHOOLERS LEARNING READINESS CHECKLIST(PLRC)

QID	**PLRC [FOR OFFICIAL USE]**								
SID	**PRESCHOOL ID**								

SECTION 1: INTRODUCTION AND CONSENT FROM RESPONDENT

Good morning/afternoon/evening pupil. You have been randomly sampled from 356 preschoolers in Kimilili Sub-County to participate in the survey: Pre-School Characteristics and Learning Readiness among 5-6 Years Old in Public Pre-Schools in Kimilili Sub County Bungoma County, Kenya. The data you provide will not cause any disadvantage to you and will be kept confidential and used only by the researcher for the purpose of this study. Data will be summarised and reported in aggregate terms. If you accept to complete this questionnaire, you will be doing so voluntarily and the researcher appreciates your time. The preschoolers learning readiness checklist is self-administered and you are requested to be as forthright and as honest as possible with your responses. It will take you about 50 minutes to complete thi checklist. For anonymity, please do not indicate your name or preschool name on this check list.

1.1 **Would you like to participate in the survey?**

1=YES; 2=NO

[IF 1=YES, PROCEED TO SECTION 2]

1.2 **Kindly indicate the reason why you would not wish to participate in this survey?**

1=DO NOT HAVE TIME; 2=THIS SURVEY WON'T CHANGE ANYTHING;

3=NOT INTERESTED; 6=OTHER

(specify) _____

[IF 1.1 IS NO, RETURN THE CHECK LIST TO THE SURVEY TEAM]

In section 2-5; indicate the preschoolers competency score with a mark ranging

from 1-5 as follows: 5=Excellent; 4=Very Good; 3=Good; 2=Satisfactory; 1=Fair

SECTION 2: LANGUAGE AND LITERACY COMPETENCIES		
2.1	**Use courteous words**	
2.2	**Tell a short story**	
2.3	**News tell about three things happening at home and school**	
2.4	**Sound letters of the alphabet**	
2.5	**Complete a simple writing pattern based on letters**	
2.6	**Read three to four letter words**	
2.7	**Write three –letter words**	
2.8	**Write own name**	
2.9	**Able to spell letters**	
2.10	**Left right orientation**	
2.11	**Sub-Total**	

SECTION 3: MATHEMATICAL COMPETENCIES

3.1	**Rate count number 1-50**	
3.2	**Match numbers with equivalent real objects/items**	
3.3	**Perform operations (put together /take away) number 1-9**	
3.4	**Compare heaviness of object**	
3.5	**Identify different shapes**	
3.6	**Recognize different coins of a given currency**	
3.7	**Sort objects according to size**	
3.8	**Tell different times of day based on daily routine.**	
3.9	**Identify numbers 1-10**	
3.10	**Identify objects that move faster**	
3.11	**Sub-Total**	

SECTION 4: CREATIVE ARTS COMPETENCIES		
4.1	**Model different objects using clay/ plasticine**	
4.2	**Paste shapes to form artwork**	
4.3	**Thread heads beads/ bottle tops or any other locally available materials**	
4.4	**Make simple structures using locally available materials.**	
4.5	**Hold a pencil, brush to draw and paint**	
4.6	**Print patterns using different types of materials.**	
4.7	**Weave different patterns using different types of locally available materials**	
4.8	**Fold paper from different objects**	
4.9	**Make patterns using pencils**	
4.10	**Take a pencil for a ride**	

4.11	**Sub-Total**		

SECTION 5: SCIENTIFIC COMPETENCIES

5.1	**Talk about how to take care of domestic animals**	
5.2	**Talk about how to take of plants**	
5.3	**Name common foods found at home**	
5.4	**Identify external parts of the body**	
5.5	**Identify objects that float and those that sink**	
5.6	**Identify substances that dissolve in**	
5.7	**Read the weather chart**	
5.8	**Gather and name items after a nature walk**	
5.9	**Identify animals found at home**	
5.10	**Identify foodstuff tastes**	

5.11	**Sub-Total**		

SECTION 6: PRESCHOOLER OVERAL COMPETENCY SCORE

6.1	**Sub-Total (2.11+3.11+4.11+5.11) divide by 4**			

SECTION 7: PRESCHOOLER BACKGROUND INFORMATION

[WRITE 01 FOR DD AND 07 FOR MM IF CAN'T REMEMBER]

7.1	**Date of assessment (DD/MM/YYYY)**							

7.2	**Indicate your Sex 1=Male; 2=Female**	

7.3	**Date of Birth (DD/MM/YYYY)**							

7.4	**Special needs noted: 1=Yes; 2=No**	

7.5	**Total number of days in a year attended by the**		

preschooler

7.6	**Means of transport use: 1=Public vehicle; 2=Private;3=Walking; 4=Bodaboda**	

