

**SCHOOL ENVIRONMENT AND CHILDREN'S LEARNING IN PRE-PRIMARY  
SCHOOLS IN NANSANA MUNICIPALITY, UGANDA**

**NAKIMULI RACHEAL**

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## DECLARATION

This research thesis is my original work and has not yet been presented for a degree or any other academic award in any university or institution of Higher learning.

.....  
Signature of Candidate

Nakimuli Racheal

Reg. No: 2019-01-05350

.....  
Date

## **APPROVAL**

I confirm that the work reported in this research thesis has been duly supervised and is ready for academic examination.

.....

Signature of Supervisor

Dr. Sofia Sol Gaité

Supervisor

.....

Date

## **DEDICATION**

I dedicate this piece of work to my parents, my husband and children, whose tireless efforts to see me through school have always been an inspiration to me in my academic pursuits. May God bless you abundantly.

## **ACKNOWLEDGMENTS**

First, I acknowledge and appreciate God for bringing me this far. He has kept me safe and in good health and empowered me with wisdom and strength to pass through these years.

My sincere gratitude goes to my supervisor, Dr. Sofia Sol Gaité, who has read my work and enabled me to move to its completion. I also acknowledge my lecturers who have inspired me and pushed me to the limit to achieve the required output in my studies. I do not forget my fellow students who did their best to see that this research is well completed.

I thank my parents, my husband and children, whose tireless efforts to see me through school have always been an inspiration to me in my academic pursuits. I also appreciate my respondents for their input and giving me the information.

## ABSTRACT

*The study investigated the relationship between school environment and children's learning in preprimary schools in Nansana municipality. The study objectives were: to find out the level of adequacy of school environment for children's learning in preprimary schools; to assess the level of children's learning in preprimary schools; and to establish the relationship between school environment and children's learning in preprimary schools. The study used descriptive and correlation research designs with both qualitative and quantitative approaches. Data was collected from 118 pre-primary teachers among 20 schools using a self-administered questionnaire. The school environment is an important aspect of supporting children's learning interactions, which are central to their learning. The findings on level of adequacy of school environment in preprimary schools of Nansana Municipality, was adequate with a grand mean of 2.72 and standard deviation of 0.84. The level of children's learning in preprimary schools of Nansana Municipality. The findings generated a grand mean of 2.76 and standard deviation of 0.82 which implies that there was a satisfactory level of children learning. School environment had a significant relationship with children's learning as shown, with  $r = .581$  and  $p = 0.000$ . This means that school environment that is staff, space and physical facilities help and boost children learning. Since the significant level of 0.000 was less than 0.05 then the null hypothesis was rejected which states that there is no significant relationship between school environment and children's learning in pre-primary schools of Nansana Municipality District and the alternative hypothesis is accepted which states that there is a significant relationship between school environment and children's learning in pre-primary schools of Nansana Municipality. The availability of staff, space and physical facilities positively promotes children learning in terms of numeracy, reading, play and writing. With school environments such as school facilities, space and teachers playing such an important role in a child's development, learning and association of learners while in school. Thus, pre-primary schools should take every precaution to ensure that the learning environment is one that helps children to succeed or obtain. It is recommended that school administrators should ensure that they provide the right school environment that can foster children learning in pre-primary schools in Nansana. Also, they should put more efforts towards children learning to foster their learning in pre-primary since it is the core for their future. There is need for enough teachers to help and cater for all learners. A number of pre-primary schools have many children who need more teachers to be helped individually.*

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Introduction**

This chapter presents the background of the study, statement of the problem, purpose of the study, specific objectives, research questions, research hypothesis, scope of the study and significance of the study.

### **1.1 Background to the Study**

The background of the study presents the historical, theoretical, conceptual and contextual perspectives.

#### **1.1.1 Historical Perspective**

Pre-primary education covers all forms of organized and sustained center-based activities: such as pre-schools, kindergartens and day-care centers designed to foster learning, emotional and social development in children. As part of SDG 4, Target 4.2 aims to “ensure that all girls and boys have access to quality early childhood development, care and preprimary education so that they are ready for primary education” (UN, 2015) has generated global scrutiny, as it seeks to ensure children are developmentally on track when they begin primary school. Benefits of investing in pre-primary education are found to be the greatest for the most disadvantaged, who are often the least prepared when starting primary school and are therefore most likely to be left behind (UNESCO, 2015). In many European countries and the United States, where preprimary education for younger children typically focuses on play. World Bank (2018) notes that in Sub-Saharan Africa, pre-primary education has been expanding rapidly, with the gross enrollment ratio doubling from 15% to 32% between 2000 and 2017. Whether preschools are actually effective at

boosting student outcomes in this region is unclear, however, because rigorous empirical evidence is still scarce. Yet, despite the case for investment, currently preprimary education<sup>3</sup> is both compulsory and free for at least one year by law in just 38 countries worldwide; pre-primary education is compulsory but not free in an additional 50 countries (UNESCO, 2016). The focus of this policy paper is highlighting how, in spite of the cost-effectiveness case for pre-primary education, current enrolment and financing for pre-primary education by regional and income group fall far short of the targets expected to be met by 2030.

Learning takes place in a variety of contexts and learning environments. Formal and non-formal education mainly takes place in structured settings in the form of institutions (schools, community centers, multimedia centers, learning villages/towns). On the other hand, informal education takes place in structured and unstructured environments. Prayoonwong & Nimnuan (2010) asserted that understanding how students learn as well as their performances is by focusing on the social environment.

School environment refers to factors inside the school that affect the teaching and learning process. The school environment includes classrooms, libraries, technical workshops, teacher quality, teaching methods, peers and classrooms, among other variables that can affect the teaching-learning process (Ajayi, 2001). The level of student learning can be improved depending on what the school environment has to offer the learner. In developed countries such as the United Kingdom and the United States of America, teaching and learning may not be affected by the same challenges as in developing countries. In New York, the government takes measures to ensure that all public elementary schools have all the necessary social environments, such as facilities, instructional materials, among other things. Other factors can lead to an effective education and learning process (Psachropoulos & Woodhall, 1995).

In developing countries, a poor school environment has been identified as a major factor leading to poor academic performance in primary schools (UNICEF, 2003). This is due to an overuse of available resources due to increased enrollment. The school environment, like the physical features of a school, has a variety of impacts on students and the learning process. The poor lighting, noise, type of teacher, high and uneven temperature makes the teaching and learning process difficult. Poor maintenance and inefficient facilities lead to poor student health and higher absenteeism among students (Frazier, 2002; Lyons, 2001; and Ostendorf, 2001).

Class size is also an issue affecting teaching and learning in most schools in developing countries. In Kenya, since the establishment of Free Primary Education (FPE), enrollment has increased, leading to overcrowded classes, making the teacher's job difficult because she/he cannot move easily in class (Chuma, 2012).

The presence of a school playground environment brings out its full meaning when it is integrated by into the daily use of teachers and students, which is an important role in the learning process. To fulfill such a role, the schoolyard must be connected with children and become an environment in which children are fully engaged and engaged. Chatterjee (2005) suggested several criteria for determining children's friendships with places, where a child-friendly environment is one that promotes exploration and realizes its many possibilities. for various social activities and interactions; provide opportunities for learning about the environment and capacity by shaping the physical features of the site through repeated use and encouraging children's participation in the care and maintenance of the site there; allow children to freely express themselves in the creation and control of privileged territories and places; and protect the secrets and activities of children in these childhood places from damage.

In Uganda, nursery education as early childhood programmes were then known, was brought in by the British colonialists. The beginning of nursery education in Uganda can be traced back to the 1930s when it was initiated by the European colonial administrators and by Goans (Indians). These groups of people felt that such programmes were important in order to prepare children for formal education (Malinga, 2000). Nursery schools were private and established exclusively for the use of private communities. The main objective of European nursery schools was to prepare European children for school when they went back to Europe. Although the government of Uganda had an interest in nursery education and supported it from the early 1960s, it never controlled or regulated nursery education that was being operated by private individuals. ECD in Uganda has had an uneven development experience, with many delays but also spurts of activity. Greater and more consistent government involvement is now apparent, with efforts to provide direction in many areas. Public investment in ECD is still low, however, with most programmes being privately initiated or funded. A key next step is the development of an enabling cross-sectional policy framework and increased public investment to improve ECD service provision.

Uganda remains one of the countries with school environmental problems due to the privatization of education. In addition to the direct effects that poor facilities have on student learning, the combination of poor facilities creates an uncomfortable and unattractive workplace for teachers, combined with frustrating student behavior, including poor concentration, also affects the learning process of the lecture. Learning to read, write, draw and write remains a challenge for many preschool children. Similarly the government has not fully adopted pre-primary as key since it has not recruited teachers for the same status.

### **1.1.2 Theoretical Perspective**

The research was based on Bandura's Social Cognitive Theory (1977). Cognitive social theory holds that learning occurs when learners observe others performing a learning behavior, thereby creating a mental image of that behavior. Bandura (1977) asserts that most human behavior is learned by observing others; that a person understands how new behaviors are implemented, and in subsequent iterations, this coded information serves as a guide to action. In addition, learning takes place from a chosen environmental structure, where the interaction between teacher and student takes place. The choice and creation of environments influence the interplay of individual, behavioral, and environmental factors (Bussey, 1999). Thus, when students work closely with effective teachers, they can practice modeled behaviors, and then receive feedback and reinforcement from their teachers. These teachers can create an environment where students notice, maintain, regenerate, and motivate.

Psychologists believe that humans are social creatures by nature and that it is natural that they often enjoy interacting, sharing ideas, and observing how other people behave in certain ways. Allwright and Hanks (2009) propose that children are social beings who learn and thrive best in a supportive environment. Interpersonal learning has social aspects attached to it. The first idea of social learning was from Bandura (1977), who proposed that behavior is learned from the environment by observational learning, i.e. by observing the behavior of others, people develop similar behaviors. This means that learning can be shaped by a social context such as an environment that is well designed to create learning opportunities. According to Bandura (1977), social learning is learning by observing the behavior of others and the results of those behaviors. This means that when students are exposed to effective teachers, learning happens.

Stimuli from the preschool environment affect a child's development and learning and physical, cognitive, social and emotional well-being (Acar, 2014). The learning environment in this context includes the social environment (students, teachers, and curriculum or programs) and the physical environment (building and infrastructure). A supportive learning environment that integrates learning and development opportunities both in the physical and educational curriculum (Loebach, 2005).

