

**INFLUENCE OF SCHOOL PLAYGROUND SAFETY ON PRE-SCHOOL  
CHILDREN PARTICIPATION IN OUTDOOR ACTIVITIES IN  
EKERENYO DIVISION, NYAMIRA COUNTY, KENYA**

**BEATRICE BINAH MOKAYA**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR REQUIREMENTS  
OF THE AWARD OF THE DEGREE OF MASTERS OF  
EDUCATION IN THE DEPARTMENT OF EDUCATION,  
SCHOOL OF HUMANITIES AND SOCIAL SCIENCES,  
OF AFRICA NAZARENE UNIVERSITY**

**JULY 2019**

**DECLARATION**

I declare that this document and the research proposal it describes are my original work and that they have not been presented in any other university for academic work.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**MOKAYA BEATRICE BINAH**

**13J04CMED023**

This thesis report has been submitted for examination with my approval as university supervisor.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**DR. BONIFACE MWANGI, PhD**

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**DR. SUSAN CHEPKONGA, PhD**

**AFRICA NAZARENE UNIVERSITY**

**NAIROBI, KENYA**

## **DEDICATION**

I humbly dedicate this work to God almighty for His protection and my two children, for their moral support.

## **ACKNOWLEDGEMENTS**

It is with the earnest senses of gratefulness to the Almighty Lord who has given strength and ability to complete this thesis successfully. I express my heartfelt gratitude to my supervisors Dr. Boniface Mwangi and Dr. Susan Chepkonga for their dedicated guidance and untiring support. He offered me constructive critiques and enlightenment throughout the conceptualization of this work. Special appreciation for the support I received from my family members. My heartfelt appreciation and indebtedness also goes to my children for the patience, understanding, support and encouragement during the trying period in my absence as I struggled to complete this Master's thesis.

I also extend my gratitude to the whole fraternity of Africa Nazarene University for their support throughout my learning process. I also extend my thanks to my employer for giving me the opportunity to complete my studies. To all fellow students, young and old, I say thank you. To all of you, thank you and may God bless you.

## ABSTRACT

In Kenya, pre-school playground safety has not been given much attention despite being a critical area of concern in child growth and development. This state can be linked to lack of resources, perceived low priority and negative attitude about children's play or deferral of the activity. The main purpose of the study was to examine influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County. The study objectives included: to establish the influence of playground location on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County; to investigate the influence of status of the playground on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County; and to assess the influence of playing equipment conditions on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County. The study will adopt the theory of self-efficacy to explain the relationship between the study variables. The study used a cross-sectional survey design and correlational research design. The study targeted a population of 26,259 residents in Ekerenyo division. The study sample will comprise of teachers, parents, pre-school children, and education officer. Stratified sampling, simple random sampling and purposive sampling procedures were applied in sample selection. Questionnaire for parents, focused group discussion for pre-school children and interview guide for education officer were used for data collection. The Cronbach's Alpha method was used to assess the reliability of the questionnaire. The questionnaire yielded a Cronbach's Alpha of 0.821 thus the tool was considered reliable. The researcher used content validity to ensure that the tool collected what it was intended; three experts in the field of research were consulted in order to verify whether the instruments are valid. The collected data was analysed with the help of a Statistical Package for Social Science (SPSS) version 21.0. Analysed data was presented in frequencies and percentages and summarized in tables and figures. Further, multiple regression analysis was used to test the study variables (location of the playground  $\beta=.651$ ; status of the playground  $\beta=.761$ ; and condition of the playground equipment  $\beta=.921$ ). The study recommended that the school community should ensure that the bushes around the playground are cleared and the risky areas such as swamps are restricted from children reach. The findings of this study may contribute much knowledge in the field of education and more especially on pre-school children safety at the playground in Kenya.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>DEDICATION.....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>iv</b>
<b>ABSTRACT.....</b>	<b>v</b>
<b>TABLE OF CONTENTS .....</b>	<b>vi</b>
<b>LIST OF TABLES .....</b>	<b>xi</b>
<b>LIST OF FIGURES .....</b>	<b>xii</b>
<b>OPERATIONAL DEFINITION OF TERMS.....</b>	<b>xiii</b>
<b>LIST OF ABBREVIATIONS AND ACCRONYMS .....</b>	<b>xiv</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION AND BACKGROUND OF THE STUDY .....</b>	<b>1</b>
1.0 Introduction.....	1
1.1 Background to the Study.....	1
1.2 Statement of the Problem.....	5
1.3 Purpose of the Study .....	6
1.4 Study Objectives .....	7
1.5 Research Hypotheses .....	7
1.7 Significance of the Study .....	7
1.8 Scope of the Study .....	8
1.9 Delimitation of the Study.....	9
1.10 Limitations of the Study.....	9
1.11 Assumptions of the Study .....	10
1.12 Theoretical Framework.....	10

1.13 Conceptual Framework.....	13
<b>CHAPTER TWO .....</b>	<b>15</b>
<b>LITERATURE REVIEW .....</b>	<b>15</b>
2.1 Introduction.....	15
2.2 Empirical Review of Literature .....	15
2.2.1 Influence of playground location on pre-school children participation in outdoor activities .....	15
2.3.2 Influence of status of the playground on pre-school children participation in outdoor activities .....	17
2.3.3 Influence of playing equipment on pre-school children participation in outdoor activities .....	20
2.4 Summary and Knowledge Gap .....	23
<b>CHAPTER THREE .....</b>	<b>26</b>
<b>RESEARCH DESIGN AND METHODOLOGY .....</b>	<b>26</b>
3.1 Introduction.....	26
3.2 Research Design.....	26
3.3 Research Site.....	27
3.4 Target Population.....	27
3.5 Sample Size and Sampling Procedures.....	28
3.5.1 Study Sample Size .....	28
3.5.2 Sampling Procedures .....	29
3.5.3 Sample Frame Matrix .....	30
3.6 Data collection Measures .....	31
3.6.1 Development of Instruments.....	31

3.6.2 Pilot Testing of Research Instruments .....	32
3.6.3 Instrument Reliability .....	33
3.6.4 Instrument Validity .....	34
3.7 Data Processing and Analysis.....	34
3.8 Legal and Ethical Considerations .....	35
<b>CHAPTER FOUR.....</b>	<b>37</b>
<b>RESULTS AND ANALYSIS .....</b>	<b>37</b>
4.1 Introduction.....	37
4.2 Study Demographic Data.....	37
4.2.1 Demographic Data of Parents .....	37
4.2.2 Demographic Data of Pre-school Teachers .....	38
4.2.3 Demographic Data of Pre-school Children.....	39
4.2.4 Demographic Data of Education officer .....	39
4.3 Presentation of the Study Findings .....	40
4.3.1 Measurement of Playground Location.....	40
4.3.2 Measurement of Status of the Playground.....	47
4.3.3 Measurement of Condition of Play Equipment .....	53
4.3.4 Measurement of Pre-school Children Participation in outdoor Activities.....	59
4.4 Regression Model .....	62
<b>CHAPTER FIVE .....</b>	<b>66</b>
<b>DISCUSSION, SUMMARY, CONCLUSION AND RECOMMENDATION .....</b>	<b>66</b>
5.1 Introduction.....	66
5.2 Discussion.....	66



5.2.1 Influence of Playground Location on Pre-School Children Participation in Outdoor Activities in Ekerenyo Division, in Nyamira County.....	66
5.2.2 Influence of the Status of the of Playground on Pre-School Children Participation in Outdoor Activities in Ekerenyo Division, in Nyamira County.....	68
5.2.3 Influence of Playing Equipment Conditions on Pre-School Children Participation in Outdoor Activities in Ekerenyo Division, in Nyamira County.....	71
5.3 Summary of the Main Findings .....	72
5.4 Conclusions.....	74
5.5 Study Recommendations .....	74
5.5.1 Recommendations for Playground Location .....	75
5.5.2 Recommendations for Status of the Playground.....	75
5.5.3 Recommendations for Playing Equipment Conditions.....	76
5.5.4 Recommendations for Policy.....	77
5.5.5 Recommendations for Further Research.....	77
<b>REFERENCES.....</b>	<b>78</b>
<b>APPENDICES.....</b>	<b>84</b>
<b>APPENDIX I: QUESTIONNAIRE FOR PARENTS.....</b>	<b>84</b>
<b>APPENDIX II: QUESTIONNAIRE FOR TEACHERS.....</b>	<b>89</b>
<b>APPENDIX III: INTERVIEW SCHEDULE FOR EDUCATION OFFICERS.....</b>	<b>94</b>
<b>APPENDIX IV: FOCUSED GROUP DISCUSSION FOR CHILDREN.....</b>	<b>95</b>
<b>APPENDIX V: OBSREVATION CHECKLIST.....</b>	<b>97</b>
<b>APPENDIX VI: SCORES OF PLAYGROUND SAFETY BY SCHOOL.....</b>	<b>99</b>
<b>APPENDIX VII: LETTER OF INTRODUCTION FROM ANU.....</b>	<b>100</b>
<b>APPENDIX VIII: RESEARCH AUTHORISATION LETTER FROM MOE.....</b>	<b>101</b>

<b>APPENDIX IX: RESEARCH AUTHORISATION LETTER FROM NACOSTI.</b>	<b>101</b>
<b>APPENDIX X: RESEARCH PERMIT FROM NACOSTI.....</b>	<b>103</b>
<b>APPENDIX XI: MAP OF THE STUDY AREA .....</b>	<b>104</b>

**LIST OF TABLES**

<b>Table 3.1:</b> Sample Frame Matrix .....	30
<b>Table 3.2:</b> Reliability Test.....	33
<b>Table 4.1:</b> Parents’ demographic data .....	38
<b>Table 4.2:</b> Teachers’ demographic data .....	39
<b>Table 4.4:</b> Teachers’ perception on playground location.....	44
<b>Table 4.5:</b> Parents’ perception on playground location .....	48
<b>Table 4.6:</b> Teachers’ perception on status of playground. ....	51
<b>Table 4.7:</b> Teachers’ perception on condition of the play equipment.....	55
<b>Table 4.8:</b> Teachers’ perception on condition of the play equipment.....	57
<b>Table 4.9:</b> Pre-school children participation in schools with good playground safety .	60

## LIST OF FIGURES

<b>Figure 1.1:</b> Conceptual framework of the playground safety and pre-school children participation in outdoor activities .....	14
<b>Figure 4.1:</b> Influence of playground location on pre-school children participation in outdoor activities.....	41
<b>Figure 4.2:</b> Playground location and pre-school participation in outdoor activities.....	43
<b>Figure 4.3:</b> Status of the playground.....	47
<b>Figure 4.4:</b> Influence of status of the playground on pre-school children participation outdoor activities.....	50
<b>Figure 4.5:</b> Influence of condition of play equipment on pre-school children participation outdoor activities .....	54

**OPERATIONAL DEFINITION OF TERMS**

<b>Outdoor:</b>	Outside the classroom.
<b>Outdoor-activities:</b>	Tasks a child is involved in outside the classroom for learning purposes or physical fitness.
<b>Participation:</b>	Engagement, involvement or taking part in outdoor activities.
<b>Playground:</b>	Outdoor environments children use for play, fun and enjoyment and to gain experiences that will enhance their physical, intellectual, social and emotional development.
<b>Pre-school</b>	School for 3-5 years old children
<b>Pre-school children</b>	These are children who are between three to five years of age.
<b>School playground:</b>	The term is used in the study as an open environment within or outside school compound where children carry out physical exercise outside the classroom.

**LIST OF ABBREVIATIONS AND ACCRONYMS**

<b>ASTM</b>	American Society for Testing and Materials
<b>CPSC</b>	Consumer Product Safety Commission
<b>CRC</b>	Convention on the Rights of the Child
<b>ECD</b>	Early Childhood Development
<b>ECDSSGK</b>	Early Childhood Development Service Standard Guidelines for Kenya
<b>IEBC</b>	Independent Electoral and Boundaries Commission
<b>KIE</b>	Kenya Institute of Education
<b>MOE</b>	Ministry of Education
<b>NACOSTI</b>	National Commission for Science, Technology and Innovation
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>SPSS</b>	Statistical Package for the Social Sciences
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>UNICEF</b>	United Nation Children’s Education Fund
<b>UNICEF</b>	United Nations International Children’s Education Fund
<b>USA</b>	United States of America

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND OF THE STUDY

#### 1.0 Introduction

This chapter gives an overview of the study, specifically the outline of the background to the study, statement of the problem, purpose of the study, objectives of the study, research questions, hypothesis that guided the study, significance of the study, limitations and delimitations of the study, theoretical framework, conceptual framework and operational definition of terms.

#### 1.1 Background to the Study

Injury prevention plays a key role in keeping children safe, but emerging research suggests that imposing too many restrictions on children's outdoor risky play hinders their development. The current generation holds that children's diminishing engagement in outdoor play is influenced by parental and societal concerns (Sheridan, 2013). It is necessary to allow children to play in a safe environment as it is a necessary ingredient for healthy-child development. Thus, there is need to optimal strategies for keeping children as safe as necessary, while in the playground.

Children use the playground as a learning environment with corresponding behavioral consequences that enable them to digest both pleasant and unpleasant experiences by freely using their senses of taste, smell, touch, sight and hearing. Consequently, children start to take control of their feelings in relation to their experiences (Olgan & Kahriman-Ozturk, 2011). School playgrounds are the designated outdoor areas located in the school where children play or participate in sports and games with or without stationary and manipulative equipment (Johnson, Christie & Wardle, 2015). According to Moore (2012), injury prevention plays a key role in promoting

children's safety, which is considered to involve keeping children free from the occurrence or risk of injury while in the playground. In essence, limitations on children's play opportunities may be fundamentally hindering their health and well-being. School playgrounds give children a chance to build active, healthy bodies and develop their decision-making, negotiating, and motor skills (Hyndman, Bredon & Telford, 2015). Becoming more aware of the facilities for and barriers to children's active play seems vital for effective school playground interventions that encourage and sustain these developmental benefits (Kriemler et al., 2011). In addition, active play helps children hone their social and cognitive skills through the informal curriculum of school playground activities (Pellegrini & Holmes, 2016; Hyndman, Amanda, Caroline & Amanda, 2012).

Globally, a playground safety has in the recent years had serious international attention of early childhood professionals and officials especially in the United States of America (USA), Canada, Europe, Australasian Pacific Rim and Argentina (Macharia, 2012). These countries have developed guidelines and standards for public playgrounds from which the integration of safety standards in design, installation and maintenance of preschool playground space, equipment and surfacing depths of materials beneath and around the play equipment can be inferred. The report further revealed that the USA, for instance, has developed the American Society for Testing and Materials (ASTM) and the US Consumer Product Safety Commission (CPSC) guidelines. Additionally, in 1990's the Canadian Standards Association developed guidelines for public playgrounds.

In the United States, structured play is organized and characterized by specified locations, time schedules, and adult supervision (Sener, Copperman, Pendyala & Bhat, 2008). This play includes team sports, racquet sports, and fitness classes (Salmon &



Abby, 2013). Additionally, children in elementary schools in Western countries who attend in general at least three classes a day, five days a week, thirty-nine weeks a year, for seven years; engage in active play on school playgrounds during more than four thousand school breaks, including morning and lunchtime recesses. However, in countries such as Hungary in Europe or Taiwan in Asia, school breaks occur less frequently (Pan, 2008; Ridgers, Gareth & Thomas, 2010). Active play on school playgrounds makes up to 50 percent of children's recommended daily physical activity (Tudor-Locke, Charles, Aaron & Robert, 2012).

In Africa, the conditions of the playgrounds are not adequately favorable to encourage pre-school children outdoor activities. For instance, according to the World Health Organization (2014), between 16-40% of children aged 6 to 12 years old in Africa are affected by dental trauma due to unsafe playgrounds. Trauma may affect hard dental tissues or tooth supporting tissues which in turn could affect the occlusion, functions, aesthetics and emotions of children when there is dental fracture, displacement or avulsed teeth (Cortes, Marcenes & Sheiham, 2012; Adekoya – Sofowora, Bruimah, & Ogunbodede, 2014). Some of the schools with better supervision of children during play; with presence of teachers in playgrounds and an adequate staff-to-student ratio have reported lower incidence of dental injuries (Murray, 2012; Bhayya & Shyagali, 2013; Marcenes, Caglar, Kuvvetli & Sandalli, 2013).

A survey conducted by Eigbobo, Nzomiwu, Amobi, and Etim (2014) in Nigeria on standard of playgrounds and safety measures found that majority of schools had playground yet guideline given by the Ministry of Education was not observed. One of the objectives of a healthful school environment is to provide safe and clean recreational facilities in schools such as playgrounds (Federal Ministry, 2014). According to the

guideline, the school playground is expected to be safe but it was observed that the sizes of all the school playgrounds were below the recommended standard in the school health policy. In this study, 81.7% schools had playgrounds out of which 56.5% were public schools. Also, above two thirds (69.7%) of the schools did not have lush fields for play; in Lagos and Enugu most of the playground surfaces were bare earth. However, the playground surfaces in Port Harcourt schools were mostly (87.2%) of grass.

Kenya is a signatory to the various international frameworks that uphold the inalienable rights of the child to safe and secure school environments. The legislation of the rights on young children's safety can be inferred from the country's Constitution (2010) Bill of Rights (Cap 4). The government of Kenya has also translated and enacted the recommendations of the global frameworks into the Children's Act No. 8 of 2001 as a legal instrument to safeguard and promote the rights and welfare of children in Kenya. Article 23(2) (a) and (b) of the Children's Act, for instance, emphasizes the critical importance of safe and secure environments to enhance participation in learning activities that include outdoor play. For instance, section 2(a) insists of the duty to maintain the child and in particular to provide him with adequate diet, shelter and clothing, and education and guidance. On the other hand Section 2(b) expresses on the duty to protect the child from neglect, discrimination and abuse.