Congratulations and thank you for completing the survey

Appendix 5: Document Analysis Guide

1. The pre-schoolfilled TSC informationteachers forms for Term1, 2 and 3 in 2018.
2. Pre-schoolclass registers for Term1, 2 and 3 in 2018.
3. Pre-schoolObservation check list

Resource	Available	Quantity	Accessibility	Comment
Flash Cards				
Text Books				
Charts				
Videos				
Virtual Learning Environment				
Digital Media				
Nutrition support Programmes				
Balanced Meals				
Kitchen				
Stove				
Cook				
Store				
Water Tank				
Playground				

Appendix 6: Approval of Proposal

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
Fax: 056-30153
E-mail: directordps@mmust.ac.ke
Website: www.mmust.ac.ke

P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

13th May, 2019

Matsa Oduori Waswa,
ECD/G/09/15,
P.O. Box 190-50100,
KAKAMEGA.

Dear Mr. Waswa,

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your Masters proposal entitled: ***"Pre-School Characteristics and Learning Readiness Among 5-6 Years Old in Public Pre-Schools in Kimilili- Bungoma Sub County, Kenya"*** and appointed the following as supervisors:

1. Dr. Rose Atieno Opiyo – SEDU,MMUST
2. Dr.Geoffrey Ababu Musera - SEDU,MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Education Graduate Studies Committee and Chairman, Educational Psychology Department. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Masters thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

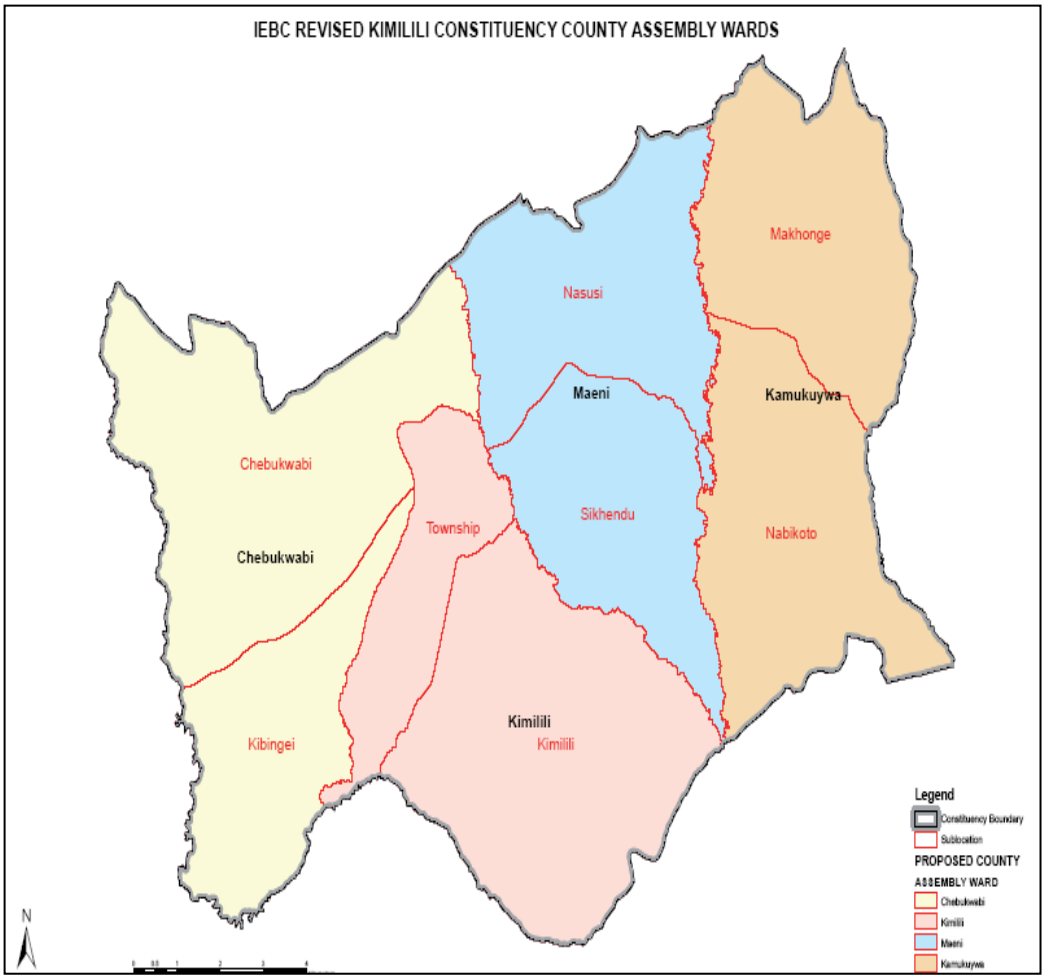
We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

DEAN
SCHOOL OF GRADUATE STUDIES
MASINDE MULIRO UNIVERSITY
SCIENCE & TECHNOLOGY

Prof. John Obiri
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

Appendix 7: Map Showing Kimilili Sub-County Bungoma Kenya.