Moreover, this theory relates to the study since the theory shows that school environment play an important role in learning. Therefore, the school environment was assessed and how it impacts on learning of learners.

### **1.1.3 The Conceptual Perspective**

School environment refers to the different facilities, settings, and teachers in which learners learn. Higgins (2005) demonstrated that the term encompasses the school or classroom and its philosophy and characteristics, including how children interact and treat each other, as well as the ways in which teachers can organize an educational institution to facilitate learning. Since the qualities and characteristics of the learning environment are determined by many factors, school policies, governance structures and other characteristics can also be considered as elements of a study environment. In this study, it refers to the teachers and classroom or school facilities that enhance children's learning.

Different types of school environments can affect a child's learning in different ways. Different physical environments have different interactions in terms of space, resources, values, and expected learning models (Mawson, 2010). Depending on the learning needs of the child, different learning environments can be used to meet these needs. Outdoor environments are especially important for learning skills such as social competence, problem solving, and creative

thinking. In outdoor environments, children can also grow emotionally and academically, as outdoor environments provide different opportunities for exploration and experimentation. The outdoor setting also allows children to have more sensory experiences with nature and physical activity. This physical activity not only improves muscle growth, but also increases the growth of basic nerve centers in the brain, allowing for clearer thinking and increased learning (Clements, 2004).

In this study, school environment like physical facilities which included, staff, and classroom building may influence learning of learners in different ways. The dependent variable is children's learning which refers to the acquiring of knowledge and skills and experiences. Children learn by exploring and understanding their surroundings. A learning environment must be engaging, enjoyable and where children can learn and play using appropriate resources (Isbell & Exelby, 2001). Most features of the physical environment can have an effect on a person's behavior and mental health. This includes interacting with the environment, helping the child develop (Bailey, 2002). The way children interact with their environment and the occupants will affect the arrangement of objects and activities in the space (Isbell & Exelby, 2001).

The effects of teachers and physical facilities and their interaction on learning are difficult to identify in schools. In this study learning that include writing, reading, play and numeracy has not been assessed deeply in Uganda more so in pre-primary school.

#### **1.1.4 Contextual Perspective**

Children are learning in pre-primary remains a big a challenge. The school environment is where children understand their place in the world and the gifts they bring. With school environments such as school facilities, peers, and teachers playing such an important role in a child's development, it is important to understand how the school environment affects children's

learning. Chuma (2012) has observed that different factors affect children's learning in pre-primary schools. He further noted that most schools have problems with school environment that influences learning process. Nansana Municipality pre-primary schools have many challenges with school environment since schools located in urban setting which limits the spaces, playgrounds and other facilities. Different types of school environments influence the different interactions and experiences students receive. Most schools are in a state of overcrowded classrooms, which not only makes it difficult for learners to concentrate, but inevitably limits the time that teachers can spend on innovative teaching methods such as learning, cooperation and teamwork. The school environment, such as the availability of instructional materials, the availability of facilities, the size of classes, and the location of the school, can affect the teaching and learning process in the city's primary school in Nansana Municipality lower primary. There was, however, not a significant amount of research exploring the effect of school environment on children learning which was the concern of the current study.

The study was carried out in pre-primary schools in Nanasana Municipality which are a total of 68. Most of the kindergartens in Nansana city have difficulty with the school environment in which the students study. Kindergarten schools are located in many different places, space and conditions in some schools are lacking while others are redundant.

## **1.2 Statement of the Problem**

Pre-primary education in Uganda allows children from three years to be in school and schools should provide right environment that supports learning (2008 Education Act, 2008). Therefore, most of a child's time is spent in school setting than any other environment. This is where they learn various skills that are deemed necessary and relevant to succeed in a global society. The school environment is where children understand their place in the world and the gifts

they bring. This is where students develop what they want their future to look like, as well as the knowledge of the skills needed to achieve that goal. With school environments such as school facilities, peers, and teachers playing such an important role in a child's development, it is important to understand how the school environment affects learning children's study. If schools are indeed to play an important role in teaching the next generation how to succeed in society, every precaution should be taken to ensure that the learning environment is one that helps children to succeed or obtain. The government has a policy to enroll schools that require a good space where the school is located, a favorable environment for learning, etc (NPA, 2015). Several studies Ajayi (2001) have examined the learning environment on student achievement at school and Chuma (2012) on the challenges affecting teaching and learning in primary schools. However, the studies did not address the issue of school environment for students' learning that this study aimed at. In addition, many schools are currently operating in rented homes and premises that may not provide an adequate school environment. Therefore, the current study aims at establishing the effects of school environment on children learning in pre-primary in Nansana Municipality.

### **1.3 Purpose of the study**

The study investigated the relationship between school environment and children's learning in pre primary schools in Nansana Municipality, Wakiso District.

### **1.4 Specific Objectives of the Study**

- i. To find out the level of adequacy of school environment in pre primary schools of Nansana Municipality.
- ii. To assess the level of children's learning in pre primary schools of Nansana Municipality.
- iii. To establish the relationship between school environment and children's learning in pre primary schools of Nansana Municipality Wakiso District.

## **1.5 Research Questions**

- i. What is the level of adequacy of school environments in pre primary schools of Nansana Municipality?
- ii. What is the level of children's learning in pre primary schools of Nansana Municipality?
- iii. What is the relationship between school environment and children's learning in pre-primary school of Nansana Municipality?

## **1.6 Hypothesis**

H<sub>01</sub> There is no relationship between school environment and children's learning in pre-primary schools of Nansana Municipality.

## **1.7 Scope of the Study**

The scope of the study includes geographical scope, content scope theoretical scope and time scope.

### **1.7.1 Geographical Scope**

The study was carried out in pre-primary schools in Nanasana Municipality total of 68. The researcher selected 20 pre- primary schools to participate in the study since those with pre-primary participated. Similarly, these schools could provide the required data for this study without biasness. Nansana Municipality is found in Wakiso district and it covers 123km<sup>2</sup>. Nansana is approximately 15 kms from Kampala capital city. The area being an urban suburb provides conditions that made the school environment and learning.

### **1.7.2. Content Scope**

The study specifically focused on school environment and children's learning in pre-primary schools of Nansana Municipality. The study addressed the school environment in terms

of staff, space, physical facilities and classroom buildings which impacts on the dependent variable, children learning like numeracy, reading, play and writing. The relationship between school environment and children's learning in pre primary schools was also established.

### **1.7.3 Theoretical Scope**

The research was based on Bandura's Social Cognitive Theory (1977). Social cognitive theory holds that learning occurs when learners observe others performing a learning behavior, thereby creating a mental image of that behavior. The study will cover the aspects of school environment and children's learning in pre-primary schools.

### **1.7.4. Time Scope**

The study was conducted in the period of five months from August 2021 to February 2022. This period was selected since it deems to be useful in accessing schools since it was assumed that by that time all learners and teachers were back in school due to the prevailing challenge of Covid-19 pandemic. At this time the schools would have begun the 2021 academic year.

## **1.8 Significance of the Study**

The results of the research can inform policy makers, teachers, learners, school administrators, planners and other stakeholders to improve learning. It is hoped that the results of the study can help school administrators reflect on how different school environments influence the learning process. In doing so, they may explore the possibility of incorporating these elements into their schools, which in turn could lead to a reduction in absenteeism, dropout and retention and thus a better learning process.

Parents can also use the results of this study to help improve school facilities by organizing fundraisers, for example to build a classroom, recruit more teachers, playgrounds, library hospital,

among other institutions. Policymakers will use the results to help them make decisions in developing strategies to improve learning standards. Future researchers will use this study to identify priority areas and gaps for conducting more research in elementary schools.

The design of the environment should improve the learning environment and support the intent of the user groups. The information obtained from this study will provide a survey method through the initial use of small-scale sampling to record the effect of observations, which may then lead to future studies. The results of these observations will provide useful information that can enhance a child's learning experience by creating early childhood environments that promote and enhance learning. This type of study may influence other design researchers to pursue similar research using a larger sample.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter provides a review of related literature to the study variables. In the same vein it presents the literature in the following order theoretical framework, conceptual framework, related studies and research gaps.

#### **2.2 Theoretical Review**

The study was guided by social cognitive theory of Bandura (1977). Social cognitive theory holds that learning occurs when learners observe others performing a learning behavior, thereby creating a mental image of that behavior. Bandura (1977) asserts that most human behavior is learned by observing others; that a person understands how new behaviors are implemented, and in subsequent iterations, this coded information serves as a guide to action. In addition, learning takes place from a chosen environmental structure, where the interaction between teacher and student takes place.

The choice and creation of the environment influence the interplay of individual, behavioral, and environmental factors (Bussey, 1999). Hence, while college students paintings intently with powerful instructors they are capable of exercise the modeled behaviors, after which they acquire remarks and reinforcements from their instructors. These instructors are capable of create an surroundings wherein student`s attention, retention, reproduction, and motivation have occurred. Psychologists assert that people are social creatures through nature and that it's far however herbal that they in well-known want to interact, proportion thoughts and look at how others behave in sure ways. Allwright and Hanks (2009) propose that students are social beings

who learn and thrive best in a supportive environment. Interpersonal learning has social aspects attached to it.