To operationalize the Children's Act, the Ministry of education in collaboration with the United Nations International Children's Education Fund (UNICEF) and through the Kenya Education Sector Support Programme (KESSP 2005-2010) developed the Early Childhood Development Service Standards Guidelines for Kenya (ECD-SSGK, 2009). The guidelines recommend outdoor play-spaces that are large enough for the number of children in the pre-school, including those with special needs to play and run

around safely.

In the rural, urban, suburban and slum areas, schools experience apathetic safety levels and constraints. Additionally, there are additionally inadequate, and poorly constructed or maintained playgrounds equipment and the most basic play materials (UNESCO, 2010). The notion of pre-school as safe havens for children, as recommended by WCEFA (2010) and WEF (2011), is thus therefore under-looked by these inadequacies. These experiences result to alienated learners, low staff morale, reduced activity time, distraction from learning and, health problems for teachers and the pre-schoolers in Kenya (Cash, 2013). According to Dahlberg, Moss and Pence (2009) in schools without good playgrounds, children might spend a lot of their time and energy dwelling on their fears and lack confidence to actively engage in play activities rather than learning tasks. It is therefore evident that playground safety has not been given much attention in Kenya.

In Ekerenyo Division, Nyamira County, playgrounds within the public and private pre-school are characterized by inadequate play spaces, inadequate or poorly designed and maintained equipment and surfaces that restrict children's spontaneous play. These contribute to minor injuries among children, lack of interest to take part in outdoor activities, and tensions over long grasses and bushes the could be inhabitants of snakes among others. Therefore, there is need to ensure the safety of the playground so as to encourage more participation that is a catalyst to child's health development and mental growth.

## **1.2 Statement of the Problem**

In Kenya, pre-school playground safety has not been given much attention despite

being a critical area of concern in child growth and development. The play spaces should contain adequate age and developmentally appropriate equipment and materials, safe play area surfaces and servicing and maintenance of play materials once in a term. However, government policy documents on school safety make no direct mention of pre-school safety and such information has therefore to be inferred from Early Childhood Development Service Standards Guidelines for Kenya (ECD-SSGK, 2009). The ECD institutions more especially in rural areas like Ekerenyo Division in Nyamira County, are characterized by poor physical conditions showing neglected maintenance. This state can be linked to lack of resources, perceived low priority and negative attitude about children's play or deferral of the activity.

A handful of studies have revealed that learning environments are made up of physical, psychosocial and service provision elements (Mwamba, 2013; Muthoni, 2013; OECD, 2013). A good playground is an indicator of physical learning environment. Similarly, Fuller (2009) asserts that learning environment must nurture children's capacity to engage deeply in individual and group activities. However, Abiero (2013) assert that most pre-school education programs suffer from poor quality services, reflected in public pre-schools in Ekerenyo Division in Nyamira County. Thus, it is against this background that this study sought to investigate the influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County.

### **1.3 Purpose of the Study**

This study sought to examine the influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County, Kenya

## 1.4 Study Objectives

- i. To establish the influence of playground location on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County;
- ii. To investigate the influence of the status of the playground on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County;
- iii. To assess the influence of playing equipment conditions on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County;

## 1.5 Research Hypotheses

**Ho1:** There is no statistically significant influence between playground location and pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County;

**Ho2:** There is no statistically significant influence between the status of the playground and pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County;

**Ho3:** There is no statistically significant influence between playing equipment condition and pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County;

## 1.7 Significance of the Study

The significance of the study should reflect on the extent of the contribution made by the study to improve our understanding, to change a concept or to promote a new hypothesis in a particular field of research (Maillard, 2013). This study may provide a clue for students and teachers towards breaking down the problem of playground safety in ECD centers so that playground performance can be improved on. Further, the results

may be handy to the ministries of education in formulating better and clearer policies in improvement of the education system, especially reconsidering that play plays a major role on a child's development. Safety and participation in outdoor activities for children are human rights issues. The study findings will therefore be significant to the Ministry of Education (MOE), which is responsible for policy formulation, to plan programmes that integrate playground safety into early childhood programmes.

The findings of the study may be used by the educators to better teaching methods among the pre-school pupils; they may also guide education officers, policy makers and head teachers to come up with new strategies on improving children's learning capacities through safe playgrounds. Further, the study findings may also make a significant contribution to existing knowledge on playgrounds that could be used in development of comprehensive pre-school strategies and policies where the overall purpose is to promote, protect and improve the safety status of pre-school children while in the playgrounds. The future scholars may also use the study findings as the basis of their studies in the field of playground safety measures and pre-school children participation in outdoor activities.

### **1.8 Scope of the Study**

The scope of the study basically means all those things that are covered in the research project. It defines clearly the extent of content that was covered by the means of the research in order to come to more logical conclusions and give conclusive and satisfactory answers to the research (Admin, 2014). This study only covered the following variables: location of the playground, status of the playground, condition of the playing equipment and participation in outdoor activities by the pre-school children. The target population included all pre-school educators, education officials and parents with pre-school children in Ekerenyo division, in Nyamira County and not any other place.

Despite that there are many other playground safety factors that can affect the participation of the children in outdoor activities, the researcher narrowed down the three study variables because of the study location and the capacity of the school community to provide a safe playground. Therefore, among the variables to be investigated in the study were such as playground location, the status of the playground and the condition of the playing equipments can be influenced by the school community without necessarily obtaining the government support.

### **1.9 Delimitation of the Study**

Delimitation in research refers to choices that the researcher makes for the study that are under the control of the researcher (Mugenda & Mugenda, 2012). These choices may include: study variables, population traits among other similar considerations. The study delimitation is the choice of problem itself and it is important to note that there are other similar and related problems that could have been picked to study on, but the researcher only concentrated on influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County.

### **1.10 Limitations of the Study**

A limitation would be anything beyond the ability of the researcher to control that may affect the internal validity of the study (Wanjohi, 2014). There were a number of limitations that were encountered in this study. Amongst these limitations include; lack of corporation among the study respondents since the respondents feared that their responses can be taken as evidence which might bring a negative impact to their job because the study topic is sensitive. Thus, for this reason the respondents feared taking part in the study, more especially teachers as they might have thought analysis of the

information they provided would be used to judge them. Therefore, the researcher explained the purpose of the study, academic purpose, to all the respondents and obtained consent from the respondents by building a good rapport with them.

### **1.11 Assumptions of the Study**

This study was carried out with the following assumptions: All schools have outdoor activities, all the respondents are aware of the safety standards for pre-schoolers, playground safety influences children's participation in outdoor activities; all the respondents sampled in every school came from and within the division and therefore have similar condition, the respondents who were involved in the study gave honest responses, and that the safety practices awareness regulations are equally known to all the teachers and administrators in the division.

### **1.12 Theoretical Framework**

A theoretical framework consists of concepts, together with their definitions, and existing theory/theories that are used for your particular study (Tavallaei & Mansor, 2010). The theoretical framework must demonstrate an understanding of theories and concepts that are relevant to the topic of research topic. The study used the theory of self-efficacy to explain the relationship between the study variables. This theory was invented by Albert Bandura (1991) and it posits that when a situation is perceived as threatening, the resultant behavior is dependent on an individual's perception of his/her ability to deal positively with that threat. Additionally, Albert Bandura argues that self-esteem can act as a mitigating factor for anxiety-producing circumstances. When safety-anxious learners see situations as threatening, there is an adverse effect on learning. Because highly anxious individuals are often in a state of divided attention, their ability to concentrate



and being successful at learning tasks is hampered ultimately lowering their performance (Kim & Baylor,2007).

According to Bandura (1991), for learning to take place, an individual must pay attention to the modeled behaviour. This is mainly determined by individual's personality which involves, perceptual, and cognitive, past experience and how much the modeled behaviour arouses the observer. Another factor that influences a person's attention is the status of the behaviour or event being modeled. Here an individual will tend to ask whether the modeled behaviour is relevant or of any value to the observer.

The other cognitive process involves retention; the theory posits that for an individual to perform or reproduce what has been observed, the storing of the modeled behaviour is of great importance. Moshe (2010), in his analysis of self-efficacy theory asserts that retention involves representation of the behaviour to be learned in verbal or image form for long term memory. The third stage is the reproduction or performance stage. The stage involves physical ability to perform the observed or desired behaviour. The final cognitive process of observational learning involves the reinforcement that one gets from performed behaviour. According to Bandura (1991), the decision to reproduce or refrain from performing the observed behaviour depends on the motivation and expectations of the observer. Moshe (2010) assert that reinforcement forms the basis for understanding and predicting what individuals do or will do. Bandura (1991) adds that positive reinforcement increases the probability that the same action or behaviour was repeated in similar circumstances while negative reinforcement will deter the repeat of the same behaviour.

According to this theory, self-efficacy determines how people think, behave and feel in relation to a particular situation in life. The theory argues that people with a strong

sense of self efficacy view challenging problems as tasks to be mastered, develop deeper interest in the activities in which they participate, form a strong sense of commitment to their interest and activities, and they recover quickly from setbacks and disappointments (Moshe, 2010). This is totally opposite to people with weak sense of self-efficacy, who avoids challenging tasks, believe that difficult tasks and situations are beyond their capabilities, focus on personal failings and negative outcomes and quickly lose confidence. The theory outlines four major sources of self-efficacy as vicarious experiences, social modeling, verbal persuasion and psychological responses which are also referred to as emotional arousal.

The study has the following strengths: For instance, Blair, Jones, and Simpson (1968) contended that a highly significant contribution of the social learning theory to the change of behaviour is contained in the careful details with which it presents the role of the environment in the behavioural change. They added that transformation of behaviour as a result of experience is a crucial consideration for any adequate theory of personality development, such as the theory of self-efficacy. Further, Bee (1992) argued that, the theory can easily handle inconsistencies in the child's behaviour that is reinforced at school but not at home. This implies that given the right environment any behaviour can be changed thus one would not write anyone off with this theory. In relation to this study it means that there is opportunity to improve the intellectual capacities of the children by ensuring that the playgrounds are safe for pre-school children to use them. However, the theory places more weight on the people and community that the child is part of, and not enough weight is put on how the child handles and processes new information (Moshe, 2010).

Thus, this theory has been applied because if the children are provided with the right environment to carry out their outdoor activities while at school, their learning behaviors' and mental development was changed for better which is in line with the study principle that reveals that given the right environment, any behaviour can be changed for the better. Additionally, the final children's cognitive process of observational learning depends on the reinforcement that one gets from performed behaviour that mostly come from the outdoor activities performed in the playground in the school (Bee, 1992). This implies that if the safety of the playground is maintained, this may have a positive influence on the children's learning behaviors and intellectual development.

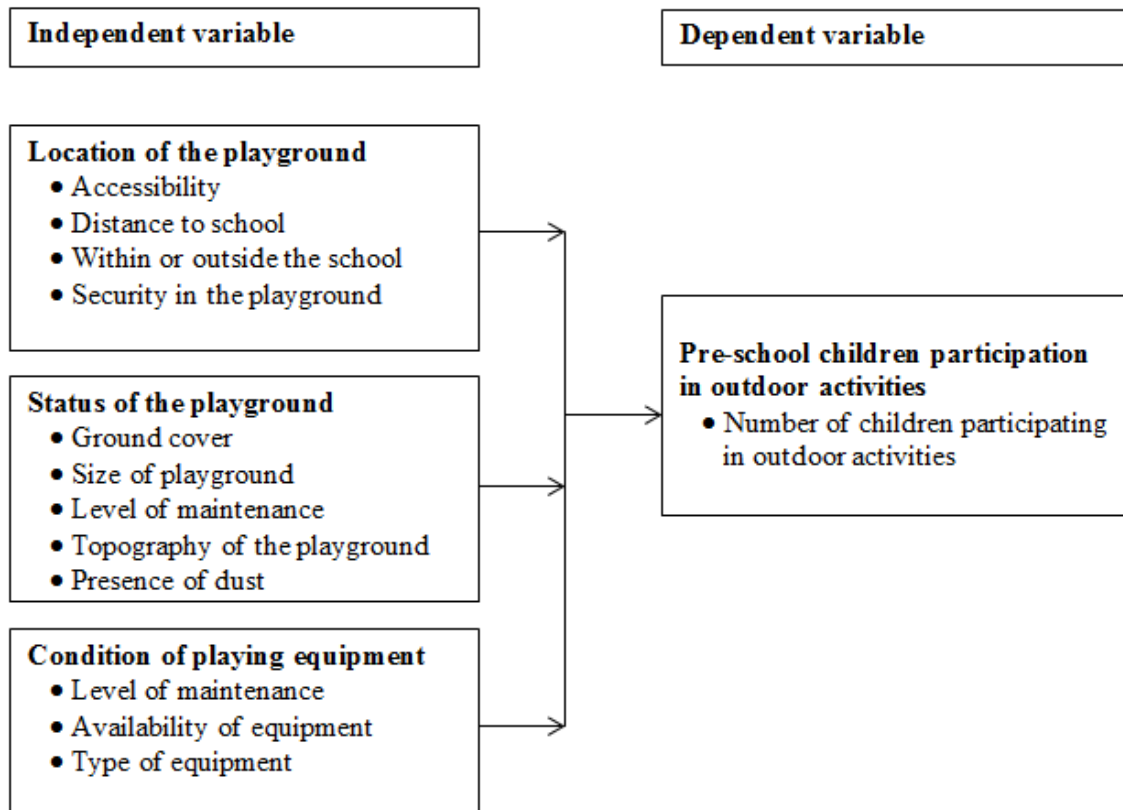
### **1.13 Conceptual Framework**

Miles and Huberman (2012) infer that a conceptual framework is a visual or written product, one that explains, either graphically or in narrative form, the key factors, concepts, or variables- and the presumed relationships among them. The study sought to establish the association between the study independent variables: location of the playground, status of the playground and the condition of the playing equipment, and the study dependent variable: pre-school children participation in outdoor activities.

The study dependent variable: pre-school children participation in outdoor activities, was measured using the number of children participating in outdoor activities in the pre-schools in Ekerenyo division.

The influence of playground location on children's participation in outdoor activities was measured through: accessibility, distance to school, within or outside the school, and security in the playground among others. On the status of the playground, the research used the following indicators to measure the variable: ground cover, size of playground, level of maintenance, topography of the playground, and presence of dust in

the playground. Additionally, to measure the condition of the playing equipment, the researcher used the following indicators: level of playground maintenance, availability of playing equipment and the type of equipment available for the children in the playground. All these variables are believed to affect the pre-school participation in outdoor activities while at school to some extent. Figure 1.1 shows a conceptual framework of the playground safety and pre-school children participation in outdoor activities.



**Figure 1.1 Conceptual Model of the Playground Safety and Pre-School Children Participation in Outdoor Activities**

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter presents a review of literature related to the influence of school playground safety on pre-school's children participation in outdoor activities. The study sought to investigate a number of preschool playground safety variables that influence children participation in outdoor activities in Ekerenyo division, Nyamira County, Kenya and was based on research objectives.

#### **2.2 Empirical Review of Literature**

This section covers the previously conducted studies in the area of influence of playground safety on pre-school participation in outdoor activities. This part of the study was organized according to the study objectives.

##### **2.2.1 Influence of playground location on pre-school children participation in outdoor activities**

The location of the schools' playground plays a significant role on pre-school children participation in outdoor activities to a great extent (UNICEF, 2010). This might be attributed to risks such as accidents, especially to learners who might not be having a playgroup in their own compound. This may also lead to society's fears of the risks that lurk outside for children from ponds to stranger danger may be overwrought and irrational, but anxiety about traffic is more logical. The growth in road traffic is probably the decisive factor preventing children playing on the streets as they once did. Therefore, there was need to establish the influence of playground location on pre-school children participation in outdoor activities.

In a study carried out by Jansson (2015) on children's perspectives on playground use as basis for children's participation in local play space management, children's perspectives on playground use were studied through group interviews in two Swedish towns and were also compared with the understanding among the local park workers. The results indicate that children's perspectives on playground use, particularly manipulation, should be implemented more fully into management work. Children's participation in on-site management activities is discussed as a way of making playgrounds more adapted to children's use and perspectives. However, the findings of this study cannot be generalized into other studies due to geographical and methodological differences. This is because the study was carried out in Sweden. Thus there is need for the current study to examine influence of school playground safety on pre-school's children participation in outdoor activities.

Caro, Altenburg, Dedding and Chinapaw (2016) carried out a study on children's perspectives of activity friendly school playgrounds; a participatory research was conducted with children as co-researchers, framed as a project to give children the opportunity to discuss their views and ideas about their school playgrounds. The study found that improving activity-friendliness of playgrounds requires an integrated and multi-faceted approach. It also indicates that children, as primary users, are able to identify barriers for active play that are easily overlooked, unknown or differently perceived by adults. This study helps in identifying the structural involvement of children in designing, developing and improving playgrounds may increase children's' active play and consequently physical activity levels during recess. However, the findings of the previous study cannot be generalized because it was a case study. Thus, the current study

will make use of a cross-sectional survey design and correlational research design enabling its findings to be more reliable and generalizable.

### **2.3.2 Influence of status of the playground on pre-school children participation in outdoor activities**

Many children wish their physical environment provided more opportunities for active play on school playgrounds (Hyndman et al., 2012). For instance, in Australia, school playgrounds contain many natural features such bushy areas, grassed areas, trees, and ponds or streams as well as built structures that include but not limited to fixed playground equipment, playground markings, sports equipment, sandpits, shade sails, asphalt and concrete play areas (Chancellor, 2013). Unlike in Australia which is a developed nation, Kenya is still struggling to provide safe playgrounds among the pre-school children. Thus, there is need to assess the influence of status of the playground on pre-school's children participation in outdoor activities in Kenya.

A study carried out by Hyndman, Benson and Telford (2014) on effects of playground safety on pre-school children academic performance used a descriptive research design. The study used only a questionnaire method for data collection and analysis. The study revealed that there is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to enhance pre-school children academic performance. Thus, the current study sought to establish the influence of playground status on pre-school children participation in outdoor activities in Ekerenyo division in Nyamira County. Further, the current study used both qualitative and quantitative data collection tools to ensure that the results are more reliable and free from biases.