Appendix 8 : NACOSTI Letter of Permission

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/43123/31621**

Date: **15th August, 2019**

Waswa Oduori Matsa
Masinde Muliro University of Science
And Technology
P.O. Box 190-50100
KAKAMEGA.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Pre-school characteristics and learning readiness among 5-6 years old in public pre-schools in Kimilili Bungoma Sub County, Kenya."*** I am pleased to inform you that you have been authorized to undertake research in **Bungoma County** for the period ending **15th August, 2020.**

You are advised to report to **the County Commissioner, and the County Director of Education, Bungoma County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA., MSc, MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

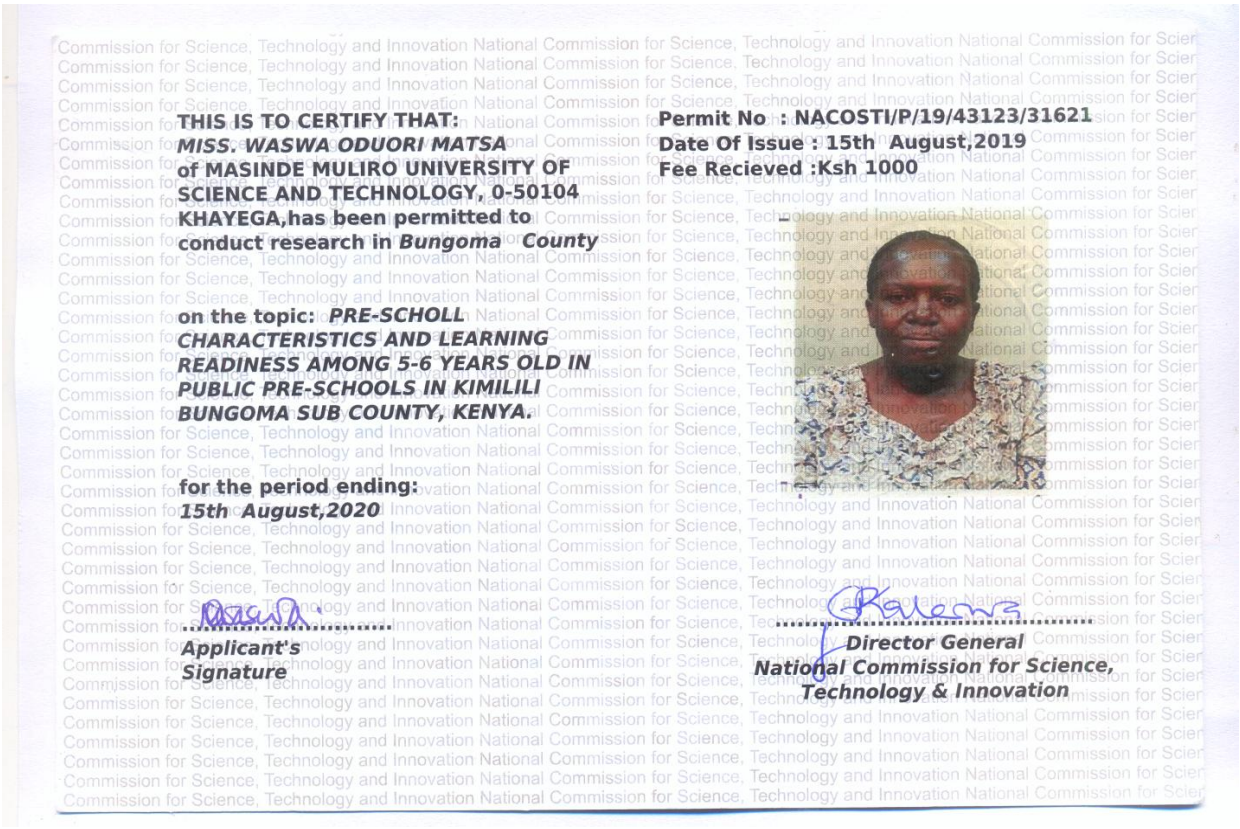
Copy to:

The County Commissioner
Bungoma County.

The County Director of Education
Bungoma County.

National Commission for Science, Technology and Innovation is ISO9001:2008 Certified

Appendix 9: Research Permit



THIS IS TO CERTIFY THAT:
MISS. WASWA ODUORI MATSA
of MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY, 0-50104 KHAYEGA,has been permitted to conduct research in *Bungoma County*

on the topic: *PRE-SCHOLL CHARACTERISTICS AND LEARNING READINESS AMONG 5-6 YEARS OLD IN PUBLIC PRE-SCHOOLS IN KIMILILI BUNGOMA SUB COUNTY, KENYA.*

for the period ending:
15th August,2020

.....
Applicant's Signature

Permit No : NACOSTI/P/19/43123/31621
Date Of Issue : 15th August,2019
Fee Recieved :Ksh 1000

.....
Director General
National Commission for Science, Technology & Innovation