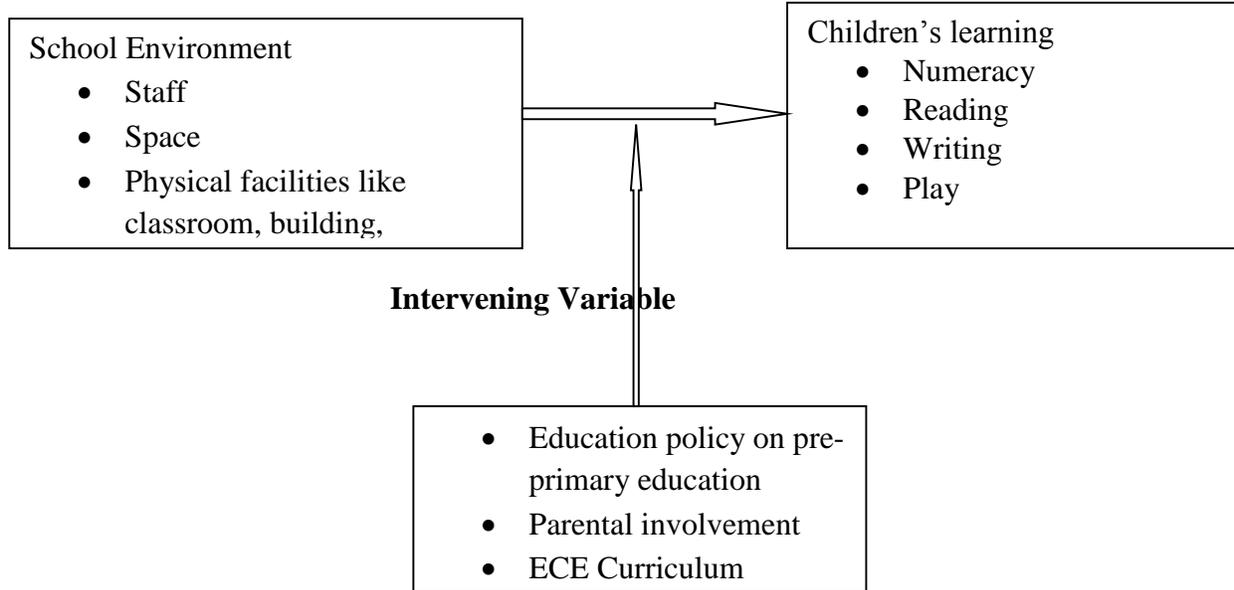
The first idea of social learning was from Bandura (1977), who proposed that behavior is learned from the environment by observational learning, for example by observing the behavior of others, people develop similar behaviors. This means that learning can be shaped by a social context such as an environment that is well designed to create learning opportunities. Social learning, according to Bandura (1977), is about learning by observing the behaviors of others and the outcomes of those behaviors. This means that when students come in contact with effective teachers, learning takes place. Finding “what is right” means the “content” needed by the learner together with the pedagogies that fit their learning styles. On the other hand, Del Rosario (2010) used the STSE model –an effective teaching model which focused on the learning environment perspective of the learners. These models suggest that optimal learning could be achieved when students come in contact with effective social environment. In this study, it is assumed that optimal learning can be achieved when the learning rate is at least 85%. Thus, the agent-based model of NetLogo was incorporated in the context of this assumption.

### **2.3 Conceptual Framework**

The conceptual framework reflects the study variables of the independent and dependent variables from the study objectives. The conceptual framework indicates that school environment in terms of staff, and school facilities impacts on the dependent variable, children learning like numeracy, reading, play and writing letters. In addition, the intervening the variables has a bearing on the independent as well as the dependent variables of the study.

## Independent Variables

## Dependent Variable



Source: Related Studies (2021)

Figure 2.1. The diagram showing the relationship between school environment (IV) and children's learning (DV) and the intervening variables.

The conceptual framework reflects the study variables of the independent and dependent variables from the study objectives. The conceptual framework indicates that school environment as the independent variables in terms of staff, space and school facilities impacts on the dependent variable, children's learning like numeracy, reading, play and writing letters. In addition, the intervening the variables has a bearing on the independent as well as the dependent variables of the study.

## 2.4 Related Studies

### 2.4.1 School Environment

The school environment is an important aspect of supporting children's learning interactions, which are central to their learning. The design of the environment should improve the learning environment and support the intent of the user groups. Social interaction involves two or

more people and can involve both verbal and non-verbal communication (Semrud Clikeman, 2007). For example, while playing with friends, children learn verbal and nonverbal communication skills, and these skills help them learn to get along and get along with others. While engaging in social play, children learn skills such as becoming receptive to the feelings and attitudes of others, learning to take turns, and learning to work with others. While playing, children also learn social skills such as sharing, cooperating, and mutual goal seeking (Hudson & Thompson, 2000). Other skills such as negotiation, resolution of emotional crises, and management of conflicts are also learned during social play (Prellwitz & Skär, 2007). Additionally, during play a child's awareness of his or her environment is also developed, and during play children can learn social norms and values (Prellwitz & Skär, 2007).

Early childhood teachers, as key actors in early childhood education, play an important role in the implementation of early childhood education programmes. This may include guiding and disciplining children, respecting cultural diversity, adopting appropriate teaching and learning methods, promoting autonomy, and many others. Establish reciprocal relationships with family and other teachers (Lundin, 2000). Create a caring community of learners, teaching to promote growth and learning in the classroom (NAEYC, 2005). In the implementation of the preschool education program, both personal and environmental factors come into play. As a researcher, I agree with the opinion of the National Association for Early Childhood Education that, as teachers bringing past experience into the classroom, their perceptions of how learning and development patterns of these young children will affect the quality of early childhood education program implementation.

According to AzziLaken (2009), in education, infrastructure provides the foundation for the rest. Once infrastructure-related deficiencies occur, it can also cause other problems. In the

study of Aktan and Comert (2007), one of the sources of problems in the implementation of the preschool education program is the available facilities in the school. According to research by Gundogan (2002), service training sessions organized by school administrators are not enough to inform preschool teachers about current trends in early childhood education curricula. Research shows that the type of in-service training that preschool teachers receive is not in the field of early childhood education. Thus the in-service training that teachers participated might not be supportive for them in finding answers for their questions on curriculum implementation. Cisneros, Cisneros Chernour and Moreno (2000) in their study revealed that preschool teachers` had problem in implementing the early childhood curriculum due to the fact that parents superficial believe in early childhood education as a playing ground for the children not as a learning setting and this attitude of parents resulted in obstacle between the school and home collaboration. According to Reid, Stoolmiller and Webster Stratoon (2008), teaching experience of preschool teachers can also be problematic in implementing the early childhood education practically.

Teachers see their role in curriculum implementation as a self-governing role. They choose and decide what to teach from the prescribed curriculum or curriculum. Since implementation takes place through student interaction and planned learning opportunities, the role and influence of teachers in this process cannot be questioned. It can be seen clearly from the work of (Goodman & Brand, 2009) that teachers are social creatures and come from diverse backgrounds who bring past experiences into the classroom reality to influence to the curriculum. Goodman and Brand (2009) reported that teachers who were characterized as motivated, responsible and organized and always open to new learning opportunities, were shown to be program implementers, who are stronger than teachers who were described as unmotivated, not open to change.

Teachers working in multifaceted environments (Feeny & Chun, 1985) sometimes place high demands on teachers' cognitive load. Research on teachers' beliefs shows that the most important feature of classroom instruction is a lot of uncertainty. A teacher is unable to organize instruction and maintain control in a highly unpredictable classroom environment without knowing if everything is going well; a teacher must be able to identify, label and solve problems as well as evaluate solutions to problems (Kagan, 1992).

Class decisions about grouping students, whether through formal supervision or informal reading activities, are often guided by beliefs about how students interact and learn from each other (Hong), Corter, Hong and Pelletier, 2012). Parents may also make school decisions in part because of a belief in the benefits of learning from high-achieving peers, the benefits of applying standards set in these settings, or the value of learning from high-achieving peers, values of a diverse population (Kimmelberg & Billingham, 2012; Roda & Wells, 2013). These beliefs about student learning are supported by extensive empirical research showing that peer interactions and relationships are associated with a wide range of adolescent and long-term learning outcomes (Fujimoto, Unger & Valente, 2012; Justice, Petscher, Schatschneider & Mashburn, 2011; Mashburn, Justice, Downer & Pianta, 2009; Sacerdote, 2001; Zimmer, 2003). The importance of peers in relation to other home and school inputs is important to educators when it comes to disparities in academic achievement and the design of instructional strategies that are appropriate for teaching methods. As a result, much interdisciplinary research has focused on determining how peer effects are distributed across schools and whether they are more important to some students than others (for example, Hanushek, Kain, Markman, & Rivkin, 2003; Justice et al., 2011).

Empirical research indicates that space for collaboration is a particularly powerful and malleable factor that can impact early literacy development in children. For example, the peer-

supported learning strategy (PALS) uses struggling readers as coaches to help children develop reading skills (Fuchs et al., 2000; Fuchs, Fuchs & Burish, 2000). Students are paired based on their individual needs, rather than a single activity led by a teacher, who may not meet the reading challenges of most children. By transferring instruction from teacher to student, these strategies can be both effective and effective in helping struggling readers. Results from multiple replication experiments have shown that PALS improves a wide range of early literacy skills, including children's phonological awareness, word literacy, and literacy outcomes (Lemons et al. Comm. 2014), moderately correlated with later reading comprehension (Good et al., 2011). The role of peers for struggling readers is particularly important as they appear to benefit more from exposure to peers with better literacy skills (Mashburn et al., 2009; Justice et al., 2011).

The physical spaces must be adequate with modern infrastructure that meets the standards of the Ministry of Education (MOE, 2001). Doors and windows must be open to allow air to circulate freely in and out of the classroom. In addition, the window should not have a grid. This eliminates serious accidents that could result in affected children being less likely to seek medical attention. When non-screen doors and windows are fully opened, children can easily escape in the event of fire or other circumstances (MOE, 2008).

A study in Uganda by UNESCO, (2008) found that the physical infrastructure of primary schools was inadequate. Infrastructure such as classrooms and toilets are in poor condition. This poses a risk to the health and safety of the learners and thus to learning. In addition, inadequate sanitation facilities also contribute to low participation of girls reaching puberty in these activities. Indeed, low participation in early childhood education and development is thought to be related by Watkins, who noted that retention and learning are hindered when students attend school in leaky buildings, dilapidated or overcrowded and in poorly lit and poorly ventilated classrooms.

Preschoolers develop rapidly physically, cognitively, socially, and emotionally, their experiences with the physical environment can have a lasting effect on their development (Martin, 2004). Poor facilities and spatial quality also affect teacher motivation and indirectly affect children's learning (Salleh, Kamaruzzaman & Mahyuddin, 2013). Teachers feel valued and motivated when they have access to good infrastructure, significantly improving their work performance (Uline & Moran 2008), affecting children's learning outcomes.

An educational reform in the Republic of Mauritius (2009) has determined that preschool is the most essential starting point for any future education. Children over the age of 35 have the best chance of developing the intellectual, social, emotional and psychological capacities to develop the confidence and self-esteem they need during their upbringing. This prepares them for primary school, lays the foundation for learning and contributes to better participation. Participation in early childhood education and development is a broad concept that includes student enrollment, academic performance, less truancy and less retention, among other aspects. This increases transition rates in primary schools and improves internal efficiency.