Another study conducted by Reimers and Knapp (2017) on playground usage and physical activity levels of children based on playground spatial features, in Germany used an exploratory research design. Playground spatial features were captured using an audit instrument and the playground manual of the town. The study revealed that the number of children using the playgrounds and the number of children actively playing in them were higher in the playgrounds with more varied facilities. The current study sought to investigate the extent to which school playground status influences pre-school's children participation in outdoor activities in Ekerenyio division, Nyamira County, Kenya.

Article 31 of the Convention on the Rights of the Child (2013) says children have a right to play in a healthy, safe or secure and nurturing environment, where they can acquire meaningful experiences through participating in outdoor activities regardless of physical or social background. Consequently, outdoor play space must contain their enough space for all children to explore, discover, experiment, manipulate, reconfigure, expand, influence, change, push their limits and create the basic information about the world while at the same time responding to their need for safety. The play areas must be large enough for the number of children in the pre-school to play and run around safely, Early Childhood Development Service Standards Guidelines for Kenya (2013). Less than 0.125 acres for pre-school grounds in urban slums, a minimum of 0.125 acres in urban areas; 0.25 acres in rural high population density areas and 0.5 acres in rural low density areas.

The Outdoor Play Area Standard Manual for Centre Based Child Care (2011) recommends that the ideal play space per child should be seven square meters inclusive of fixed equipment and protective surfacing zones. It stimulates children positively and motivates them to seek more activities to involve themselves in (Curtis, 2012). If the



space is too large or poorly designed it will lead to reduced attention span, more supervision and more non-developmental (or down-time), noise, confusion, aimless wondering and under use of play spaces (Moore, 2014).

Clayton (2010) infers that a safe playground should be marked. This involves separating or zoning play areas into activity- and equipment-based areas from other spaces that serve other purposes like car parks and school garden posits that if the play area is clearly defined with distinct boundaries and obvious pathways, children used it more appropriately and successfully. Pre-schoolers at different ages and stages of development have different needs and abilities. Their development is a rather complex process that involves a mixture of progressive changes in physical (fine and gross motor skill), cognitive, emotional, social, moral, spiritual aspects (Berk, 2013).

According to Article 31 of the CRC (2013), children have a right to engage in play and recreational activities appropriate to their ages. McCarthy (2010) states that scaling down the physical world makes it a little easier for the children to practice necessary skills, such as discoveries that are more practical than the statements made in the classroom during activities. Failure to provide developmentally appropriate experience for children during the formative year can inhibit the acquisition of motor and perceptual skills.

In a study carried out by Broekhuizen, Scholten and Ide Vries (2014) on the value of (pre)school playgrounds for children's physical activity level: a systematic review, 13 experimental and 17 observational studies have been summarized of which 10 (77%) and 16 (94%) demonstrated moderate to high methodological quality, respectively. In contrast to experimental studies, significant associations were also found between children's physical activity and a decreased playground density and increased recess duration. To

confirm the findings of this review, researchers are advised to conduct more experimental studies with a randomized controlled design and to incorporate the assessment of implementation strategies and process evaluations to reveal which intervention strategies and playground characteristics are most effective. There is need for a similar study to be carried by examining the playground safety on pre-school's children participation in outdoor activities in Ekerenyo division, Nyamira County, Kenya.

Basing on the study done by Hamer, Aggio, Knock, Kipps, Shankar and Smith (2017) on the effect major school playground reconstruction on physical activity and sedentary behaviour. Five experimental and two control schools from deprived areas of inner city London were recruited at baseline. Main outcome was physical activity and sedentary time measured from objective monitoring (Actigraph accelerometer) at one year follow up. Pupils' impressions of the new playground were qualitatively assessed post construction. A total of 347 pupils (mean age = 8 years, 55% boys; 36% Caucasian) were recruited into the study at baseline; 303 provided valid baseline Actigraph data. It was revealed that there were significant age interactions for sedentary ( $p= 0.002$ ) and light intensity physical activity ( $p = 0.008$ ). This study contributes to the current study by providing an insight on how major playground reconstruction had limited effects on physical activity, but reduced sedentary time was observed in younger children. There is need for a similar study to be carried out with respect to Ekerenyo division, Nyamira County, Kenya.

### **2.3.3 Influence of playing equipment on pre-school children participation in outdoor activities**

According to the Consumer Product Safety Commission (CPSC, 2010) young children's playground composed of age appropriate equipment scaled to their sizes,

abilities and developmental level, for instance, handles should be smaller; bridges and platforms should be low and have guard rails and hand rails; slides should be short (under 4 feet), and stairs should have gradual (not steep) incline. A playground like this provides opportunities for children to engage in activities that satisfy their inquisitive status and innate desire to discover and be creative. The current study sought to establish the influence of condition of the play equipment on preschool children participation in outdoor activities in Ekerenyo division in Nyamira County.

According Malone and Tranter (2013), children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs. Play equipment include play structures like bars and domes for climbing, sliding boards, ladders and parallel boards, knotted ropes, climbing poles, bridges, platforms and swings, walking boards, balance boards and sand boxes. There are also consumables like the toys for play, sand box materials (funnel, strainers and empty plastic containers) wheel toys (tricycles, child size vehicles and wagons) and water play materials.

In a study done by Macharia (2012) on a study on the influence of school playground safety on the participation of preschool children in outdoor activities in Central Division, Naivasha District, Kenya, and the study adopted a descriptive survey design. Self-completion questionnaires were filled by 30 pre-school head teachers (HTs) and 29 teachers. The results of the study showed that despite the many constraints that make it impossible to ensure total playground safety, children continue to use the playgrounds for outdoor activities. The results also revealed that a combination of adequate, orderly and well organized playground spaces, developmentally-appropriate play equipment, proper playground surfacing, regular and adequate playgrounds

maintenance inspection and properly organized supervision of children in the playground enables preschool children to effectively participate in outdoor activities. The study makes both institutional and policy recommendations and further suggests its replication in a wider scale or on playground as a teaching and learning tool. However, no such study has been carried out in Nyamira County. Thus, there is need for the current study to examine the influence of school playground safety on pre-school's children participation in outdoor activities in Ekereny division, Nyamira County, Kenya.

Another study was carried out Gordon et al., (2008) on the contribution of preschool playground factors in explaining children's physical activity during recess. Preschool playground observations and pedometry during recess were carried out in 39 randomly selected preschools (415 boys and 368 girls;  $5.3 \pm 0.4$  years old). In order to examine the contribution of playground variables to physical activity levels, taking adjustment for clustering of subjects within preschools into account, multilevel analyses were conducted. The study found that in preschool children physical activity during outdoor play is associated with modifiable playground factors. Further study is recommended to evaluate if the provision of more play space, the promotion of continued activity by supervisors and the modification of playground characteristics can increase physical activity levels in preschoolers.

Children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an inducement to active play on school playgrounds (Hyndman et al., 2012) rather than in lounges or lunchrooms i.e. natural environment such as trees, grass, water, and rocks also encourages active play (Dyment, Bell & Lucas, 2009). Spaces need to be suitable for given activities such as a field for football rather than a court (Stanley, Bosho & Dollman, 2012). On the other

hand, children often find large spaces, crowded areas, and aging or broken-down facilities barriers to active play on school playgrounds (Ridgers, Gareth & Thomas, 2010). Therefore, there is need to understand the children's perspectives on the status of the playgrounds in order to inform interventions in their play not only in Ekerenyo Sub-county but also across Kenya.

## **2.4 Summary and Knowledge Gap**

The study sought to investigate the influence of school playground safety on pre-school's children participation in outdoor activities. The study reviewed a number of studies that include: (Jansson, 2015; Caro et al., 2016); Macharia (2012); Broekhuizen, Scholten and Ide Vries (2014); Hamer et al. (2017) among others. For instance, a study conducted by Jansson (2015) on children's perspectives on playground use as basis for children's participation in local play space management, children's perspectives on playground use were studied through group interviews in two Swedish towns and were also compared with the understanding among the local park workers.

The study also aims to establish the influence of playing equipment on pre-school children participation in outdoor activities. The researcher reviewed a number of studies such as Macharia (2012) and Gordon et al. (2008). A study conducted by Naisiae (2013) revealed showed that despite the many constraints that make it impossible to ensure total playground safety, children continue to use the playgrounds for outdoor activities. It was also found out that a combination of adequate, orderly and well organized playground spaces, developmentally-appropriate play equipment, proper playground surfacing, regular and adequate playgrounds maintenance inspection and properly organized supervision of children in the playground enables preschool children to effectively participate in outdoor activities.

Further, the study intended to examine the influence of status of the playground on pre-school children participation in outdoor activities. The researcher reviewed a couple of studies that include: (Broekhuizen, Scholten and Ide Vries (2014): Hamer et al (2017): For example, Broekhuizen, Scholten and Ide Vries (2014) revealed that there was significant associations were also found between children's physical activity and a decreased playground density and increased recess duration. Although the study employed experimental method, there is need to conduct more experimental studies with a randomized controlled design and to incorporate the assessment of implementation strategies and process evaluations to reveal which intervention strategies and playground characteristics are most effective.

The examination went for connecting the information gaps and also to distinguish regions that require additionally thinks about. Among these gaps include: the methodological holes; various examinations have been recognized to utilize one technique for data collection i.e. the survey and which may not cover every single required experience required for dependable study results.

Further, many studies such as the ones carried out by (Jansson (2015), Caro et al. (2016), Macharia (2012), Broekhuizen, Scholten and Ide Vries (2014), Naisiae (2013) and Broekhuizen, Scholten and Ide Vries (2014) had not specified the type of descriptive design applied in the study which could have led to limitation of data collection tools that were used in the study, questionnaire. For this reason, the current study used a mixed research method that allowed use of two study research designs. This enabled adoption of both qualitative and quantitative research approaches that enables application of various data collection tools such as questionnaire, interview guide, and focused group discussion among other methods. Additionally, since there has not been another study carried out on

influence of playground safety on children's participation in outdoor activities in Nyamira County, there was a need for the current study to be carried out.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

This chapter gives description of the methods which the researcher applied in carrying out the study. The chapter is organized as follows: research design, study area, target population, sample size and sampling procedure, research instruments, data collection procedure, data analysis, validity and reliability, and ethical considerations.

#### **3.2 Research Design**

McMillan and Schumacher (2001) define a research design as a plan for selecting subjects, research sites, and data collection procedures to answer the research question(s). A design shows which individuals were studied, when, where, and under which circumstances they were studied. This study adopted a cross-sectional survey design and correlational research design, so as to enable the researcher test the influences between dependent variables and dependent variable. A Cross sectional survey design was useful in describing the characteristics of a large population targeted by the study, it also enabled the researcher to use a large sample, thus making the study results more generalizable.

Additionally, a cross-sectional survey enables use of questionnaire and interview guide which were the key tools applied in the study for data collection and analysis. The correlational research design on the other had enabled the researcher to determine the extent to which the study variables i.e. independent variable and dependent variable are related. Thus, correlation coefficient was used to measure the strength and direction of the linear correlation between study variables. Therefore, study used questionnaires because, they can be easily administered to large population and analysed by the use of



statistical package of social sciences. On the other hand, the interview schedules helped the researcher to capture verbal and non-verbal questions including body language which captured emotions and behaviors of the study respondents. This research design was selected because it is the most effective to answer the research questions of the study.

### **3.3 Research Site**

Ekerenyo division covers an area of 36.5 square kilometres with a total population of 26,259 (Kenya Demographic and Household Statistics, 2014). The study area is located on the northern part of Nyamira County and borders Itibo and Magwagwa wards. In Ekerenyo Division, Nyamira County, playgrounds within the public and private pre-school are characterized by inadequate play spaces, inadequate or poorly designed and maintained equipment and surfaces that restrict children's spontaneous play. Despite these challenges, there is not much that has been done to address the safety of playground measures which are major contributors of child growth and development. Thus, the researcher sought to investigate the influence of playground safety on pre-school children participation in outdoor activities in the area.

### **3.4 Target Population**

A study population is an entire group of individuals, events or objects having common observable characteristics (Mugenda & Mugenda, 2012). The target population for this study constituted of 26,259 individuals who are residents of Ekerenyo division (Census, 2009). The researcher considered this population because; it included all groups of the individuals targeted by the study. The study population included pre-school children, parents, pre-school teachers and education officers in Ekerenyo division.

### 3.5 Sample Size and Sampling Procedures

This section of the study entails description of the study sampling procedure and sample size determination.

#### 3.5.1 Study Sample Size

A sample is any group of subjects from which information is obtained that is part of a selection of target population (Kothari, 2012). This study used Nassiuma (2000) sample size determination formula to arrive at the sample that was used in the investigation of the influence playground safety on pre-school's children participation in outdoor activities in Ekerenyo division in Nyamira County.

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

Where; n = sample size,

N=Target Population

C = Coefficient of variance (30%)

e= Error Term (2%)

The sample size for this study was selected from the total target population of 26,259 residents.

$$\begin{aligned} n &= \frac{26,259 \times 0.3^2}{((0.3^2) \times 26,258(0.02^2))} \\ &= 223.1 \\ &= 224 \end{aligned}$$

### 3.5.2 Sampling Procedures

A stratified random sampling procedure was used in selecting 117 parents and 72 pre-school children that took part in the study. To arrive at the 117 parent respondents, the researcher divided the study area into seven blocks basing on the number of sub-locations in Ekerenyo division. A specific number of parent respondents was picked randomly from each of the six strata (six sub-locations out of the seven since one of the blocks was used for piloting study tools i.e. 20 respondents from each block) because all the subjects were assumed to possess similar characteristics of interest in the study which is being a parent if not a child.

On the other hand, the researcher used stratified sampling procedure to select 72 pre-school children that took part in the focused group discussions (FGD). The researcher targeted six groups of preschool children with each group having twelve (12) children. These groups were selected from six schools in Ekerenyo division, i.e. a school per every sub-location (six sub-locations out of the seven since one of the blocks was used for piloting study tools). Simple random sampling was used to select to twelve (12) pupils from each of the six (6) purposively selected schools. The schools were considered basing on the status of the playground and the school population.

On the other hand, the researcher used judgmental/ purposive sampling technique to pick two (2) education officers in the study area and the thirty three (33) pre-school teachers in the study area.

Thus, the 117 parents, 72 pre-school children and 33 pre-school teachers helped the research with quantitative data and the two (2) education officer with qualitative data on the study variables. Purposive sampling technique was chosen because it focused on particular characteristics of a population that was of study interest, and which enabled the

researcher to answer research questions. On the other hand, in order to conduct the random sampling technique, the researcher defined the population, listed down all the members of the stratum, and then selected the number of study participants required from each stratum to make the study sample.

Census method was used to select the pre-schools that took part in the study. This method was found effective because, despite the number of the schools being many (33) the population targeted (teachers) was small, thus all schools were selected to take part in the study. Further, the researcher trained three research assistants that helped in distribution and collection of the research questionnaires.

### 3.5.3 Sample Frame Matrix

The researcher will use the following matrix table to show the study participants, sampling techniques and the sample size. Table 3.1 shows the sample frame matrix of the distribution of study participants, the sampling procedures and the sample size.

**Table 3.1: Sample Frame Matrix**

<b>Category</b>	<b>Sampling Procedure</b>	<b>Sample</b>
Schools	Stratified & Simple random	33
Parents	Stratified & Simple random	117
Students	Stratified & Simple random	72
Pre-school teachers	Purposive sampling	33
Education Officers	Purposive sampling	2

### **3.6 Data collection Measures**

This section helped to explain development of research instruments, pilot testing of research instruments, reliability of instruments, and validity of research instruments. These has been explained as follows:

#### **3.6.1 Development of Instruments**

##### **(i) Questionnaire**

Questionnaire was used as the key data collection tool. Questionnaire was used because it is friendly in terms of time; it is self-administered and is able to reach a huge number of respondents. The questionnaire is considered as the heart of a survey research design (Kothari, 2004). The questionnaire for the parents and teachers were used by the researcher to collect quantitative data. The items in the questionnaire consist of close ended questions. The questions were based on the Likert scale. The Likert scale items were grouped according to the following scale: Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD). The scale helped the researcher to find out the extent of agreement of the respondents on various issues pertaining to the research objectives that were investigated. The tool was organized into various sections such as demographic data, followed by questions from respective study objectives.

##### **(ii) Interview Guide**

Since the education officers are deemed to have in-depth information regarding relationship between playground safety and preschool participation in outdoor activities, the researcher used an interview schedule to gather information from them. In the open-ended questions, the researcher took notes while interviewing the key informant, whereas closed-ended questions consisted options which were determined by the researcher. Open-ended questions allowed the respondent to respond in their own words and

provided more details. Closed-ended questions were included because they were easier to administer and analyze. Considering interview process could be time intensive, the researcher planned carefully and also made arrangements for meeting the key informants to collect data after being authorized to do so.

### **(iii) Focused Group Discussion**

The researcher used focused group discussion to collect data from the pre-school children. The study involved six focused groups in the study with twelve (12) pupils each, to represent one school per each of the six sub-locations where the study was carried out in Ekereny Division. The researcher used FGDs since they give detailed information about the personal experiences, perceptions and provide a wide range of information. The tool was organized as follows: demographic data, research questions basing on the study objectives.

### **3.6.2 Pilot Testing of Research Instruments**

In order to ensure validity and accuracy of the data collection tools, the researcher carried out a pre-test study of the instruments with a representative sample (Kombo & Tromp, 2006). In order to ensure everyone in the study respondents understands the items in the data collection tool clearly with no ambiguous statements, the researchers used a proportion of respondents, 10% of the sample, to conduct a pilot study. The small sample of 10% is deemed fit as the researcher easily managed in conducting any adjustment on the instrument (Mugenda & Mugenda, 2012). This was done among respondents in one of the neighboring sub-locations in Ekereny division and which was not included in the final research findings.