Infrastructure is the physical component of interdependent systems that help support Early Development for children. There are no suitable classrooms to accommodate pre-primary students in Argentina; so the government funded a big program to build public schools. A similar situation with poor physical infrastructure in schools has also happened in Cuba. The Government has gradually built a system of national day care centers and day care and preschool programs with the rate of 98.3% of children aged 6 years old. This has improved participation in early childhood education and development through better education outcomes in the country. This was confirmed in a 1998 comparative study of grades 3 and 4 in 11 Latin American countries. The results showed that Cuban children had significantly higher scores (more than 100 points above the regional

average in third grade math). This ultimately improved participation through reducing dropouts in later grades in elementary schools. In addition, participation is evident through the expansion of classes which is associated with a strong 10 percent increase in preschool enrollment.

The school playground is physically as an addition to the school's internal space. However, the views of school administrators or teachers towards the school grounds can determine the role these outdoor spaces play in the daily activities of students, whether the school grounds are considered spaces or not. Supplements must not be built as part of the school or be an integral part of the learning space. The schoolyard can become the setting for 'hidden curriculum', no less important than the formal curriculum established in the formal learning space. In fact, the way school administrators view the importance of the schoolyard as an outdoor learning environment is related to the extent to which children can benefit from it for their learning (Malone & Tranter, 2003). This means that how available spaces are used can be determined by the access and opportunities provided by establishing school policies regarding the use and management of school grounds.

#### **2.4.2 Children's Learning**

Learning at school requires students to pay attention, to observe, to memorize, to understand, to set goals and to assume responsibility for their own learning. These cognitive activities are not possible without the active involvement and engagement of the learner. Teachers must help students to become active and goal oriented by building on their natural desire to explore, to understand new things and to master them (Miller & Cunningham, 2003).

In the learning process, children are supposed to be motivated to learn effectively, as teacher put in place strategies to promote effective teaching, as well as materials to enable children

to learn. Learning should allow individual learner to learn. Different factors affect learning process in any given system, which ought to be minimized at the long run (Miller & Cunningham, 2003). Therefore, learning processes may engage or demotivate the learner from participating.

Learning calls for good planning, effective teaching, teachers' concern for the well-being of children, and the beauty reflected in the learning processes (Barth et al. events, 2004). Previous research has investigated factors affecting student learning, including the influence of open learning spaces (Barber, 2006; Graetz & Goliber, 2002; Hunley & Schaller, 2006), flexible seating and writing surfaces (Lombardi & Wall, 2006; Sanders, 2013), integrated technology learning tools (Brewer, Kramer, & O'Brien, 2009; Educause, 2012; Sidall, 2006; Whiteside & Fitzgerald, 2005), lighting (Sleeters, Molenaar, Galetzka, & van der Zanden, 2012) and aesthetics (Janowska & Atlay, 2007). An abundance of studies such as these illustrate how classroom media can positively support classroom practices by improving student engagement in the learning process. Through the lens of a model of student engagement in the learning process in a redesigned active engagement, this study contributes to the literature by providing an understanding of how the environment designed to provide learning behaviors and teaching practices that promote student engagement in learning.

The learning processes in preschool are very important because it affects the understandings of the children. A 15-year study included 1,539 children attending different kindergartens. This research has shown the positive long-term benefits of attending preschool at an early age. Among the participants, 49.7% versus 38.5% had a higher high school completion rate, 46.7% vs. 55.0% are less likely to drop out of school and more likely to complete more years of schooling. These participants also showed lower arrest rates, lower recidivism rates, and lower rates of exceptional years of schooling (Reynolds, Temple, Robertson & Mann, 2001). A child's

school has become a primary setting for learning and discovery, showing that the preschool environment requires special attention. Research in this area is limited. The exact correlation between the physical environment and children's learning is not known (Olds, 2001).

In particular, studies of children's outdoor activities have suggested that children are more active in the summer than in the fall or winter (Silva et al., 2011) and that the climate is cold and dry. Rainy weather becomes one of the barriers to children's outdoor activities (Brockman, Jago & Fox, 2011; Dymont, 2005). However, when examining children's outdoor activities in the context of a school environment, school policy must also be considered. Some schools may have different policies in place to determine whether students engage in physical activity indoors or outdoors when it rains (Harrison et al., 2011), which can affect the level of physical activity. With regard to environmental education, the opportunities for students to be exposed to different elements of the school grounds can also be determined by the opportunities provided by the school administration and teachers.

## **Numeracy**

Numeracy includes the ability to apply various aspects of mathematics to understand, predict, and control routines in human life (British Columbia Association of Mathematics Teachers, n.d.). Numeracy is therefore, expressed as the ability to understand and interpret the number symbol and the connection between them, communicating and representing mathematical concepts through a variety of ways, increasing the customs of mathematics (SREB, 2006). In pre-primary learning, numeracy starts from early stage. TIMSS (2011) suggests that early numeracy experiences that gained during preschool are critical for developing numeracy. In particular, early numeracy lay a good base for potential numeracy skills (Atweh, Arindam, Graven, Jayasree, & Venkat, 2014; Mullis, Martin, Foy, & Arora, 2012). Many researchers agree that focusing on early numeracy development (numeracy before school) is the key to ensure the future ability of numeracy (Anders et al., 2012; Munirah, Ayminsyadora, & Abdul Razak, 2013).

The importance of children's early mathematics skills for their future academic and vocational development cannot be overstated (Blevins-Knabe, 2016; Geary, 2011). For example, Watts, Duncan, Siegler, and Davis-Kean (2014), using a large sample from the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development, found that children's mathematic skills at 54 months predicted their mathematical achievement at 15 years (Bailey, Siegler, & Geary, 2014; Lehl, Ebert, Blaurock, Rossbach, & Weinert, 2019). Children acquire mathematics competencies and interest in mathematics through direct instruction, seeing others model mathematics interactions, and incidental exposure to mathematics such as playing games and engaging in other mathematics-related activities (Sonnenschein, Metzger & Thompson, 2016). Children learn best when they are provided with activities that draw upon their everyday experiences and can choose ones that engage their interest (Sonnenschein, Baker, &

Serpell, 2010; Sonnenschein, et al.2016; Stites & Brown, 2019). An approach that takes interest and skill development into account allows children to develop appropriate mathematics skills and builds upon what many describe as an inherent interest in mathematics (NAEYC/NCTM, 2010; Pomerantz & Grolnick, 2017). This, in turn, can lead to further engagement in mathematics activities and subsequent skill development (Stites & Brown, 2019). The importance of children's engagement in their learning does not minimize the importance of the role of teachers. It is equally important that teachers have a strong understanding of mathematics content as well as pedagogical knowledge of how to teach mathematics.

## **Reading**

Early reading helps learners develop thinking ability, learn to focus and expand vocabulary. However, reading can be a complex act that requires years of experience and use to do well. Successful reading and writing involves understanding, fluency, mastery of essential strategies and motivation(Strategic Marketing and Research, 2013).

However, a large number of children go to school without reading proficiency, which is a real national concern if we are to achieve vision 2030 and the sustainable development goals. Reading in the early school years should aim to read for fun by exposing learners to a variety of reading materials, to help students develop vocabulary, and to expose students to ideas and structures; new sentence structure that will be used later, to communicate verbally and in writing (Gathumbi, 2008). Uwezo (2011), an organization promoting learning in East Africa, published a review of teaching and learning in the region showing low levels of uptake in educational institutions. According to the report, children cannot read and a third of children do not have basic reading, writing and math skills while two out of ten 7th graders have no skills in 2nd grade.

Snow, Burns and Griffin (2006) suggest that there are three potential obstacles to reading, namely difficulty understanding and using the alphabet, inability to transfer comprehension skills from spoken language to reading, and lack of motivation and appreciation for reading. They added that children with early reading problems lack prior knowledge and related skills such as the ability to distinguish sounds, the ability to master reading mechanisms and the ability to recognize letters. Runo (2010) explains that reading is an activity concerned with understanding and interpreting ideas symbolized in written or printed language. It is a complex process that places demands on individuals (i) perception, (ii) language, (iii) perception and (iv) effectiveness of systems (Adams, 2002).

Children's early language skills are the foundation for building good reading in elementary schools (Read on Get on, 2014). For boys and girls to acquire basic reading skills, they must have equal opportunity to access quality education (Piper & Mugenda, 2013). Many schools in the United Kingdom have achieved impressive results for their students in all circumstances, demonstrating that while poverty often makes it harder for children to learn and succeed, this is no excuse for low ambitions (Continued Reading, 2014). However, in developing countries the case may be different as disadvantaged children may be disadvantaged as their parents/guardians may not be able to provide them with educational materials that may not be available to them, improve learning to read. As a result, these children will end up going to school without the necessary reading material, which leads to them having lower ambitions than children from better backgrounds.

## **Writing**

The preschool years are a significant period of growth, during which two interrelated but theoretically distinct emergent literacy domains develop: early reading (for example, alphabet knowledge, phonological awareness) and early writing (like letter writing, spelling) (Puranik, Lonigan, & Kim, 2011). Early writing refers to the competencies and knowledge that emerge prior to beginning writing acquisition and includes understanding of the specific symbols and conventions involved in the creation of writing (for example, writing letters, spelling words) and emerging abilities of using early writing to explore and record ideas (Puranik & Lonigan, 2014). One basic writing skill young children learn is printing individual letters (like, upper- and lower-case alphabet letters from dictation) (Puranik, Petscher, & Lonigan, 2013; Ritchey, 2008). Children's ability to write alphabet letters represents their emerging orthographic knowledge (Ritchey, 2008) and has been shown to be a strong predictor of writing fluency, spelling, and compositional skills in the primary grades. Furthermore, according to the Common Core State Standards for English Language Arts, kindergarten children are expected to print many upper- and lower-case letters, write a letter or letters for most consonant and short-vowel sounds, and spell simple words phonetically (Common Core State Standard Initiative, 2010). Therefore there is need to know the learning ability of pre-school learners in writing skills.

One important area of preschool writing competency is writing individual letters (Puranik et al., 2013). Empirical studies have suggested that the majority of young children can write some upper-case and lower-case letters (Zhang, Diamond, & Powell, 2017). For example, Molfese et al. (2006) asked 79 preschool children to write 15 upper-case letters and found that those children could accurately write an average of one to three upper-case letters at the beginning of the school year. Zhang et al. (2017) assessed preschool children's letter writing by asking them to write 10

upper case letters (B, D, S, T, O, A, H, K, M, and C). They found that children could accurately write an average of three upper-case letters among these ten. Puranik et al. (2013) asked preschool children to write from memory each of the 26 upper-case letters. This study scored children's responses dichotomously, as correct or incorrect, and found that the mean percent correct across all letters was approximately 40% and 74% for 4- and 5-year-old children, respectively. Finally, Worden and Boettcher (1990) examined the upper- and lowercase letter writing of 188 preschool and elementary school children. In this study, children were asked to print both upper- and lower-case letters from memory and letters were scored as correct or incorrect. They reported that children could write both upper- and lower-case letters and the average percent correct across all letters was 23% for the 4-year-old children and 53% for the 5-year-old children.