### 3.6.3 Instrument Reliability

According to Ogula (2006), reliability of an instrument refers to the extent to which a research instrument produces measures that are consistent each time it is administered to the same individuals. The Cronbach's alpha method was used to assess the reliability of the questionnaire. This method involves computing their Cronbach's Alpha value using SPSS. If the average coefficient value lies between 0.7 and 0.9, then the tool is considered reliable (Nunually, 2012). Table 3.2 shows the Cronbach's alpha value output of the questionnaire used in the study.

**Table 3.2: Reliability Test**

<b>Reliability Statistics</b>		
<b>Cronbach's Alpha<sup>a</sup></b>	<b>Cronbach's Alpha Based on Standardized Items</b>	<b>N of Items</b>
.821	.753	39

As shown in Table 3.2, a Cronbach's alpha value of the questionnaire that was used in the study was 0.821. This shows that the tool was reliable because the average coefficient value lies between 0.7 and 0.9 (Nunually, 2012).

The reliability of the interview guide was determined using credibility determination approach. Credibility ascertains that the study reflects the experiences of those being studied and the results can be trusted (Mcmillan & Schumacher, 2001). The process of determining the credibility of interview guide involved rating the items in the guide, taking time during the interview and ensured that the participants explained and said all that they were willing to share.

### **3.6.4 Instrument Validity**

Validity refers to the extent to which a research instrument measures what it is designed to measure (Ogula, 2006). To ensure that the instruments were valid, content validity was used. Three experts in the field of research were consulted in order to verify whether the instruments were valid or not. These included the two research supervisors and one external research consultant in the field of education. After the construction of the tools, the researcher reviewed each statement with the help of experts and the tools were assessed on the extent to which they were related to the topic at hand. Each of the experts worked independently and provided feedback to the researcher. Where there was an agreement between the experts, the instrument were considered to be valid. Further recommendations from the peer reviewers were considered in the modification of the research tools.

### **3.7 Data Processing and Analysis**

The researcher used both quantitative and qualitative methods to analyze data. Descriptive statistics was used to summarize quantitative data into tables and figures, and the results were presented in frequencies and percentages. Statistical Package for the Social Sciences (SPSS) Version 21 was used to code data and conduct statistical analysis. Inferential statistics was used to test hypothesis to determine whether there is a significant association between playground safety and pre-school children participation in outdoor activities in Ekerenyio division in Nyamira County. The regression analysis (R-squared, ANOVA and coefficients) was used to measure the influence and the level of significance between study variables.

Qualitative data was derived from open-ended questions from the research questionnaires. It was processed by first categorizing and discussing responses for each



item according to study objectives. The data was then edited, coded and reported using descriptive narratives of the views, experiences and opinions of the respondents. Qualitative data was then analyzed and condensed into theme categories by editing, paraphrasing, and summarizing in order to enhance and understand the meaning. Descriptive labels were used to attach meaning to different categories. Summarized data was synthesized then interpreted and presented using different presentation techniques such as verbatim and narratives or direct quotations.

### **3.8 Legal and Ethical Considerations**

The researcher submitted the complete research proposal to the University for Approval. Upon receiving a transmittal letter from the University, the researcher applied for research permit from National Commission for Science, Technology and Innovation (NACOSTI). The researcher paid a pre-visit to the study area to familiarize and sought permission to conduct a research. In addition, the researcher sought permission from the Nyamira County education office so as to be allowed together with the research assistants to conduct the study within Ekerenyo Division.

Informed consent was sought from the respondents so as to ensure that no one was forced to take part in the study. Confidentiality of the information was upheld by using identification numbers instead of respondents' names. Further, the researcher ensured effective security measures for data management especially those handled by various groups such as research assistants. In this study, the researcher also ensured that full citation of all the resources that were used in the study. To avoid plagiarism, the researcher ensured that all the authors' whose works have been used in this study were fully cited and indicated in the list of references.

Ethics in research considers acceptable behavior within the research environment aimed at protecting the respondents. Resnik (2011) noted that ethical considerations should inform all the components of the research method, procedure or perspective for deciding how to act and for analyzing problems and issues. The researcher ensured that the major unethical issues were avoided which include, lack of informed consent, lack of honesty, respect for anonymity, confidentiality and lack of respect for privacy. To avoid possible harm such as embarrassment or feeling uncomfortable about questions to respondents, the study did not include sensitive questions that could cause embarrassment or uncomfortable feelings.

## **CHAPTER FOUR**

### **RESULTS AND ANALYSIS**

#### **4.1 Introduction**

This chapter gives a presentation of the findings of this study on influence of playground safety on pre-school's children participation in outdoor activities in Ekerenyo division in Nyamira County. The tables and figures were used to give a summary of study results, and data presentation was carried out using frequencies and percentages. The chapter is presented based on the following subsections: demographic data, presentation of findings, and analysis of results by objectives, and hypothesis testing.

#### **4.2 Study Demographic Data**

The study sought to establish gender and age bracket of parents, teachers, pre-school children and education officer.

##### **4.2.1 Response Rate**

The study response rate is the proportion of the study sample that responded to the data collection tools. In this study, 77% (173 respondents) that included 110 parents, 36 pre-school children, 26 teachers and one (1) education officer fully participated in the study.

##### **4.2.1 Demographic Data of Parents**

The study sought to establish the demographic data of the parents. The parents were categorized into gender and age bracket. Table 4.1 shows the distribution of the parents by gender and age bracket.

**Table 4.1: Parents' Demographic Data**

<b>Item</b>	<b>Description</b>	<b>Frequency</b>	<b>Percentage</b>
Gender	Male	70	64%
	Female	40	36%
Age bracket	Below 20 years	16	9%
	21-30 years	95	55%
	31-40 years	55	32%
	Above 40 years	7	4%

**Key: N=110**

As shown in Table 4.1, nearly two third (64%) of the parents that took part in the study were male while another 36% of them were female. Slightly more than half (55%) of the parents were at the age bracket of 21-30 years. Nearly a third (32%) of them were between 31 to 40 years, while 9% and 4% of them were in the age brackets of below 20 years and above the age of 40 years respectively. This implies that majority of the parents that took part in the study were male and that nearly all (87%) of them were between 21 to 40 years. This was significant to the study as the respondents were either having children in the ECD or had once have them, this enabled the parents to have a deeper understanding of the study.

#### **4.2.2 Demographic Data of Pre-school Teachers**

The researcher sought to assess the demographic data of the pre-school teachers that took part in the study. The demographic data of teachers was classified by gender and age bracket. Table 4.2 shows the demographic data of teachers.

**Table 4.2: Teachers' Demographic Data**

<b>Item</b>	<b>Description</b>	<b>Frequency</b>	<b>Percentage</b>
Gender	Male	4	15%
	Female	22	85%
Age bracket	Below 35 years	18	69%
	Above 35 years	8	31%

**Key: N=26**

Table 4.2 gives a summary of the teachers' demographic data. A vast majority (85%) of the pre-school teachers that took in the study were females while another 15% of them were males. On the age brackets of the pre-school teachers, slightly more than two thirds (69%) of them were 35 years and below. Nearly a third (31%) of them was above the age of 35 years. This shows that majority of the pre-school teachers are females who are at youthful age.

#### **4.2.3 Demographic Data of Pre-school Children**

The study also established the demographic data of the pre-school children that took part in the study. The demographic data of the pre-school children was classified by gender and age bracket. Majority (78%) of the pre-school children that took part in the study were boys while another 23% of them were girls. On the other hand all pre-school children that took part in the study were between 3-5 years. This shows that boys are more likely to participate in many activities in school than girls.

#### **4.2.4 Demographic Data of Education officer**

The researcher found out that only one education officer took part in this study. The key informant (education officer) was a male who was 47 years of age, with 11 years of

working experience. Thus, the key informant had enough knowledge and experience on the issue of playground safety and pre-school's children participation in outdoor activities in Ekerenyo division in Nyamira County.

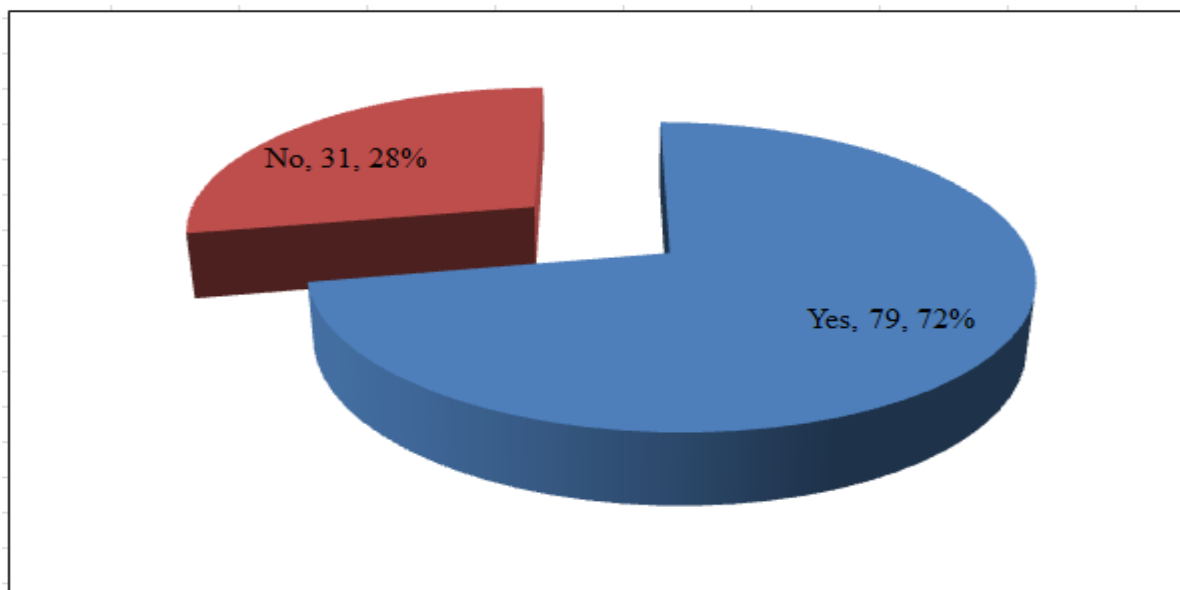
### 4.3 Presentation of the Study Findings

This section sought to give a presentation of the study findings as obtained from parents, pre-school teachers, pre-school children and education officers. The section is organized as measurement of playground location, status of the playground, and measurement of condition of the play equipment.

#### 4.3.1 Measurement of Playground Location

##### (i) Parents

On whether playground location influence pre-school children participation in outdoor activities in Ekerenyo division, Figure 4.1 shows the response of the parents that took part in the study.



**Figure 4.1: Influence of Playground Location on Pre-School Children Participation in Outdoor Activities**

As shown in Figure 4.1, majority (79%) of the parents that participated in the study were in consensus that playground location influences pre-school children participation in outdoor activities in Ekerenyo division. Another 21% of them were in a contrary opinion. This shows that location of the playground affects pre-school children participation in outdoor activities.

The study also required the parents that took part in the study to indicate the level of agreement that they had with the following statements of playground location. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. Table 4.3 shows the responses of the parents on influence of playground location on pre-school children participation in outdoor activities.

**Table 4.3: Playground Location**

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Location of the schools' playground plays a significant role on pre-school children participation in outdoor activities;	25%	56%	–	14%	5%
The number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school;	46%	38%	2%	6%	8%
Children's perspectives on playground use is affected by the distance of the playground from the school;	22%	43%	10%	16%	9%
Children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults;	16%	42%	18%	16%	12%
Children perceive the playgrounds that are far from the learning area as insecure leading their reduced participation in the outdoor activities;	34%	46%	4%	12%	2%
There is high children participation in outdoor activities in the playgrounds that are easily accessible;	29%	52%	–	13%	6%

**Key: N=110**

As shown in Table 4.3, a vast majority (81%) of the parents that took part in the study agreed that location of the schools' playground plays a significant role on pre-school children participation in outdoor activities. Another majority (84%) of them felt that the number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school. When the parents were asked to indicate the level of agreement that they had on a statement that children's perspective on playground use is affected by the distance of the playground from the school, nearly two thirds (65%) of them were in agreement while only 25% of them were in contrary.

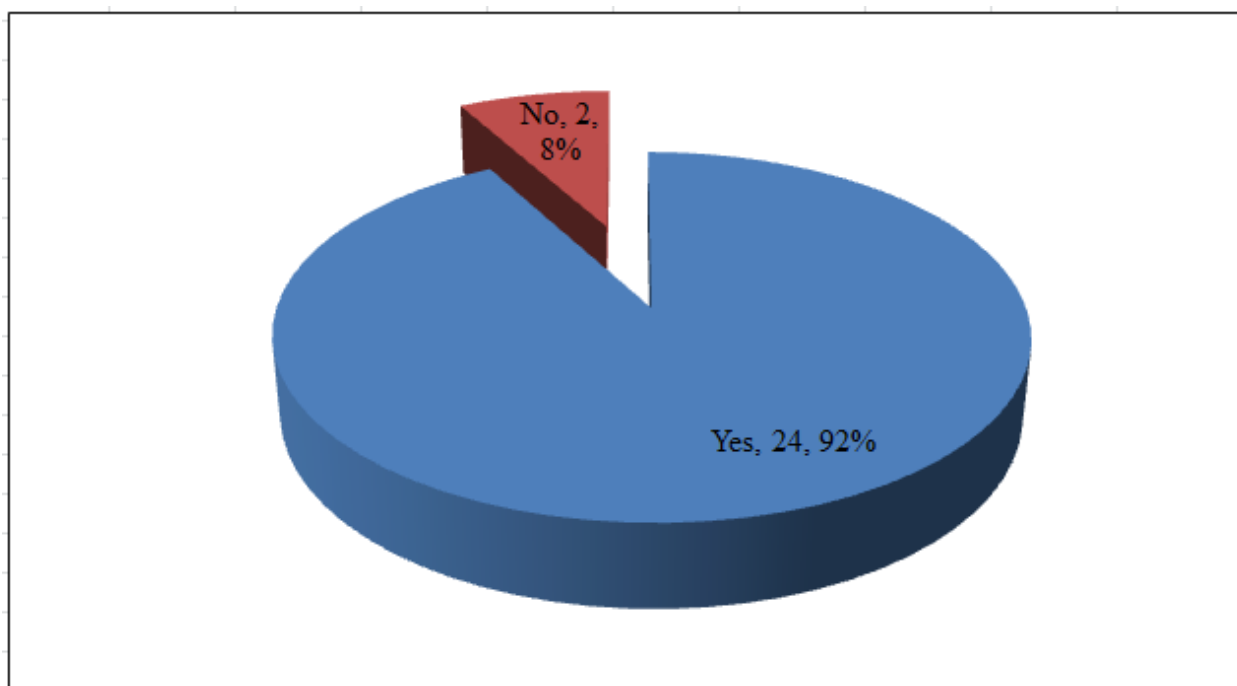
Slightly more than half (56%) of the parents were in consensus that children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults. Further, an overwhelming majority (80%) of them were affirmative that children perceive the playgrounds that are far from the learning area as insecure leading their reduced



participation in the outdoor activities. Additionally, a vast majority (81%) of the parents supported that where the playgrounds are easily accessible; there is high children participation in outdoor activities. Thus, a playground location affects pre-school children participation in outdoor activities.

#### (ii) Pre-school Teachers

On whether playground location influence pre-school children participation in outdoor activities in Ekereny division, Figure 4.2 shows the response of the pre-school teachers that participated in the study.



**Figure 4.2: Playground Location and Pre-School Children Participation in Outdoor Activities**

As shown in Figure 4.2, nearly all (92%) of the pre-school teachers that took part in the study were in agreement that playground location influences pre-school children participation in outdoor activities in Ekereny division. Only 8% of them were in

disagreement. This implies that location of the playground affects pre-school children participation in outdoor activities.

Further, the study sought to establish the level of agreement that the pre-school teachers had with the following statements of playground location and pre-school children participation in outdoor activities. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. Table 4.4 shows the responses of the pre-school teachers on various items of playground location and pre-school children participation in outdoor activities.

**Table 4.4: Teachers' Perception on Playground Location**

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Location of the schools' playground plays a significant role on pre-school children participation in outdoor activities;	16%	48%	–	22%	14%
The number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school;	52%	40%	4%	4%	–
Children's perspectives on playground use is affected by the distance of the playground from the school;	34%	54%	–	6%	6%
Children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults;	27%	37%	6%	12%	18%
Children perceive the playgrounds that are far from the learning area as insecure leading their reduced participation in the outdoor activities;	42%	56%	–	2%	–
There is high children participation in outdoor activities in the playgrounds that are easily accessible;	18%	64%	4%	8%	6%

**Key: N=26**

From Table 4.4, nearly two thirds (64%) of the pre-school teachers agreed that location of the schools' playground plays a significant role on pre-school children participation in outdoor activities while slightly more than a third (36%) of them felt otherwise. The number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school. This was supported by

nearly all (92%) pre-school teachers as another vast majority (88%) of them pointed out that, children's perspectives on playground use is affected by the distance of the playground from the school. Nearly two thirds (64%) of the pre-school teachers were in opinion that children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults.

It was also found out that almost all (98%) of the pre-school teachers that took part in the study maintained that children perceive the playgrounds that are far from the learning area as insecure leading their reduced participation in the outdoor activities. Further, when the respondents were asked indicated whether there is high children participation in outdoor activities in the playgrounds that are easily accessible, an overwhelming majority (82%) of them were in agreement, only 14% of them were in opposition of the statement. Therefore, the pre-school teachers supported that playground location influences pre-school children participation in outdoor activities.