Phonological awareness is defined as the ability to pay attention to, identify, and manipulate sounds within spoken words within a range of linguistic complexity (Phillips & Piasta, 2013). Accordingly, this construct may be assessed by a variety of tasks asking children to identify, segment, blend, and delete sounds within spoken words. The role of phonological awareness in writing has gained increased research attention, because writing skills (e.g., letter writing) are associated with children's growing awareness of how orthography reflects phonology. As described previously, letter writing represents a child's attempt at retrieving the names and sounds of letters (Kim et al., 2014; Puranik et al., 2011) and as such should be facilitated by a child's phonological awareness (e.g., sensitivity to sounds), particularly for preschool children, as young children may use the letters that represent the most distinctive sounds (Gunning, 2013).

Al Otaiba et al. (2010) found a significant, but weak correlation between phonological awareness tasks, specifically blending and elision, and upper-case letter writing in a sample of 288 kindergarten children ( $r = .18$  to  $.27$ ). Kim et al. (2014) used the same phonological awareness

measures as Al Otaiba et al. (2010), but measured letter writing by asking children to write lower-case letters and observed a moderate correlation of  $r = .48$ . However, one recent study that examined preschool children's early writing found tests of phonological awareness (i.e., blending and elision) did not significantly predict upper-case letter writing (Zhang et al., 2017). For example, beginning and ending sound awareness may be especially important in promoting preschool children's early writing skills because preschool children may reach a critical point in writing development when they begin to represent beginning and ending sounds of words in their writing (Cabell, Tortorelli, & Gerde, 2013). For example, Diamond et al. (2008) found a significant association between children's use of letters in writing and their sensitivity to beginning sounds; therefore, children's awareness of beginning sounds was assessed to indicate phonological awareness in this study.

## **Play**

Play is an important aspect of supporting children's social interactions, which are central to their learning, which makes play even more important in helping their social development and their association. There are different types of learning environments and some are better than others in terms of supporting social interactions. School interactions involve at least two people and can involve both verbal and nonverbal communication (SemrudClikeman, 2007). Age is an important factor regarding the appropriate types of interactions that children engage in learning. As they enter the age of three, they are going through an important period in their development both socially and emotionally. Much of this development is provided through play, as children begin to develop a sense of self and identity (L'Abate, 2009). Different game settings have different interactions in terms of space, resources, values, and expected patterns of behavior and interactions (Mawson, 2010). Depending on the child's developmental needs, different play environments can

be used to meet these needs. Outdoor environments are especially important for learning skills such as social competence, problem solving, and creative thinking. In outdoor environments, children can also grow emotionally and academically, as outdoor environments offer different opportunities for exploration and experimentation. The outdoor setting also allows children to have more sensory experiences with nature and physical activity. This physical activity not only improves muscle growth, but also increases the growth of basal nerve centers in the brain, allowing clearer thinking and increasing learning capacity (Clements, 2004).

During play, children learn verbal and nonverbal communication skills and these skills help them learn to socialize and get along with people. By engaging in social play, children learn skills such as becoming receptive to the feelings and attitudes of others, learning to take turns, and learning to work with others (Spodek & Saracho, 1988). During play, children also learn social skills such as sharing, cooperation and finding common goals (Hudson & Thompson, 2000). Other skills such as negotiation, emotional crisis resolution and conflict management are also learned during social play (Prellwitz & Skär, 2007). In addition, during play, children's awareness of their environment is also developed, and during play, children can learn social norms and values (Prellwitz & Skär, 2007).

Different environments, such as classrooms, playgrounds, and gyms, can also affect children's play behavior in different ways (Shim, Herwig & Shelley, 2001). For example, a child's social and cognitive development depends heavily on play activities, and partly on the environment. In particular, social interactions and relationships with colleagues are strongly influenced by the circumstances and environment in which they occur (Barbour, 1999). For example, some toys and play equipment can lead to more independent and isolated play, while others can lead to more social interactions with peers.

In general, children also have more freedom of movement in outdoor spaces, allowing for a variety of activities. Children can not only run and scream, but also manipulate the environment (White & Stoecklin, 1997). A study of second grade children also suggested that outdoor play stimulates social play more than indoor environments and social play supports children's growth and development (Barbour, 1999). One possible reason for this is that play equipment such as slides, sandboxes and large toys are designed so that multiple children can use them together. This facilitates social interactions with peers because it allows children to converse with each other and make physical contact with each other (Shim et al., 2001).

Play is a way of learning and an important stimulus that promotes the intellectual development of children. This implies that games can have an important role in teaching in preschool. Educators can harness the learning power of children more effectively by presenting new ideas and reinforcing concepts using play, a potential inherent in children. Bredekam (1987), while writing about the relevance of games in teaching and facilitating children's learning, notes that supporting teachers in children's play activities is an extremely important developmental practice because it improves teaching fluency and makes it easier for children to learn at their own pace. Ngasike (2004) suggests that preschool teachers should focus on investing in play as an appropriate and natural opportunity to reinforce and introduce new concepts to children.

Ngasike (2004) commented that preschool teachers tend to actively include play materials in their lessons when the educational and learning environment encourages them. In addition, according to a Sifuna (1986) study, helping parents and communities set up appropriate facilities and provide additional books and classroom materials not only raises the level of education and learning. , Increasing number of teachers in people's classroom activities.

The use of school grounds as an environmental learning resource is closely linked to the school curriculum. The recent National Standards of Educational Procedures for Elementary and Secondary Education or Standard Texts (Peraturan Menteri Pendidikan Nasional RI Nomor 41 Tahun 2007) have highlighted various aspects related to the learning process that teachers should practice. This includes discovery learning methods, where teachers should encourage students to learn from a variety of sources, engage students actively in learning activities, and help students conduct experiments in the laboratory, in the studio and in the field. This standard implies that teachers should use all available resources to facilitate student exploration of the process of acquiring knowledge. In addition, another curriculum standard highlights the different skills that students must possess at each grade level for each subject (Peraturan, Menteri, Pendidikan, Nasional RI Nomor 22 Tahun, 2006). The description in the standard indicates that teachers have the opportunity to apply a variety of methods, including different sources, to learning.

Early childhood education should not only focus on preparing lesson plans but also on spatial arrangement, which is equally important (Morrow, 2007). Children are influenced by their physical as well as by their social environment, as this also affects their behaviour, academic performance and development (Maxwell & Chmielewski, 2008).

The National Assessment of Educational Progress (NAEP), a low but representative assessment of students across the United States, reported in 2013 that only 42% of 4th graders had reading proficiency equivalent or better (National Center for Education Statistics, 2013). Nearly 20% of students score below baseline and can be considered struggling readers who are incapable of understanding a written text at the school level. These trends relate to the fact that basic reading and writing skills are needed to gain content literacy and strongly predict future outcomes such as graduation, employment, and college (Achieve et al. Inc., 2005; Kamil, 2003; Snow and

Biancarosa, 2003). Although school intervention efforts can improve children's reading and cognitive skills (see review in Edmonds et al., 2009), social scientists have theorized and discovered that peer composition is closely tied to each child's reading development in primary school (Entwisle & Alexander, 1994; Kinderman, 2007).

The attitude of school administrators towards the school grounds can also be reflected in the way in which teachers manage their curriculum in relation to the school grounds. Teachers play an important role as 'gatekeepers', who determine the daily schedule of learning activities and decide whether children go outdoors (Copeland et al., 2012). It is important for teachers to be aware of the role of the physical school environment - including the school grounds and its ability to use it effectively to achieve learning goals (Lackney, 2008). Teachers must have such a skill to play the supporting role of the schoolyard in environmental learning. Otherwise, the available spaces on the school floor will be neglected and disconnected from the overall learning activities. Various factors appear to be barriers to teachers' effective use of the schoolyard environment (Maynard & Waters, 2011). These factors include children's lack of awareness of the benefits and potential of the external environment, as well as pressure to fulfill necessary educational requirements, resulting in limited use of the school grounds.

Since school grounds are closely associated with outdoor activities, weather also plays an important role in determining the use of school grounds and their educational value. Overall, research has found that outdoor activities tend to increase in the hot season and decrease in the cold season (Wolff & Fitzhugh, 2011; Chan & Ryan, 2009).

School grounds have become an aspect of educational institutions that tend to be looked down upon in Indonesia. Data show that among primary schools in Indonesia, only 65% have a schoolyard (Balitbang, Depdiknas, 2004). The existing school grounds are also very diverse. Some

schools may have sufficient open field space with various physical elements, while others have very limited open space, if any. In Jakarta, there are about 1,137 public primary schools that have their own school sites. The school grounds available in these schools range from unchanged to over 10,000 square meters (Dinas, Pendidikan Dasar Provinsi DKI Jakarta, 2008). This diversity points to the different environmental learning resources that may be available in elementary school. The fact that school grounds are inadequately provided in many schools should be of prime concern, as this may reflect a limited understanding of the role of school grounds in supporting environmental.

#### **2.4.3 Relationship between School Environment and Children's Learning**

The success of teaching has always relied heavily on the know-how of the subjects involved and the use of the appropriate method(s), which is essential every time in the knowledge transfer process. Successful teaching is the product of an effective and efficient teaching process. VinMbah (2012) notes that teaching as a versatile profession is related to human resource development for economic and personal growth. Teaching is also an attempt to help someone acquire or change a skill, attitude, knowledge, idea, or appreciation. In other words, the teacher's task is to induce or influence desired changes in behavior or behavioral tendencies in his/her students. Effective teaching involves providing information and explaining stimulation, directing, instructing, administering, determining what to learn, learning methods, problems, assessment, reporting, taking notes, classroom management, socialization and relationships between school and community, among others.

Kern, Kruse and Roehring (2007) note that teachers' perceptions of teaching and learning strongly influence early childhood program implementation. In other words, once the teacher advocates the ideology of the program being implemented, the preschool teacher's performance in

the actual classroom environment will be positively affected during implementation. Park (2008) also suggests that teachers' understanding of the early childhood education program is critical to implementing the appropriate program to help achieve its goals. This means that once preschool teachers do not specifically understand the theoretical and practical framework of the preschool program, they will not be able to successfully implement the preschool program.