### **(iii) Pre-school Children Focused Group Discussions**

In the focused group discussions (FGDs) that were carried out by the researcher amongst eighteen (18) pre-school children that took part in the study, the children in FGD1 pointed out that playground that are far from classes instill fear among the children. The children also maintained that playgrounds that are out of school are not good because in case a child is beaten up by other children, the teacher may not help because in most times he/she is left within the school compound. One child in FGD2 indicated that:

...I fear snakes and dogs that come from the bushes in the playground. As well child "X" beat me when we go to play in the field.

In the same line, a child from the FDG3 added that:

I fear crossing roads when going to the field...the motor bikes run too fast near the school...I also get too tired to run from the field to class.

**(iv) Education Officer**

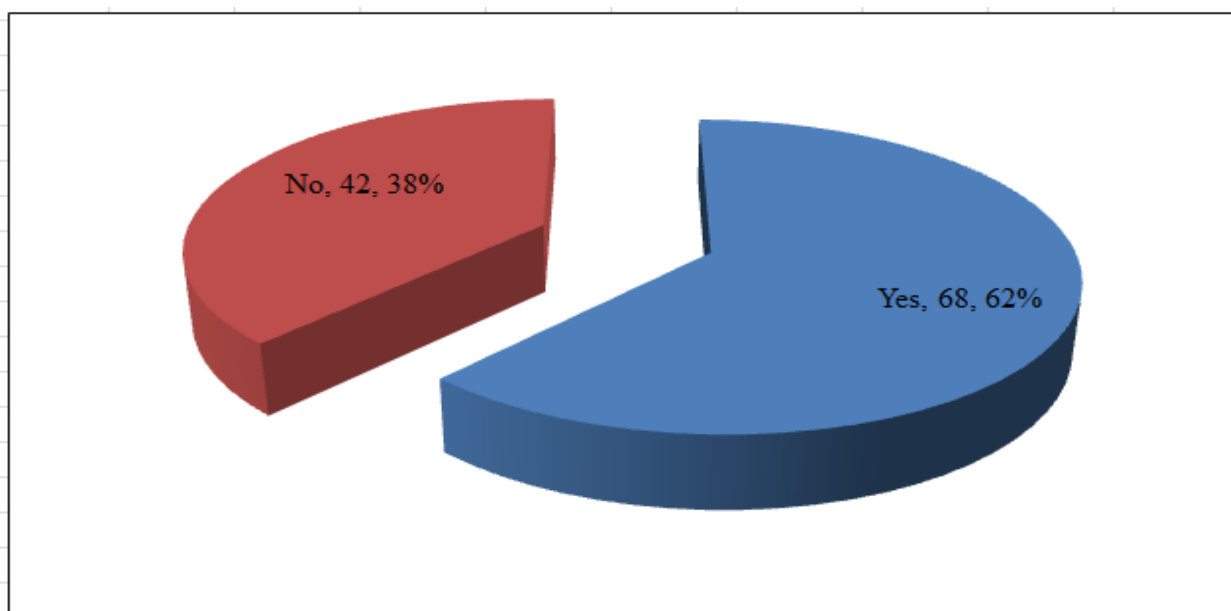
A key informant of the interview session was asked whether playground safety influences pre-school children participation in outdoor activities. The key informant pointed out that:

...every accessible playground within the school playground attract more pre-school children to the school to address them opportunity to play...playing is an important activity loved by most pre-school children...and a safe and secure playground free of dangerous objects is more attractive for learners to play more plenty in the activities of their choices or as guided by their teachers...playground located outside the school faces a risk challenge and may not interact pre-school children participation in outdoor activities.

### 4.3.2 Measurement of Status of the Playground

#### (i) Parents

The researcher sought to establish whether the status of the playground influences pre-school children participation in outdoor activities in Ekerenyo division. Figure 4.3 shows the responses of the study participants on the item.



**Figure 4.3: Status of the Playground**

As shown in Figure 4.3, more than half (62%) of the parents that took part in the study agreed that the status of the playground influences pre-school children participation outdoor activities. Another 38% of them felt that there is no relationship between the status of the playground and pre-school children participation in outdoor activities.

On the other hand the researcher sought to establish the level of agreement that the parents had with the following statements of the status of the playground and pre-school children participation in outdoor activities. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. Table 4.5 shows the responses of the parents

on various items of playground location and pre-school children participation in outdoor activities.

**Table 4.5: Parents' Perception on Playground Location**

Statement	5	4	3	2	1
Presence of natural features such as bushes, grass, trees in the playground can discourage preschool children participation in outdoor activities;	23%	48%	6%	14%	9%
There is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities;	14%	38%	26%	12%	10%
Preschool children have been denied the right to play in a healthy, safe or secure and nurturing environment in Ekerenyo division;	6%	28%	2%	44%	20%
The playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division;	25%	46%	–	18%	11%
Too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children;	12%	18%	2%	52%	14%
School playgrounds in Ekerenyo division are marked to separate play areas into activity and equipment-based areas;	8%	24%	–	54%	14%
Major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyo;	18%	56%	–	14%	10%
The topography of the playground influences preschool's children physical activities;	22%	34%	4%	24%	16%

**Key: N=110**

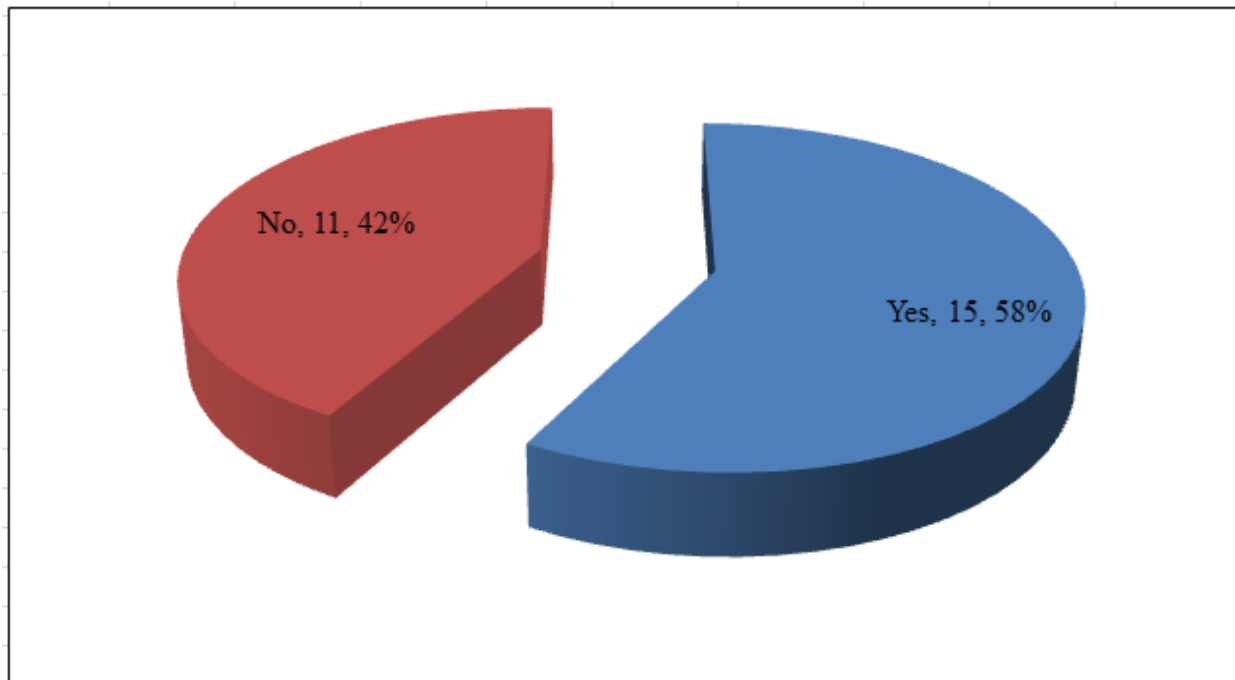
As shown in Table 4.5, majority (71%) of the parents were affirmative that presence of natural features such as bushes, long grass, trees in the playground can discourage preschool children participation in outdoor activities. Slightly more than half (52%) of the parents indicated that there is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities. On whether preschool children have been denied the right to play in a healthy, safe or secure and

nurturing environment in Ekerenyo division, nearly two thirds (64%) of the parents agreed while slightly more than a third (34%) of the respondents were in contrary. Another over two thirds (71%) of them supported that the playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division.

The parents were also asked if too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children. Two thirds (66%) of the respondents were in disagreement while another 30% of them were in agreement. However, slightly more than two thirds (68%) of the parents pointed out that school playgrounds in Ekerenyo division are marked to separate play areas into activity and equipment-based areas. When the parents were asked to rate whether major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyo, majority (74%) of them were in support of the statement. More than half (56%) of the study respondents were in opinion that the topography of the playground influences preschool's children physical activities.

#### **(ii) Pre-school Teachers**

The researcher asked the teachers to indicate whether the status of the playground influences pre-school children participation in outdoor activities in Ekerenyo division. Figure 4.4 shows the responses of pre-school teachers on the item.



**Figure 4.4: Influence of Status of the Playground on Pre-School Children Participation Outdoor Activities**

As shown in Figure 4.4, more than half (58%) of the teachers that took part in the study were in agreement that the status of the playground influences pre-school children participation outdoor activities. Another 42% of them indicated that the status of the playground do not affect pre-school children participation in outdoor activities.

The study also established the level of agreement that the pre-school had with the following statements of the status of the playground. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. Table 4.6 shows the responses of the pre-school teachers on various items of playground location and pre-school children participation in outdoor activities.



**Table 4.6: Teachers' Perception on Status Of Playground**

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Presence of natural features such as bushes, grass, trees in the playground can discourage preschool children participation in outdoor activities;	30%	38%	–	22%	10%
There is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities;	24%	53%	6%	10%	7%
Preschool children have been denied the right to play in a healthy, safe or secure and nurturing environment in Ekerenyo division;	12%	20%	10%	42%	16%
The playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division;	28%	54%	–	12%	6%
Too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children;	10%	14%	12%	56%	10%
School playgrounds in Ekerenyo division are marked to separate play areas into activity and equipment-based areas;	6%	32%	–	47%	15%
Major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyo;	24%	64%	–	7%	2%
The topography of the playground influences preschool's children physical activities;	28%	44%	8%	12%	8%

**Key: N=26**

As summarized in Table 4.6, slightly more than two thirds (68%) of the pre-school teachers pointed out that presence of natural features such as bushes, grass, trees in the playground can discourage preschool children participation in outdoor activities. As well another majority (77%) of the teachers stated that there is need for awareness creation on the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities. However, more than half (58%) of the respondents were affirmative that preschool children have been denied the right to play in a healthy, safe or secure and nurturing environment in Ekerenyo division while nearly a third (32%) of

them felt otherwise. A vast majority (82%) of the pre-school teachers were in consensus that the playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division.

On whether too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children, two thirds (66%) of the study respondents were in agreement. Although more than a third (38%) of the pre-school teachers stated that school playgrounds in Ekerenyo division are marked to separate play areas into activity and equipment-based areas, nearly two thirds (62%) of them disagreed. An overwhelming majority (88%) of the pre-school teachers were in opinion that major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyo. Another more than two thirds (72%) of them were affirmative that the topography of the playground influences preschool's children physical activities. Thus, this implies that the status of the playground has an influence on pre-school children participation in outdoor activities.

### **(iii) Pre-school Children Focused Group Discussions**

On the influence of the status of the playground on pre-school children participation in outdoor activities, various respondents from the three FGDs highlighted on various aspects of the playground that affect the participation of pre-school children in outdoor activities. Among these aspects included grass cover on the ground, the terrain of the playgrounds and the presence of the fences in the playground. One of the child in the FGD2 stated that:

...I fear the bushes in the playground because my mother told me that they are the hide out of thieves...also some parts of the playground are swampy.

#### (iv) Education Officer

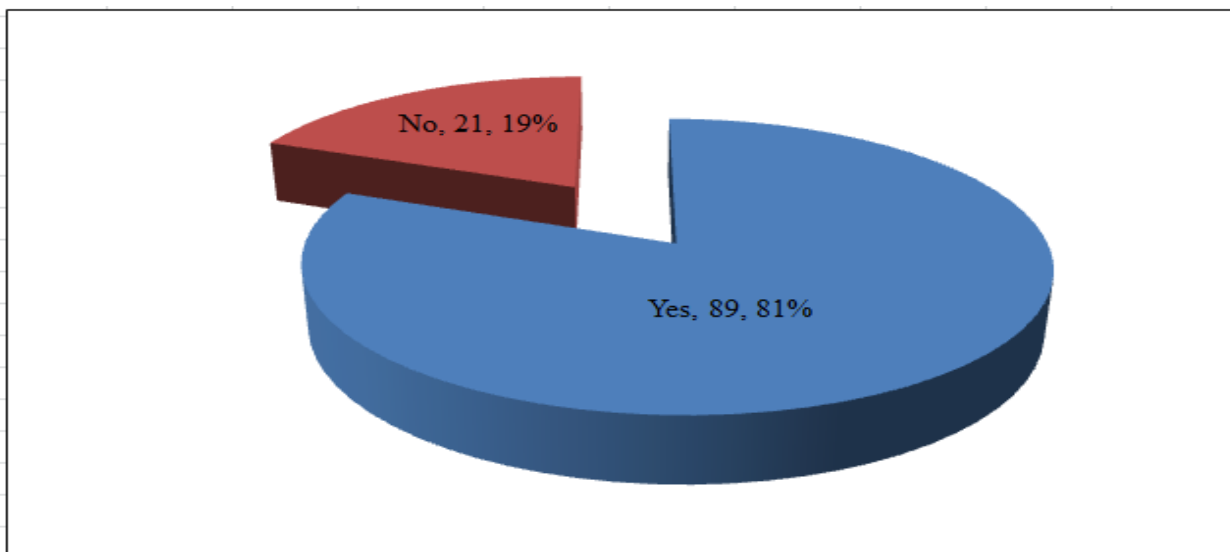
Further, the study involved a key informant so as to establish the influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo division in Nyamira County. The key informant stated that:

... Playground with grass cover which is well trimmed and maintained encourages learners to engage in several outdoor play activities as opposed to dust... Stoney or rocky playground which is injurious to them. Equally important, small playground is prone to congestion if the school enrolment is high and may not at least most learner to engage in outdoor play activities... Steep sloping playground is not safe to the learners...

#### 4.3.3 Measurement of Condition of Play Equipment

##### (i) Parents

The parents were required to indicate whether the condition of the playground influences pre-school children participation in outdoor activities in Ekerenyo division. Figure 4.5 shows the responses of the parents on the item.



**Figure 4.5: Influence of Condition of Play Equipment on Pre-School Children Participation Outdoor Activities**

As shown in Figure 4.5, a vast majority (81%) of the parents that participated in the study were in agreement that the condition of the play equipment influences pre-school children participation outdoor activities. Only 19% of the parents that took part in the study were in a contrary opinion.

The study sought to assess the perception that the parents had toward the following statements of the condition of the play equipment and pre-school children participation in outdoor activities. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. Table 4.7 shows the responses of the parents on various items of condition of the play equipment and pre-school children participation in outdoor activities.

**Table 4.7: Teachers' Perception on Condition of the Play Equipment**

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment;	26%	56%	–	14%	4%
Fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children's active play in the playground;	12%	18%	2%	56%	12%
Children's playground composed of age appropriate equipment scaled to their sizes encourages the preschool children participation in in outdoor activities;	32%	54%	–	6%	8%
Children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs;	18%	48%	8%	14%	12%
The arrangement of the equipment is crucial to enhancing children's safety in the playground;	26%	38%	7%	19%	10%
Children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds;	26%	58%	–	8%	6%

**Key: N=110**

From Table 4.7, a vast majority (82%) of the parents agreed that preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment. Slightly more than two thirds (68%) of the parents pointed out that fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children's active play in the playground. Nearly a third of them felt otherwise. On whether children's playground composed of age appropriate equipment scaled to their sizes encourages the preschool children participation in in outdoor activities, nearly all (86%) of them were in support while only 14% of them were in opposition of the statement.

The study also sought to establish whether children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and

intellectual capacities to meet their individual needs where two thirds (66%) of the parents were in consensus. Nearly two thirds (64%) of the study respondents felt that the arrangement of the equipment is crucial to enhancing children's safety in the playground. In the same line, a vast majority (84%) of the parents were affirmative that children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds. This is an implication that the condition of the play equipment influences pre-school children participation in outdoor activities

**(ii) Pre-school Teachers**

The study sought to establish the rate at which condition of the play equipment influences pre-school children participation in outdoor activities. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree. Table 4.8 shows the responses of the pre-school teacher on various items of condition of the play equipment.

**Table 4.8: Teachers' Perception on Condition of the Play Equipment**

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment;	16%	42%	6%	24%	12%
Fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children's active play in the playground;	10%	25%	–	55%	10%
Children's playground composed of age appropriate equipment scaled to their sizes encourages the preschool children participation in in outdoor activities;	24%	62%	–	12%	2%
Children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs;	28%	54%	4%	9%	5%
The arrangement of the equipment is crucial to enhancing children's safety in the playground;	34%	52%	2%	10%	2%
Children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds;	19%	53%	–	12%	16%

**Key: N=26**

As indicated in Table 4.8, more than half (58%) of the pre-school teachers agreed that preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment. Only 26% of them in a contrary opinion while nearly two thirds (65%) of the teachers supported that fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children's active play in the playground. In another instance, a vast majority (86%) of the pre-school teachers agreed that children's playground composed of age appropriate equipment scaled to their sizes encourages the preschool children participation in in outdoor activities.

In the same line, when the study respondents were asked to indicate whether children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs, an

overwhelming majority (82%) of them were in agreement while only 14% of them felt otherwise. Further, a vast majority (86%) of the pre-school teachers were in consensus that the arrangement of the equipment is crucial to enhancing children's safety in the playground. Another majority (72%) of the respondents were in opinion that children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds. Thus, the condition of the play equipment in the playground influences pre-school children participation in outdoor activities.