One of the responsibilities of government in early childhood education is to promote the training of a sufficient number of qualified teachers. This shows that the government recognizes the importance of qualified teachers in implementing the preschool curriculum. The methods teachers use to impart knowledge and skills are very important in determining the success of early childhood education, but what teachers do not have they cannot give. As NPE (2004) rightly asserts, no education system can rise above the quality of its teachers. Similarly, can a country rise above the quality of its education? Teachers should ensure that an appropriate teaching method or a combination of two or more methods is used to achieve the goals and objectives stated in the course notes. The skillful and knowledgeable teacher uses as many methods and techniques as possible because no single method is considered best for all teaching situations. Therefore, in the same lesson, teachers can use many methods to facilitate learning. The success of each method depends on the qualifications of the teachers and their professional experience in the field of instruction.

Fabian and Dunlop (2007) note that poor primary school infrastructure is a barrier to improving access to primary education in Kenya. On the other hand, improving primary school infrastructure is a top priority for schools. The delivery of infrastructure is delayed and there is a lack of solid classrooms, especially in poor neighborhoods. Existing infrastructure is also in poor condition due to lack of capital investment, poor construction standards and inadequate

maintenance. This scenario was especially observed to a large extent during the implementation of Free Primary Education (FPE). Poor physical infrastructure situation leads to overcrowding which is not conducive to a good learning environment. Over time, participation suffers due to high dropout rates and low enrollment rates, especially in poor and disadvantaged areas. This was found to be relevant by Owiti and Associates (2004), who observed that congestion and lack of seating, learning/teaching and play facilities, discouraged some students, consider the ECD centers to be better than the first cycle of elementary school. On the contrary, this has a negative impact on the transfer rate because they have to drop out of school.

Conversely, lack of play leads to negative effects. One of these consequences is that a child's social and cognitive development is more likely to be impeded. Children without play have reduced motor skills, lower levels of physical and social skills, and a lower ability to cope with emotional or stressful situations and events. Lack of play also leads to decreased ability to resolve social conflicts and cultural differences (Woolley et al., 2006). Because play leads to increased social interaction, lack of play can lead to social disability, isolation, and increased dependence on adults (Mawson, 2010).

The role of the schoolyard as a meaningful environment for children's learning cannot be separated from its spatial character. Research has found an association between schoolyard quality and physical activity (Ozdemir & Yilmaz, 2008). Arbogast et al. (2009) found that the presence of vegetation in school grounds was related to leisure time outdoors. Another study compared biodiversity and barren schoolyards, and found that more biodiversity in schoolyards was associated with children's more diverse and nature-oriented interests, as well as using more complex of the external environment (Samborski, 2010).

In addition to the quality of the schoolyard spaces and their elements, the spatial design of the schoolyard spaces throughout the school layout can also define their role as a living, learning and meaningful set. According to a study by Maynard and Waters (2011) showed that teachers often face difficulties in practice when using outdoor environments due to the size, condition and location of the outdoor space, with a design that does not support free activities between indoor and outdoor. These studies show the need to consider the spatial design of school grounds to create inside-outside connections that promote environmentally rich and integrated learning programs.

## **2.4 Intervening Variables**

The realisation of Early Childhood Care and Education (ECCE) goals is anchored on a broad vision to facilitate holistic and integrated approaches to reorganise the delivery, management, coordination and capacity of stakeholders to support attainment of quality ECCE outcomes for all. One of the key prerequisites for holistic and lifelong learning is the availability of quality ECCE services. Evidence from research reveals that investing in ECCE creates the greatest returns for society, enabling children to acquire cognitive, linguistic, socio-emotional and executive function/self-regulation skills as well as creating the human capital basis for sustained economic development and improved health and nutritional status across society. Therefore, ECCE is the foundation for quality education (MoES, 2018).

The Pre-Primary, Primary and Post Primary Education Act (2008) recognizes pre-primary as the first level of education, and gives the Ministry of Education Science Technology and Sports oversight responsibility over it. Prior to its enactment, the Education sector had previously formulated an ECD policy which among other things underscored the cross-cutting nature of ECD and granted the mandate for its delivery to the Local Governments. However, there is no sector policy that specially addresses the provision of pre-primary education in the country. Under the

circumstances, enrolment in pre-primary education is optional for the estimated over 6 million children (aged 3-5) and highly dependent on household income levels where these children hail from. In addition, there is no framework for inspection and support supervision of pre-primary schools. This is contrary to the school inspection regulations that require that all education institutions be inspected to ensure compliance. This means that there are national service delivery standard for primary education. This leaves the provision of pre-primary education at the discretion of the private providers.

The Government White Paper on Education (1992) outlines the aims and objectives of pre-primary education and recognizes the pre-primary level as the foundational level of education. To achieve these aims and objectives, Government provided for the delivery, management, establishment and coordination of pre-primary education in the Education(Pre-primary, Primary and Post Primary) Act of 2008. The Education Sector Strategic Plan(ESSP), 2017-2020, undertakes to develop and implement a comprehensive policy framework for ECD that among others provides for the institutionalization of training of ECD Caregivers/Teachers. Provision of ECCE is also catered for under the National Integrated Early Childhood Development (NIECD) Policy – 2016, the Second National Development Plan (NDP II) 2016/17 – 2019/20, the Sustainable Development Goals(SDGs) - 2030, and Uganda Vision - 2040.

The rights of children are internationally recognized by the United Nations Convention on the Rights of the Child (UNCRC) – 1990, the African Charter on the Rights and Welfare of the Child (ACRWC) – 1990, and the Incheon Declaration – 2015. Uganda has domesticated children's rights to education in the 1995 Constitution of the Republic of Uganda (as amended), the Children's Act Cap 59 (as amended by Act 9/2016) and the Education Act (2008).

According to Ministry of Education and Sports (2018) the attainment of quality ECCE is constrained by a number of challenges including: (a) Limited access to ECCE services; (b) Ineffective regulation of ECCE delivery; (c) Limited awareness of the importance of ECCE; (d) Inconsistent levels of family and community engagement; (e ) Uncoordinated efforts in ECCE delivery; (f) High poverty levels; (g) High cost of ECCE services; and (h) Limited access to quality ECCE data. Accordingly, the ECCE policy provides a framework for improving ECCE provision in the education sector.

## **2.5 Gaps Identified**

The surveyed studies on school environment and children's learning presents contradictory results and also comes from different geographical settings than that of Uganda. Epple and Romano (2011) looked at effects of peers on educational outcomes and found a positive relationship. However, the study did not deal with influence of peers towards children's learning which is the concern of the current study. In addition, Sacerdote (2011) notes that how peers influence learning has proven much more difficult to answer. Therefore the current study will try to justify the argument. On the other hand, Fabian and Dunlop (2007) note that poor primary school infrastructure is a barrier to improving access to primary education in Kenya, however, their study did not address how improved infrastructure promote or affect children learning. Conversely, Maynard and Waters (2011) argues that teachers often felt practical difficulties in using the outdoor environment due to the size, the condition and the location of outdoor space, with the design that does not support the free flows of activities between inside and outside. However this study does not related how school environment affect children are learning. Therefore, the current study aimed at investigating school environment and children's learning in pre-primary schools.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This section describes the methods that were adopted in gathering and analysing the data. Therefore, the chapter presents the research design, study population, sample size and sampling design, data sources, data collection instruments, measurement of variables, validity and reliability of the instrument and data analysis as well as ethical considerations.

#### **3.1 Research Design**

The study employed descriptive and correlation research designs with both qualitative and quantitative approaches to narrow down the weaknesses of either. Descriptive research is a type of design that involved variables on data about trends, attitudes, or opinions of a population (Curtis, Comiskey & Dempsey, 2015). A descriptive design that allows data to be collected at a time in different age groups will be used. Kothari (2013) perceives that the correlation method is used when data is collected to describe a person, organization, environment or phenomenon. Correlation design is used to determine the relationship between research variables.

The word qualitative infers an emphasis on the qualities of entities and on procedures and connotations that are not experimentally scrutinized or measured in terms of quantity, amount, intensity, or frequency. The method was suitable for this study because it assisted the researcher to yield numerical evidence to address the study variables, which is of interest to policy makers and educationists. Qualitative research methods in this study was employed to answer the information that is difficult to obtain through more quantitatively-oriented whys and howof human behavior, opinion, and experience methods of data collection through use of interviews. The quantitative approach helped in using statistical data to for draw conclusions. The two were

employed to reduce the weaknesses of either. The design allowed use of different statistical methods to make conclusions which enabled the researcher to determine to what extent the independent variable influences the dependent variable. This was done because changes in independent variable affect much of the dependent variable also.

### 3.2 Target Population

The population of the study was 408 teachers from 68 pre-primary schools in Nansana Municipality Wakiso District. The study targeted teachers from 20 selected pre-primary schools with a total of 120 teachers who participated in the study. The study used all 120 teachers from 20 pre-primary schools. Therefore, these could provide appropriate data for the study.

### 3.3 Sample Size

The sample size was 120 teachers from 20 pre-primary schools. The sample was determined using universal sampling. Universal sampling refers to the selection of sample where not all the people in the population have the same probability of being included in the sample and each one of them, the probability of being selected is unknown.

**Table 3.1: Target Population and Sample Size**

| School   | Population of Teacher | Sample Size |
|----------|-----------------------|-------------|
| School A | 6                     | 6           |
| School B | 6                     | 6           |
| School C | 6                     | 6           |
| School D | 6                     | 6           |
| School E | 6                     | 6           |
| School F | 6                     | 6           |
| School G | 6                     | 6           |
| School H | 6                     | 6           |
| School I | 6                     | 6           |
| School J | 6                     | 6           |
| School K | 6                     | 6           |
| School L | 6                     | 6           |

|              |            |            |
|--------------|------------|------------|
| School M     | 6          | 6          |
| School N     | 6          | 6          |
| School O     | 6          | 6          |
| School P     | 6          | 6          |
| School Q     | 6          | 6          |
| School R     | 6          | 6          |
| School S     | 6          | 6          |
| School T     | 6          | 6          |
| <b>Total</b> | <b>120</b> | <b>120</b> |

### 3.4 Sampling Procedure

The study adopted universal sampling methods. The sample was determined using universal sampling technique. Universal sampling technique is a sampling method that is used when the whole population is not going to be used but a given category is targeted. A universal sample provided detailed information on all or most elements in the population, thereby enabling totals for rare population groups or small geographic areas (Lavrakas, 2008).