### **(iii) Pre-school Children Focused Group Discussions**

On the influence of the condition of the playground equipment on pre-school children participation in outdoor activities, one of the children in FGD1 said that:

...we do not have merry-go round in our playground...we only have a see-saw, slides and swing that is not accessible due to many children competing to use it during break time...the teacher do not buy us rollers and bumping equipment...we are very many in our school.

In another instance, children in FGD2 and FGD3 were in agreement that the playground equipment in the playground was too old, the tires had scratching surfaces, and the sliding surfaces were rusty and torn among other faults that were reported by the preschool children during the focused group discussion sessions.



#### **(iv) Education Officer**

The researcher also sought to assess the influence of the condition of the playground equipment on pre-school children participation in outdoor activities in Ekerenyio division in Nyamira County. The key informant indicated that:

Pre-school children have infinity to variety of play equipment...regular maintenance of such play equipment is critical to their safety when using them notably see-saw, swing, slide among others...well maintained playing equipment, attract more children to play with them unlike poorly maintained ones...one which introduce few and discourage them from using the equipment...availability of variety of playing equipment, allows learners to select one of those activities and interact to play with the more various they are. Unlike when they are offered one type which may bore them...some more equipment are more appealing to different age and gender of learners, while some generally attract both male and female...children especially the sea saw, slides and swings ...the more of such in a status the better for them.

#### **4.3.4 Measurement of Pre-school Children Participation in outdoor Activities**

The researcher picked out ten (10) schools out of 33 schools that took part in the study to establish the number of the preschool children that participated in outdoor activities. The schools were selected basing on the playground safety measures: location of the playground, status of the playground and the condition of the playing equipment. Five schools out of the ten had good playground location, good status, and good condition of the playing equipment. On the other hand, the other five schools hand poor playground location, poor status, and poor condition of the playing equipment (See

Appendix VI-Measurement of playground safety). Using the total marks scored in the school playground assessment, the researcher rated the playground safety as either good or poor (See Appendix VII).

The researcher investigated the number of pre-school children that participated in the playground activities in the schools that had good play ground safety and those that had poor playground safety. The average number of pre-school children in each of the pre-schools that were targeted by the study was 40 children per pre-school. Table 4.9 and Table 4.10 shows the number of children that participated in the playground activities in schools with good playground safety and those with poor playground safety respectively, during lunch break for four days.

**Table 4.9: Pre-School Children Participation in Schools with Good Playground Safety**

<b>Number of pre-school Children that participated in the playground outdoor activities</b>				
<b>Name of Pre-School</b>	<b>Day 1</b>	<b>Day2</b>	<b>Day3</b>	<b>Day4</b>
Sakwa	21	18	25	15
Mwancha	27	24	19	22
Enkinda	13	20	24	16
Gateway Academy	23	26	31	28
Rianyamage	25	33	29	27
<b>Total</b>	<b>109</b>	<b>121</b>	<b>128</b>	<b>108</b>
<b>Average</b>	<b>22</b>	<b>24</b>	<b>26</b>	<b>22</b>

As shown in Table 4.9, an average participation of the pre-school children in outdoor activities in the pre-schools with good playground safety: Sakwa, Mwancha, Enkinda, Gateway academy and Rianyamage was above half (20 children) of the total

number of children (40) in every pre-school. For instance, the average number of children that participated in playground activities on Monday, Tuesday, Wednesday and Thursday in the schools with good playground safety was: 22, 24, 26 and 22 respectively. Thus, the schools with a good playground safety had a high number of children participating in outdoor activities compared to the schools with poor playground safety.

**Table 4.10: Pre-School Children Participation in Schools with Poor Playground Safety**

<b>Number of pre-school Children that participated in the playground outdoor activities</b>				
<b>Name of Pre-School</b>	<b>Day1</b>	<b>Day2</b>	<b>Day3</b>	<b>Day4</b>
Kebabe	11	12	17	16
Esanige	20	16	21	19
Ekegoro	9	22	18	15
Magena marabu	13	21	28	23
Alpha Academy	18	24	25	22
<b>Total</b>	<b>71</b>	<b>95</b>	<b>109</b>	<b>95</b>
<b>Average</b>	<b>14</b>	<b>19</b>	<b>22</b>	<b>19</b>

From Table 4.10, the average participation of the pre-school children in outdoor activities in the pre-schools with poor playground safety Kebabe, Esanige, Ekegoro, Magena marabou and Alpha academy was below half (20 children) of the total number of children (40) in every pre-school. For instance, the average number of children that participated in playground activities on Monday, Tuesday, Wednesday and Thursday in the five schools with poor playground safety was: 14, 19, 22 and 19 respectively. Thus, schools with a playground that had good safety had a higher number of pre-school

children participating in outdoor activities as compared to the schools with playgrounds with poor playground safety.

#### 4.4 Regression Model

The regression model formula on influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo division, Nyamira County.

Multiple regression model equation was used:

$$Y' = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \varepsilon_i$$

Where Y = Pre-school children participation in outdoor activities.

$\beta_0$  = Constant

$\beta$  = Beta Coefficients

$X_1$  = Location of the playground

$X_2$  = Status of playground

$X_3$  = Condition of the playground

The R-computation helped the researcher to determine how well the independent variables explained the dependent variable.

**Table 4.8: Multiple Regression Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square (R<sup>2</sup>)</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.68 <sup>a</sup>	.462	.431	.501

a. Predictors: (Constant), location of the playground, status of the playground and condition of the playground equipment

As shown in Table, R represents the multiple correlations coefficient. The R-value of 0.68 means that there is a strong positive relationship between playground safety and pre-school children participation in outdoor activities in Ekereny division. An R-squared value of 0.462 means that the independent variables (location of the playground, status of the playground and condition of the playground equipment) explain only 46.2 per cent of the variance in the pre-school children participation in outdoor activities. A standard error estimate (SE est.) of 0.501 is moderate, meaning many of the observed data points lay not so far from the model's predicted values, thus indicate good fit.

Analysis of variance was performed so as to establish whether there is a significant relationship between playground safety and pre-school participation in outdoor activities among pre-school children in Ekereny Division in Nyamira County.

**Table 4.9: Multiple Regression Model Significance (ANOVA)**

<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	27.212	3	9.071	51.834	.001 <sup>a</sup>
	Residual	23.321	133	.175		
	Total	50.533	136			

a. Predictors: (Constant), location of the playground, status of the playground and condition of the playground equipment b. Dependent Variable: preschool children participation in outdoor activities

The F statistic is equal to 51.834. The distribution is F (3, 133), and the probability of observing a value greater than or equal to 51.834 is less than 0.05 ( $p=.001$ ).

In order to determine the relative importance of each Independent Variable in predicting Dependent Variable, regression model equation was computed. Parameter estimates (coefficients) are shown in the table.

**Table 4.10: Summary of Multiple Regression Model Coefficients**

**Coefficients <sup>a</sup>**

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>		<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>			
1 (Constant)	2.515	.304			9.177	.000
	748					
Location of the playground;	.651	.112	.66		2.441	.000
Status of the playground;	.761	.213	.72		2.187	.000
Condition of the playground equipment;	.921	.012	.87		.216	.000

a. Dependent Variable: Preschool children participation in outdoor activities

The coefficient associated with the regression constant is 2.515 with a standard error of 0.304. The coefficient associated with the all independent variables are

statistically significant since their p-values are less than the level of significance ( $p < .05$ ). According to the analysis result, the multiple regression formula is expressed as follows:

$$Y' = 2.515 + 0.651 \text{ Location of the playground} + 0.761 \text{ status of the playground} + 0.921 \text{ Condition of the playground equipment} + \varepsilon_i$$

This shows that any additional unit in the score of location of the playground, the score of preschool children participation in outdoor activities increases by 0.651 units; a unit increase in the score of status of the playground, the score of preschool children participation in outdoor activities increases by 0.761 units and a unit increase in the score of condition of the playground equipment, the score of preschool children participation in outdoor activities increases by 0.921 units. Therefore, playground safety can be used to explain the variability in preschool children participation in outdoor activities among pre-school children in Ekerenyo Division, in Nyamira County. Thus, the study provides enough evidence to reject all the null hypothesis because all the coefficients associated with all independent variables are statistically significant since their p-values are less than the level of significance ( $p < .05$ ).

## **CHAPTER FIVE**

### **DISCUSSION, SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 Introduction**

This chapter presents the discussions, summary, conclusion and recommendations of this study on influence of playground safety on pre-school children participation in outdoor activities in Ekerenyo Division in Nyamira County.

#### **5.2 Discussion**

This section covers a discussion of the study findings basing on the study questions. The discussions are presented as follows:

##### **5.2.1 Influence of Playground Location on Pre-School Children Participation in Outdoor Activities in Ekerenyo Division, in Nyamira County**

Majority (81%) of the parents that took part in the study agreed that location of the schools' playground plays a significant role on pre-school children participation in outdoor activities. This finding was in line with a study carried out by UNICEF (2010) asserted that the location of the schools' playground plays a significant role on pre-school children participation in outdoor activities to a great extent. Thus, the location of the playground is a key factor that influences pre-school children participation in the outdoor activities.

The study also found out that majority (84%) of respondents felt that the number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school. The study finding concurred with a previous study carried out by Reimers and Knapp (2017) on playground usage and physical activity levels of children based on playground spatial features, in Germany. The study revealed



that the number of children using the playgrounds and the number of children actively playing in them were higher in the playgrounds with more varied facilities. Thus, there is no difference of the use of the playground among the pre-school children in Germany and Kenya because both studies had similar finding.

When the parents were asked to indicate the level of agreement that they had on a statement that children's perspective on playground use is affected by the distance of the playground from the school, nearly two thirds (65%) of them were in agreement while only 25% of them were in contrary. In a study carried out by Jansson (2015) on children's perspectives on playground use as basis for children's participation in local play space management, children's perspectives on playground use were studied through group interviews in two Swedish towns and were also compared with the understanding among the local park workers. The results indicate that children's perspectives on playground use, particularly manipulation, should be implemented more fully into management work.

Slightly more than half (56%) of the parents were in consensus that children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults. Further, an overwhelming majority (80%) of them were affirmative that children perceive the playgrounds that are far from the learning area as insecure leading their reduced participation in the outdoor activities. Additionally, a vast majority (81%) of the parents supported that where the playgrounds are easily accessible; there is high children participation in outdoor activities. Thus, a playground location affects pre-school children participation in outdoor activities. In the same vein, a study carried out by Caro et al. (2016) on children's perspectives of activity friendly school playgrounds, a participatory research was conducted with children as co-researchers, framed as a project to give

children the opportunity to discuss their views and ideas about their school playgrounds. The study found out that improving activity-friendliness of playgrounds requires an integrated and multi-faceted approach. It also indicates that children, as primary users, are able to identify barriers for active play that are easily overlooked, unknown or differently perceived by adults. Thus, since the current study was not a case study unlike the previous study, the study results can be generalized to represents various preschool in Kenya.

### **5.2.2 Influence of the Status of the of Playground on Pre-School Children Participation in Outdoor Activities in Ekerenyo Division, in Nyamira County**

Majority (71%) of the parents were affirmative that presence of natural features such as bushes, grass, trees in the playground can discourage preschool children participation in outdoor activities. This was in contrary with a study by Hyndman et al., (2012) that found out that many children wish their physical environment provided more opportunities for active play on school playgrounds. For instance, in Australia, school playgrounds contain many natural features such bushy areas, grassed areas, trees, and ponds or streams as well as built structures that include but not limited to fixed playground equipment, playground markings, sports equipment, sandpits, shade sails, asphalt and concrete play areas (Chancellor 2013). Thus, where there are no fierce animals like snakes, children can enjoy natural features such as bushes unlike in areas where pre-school children fear being in bushes of long grass environments.

Slightly more than half (52%) of the parents indicated that there is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities. In the same line, a study carried out by Hyndman, Benson, and

Telford (2014) on effects of playground safety on pre-school children academic performance found out that there is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to enhance pre-school children participation in playground activities. Thus, the status of the playground influences pre-school children participation in playground activities in Ekerenyo division in Nyamira County.

The study also established that nearly two thirds (64%) of the parents preschool children have been denied the right to play in a healthy, safe or secure and nurturing environment in Ekerenyo division. Thus, the finding contradicted with the provision of Article 31 of the CRC (2013) that indicate that children have a right to play in a healthy, safe or secure and nurturing environment, where they can acquire meaningful experiences through participating in outdoor activities regardless of their physical or social background. Consequently, outdoor play space must contain enough space for all children to explore, discover, experiment, manipulate, reconfigure, expand, influence, change, push their limits and create the basic information about the world while at the same time responding to their need for safety.

Over two thirds (71%) of them supported that the playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division. This was supported by a study by Outdoor Play Area Standard Manual for Centre Based Child Care (2011) recommends that the ideal play space per child should be seven square meters inclusive of fixed equipment and protective surfacing zones. It stimulates children positively and motivates them to seek more activities to involve themselves in (Curtis, 2012). If the space is too large or poorly designed it will lead to reduced attention span, more supervision and more non-developmental (or down-time),

noise, confusion, aimless wondering and under use of play spaces (Moore, 2014).

The parents were also asked if too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children. Two thirds (66%) of the respondents were in disagreement while another 30% of them were in agreement. However, slightly more than two thirds (68%) of the parents pointed out that school playgrounds in Ekerenyio division are marked to separate play areas into activity and equipment-based areas. This is in consensus with a previous study conducted by Clayton (2010) that found out that a safe playground should be marked. This involves separating or zoning play areas into activity- and equipment-based areas from other spaces that serve other purposes like car parks and school garden posits that if the play area is clearly defined with distinct boundaries and obvious pathways, children will use it more appropriately and successfully. Pre-schoolers at different ages and stages of development have different needs and abilities.

When the parents were asked to rate whether major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyio, majority (74%) of them were in support of the statement. This is in line with another study that was carried out by Hamer et al, (2017) on the effect major school playground reconstruction on physical activity and sedentary behaviour that revealed that there were significant age interactions for sedentary ( $p= 0.002$ ) and light intensity physical activity ( $p = 0.008$ ). This study contributes to the current study by providing an insight on how major playground reconstruction had limited effects on physical activity, but reduced sedentary time was observed in younger children.

### **5.2.3 Influence of Playing Equipment Conditions on Pre-School Children Participation in Outdoor Activities in Ekerenyo Division, in Nyamira County**

Majority (82%) of the parents agreed that preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment. In addition, slightly more than two thirds (68%) of the parents pointed out that fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children's active play in the playground. In the same line, researchers have observed that loose sports equipment, such as bats, balls, and skipping ropes, on the school playground positively influences children's active play (Willenberg et al., 2009; McKenzie et al., 2010; Ridgers, Stratton & McKenzie, 2010), the same cannot be said conclusively for fixed playground equipment and markings based on studies of both children and adolescents (Haug, Torsheim & Samdal, 2008; Dymont, Bell & Lucas, 2009; Willenberg et al., 2009; Parrish et al., 2009; Haug et al., 2010). On the other hand, some studies report that playground markings and shadings (Parrish et al., 2009; Dymont, Bell & Lucas, 2009), fixed equipment (Willenberg et al., 2009), sporting equipment (Hyndman & Lester, 2015), high intensity activities like sprinting and, and obstacle courses (Haug, Torsheim, & Samdal 2008; Hannon & Brown, 2008) facilitate children's active play.

The study also sought to establish whether children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs where two thirds (66%) of the parents were in consensus. On the other hand, other studies suggest that playground markings, fixed equipment (Ridgers et al. 2010), boarding areas (Haug, Torsheim & Samdal, 2008; Haug et al., 2010), playground design (Jones et al. 2010), climbing

equipment (Haug, Torsheim, & Samdal, 2008), and a fenced courtyard (Haug, Torsheim, & Samdal, 2008) did not increase active play.

Nearly two thirds (64%) of the study respondents felt that the arrangement of the equipment is crucial to enhancing children's safety in the playground. The study finding conquered with a previous study that was carried out by Consumer Product Safety Commission (CPSC, 2010) that recommends young children's playground composed of age appropriate equipment scaled to their sizes, abilities and developmental level, for instance, handles should be smaller; bridges and platforms should be low and have guard rails and hand rails; slides should be short (under 4 feet), and stairs should have gradual (not steep) incline. A playground like this provides opportunities for children to engage in activities that satisfy their inquisitive status and innate desire to discover and be creative.

The parents were affirmative that children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds. According Malone and Tranter (2013), children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs. Play equipment include play structures like bars and domes for climbing, sliding boards, ladders and parallel boards, knotted ropes, climbing poles, bridges, platforms and swings, walking boards, balance boards and sand boxes. This is an implication that the condition of the play equipment influences pre-school children participation in outdoor activities.

### **5.3 Summary of the Main Findings**

Majority (79%) of the parents that participated in the study were in consensus that playground location influences pre-school children participation in outdoor activities in

Ekerenyo division. Another 21% of them were in a contrary opinion. This shows that location of the playground affects pre-school children participation in outdoor activities.

Nearly all (92%) of the pre-school teachers that took part in the study were in agreement that playground location influences pre-school children participation in outdoor activities in Ekerenyo division. This is presented in Figure 4.2 and only 8% of them were in disagreement. This implies that location of the playground affects pre-school children participation in outdoor activities.

The parents that took part in the study agreed that the status of the playground influences pre-school children participation outdoor activities. Another 38% of them felt that there is no relationship between the status of the playground and pre-school children participation in outdoor activities.

The study also established that more than half (58%) of the teachers that took part in the study were in agreement that the status of the playground influences pre-school children participation outdoor activities, as shown in Figure 4.4. Another 42% of them indicated that the status of the playground do not affect pre-school children participation in outdoor activities.

Majority (81%) of the parents that participated in the study were in agreement that the condition of the play equipment influences pre-school children participation outdoor activities. Only 19% of the parents that took part in the study were in a contrary opinion.