### 3.5 Data Collection Instruments

#### 3.5.1 Self-administered Questionnaire

The data collection instrument was a self-administered questionnaire (SAQ) comprising three sections, namely; A through C. Section A contained demographic characteristics of the respondents that are namely; gender, age, education level, and years of experience. Section B was on school environment (IV) divided in three sections that are namely: staff, space and physical facilities. Section C is on children's learning (DV). The ranking is a four-point Likert Scale (Where 1 = strongly disagree 2 = disagree 3 = agree 4 = strongly agree).

Linear range and interpretation of the Scale

**Table 3.2: Likert Scale**

|   | Scale             | Range     | Interpretation    |
|---|-------------------|-----------|-------------------|
| 1 | Strongly disagree | 1.00-1.75 | Very Poor         |
| 2 | Disagree          | 1.76-2.50 | Poor              |
| 3 | Agree             | 2.51-3.25 | Satisfactory      |
| 4 | Strongly agree    | 3.26-4.00 | Very Satisfactory |

### **3.6 Data Gathering Procedure**

The researcher first got an introductory letter from College of Education, Open Distance and E-Learning Post introducing the researcher to the head teachers after the proposal had been approved. This letter introduced the researcher to the different schools to seek permission to collect data relevant for the study. The researcher personally distributed the research questionnaires. Each questionnaire was accompanied by a letter explaining the general purpose of the study.

### **3.7 Reliability and Validity of the Instruments**

**3.7.1 Validity:** The researcher established content validity of the instruments by making sure that the items on the main variables conform to the conceptual framework of the study. The opinion of the supervisors on the relevance, wording and clarity of the items in the instruments was sought and there was validation of the question items. Accuracy of information was ensured by the use of relevant instruments. The minimum CVI is 0.7 and calculated CVI ought to be above the threshold. The questionnaire was subjected to rating and Content Validity Index (CVI) by using the following formula:

CVI=

$$\frac{\text{Total number of relevant items}}{\text{Total number of items}}$$

$$\text{CVI}=36/42= 0.857$$

In quantitative data validity may be improved through careful sampling, appropriate instrumentation and appropriate statistical treatments of the data as recommended by Amin (2005). According to Howard (2016) validity can be achieved in the study by the researcher's honesty to the participants, approaching the appropriate and reliable sample and being objective. For the validity of the data collection process triangulation was employed.

### 3.7.2 Reliability

Is synonymous to consistence and replicability over time, over instruments and over groups of respondents. Reliability is concerned with precision and accuracy. For research to be reliable it must demonstrate that if it was carried out on a similar group of respondent in a similar context, then similar results would be found (Creswell, 2013). Cronbach's Alpha of 0.7 and above was used to determine the coefficient of reliability using Statistical Package of Social Scientists. The instrument was regarded reliable and good for data collection when the test result is above 0.7 since the pre-test result was 0.831.

**Table 3.3:** Reliability Statistics

| Cronbach's Alpha | N of Items |
|------------------|------------|
| .831             | 36         |

### 3.8 Data Analysis

After a successful data collection exercise, the data was sorted, and coded. For quantitative data, the computer package, SPSS (version 17) was used to analyze the data. Data processing in this study involved coding, transcription, data entry and data cleaning, tabulation and editing

before data is analysed. All the objectives was analyzed using descriptive statistics such as the frequency, percentage and means and inferential statistics that are linear regression analysis to ascertain the relationship of the independent variable on the dependent variable. The qualitative data was analyzed using the thematic analysis that handled the themes that relates with the study variables.

### **3.9 Ethical Considerations**

Ethical issues to be considered are: confidentiality, anonymity and informed consent. Confidentiality was guaranteed. During data analysis and interpretation, ethical issues were taken into account while protecting the anonymity of the participants. The names of the participants were not mentioned in the data analysis. Participants were informed that the research was to process the raw data and that the research was used for academic purposes only. The researcher explained to the respondents the purpose of the study so that they chose to participate on their own by signing a consent form. Anonymity was maintained by protecting respondents' identities by not linking respondents' identities to their responses. The researcher kept her promises and agreements; act with sincerity; strives to ensure consistency of thought and action as a means of promoting integrity. To promote openness, the researcher allowed openness to criticism and new ideas as well as recognition or credit for all research contributions.

### **3.10 Limitations of the Study**

The study was delimited to Nansana Municipality among lower primary schools. Some of the limitations in the study explored participants' responses to a study, the research was limited to access only a small geographical area which would not provide an overall scope of responses from a bigger geographical setting. However, the entire municipality was taken into considerations and schools from across the municipality were used to generate accurate data. The researcher therefore

increased the number of questionnaire that exceeds the minimum sample size. The researcher requested participants to sign informed consent to build confidence as well as allow them to freely participate and withdrawal if there was need to.

## **CHAPTER FOUR**

### **PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

#### **4.0 Introduction**

This chapter presents analysis, presentation, interpretation and discussion of the study findings on the relationship between school environment and children's learning in pre primary schools in Nansana Municipality, Wakiso District. The study objectives were: to determine the level of adequacy of effectiveness of different factors in the school environment for children's learning in pre primary schools of Nansana Municipality, to assess the level of children's learning in pre primary schools of Nansana Municipality; and to establish the relationship between school environment and children's learning in pre primary schools of Nansana Municipality Wakiso District. The study used descriptively correlated study designs with both qualitative and quantitative approaches. Data was collected from 118 pre-primary teachers among 20 schools using a self-administered questionnaire. The chapter first presents socio-demographic characteristics and thereafter objectives of the study.

#### **4.1 Respondents Profile**

The study looked at respondents demographic characteristics in order to ascertain the variations as well as would be taken into considerations during the discussion of the study findings.

**Table 4.1: Frequency and Parentage Showing Demographic Characteristics of the Respondents**

| <b>Sex</b>                       | <b>Frequency</b> | <b>Percent</b> |
|----------------------------------|------------------|----------------|
| Male                             | 14               | 11.9           |
| Female                           | 104              | 88.1           |
| <b>Age bracket</b>               |                  |                |
| Below 30 years                   | 76               | 64.4           |
| 30-40 years                      | 35               | 29.7           |
| Total                            | 118              | 100.0          |
| 41-50 years                      | 6                | 5.1            |
| 51 and above years               | 1                | .8             |
| Total                            | 118              | 100.0          |
| <b>Educational qualification</b> |                  |                |
| Certificate                      | 65               | 55.1           |
| Diploma                          | 43               | 36.4           |
| Degree                           | 10               | 8.5            |
| Total                            | 118              | 100.0          |

n=118

Based on the findings from Table 4.1, majority 104(88.1%) of the respondents were females while 14(11.9%) were male. This implies that there were more vies of female respondents as compared to those of males. Based on this it is clear that the pre-primary level has females teachers who are the majority although those of males are substantively represented.

On the issue of age bracket, 76(64.4%) of the respondents were below 30 years, followed by 35(29.7%) who were aged 30-40 years, while 6(5.1%) were aged 41-50 years and 1(.08%) were 51 and above years. This implies that majority of the pre-primary teachers are below 30 years, which can be attributed to the fact that they stop at Senior 4 and proceed to college for primary teaching.

In relation to the education qualification, majority 65(55.1%) of the respondents had certificate level of education, while 43(36.4%) had attained diploma and only 10(8.5%) had

attained bachelors. This implies that majority of the teachers of pre-primary have certificate level of education although other categories are substantively represented.

## 4.2 School Environment

Objective one of the study was to find out the level of adequacy of school environment for children's learning in pre primary schools of Nansana Municipality. In order to determine the school environment was looked at in three different aspects that is staff, space and physical facilities.

**Table 4.2: Level of Adequacy of School Environment**

| <b>Staff</b>  | <b>Mean</b> | <b>Std. Deviation</b> | <b>Interpretation</b> |
|---|-------------|-----------------------|-----------------------|
| There are enough teachers for pre-primary to handle the children at school.                             | 2.51        | .81                   | Adequate              |
| The school has employed extra teachers to ensure that each pre-primary has two teachers in each lesson. | 2.17        | .94                   | Inadequate            |
| As a teacher I promote child guidance to learners in school.  | 3.09        | .85                   | Adequate              |
| The school has enough staff to cater for the numbers that are growing in preprimary.                    | 2.83        | .85                   | Adequate              |
| There are qualified teacher of early childhood at school  | 2.71        | .93                   | Adequate              |
| The school provides motivation to teachers for pre-primary  | 2.53        | .77                   | Adequate              |
| Pre-primary teachers are interested in teaching children  | 2.87        | .84                   | Adequate              |
| Teaching children at nursery level involves use of songs  | 3.31        | .87                   | Adequate              |
| Teachers for nursery are approachable by all children   | 2.69        | .80                   | Adequate              |
| Teachers at nursery level help children to be used with the school environment                          | 2.84        | .801                  | Adequate              |
| <b><i>Average mean and Std. Deviation</i></b>   | <b>2.75</b> | <b>0.85</b>           | Adequate              |
| <b>Space</b>  |             |                       |                       |
| Classroom furniture caters for all types of learners in terms of space                                  | 2.67        | .89                   | Adequate              |
| The school has formal space where pupils carry out their activities of learning.                        | 2.54        | .80                   | Adequate              |
| There are outdoor spaces for pupils to play or use at school.   | 2.78        | .84                   | Adequate              |
| <b><i>Average mean and Std. Deviation</i></b>   | <b>2.66</b> | <b>0.84</b>           | Adequate              |
| <b>Physical Facilities</b>  |             |                       |                       |
| Classrooms are well built to suit the learner's needs.  | 2.73        | .94                   | Adequate              |

| <b>Staff</b>  | <b>Mean</b> | <b>Std. Deviation</b> | <b>Interpretation</b> |
|---|-------------|-----------------------|-----------------------|
| There are enough teachers for pre-primary to handle the children at school.                             | 2.51        | .81                   | Adequate              |
| The school has employed extra teachers to ensure that each pre-primary has two teachers in each lesson. | 2.17        | .94                   | Inadequate            |
| As a teacher I promote child guidance to learners in school.  | 3.09        | .85                   | Adequate              |
| The school has enough staff to cater for the numbers that are growing in preprimary.                    | 2.83        | .85                   | Adequate              |
| There are qualified teacher of early childhood at school  | 2.71        | .93                   | Adequate              |
| The school provides motivation to teachers for pre-primary  | 2.53        | .77                   | Adequate              |
| Pre-primary teachers are interested in teaching children  | 2.87        | .84                   | Adequate              |
| Teaching children at nursery level involves use of songs  | 3.31        | .87                   | Adequate              |
| Teachers for nursery are approachable by all children   | 2.69        | .80                   | Adequate              |
| Teachers at nursery level help children to be used with the school environment                          | 2.84        | .801                  | Adequate              |
| Toilets are in good conditions.   | 2.54        | .84                   | Adequate              |
| The school has adequate classrooms to accommodate pre-primary children.                                 | 2.84        | .81                   | Adequate              |
| The school has a playground where the children play from freely   | 2.69        | .92                   | Adequate              |
| The school buildings are spacious enough for the pre scholars   | 2.78        | .74                   | Adequate              |
| The school buildings have enough furniture for the pre scholar.   | 2.70        | .78                   | Adequate              |
| The school has balls and other resources that children can use for play                                 | 2.90        | .80                   | Adequate              |
| <b><i>Average mean and Std. Deviation</i></b>   | <b>2.74</b> | <b>0.83</b>           | Adequate              |
| <b><i>Grand mean and Std. Deviation</i></b>   | <b>2.72</b> | <b>0.84</b>           | Adequate              |