Additionally, the average participation of the pre-school children in outdoor activities in the pre-schools with good playground safety: Munengi, Jacaranda, Skyline, Kamumbu and Mathuki was above half (20 children) of the total number of children (40) in every pre-school. For instance, the average number of children that participated in

playground activities on Monday, Tuesday, Wednesday and Thursday in the schools with good playground safety was: 22, 24, 26 and 22 respectively.

The average participation of the pre-school children in outdoor activities in the pre-schools with poor playground safety: Kalitini, Nzengeni, Kimongo, Kavaliki and Mandove was below half (20 children) of the total number of children (40) in every pre-school. For instance, the average number of children that participated in playground activities on Monday, Tuesday, Wednesday and Thursday in the five schools with poor playground safety was: 14, 19, 22 and 19 respectively. Thus, schools with a playground that had good safety had a higher number of pre-school children participating in outdoor activities as compared to the schools with playgrounds with poor playground safety.

#### **5.4 Conclusions**

The R-value of 0.68 means that there is a strong positive association between playground safety and pre-school children participation in outdoor activities in Ekerenyio division. An R-squared value of 0.462 means that the independent variables (location of the playground, status of the playground and condition of the playground equipment) explain only 46.2 per cent of the variance in the pre-school children participation in outdoor activities.

Since the F-distribution statistic is equal to 515.334,  $F(1, 135)$ , and the probability of observing a value greater than or equal to 515.334 is less than 0.05 ( $p=0.001$ ), the study provides enough evidence to reject all the null hypotheses. The coefficient associated with the regression constant is 2.515 with a standard error of 0.304. The coefficient associated with the all independent variables are statistically significant since their p-values are less than the level of significance ( $p<0.05$ ). Thus, the study provides enough evidence to reject all the null hypothesis because all the coefficients



associated with all independent variables are statistically significant since their p-values are less than the level of significance ( $p < .05$ ).

## **5.5 Study Recommendations**

The study findings revealed that much need to be addressed on the influence of playground safety on pre-school children participation in outdoor activities. The study recommends that:

### **5.5.1 Recommendations for Playground Location**

The government should also come up with special learning programs with an aim of promoting playgrounds activities among children in all public schools. For instance by ensuring that the location of the playground is somewhere safe from risks of traffic accidents as the children cross-the road.

The playgrounds should be located not too far from the school for the children safety while participating in outdoor activities. Thus, schools with playgrounds far from the school should ensure that children are supervised while at the playground.

### **5.5.2 Recommendations for Status of the Playground**

School community should also ensure that the bushes around the playground are cleared and the risky areas such as swamps are restricted from children reach. As well, the playgrounds should be surrounded with fence to ensure that the foreigners do not pass into the field. The school administration should provide adequate, safe and secure playground spaces where children can effectively participate in outdoor activities and thus acquire physical and psychosocial skills.

### **5.5.3 Recommendations for Playing Equipment Conditions**

Further, the study recommends that old equipment should be replaced with new ones or get repaired. As well, the equipment that is weary or worn out should be excluded from the safe ones so as to avoid bruising pre-school children.

The study recommends that school inspectors should ensure that preschools have safe play equipment through frequent supervision of schools and play fields to check on the play equipment. This is necessary because in most schools I visited teachers were not present at the play field to check on what children played with. Therefore if school inspectors could carry out inspection of the play equipment it would ensure that children play with safe play equipment and that teachers and head teachers are forced to repair those that need repair in good time before they cause accidents during play.

Every public school should focus on providing adequate and age appropriate play equipment and materials for all children, including those with special needs, within acceptable limits of safety. Age appropriate equipment and materials should be provided for different activities, in different zones within the playgrounds to enhance children's safety.

Teachers and administrators should ensure equipment are securely fixed and along with the portable materials they are in good condition to meet children's need for safety.

Physical play should be encouraged by climbing equipment and swings, tricycle paths, and large areas of grass and hills on which pre-schools can run, crawl and roll. The outdoor play environment should enhance every aspect of child development-motor, cognitive, social, and emotional-and their correlates-creativity, problem-solving, and just plain fun.

The learning environment should provide a rich assortment of materials and equipment for children to develop socially, cognitively and physically.

#### **5.5.4 Recommendations for Policy**

The study findings should be used by the policy makers in order to improve the safety of the playground in the schools across Nyamira County and in other counties.

The government should ensure that the enforced playground conditions and the children right policies and laws toward physical activity and learning are not violated. This would enhance the condition of the playground that would improve the children safety while taking part in outdoor activities.

#### **5.5.5 Recommendations for Further Research**

In the future, an increase in the sample size could increase the reliability of the study findings and the ability to generalize the findings to a wider scope. Also, future researches should cover more on impact of pre-school participation in outdoor activities on academic performance in Kenya. Comparative studies can be conducted in other counties more especially in remote areas such as Kisumu, Kisii, Mandera, Nakuru and Kiambu among others so as to compare the results from different respondents across Kenya. This would help to come up with stringent solutions on low pre-school children participation in outdoor activities across Kenya.

## REFERENCES

- Abiero, M., (2013). *Parental satisfaction with the quality of pre-primary education in bondo district, siaya county, Kenya* (Unpublished MEd. Thesis, Kenyatta University Kenya).
- Adekoya – Sofowora, C., Adesina, O., & Nasir, W. (2014). Increasing children's school time physical activity using structured fitness breaks. *Pediatric Exercise Science*, 15(1), 156- 169.
- Admin, H. (2014). *Scope of the study*. Retrieved from <http://www.phdthesis.in/scope-of-the-study/>, on September 2018.
- Bandura, A. (1991). *Self-efficacy, impact of self-beliefs on adolescent life paths*. New York: Garland.
- Bhayya, D., & Shyagali, T. (2013). Traumatic injuries in the primary teeth of 4- to 6-year-old school children in Gulbarga City, India. *OHDH*. 12, 17–23.
- Brendon, H., Telford, A., Caroline, F. & Amanda, B. (2012). *Moving physical activity beyond the School Classroom: A Social-Ecological*.
- Broekhuizen, K. Scholten, A., & Vries, S. (2014). *The value of (pre)school playgrounds for children's physical activity level: a systematic review*. Retrieved from <https://ijbnpa.biomedcentral.com/track/pdf/10.1186/1479-5868-11-59>.
- Caglar, E, Kuvvetli, S., & Sandalli, N. (2010). Safety of play equipment and surfaces for children in playgrounds in relation to dental trauma. *OHDHMBSC* 9 (2), 62–68.
- Caro, H., Altenburg, T., Dedding, C., & Chinapaw, M. (2016). *Dutch primary schoolchildren's perspectives of activity-friendly school playgrounds: A participatory*. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4923983/>., on September 2018.
- Chancellor, B. (2013). Primary school playgrounds: Features and management in Victoria, Australia. *International Journal of Play*, 2(3), 63–75.
- Clayton, N. (2010). Can animals recall the past and plan for the future? *Status Reverence Neuroscience*, 4(3), 685–91.
- Cortes, M., Marcenes, W., & Sheiham, A. (2012). Impact of traumatic injuries to their permanent teeth on the oral health related quality of life in 2-14 year old children. *Community Dent Oral Epidemiol*, 30 (3), 193–198.
- Davison, K. (2006). Lawson CT: Do attributes in the physical environment influence children's physical activity? A review of the literature. *IJBNPA*, 6 (3), 19-28.

- Dyment, J., Anne, C., & Adam, J. (2009). The relationship between school ground design and intensity of physical activity. *Children's Geographies*, 7(2), 261–76.
- Dyment, J., Bell, A., & Adam J. (2009). The relationship between school ground design and intensity of physical activity. *Children's Geographies*, 7(2), 261–76.
- Eigbobo, J., Nzomiwu, C., Amobi, E., & Etim, S. (2014). The standard of playgrounds and safety measures in prevention of traumatic dental injuries in Nigerian primary schools. *Journal of the West Africa College of Surgeons*, 4(4), 82-99.
- Ellen, H., Torsheim, T., & Oddrun, S. (2008). Physical environmental characteristics and individual interests as correlates of physical activity in Norwegian secondary schools: Health behaviour in school-aged children study. *International Journal of Behavioral Nutrition and Physical Activity*, 5(3), 47-56.
- Fuller, B. (2009). Building schools, rethinking quality? Early lessons from Los Angeles. *Journal of Educational Administration*, 47 (3), 336-349.
- Hamer, M., Aggio, D., Knock, G., Kipps, C., Shankar, A., & Smith, L. (2017). *Effect of major school playground reconstruction on physical activity and sedentary behaviour: Camden active spaces*. Retrieved from 10.1186/s12889-017-4483-5.
- Hyndman, B., & Telford, A. (2015). Should educators be ‘wrapping school playgrounds in cotton wool’ to encourage physical activity? Exploring primary and secondary students’ voices from the school playground. *Australian Journal of Teacher Education*, 40(6).
- Hyndman, B., Amanda, C., & Amanda, T. (2014). A guide for educators to move beyond conventional school playgrounds: RE-AIM evaluation of the lunchtime enjoyment activity and play (LEAP) intervention. *Australian Journal of Teacher Education*, 39(2), 1-12.
- Hyndman, B., Amanda, T., Caroline, F., & Amanda, C. (2012). Moving physical activity beyond the school classroom: A social-ecological insight for teachers of the facilitators and barriers to students’ non-curricular physical activity. *Australian Journal of Teacher Education*, 37(2), 1–24.
- Hyndman, Benson, P., & Telford, A. (2014). Should educators be ‘wrapping school playgrounds in cotton wool’ to encourage physical activity? Exploring primary and secondary students’ voices from the school playground. *Australian Journal of Teacher Education*, 40(3), 6-15.
- Jansson, M. (2015). Children's perspectives on playground use as basis for children's participation in local play space management. *The International Journal of Justice and Sustainability*, 20(2), 56-69.
- Johnson, J., Christie, J., & Wandle, F. (2015). *Play development and early education*. Boston; Ally and Bacon.

- Jones, N., Jones, A., Esther, M., Jenna, S., Harrison, F., & Simon, J. (2010). School environments and physical activity: the development and testing of an audit tool. *Health & Place, 16* (4), 776–783.
- Kenya Demographic and Household Statistics, (2014). *Demographic and health survey*. Retrieved from <https://dhsprogram.com/pubs/pdf/fr308/fr308.pdf>, on September 2018.
- Kim, Y., & Baylor, A. L. (2007). Pedagogical agents as social models to influence learner attitudes. *Educational Technology, 47*(01), 23-28.
- Kothari, C. R. (2012). *Research methodology. Methods and techniques* (2<sup>nd</sup> ed.). New Delhi: New age International.
- Kriemler, S., Meyer, U., Martin, E., van-Sluijs, E., Andersen, L., & Martin, B. (2011). Effect of school-based interventions on physical activity and fitness in children and adolescents: a review of reviews and systematic update. *British Journal of Sport Medicine, 45*(11), 923-930.
- Macharia, H. (2012). *Influence of school playground safety on the participation of preschool children in outdoor activities in Central Division, Naivasha District, Kenya* (Unpublished Master's thesis, University of Nairobi, Nairobi, Kenya).
- Macharia, K. (2012). *Influence of school playground safety on the participation of pre-school children in outdoor activities in central division, Naivasha District, Kenya* (Master's thesis, University of Nairobi, Nairobi, Kenya). Retrieved from file:///E:/Games/ Level%20/Mokaya%20Beatrice/pdf/MACHARIA\_HELLEN\_K.\_M. ED.\_ECE2012. pdf., on September 2018.
- Maillard, J. (2013). *Editorial – What is the significance and impact of a study?* Retrieved from <https://onlinelibrary.wiley.com/doi/full/10.1111/lam.12093>, on September 2018.
- Malone, K., & Tranter, P. (2013). *Children's environmental learning and the use design and management of play grounds*. New Delhi. New Age international (P) limited publishers.
- Marcenes, W., & Murray, S. (2012). Changes in prevalence and treatment need for traumatic dental injuries among 14-year-old children in Newham, London: A deprived area. *Community Dent Health. 19*(2), 104–108.
- Maslow, A. (1954). *Motivation and personality*. New York: Harper and Row.
- McMillan, J. H., & Schumacher, S. (2001). *Research in education: A conceptual introduction*. New York: Longman.

- Miles, B., & Huberman, Y. (2012). Child sexual abuse and the right of the Nigerian child. *The counselor, 18* (1) 166–172.
- Moore, G. (2012). *How big is too big? How small is too small?* Child care Information Exchange.
- Moshe, H. (2010). Social information processing, experiences of aggression in social contexts, and aggressive behavior in adolescents. *Criminal Justice and Behavior, 34*(3), 330–347.
- Mugenda, O.M., & Mugenda, A.G. (2012). *Research Methods: Quantitative and Qualitative Approaches (Revised Ed)*. Nairobi: African Centre for Technology Studies (ACTS).
- Muthoni, K. (2013). Differences in children's recess physical activity: Recess activity of the week intervention. *Journal of School Health, 80*(9), 436-444.
- Muthoni, S. (2013). Effects of play equipment and loose parts on preschool children's outdoor play behaviour: *An Observational Study and Design Intervention. Children, Youth and Environments, 18*(2), 36-63.
- Mwamba, W. (2013). Long-term effects of a playground markings and physical structures on children's recess physical activity levels. *Preventive medicine, 44*(5), 393-397.
- Mwamba, Y., (2013). *Role of School Based Factors on Quality of Education in Public Secondary Schools in Nyamira North District, Kenya* (Unpublished MED Thesis, University of Nairobi Kenya).
- Ogula P. (2006). *A handbook on educational research*. Nairobi: New Kemit Publishers.
- Olgan, R., & Kahriman-Ozturk, D. (2011). *An investigation in the playgrounds of public and private preschools in Ankara*. Retrieved from [https://www.researchgate.net/publication/290223887\\_An\\_investigation\\_in\\_the\\_playgrounds\\_of\\_public\\_and\\_private\\_preschools\\_in\\_ankara](https://www.researchgate.net/publication/290223887_An_investigation_in_the_playgrounds_of_public_and_private_preschools_in_ankara), on September 2018.
- Pan, C. (2008). School time physical activity of students with and without autism spectrum disorders during PE and recess. *Adapted Physical Activity Quarterly, 25*(4), 308–21.
- Parrish, A., Iverson, D., Russell, K., & Heather, Y. (2009). Observing children's playground activity levels at 13 illawarra primary schools using CAST2. *Journal of Physical Activity and Health, 6* (2), 689–S96.
- Pellegrini, A., & Robyn, M. (2016). *The role of recess in primary school. in play learning: how play motivates and enhances children's cognitive and social-emotional growth*. New York: Golinko and Kathy Hirsh-Pasek.

- Petty, G. (1998). *Teaching today: A practical guide*. London, U.K: Nelson Thornes.
- Ridgers, N., Gareth, S., & Thomas, L. (2010). Reliability and Validity of the System for Observing Children's Activity and Relationships during Play (SOCARP). *Journal of Physical Activity and Health*, 7(2), 17–25.
- Salmon, J., & Abby, A. (2013). *Population approaches to increasing physical activity and reducing sedentary behavior among children and adults*. New York, N.Y.: Oxford University Press.
- Seifert, K., & Hoffnung, R. (1987). *Child and adolescent development*. New York City: Houghton Mifflin Co.
- Sener, I. N., Copperman, R. B., Pendyala, R. M., & Bhat, C. R. (2008). An analysis of children's leisure activity engagement: Examining the day of week, location, physical activity level, and fixity dimensions. *Transportation*, 35(5), 673-696.
- Sheridan, L. (2013). *Playgrounds for young children: National survey and perspectives*. Reston: American Alliance for Health, Physical Education, Recreation and Dance.
- Sofowora, A. Bruimah, R., & Ogunbodede, E. (2014). *Traumatic dental injuries experience in suburban Nigerian adolescents*. Retrieved from [ispub.com/IJDS/3/1/5673](https://pub.com/IJDS/3/1/5673), on September 2018.
- Stanley, M., Boshu, S., & Dollman, J. (2012). Correlates of children's time-specific physical activity: A review of the literature. *International Journal of Behavioral Nutrition and Physical Activity*. 32(2), 17–25.
- Susi, K., Meyer, U. Diener, E., Esther, M., Lars Bo, A., & Martin, B. (2011). Effect of school-based interventions on physical activity and fitness in children and adolescents: A review of reviews and systematic update. *British Journal of Sports Medicine*, 45(3), 923–930.
- Tudor-Locke, C., Lee, S., Charles, F., Aaron B., & Robert, P. (2012). Children's pedometer-determined physical activity during the segmented school day. *Medicine & Science in Sports & Exercise*, 38(2), 1732–1738.
- UNICEF, (2010). *State of the world's children*. New York: UNICEF.
- Wanjohi, A., (2014). *Social Research Methods Series: Proposal Writing Guide*. Retrieved from <https://ssrn.com/abstract=2378204>, on September 2018
- Willenberg, L., Rosie, A., Dionne, H., Lisa, G., Colin, M., Julie, J., Green, G., & Elizabeth, W. (2009). Increasing school playground physical activity: A mixed methods study combining environmental measures and children's perspectives. *Journal of Science and Medicine in Sport*, 13(1), 210–16.



World Health Organization (2012). *Oral health: Fact sheet no 318*. Retrieved from [www.who.int/mediacentre/factsheets/fs318/en/index.htm](http://www.who.int/mediacentre/factsheets/fs318/en/index.htm), on September 2018.

## APPENDICES

### APPENDIX I: QUESTIONNAIRE FOR PARENTS

Dear Respondent,

My name is MOKAYA BEATRICE and I am carrying out a study on **Influence of Playground Safety on Pre-school's Children Participation in Outdoor Activities in Ekerenyo Division in Nyamira County**. You have been selected to participate in this study and I would like you answer the following questions. Your name should not appear anywhere on this questionnaire. Please answer all the questions by putting a tick (✓) against the appropriate response and filling in the blank spaces where appropriate.

Thank you in advance.

#### **Section I: Demographic Data (Please tick (✓) where applicable)**

1. What is your gender?

Male [ ] Female [ ]

2. What is your age bracket?

Below 35 years [ ] Above 35 years [ ]

#### **Section II: Playground Location (Please tick (✓) where applicable)**

3. Does playground location influence pre-school children participation in outdoor activities in Ekerenyo division?

Yes [ ] No [ ]

4. Please indicate the level of agreement that you have with the following statements of playground location. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

Statement	5	4	3	2	1
Location of the schools' playground plays a significant role on pre-school children participation in outdoor activities;					
The number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school;					
Children's perspectives on playground use is affected by the distance of the playground from the school;					
Children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults;					
Children perceive the playgrounds that are far from the learning area as insecure leading their reduced participation in the outdoor activities;					
There is high children participation in outdoor activities in the playgrounds that are easily accessible;					

**Section III: Status of the Playground (Please tick (√) where applicable)**

5. Does the status of the playground influence pre-school children participation in outdoor activities in Ekereny division?

Yes [ ] No [ ]

6. Please indicate the level of agreement that you have with the following statements of status of the playground. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

Statement	5	4	3	2	1
Presence of natural features such as bushes, grass, trees in the playground can discourage preschool children participation in outdoor activities;					
There is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities;					
My child have been denied the right to play in a healthy, safe or secure and nurturing environment in Ekerenyo division;					
The playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division;					
Too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children;					
School playgrounds in Ekerenyo division are marked to separate play areas into activity and equipment-based areas;					
Major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyo;					
The topography of the playground influences preschool's children physical activities;					

**Section IV: Condition of Play Equipment (Please tick (√) where applicable)**

7. Does the condition of play equipment influence pre-school children participation in outdoor activities in Ekerenyo division?

Yes [ ] No [ ]

8. Please indicate the level of agreement that you have with the following statements of condition of play equipment. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

Statement	5	4	3	2	1
Preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment;					
Fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children’s active play in the playground;					
Children’s playground composed of age appropriate equipment scaled to their sizes encourages the preschool children participation in in outdoor activities;					
Children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs;					
The arrangement of the equipment is crucial to enhancing children’s safety in the playground;					
Children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds;					

**Section V: Pre-school children participation in outdoor activities (Please tick (√) where applicable)**

9. Please indicate the level of agreement that you have with the following statements of pre-school children participation in outdoor activities. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
The frequency of the children's participation in outdoor activities is determined by the playground safety;					
The children's attitude towards outdoor activities is determined by the playground safety;					
The supervision of the children while in the playground affects preschool's children participation in outdoor activities;					
Preschool children who participate in outdoor activities have a good record of improved academic performance;					
Preschool children who participate in outdoor activities have improved social values;					

**THE END**

## APPENDIX II: QUESTIONNAIRE FOR TEACHERS

Dear Respondent,

My name is MOKAYA BEATRICE and I am carrying out a study on **Influence of Playground Safety on Pre-school's Children Participation in Outdoor Activities in Ekerenyo Division in Nyamira County**. You have been selected to participate in this study and I would like you answer the following questions. Your name should not appear anywhere on this questionnaire. Please answer all the questions by putting a tick (√) against the appropriate response and filling in the blank spaces where appropriate.

Thank you in advance.

### **Section I: Demographic Data (Please tick (√) where applicable)**

1. What is your gender?

Male [   ] Female [   ]

2. What is your age bracket?

Below 35 years [   ] Above 35 years [   ]

### **Section II: Playground Location (Please tick (√) where applicable)**

3. Does playground location influence pre-school children participation in outdoor activities in Ekerenyo division?

Yes [   ] No [   ]

4. Please indicate the level of agreement that you have with the following statements of playground location. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

Statement	5	4	3	2	1
Location of the schools' playground plays a significant role on pre-school children participation in outdoor activities;					
The number of children using the playgrounds and the number of children actively playing is larger in playgrounds that are near the school;					
Children's perspectives on playground use is affected by the distance of the playground from the school;					
Children as primary users of the playground are able to identify location barriers for active play that are easily overlooked, unknown or differently perceived by adults;					
Children perceive the playgrounds that are far from the learning area as insecure leading their reduced participation in the outdoor activities;					
There is high children participation in outdoor activities in the playgrounds that are easily accessible;					

**Section III: Status of the Playground (Please tick (√) where applicable)**

5. Does the status of the playground influence pre-school children participation in outdoor activities in Ekereny division?

Yes [ ] No [ ]

6. Please indicate the level of agreement that you have with the following statements of status of the playground. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.



Statement	5	4	3	2	1
Presence of natural features such as bushes, grass, trees in the playground can discourage preschool children participation in outdoor activities;					
There is need for awareness of the need for natural features settings that should precede school or community playground initiatives so as to encourage preschool children participation in the outdoor activities;					
Preschool children have been denied the right to play in a healthy, safe or secure and nurturing environment in Ekerenyo division;					
The playgrounds are large enough for the number of children in the pre-school to play and run around safely in Ekerenyo division;					
Too large or poorly designed playgrounds lead to reduced attention span, more supervision, noise, and confusion among preschool children;					
School playgrounds in Ekerenyo division are marked to separate play areas into activity and equipment-based areas;					
Major playground reconstruction/maintenance affects the physical activity among preschool children in Ekerenyo;					
The topography of the playground influences preschool's children physical activities;					

**Section IV: Condition of Play Equipment (Please tick (√) where applicable)**

7. Does the condition of play equipment influence pre-school children participation in outdoor activities in Ekerenyo division?

Yes [ ] No [ ]

8. Please indicate the level of agreement that you have with the following statements of condition of play equipment. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

Statement	5	4	3	2	1
Preschool children enjoys more on loose sports equipment like skipping ropes playing balls than fixed playground equipment;					
Fixed equipment, sporting equipment, and high intensity activities like sprinting facilitate children’s active play in the playground;					
Children’s playground composed of age appropriate equipment scaled to their sizes encourages the preschool children participation in in outdoor activities;					
Children always feel safe when the play equipment and materials are appropriate and able to challenge their physical and intellectual capacities to meet their individual needs;					
The arrangement of the equipment is crucial to enhancing children’s safety in the playground;					
Children often perceive the built environment such as sporting facilities, adventurous equipment, and fixed playground equipment as an encouragement to active play on school playgrounds;					

**Section V: Pre-school children participation in outdoor activities (Please tick (√) where applicable)**

9. Please indicate the level of agreement that you have with the following statements of pre-school children participation in outdoor activities. Key: 5-Strongly Agree; 4-Agree; 3-Neutral; 2-Disagree; 1-Strongly Disagree.

<b>Statement</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
The frequency of the children's participation in outdoor activities is determined by the playground safety;					
The children's attitude towards outdoor activities is determined by the playground safety;					
The supervision of the children while in the playground affects preschool's children participation in outdoor activities;					
Preschool children who participate in outdoor activities have a good record of improved academic performance;					
Preschool children who participate in outdoor activities have improved social values;					

**-THE END-**

### APPENDIX III: INTERVIEW SCHEDULE FOR EDUCATION OFFICERS

#### Section I: Demographic Data

<b>Gender</b>	
<b>Age bracket</b>	
<b>Years of Work experience</b>	

#### Section II: Playground Location

1. What is the influence of playground location on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County? (**Probes:** Accessibility; Distance to school; within or outside the school; Security in the playground).

#### Section III: Status of the Playground

2. To what extent does the status of the playground influence pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County? (**Probes:** Ground cover; Size of playground; Level of maintenance; Topography of the playground; Presence of dust)

#### Section IV: Condition of Play Equipment

3. To what extent does playing equipment conditions influence pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County? (**Probe:** Level of maintenance; Availability of equipment; Type of equipment)

**-THE END-**

**APPENDIX IV: FOCUSED GROUP DISCUSSION FOR PRE-SCHOOL  
CHILDREN**

**Section I: Demographic Data**

<b>Date</b>	
<b>Venue</b>	
<b>Names of Interviewer</b>	

**Details of the Participants**

No.	Name	Gender
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

**Section II: Playground Location**

1. What is the influence of playground location on pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County? (**Probes:** Accessibility; Distance to school; playground within or outside the school; Security in the playground).

**Section III: Status of the Playground**

2. To what extent does the status of the playground influence pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County? (**Probes:** Ground cover; Size of playground; Level of maintenance; Topography of the playground; Presence of dust)

**Section IV: Condition of Play Equipment**

3. To what extent does playing equipment conditions influence pre-school children participation in outdoor activities in Ekerenyo division, in Nyamira County? (**Probe:** Level of maintenance; Availability of equipment; Type of equipment)

**-THANK YOU-**

**APPENDIX V: OBSREVATION CHECKLIST**

Number of pre-school Children that participated in the playground outdoor activities				
Name of Pre-School	Day1	Day2	Day3	Day4
1.				
2.				
3.				
4.				
5.				
6.				
7.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				

### APPENDIX VI: MEASUREMENT OF PLAYGROUND SAFETY

Item	Good	Poor
Distance of playground from school;		
General condition of the playground;		
Security of the playground;		
Supervision of children in the play areas;		
Size of playground;		
Appropriateness of the play equipment and materials;		
Availability of play equipment for children with special needs;		
Level of equipment maintenance;		
<b>Total Marks (Percentage)</b>		

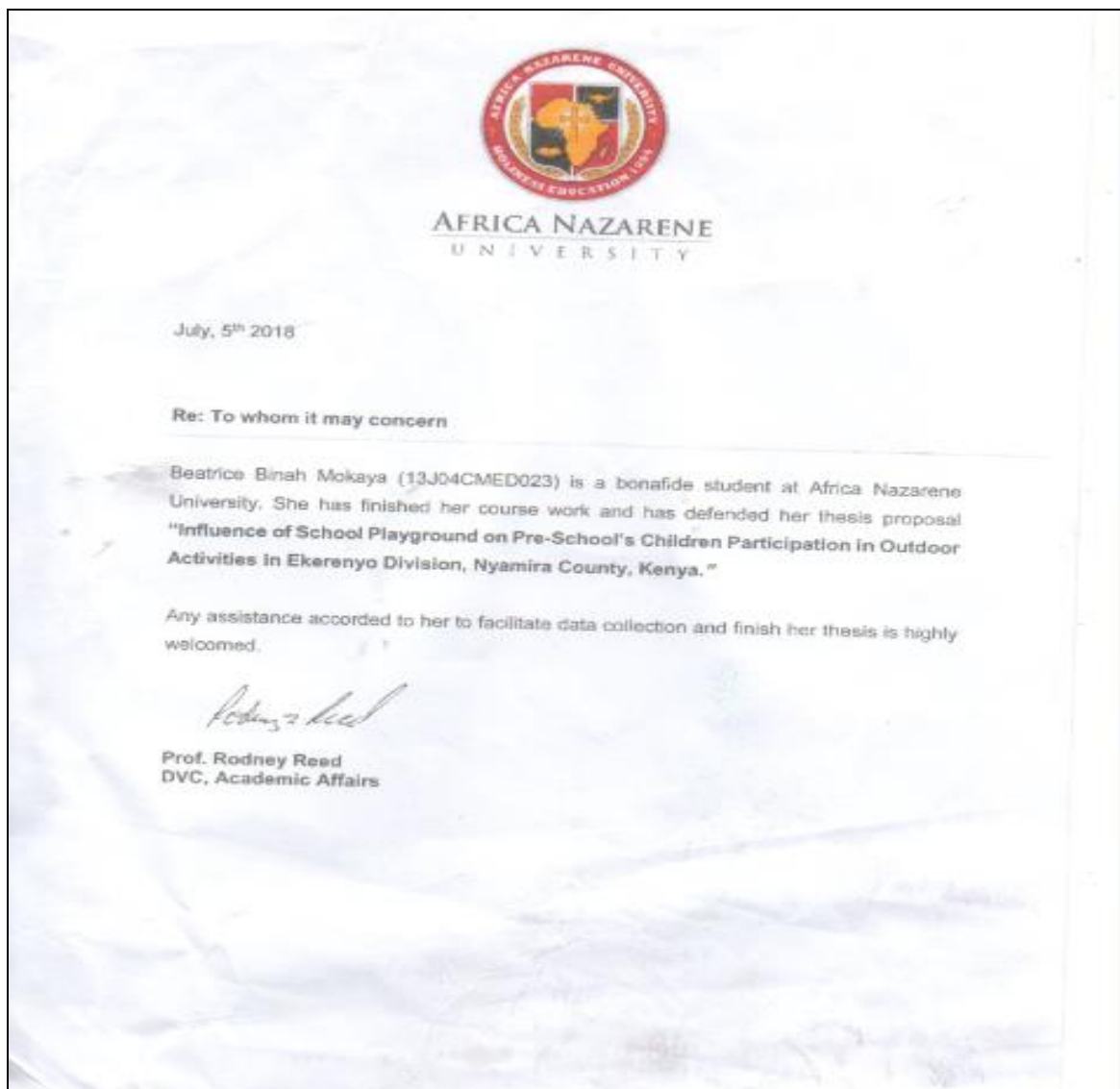
Key:

- The total marks of the items were recorded per school (**See Appendix VII**).
- Marks above 50% was considered strong (Either good or poor playground safety)



**APPENDIX VI: SCORES OF PLAYGROUND SAFETY BY SCHOOL**

<b>Name of Pre-School</b>	<b>Total Marks (Percentage)</b>	
	<b>Good</b>	<b>Poor</b>
1. Sakwa	72%	28%
2. Kebabe	26%	74%
3. Mwanicha	78%	22%
4. Esanige	12%	88%
5. Enkinda	84%	16%
6. Gateway Academy	68%	32%
7. Ekegoro	40%	60%
8. Magena marabu	34%	66%
9. Rianyamage	76%	24%
10. Alpha Academy	18%	82%

**APPENDIX VII: LETTER OF INTRODUCTION FROM ANU**

## APPENDIX VIII: RESEARCH AUTHORISATION LETTER FROM MOE

REPUBLIC OF KENYA



**MINISTRY OF EDUCATION, STATE DEPARTMENT OF EARLY LEARNING  
AND BASIC EDUCATION**

Telephone:  
When replying please quote  
REF: NNED/ADMN/ VOL 2/83)  
Email:nyamiranedu@gmail.com

**SUB-COUNTY EDUCATION OFFICE,  
NYAMIRA NORTH,  
P.O. BOX 77-40501  
IKONGE**

Date: 16<sup>th</sup> July, 2018

**TO WHOM IT MAY CONCERN**

**RE: RESEARCH AUTHORISATION BEATRICE BINAH MOKAYA (13J04CMED023)**

Following your application to carry out research as authorized by Africa Nazarene University vide their letter dated 5<sup>th</sup> July, 2018 on influence of play ground safety on pre-School's Children participation in Outdoor activities in Nyamira North sub county, Nyamira County.

Authority is hereby granted for the research which commences immediately.

Please accord her your assistance.

*Handwritten signature of Claire Oyula*  
P.O. BOX 77  
IKONGE

**CLAIRE OYULA**

**For: SUB-COUNTY DIRECTOR OF EDUCATION  
NYAMIRA NORTH.**

**Vision:** A globally competitive quality education and training for development.

**Mission:** To provide, promote and co-ordinate quality life-long education training and research for Kenya's sustainable development and responsible citizenry.

## APPENDIX IX: RESEARCH AUTHORISATION LETTER FROM NACOSTI



### 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/18/99328/24184**

Date: **7<sup>th</sup> August, 2018**

Beatrice Binah Mokaya  
Africa Nazarene University  
P.O. Box 53067-00200  
**NAIROBI.**

#### **RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on *“Influence of school playground safety on preschools children participation in outdoor activities in Ekerenyo Division Nyamira County Kenya”* I am pleased to inform you that you have been authorized to undertake research in **Nyamira County** for the period ending **6<sup>th</sup> August, 2019.**

You are advised to report to **the County Commissioner and the County Director of Education, Nyamira 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.

**DR. STEPHEN K. KIBIRU, PhD.**  
**FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner  
Nyamira County.

The County Director of Education  
Nyamira County.

**APPENDIX X: RESEARCH PERMIT FROM NACOSTI**

**THIS IS TO CERTIFY THAT:**  
**MISS. BEATRICE BINAH MOKAYA**  
**of AFRICA NAZARENE UNIVERSITY,**  
**17273-20100 NAKURU, has been**  
**permitted to conduct research in**  
**Nyamira County**

**on the topic: INFLUENCE OF SCHOOL**  
**PLAYGROUND SAFETY ON PRESCHOOLS**  
**CHILDREN PARTICIPATION IN OUTDOOR**  
**ACTIVITIES IN EKERENYO DIVISION**  
**WYAMIRA COUNTY KENYA**

**for the period ending:**  
**6th August,2019**

  
 .....  
**Applicant's**  
**Signature**


**Permit No : NACOSTI/P/18/99328/24184**  
**Date Of Issue : 7th August,2018**  
**Fee Received :Ksh 1000**




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

**CONDITIONS**

1. The License is valid for the proposed research, research site specified period.
2. Both the Licence and any rights thereunder are non-transferable.
3. Upon request of the Commission, the Licensee shall submit a progress report.
4. The Licensee shall report to the County Director of Education and County Governor in the area of research before commencement of the research.
5. Excavation, filming and collection of specimens are subject to further permissions from relevant Government agencies.
6. This Licence does not give authority to transfer research materials.
7. The Licensee shall submit two (2) hard copies and upload a soft copy of their final report.
8. The Commission reserves the right to modify the conditions of this Licence including its cancellation without prior notice.

  
**REPUBLIC OF KENYA**



**National Commission for Science,**  
**Technology and Innovation**

**RESEARCH CLEARANCE**  
**PERMIT**

**Serial No.A 19935**  
**CONDITIONS: see back page**



### APPENDIX XI: MAP OF THE STUDY AREA