From Table 4.2 the level of adequacy of school environment for children's learning in pre primary schools of Nansana Municipality, was found to be adequate with a grand mean of 2.72 and standard deviation of 0.84. This implies that level of adequacy of school environment in terms of staff, space and physical facilities was good in the surveyed pre-primary schools in Nansana Municipality. In this case, the surveyed pre-primary schools have an adequate level of school environment that promotes children learning. The school environment is an important aspect of

supporting children's learning interactions, which are central to their learning. The design of the environment should improve the learning environment and support the intent of the user groups.

In line with the findings, because preschoolers develop rapidly physically, cognitively, socially, and emotionally, their experiences with the physical environment can have a lasting effect on their development (Martin, 2004). Poor facilities and spatial quality also affect teacher motivation and indirectly affect children's learning (Salleh, Kamaruzzaman & Mahyuddin, 2013).

### **Staff**

Adequacy of school environment in terms of staff, the findings generated an aggregate mean of 2.75 and standard deviation of 0.85 which implies that staff factor of school environment was adequate for children's learning in pre primary schools. This indicates that there are enough teachers for pre-primary, who are qualified to teach children at that level. Also, the numbers of teachers are able to cater for the numbers. Teachers of pre-primary promote child guidance, and they also motivated to teach which makes them interested in teaching children. The teachers for nursery are approachable and they help children to adapt to school environment and learn without challenges.

In light of the study findings, it is key to note that early childhood teachers, as key actors in early childhood education, play an important role in the implementation of early childhood education programmes. This may include guiding and disciplining children, respecting cultural diversity, adopting appropriate teaching and learning methods, promoting autonomy, and many others. Establish reciprocal relationships with family and other teachers (Lundin, 2000). Create a caring community of learners, teaching to promote growth and learning in the classroom (NAEYC, 2005).

Teachers see their role in curriculum implementation as a self-governing role. They choose and decide what to teach from the prescribed curriculum or curriculum. Since implementation takes place through student interaction and planned learning opportunities, the role and influence of teachers in this process cannot be questioned. It can be seen clearly from the work of (Goodman & Brand, 2009) that teachers are social creatures and come from diverse backgrounds who bring past experiences into the classroom reality to influence to the curriculum. Goodman and Brand (2009) reported that teachers who were characterized as motivated, responsible and organized and always open to new learning opportunities, were shown to be program implementers, who are stronger than teachers who were described as unmotivated, not open to change.

## **Space**

The study further assessed the adequacy of school environment in terms of space factor for children learning. The space for pre-primary children learning was found to be adequate as shown with a mean of 2.67 and standard deviation of 0.84. This implies that adequacy of school environment in terms of space was supporting children learning in pre-primary schools of Nansana.

The findings show that there are classroom furniture caters for all types of learners, the schools have formal space where pupils carry out their activities and that outdoor space for pupils to play is available such as play grounds and facilities that promote play outside the classrooms.

Space for collaboration is a particularly powerful and malleable factor that can impact early literacy development in children. For example, the peer-supported learning strategy (PALS) uses struggling readers as coaches to help children develop reading skills (Fuchs et al., 2000; Fuchs, Fuchs&Burish, 2000). Students are paired based on their individual needs, rather than a single activity led by a teacher, who may not meet the reading challenges of most children. By

transferring instruction from teacher to student, these strategies can be both effective and effective in helping struggling readers.

The physical spaces must be adequate with modern infrastructure that meets the standards of the Ministry of Education (MOE, 2001). Doors and windows must be open to allow air to circulate freely in and out of the classroom. In addition, the window should not have a grid. This eliminates serious accidents that could result in affected children being less likely to seek medical attention. When non-screen doors and windows are fully opened, children can easily escape in the event of fire or other circumstances (MOE, 2008).

### **Physical Facilities**

The last aspect of adequacy of school environment that was looked at was physical facilities. In relation to physical facilities the findings generated an average mean of 2.74 and a standard deviation of 0.83 which implies that physical facilities averagely promote children learning. Here the findings show that pre-primary schools have classrooms that are well built to suit the learner's needs and adequately accommodate pre-primary children. The pre-primary schools have toilets or latrines that are in good conditions which support learners at schools. There are playgrounds where the children play from freely; and that buildings are spacious enough with enough furniture for the pre scholars to use. Lastly, they noted that schools have balls and other resources that children can use for play. This means that school environment in terms of physical facilities are available and effective for use which support children learning. This can be attributed to the fact that all these preschools are private and hence the owners ensure that necessary materials and facilities are available to attract children and parents.

The findings contradict UNESCO (2008) that in Uganda physical infrastructure of primary schools was inadequate. Infrastructure such as classrooms and toilets are in poor condition. This

poses a risk to the health and safety of the learners and thus to learning. In addition, inadequate sanitation facilities also contribute to low participation of girls reaching puberty in these activities. Indeed, low participation in early childhood education and development is thought to be related by Watkins, who noted that retention and learning are hindered when students attend school in leaky buildings, dilapidated or overcrowded and in poorly lit and poorly ventilated classrooms.

### **4.3 Children's Learning**

The second objective of the study was to assess the level of children's learning in pre primary schools of Nansana Municipality. In addressing children learning, the study looked at numeracy, reading, play and writing.

**Table 4.3: Children's Learning**

| <b>Numeracy</b>  | <b>Mean</b> | <b>Std. Deviation</b> | <b>Interpretation</b> |
|--|-------------|-----------------------|-----------------------|
| Children are able to write numbers in class as they learn.                         | 2.75        | .83                   | Adequate              |
| The children have mastered writing numbers 0-9                                     | 2.92        | .73                   | Adequate              |
| Children are able to recite the numbers in class correctly.                        | 3.10        | .89                   | Adequate              |
| <b><i>Average Mean and Std. Deviation</i></b>                                      | <b>2.92</b> | <b>0.82</b>           |                       |
| <b>Reading</b>   |             |                       |                       |
| Children in pre-primary are able to read the vowels as they learn them             | 2.82        | .70                   | Adequate              |
| Children read the alphabet as they learn them                                      | 2.78        | .69                   | Adequate              |
| Children are able to read the letters with the right sound as they learn them      | 2.45        | .77                   | Inadequate            |
| Children can identify the letters  | 2.69        | .75                   | Adequate              |
| Pupils are able to pronounce the words correctly                                   | 2.57        | .79                   | Adequate              |
| <b><i>Average Mean and Std. Deviation</i></b>                                      | <b>2.66</b> | <b>0.74</b>           | Adequate              |
| <b>Play</b>  |             |                       |                       |
| Children get involved in play outside the class as part of learning                | 2.92        | .89                   | Adequate              |
| Children use the available materials like balls and ropes to play                  | 2.80        | .88                   | Adequate              |
| In class pupils are arranged in such a manner that they can play during the lesson | 2.37        | .95                   | Inadequate            |
| <b><i>Aggregate Mean Std. Deviation</i></b>  | <b>2.70</b> | <b>0.91</b>           | Adequate              |
| <b>Writing</b>   |             |                       |                       |
| Children have begun mastering the letter writing through practice.                 | 2.81        | .85                   | Adequate              |
| Children have mastered some easy letter writing which they learn daily.            | 2.82        | .76                   | Adequate              |
| Pupils write numbers and letters   | 2.82        | .84                   | Adequate              |
| Children can write their names correctly   | 2.62        | .78                   | Adequate              |
| Pupils are able to write a thirteen letter word in class                           | 2.75        | .82                   | Adequate              |
| <b><i>Average Mean and Std. Deviation</i></b>                                      | <b>2.77</b> | <b>0.81</b>           | Adequate              |
| <b><i>Grand mean and Std. Deviation</i></b>  | <b>2.76</b> | <b>0.82</b>           | Adequate              |

Table 4.3 presents children's learning in pre primary schools of Nansana Municipality. The findings generated a grand mean of 2.76 and standard deviation of 0.82 which implies that there was a satisfactory level of children learning. The findings therefore indicate that children learning in terms of numeracy, reading, writing and play are satisfactory among pre-primary children. This shows that children learn, numeracy, reading, writing, and play which are part of the foundations of children learning. As children associate with environment they learn figures, how to write letters and figures, playing and associate with others in play, reading words or letters and other activities that promote their learning.

The learning environment in preschool is very important because it affects the learning behavior of children. In light of the findings, Reynolds, Temple, Robertson & Mann (2001) argue that there are positive long-term benefits of attending preschool at an early age. A child's school has become a primary setting for learning and discovery, showing that the preschool environment requires special attention.

In the same manner, studies of children's outdoor activities have suggested that children are more active in the summer than in the fall or winter (Silva et al., 2011) and that the climate is cold and dry. Rainy weather becomes one of the barriers to children's outdoor activities (Brockman, Jago & Fox, 2011; Dymont, 2005).

Concerning children learning in terms of numeracy, the findings generated an average mean of 2.92 and a standard deviation of 0.82, which implies that respondents agreed that there is a satisfactory child's learning in terms of numeracy. Numeracy involves children being able to write numbers in class, mastered numbers 0-9, able to recite the numbers in class correctly. The teachers felt that children numeracy was key as they were able to write, master and recite the numbers. Thus, it is at pre-primary that children learn to count, understand the numbers and differentiate the

numbers from one another. This is the foundation of acquiring necessary skills on numbers that become part of the child's life. Therefore, children' learning in numeracy is satisfactory in the surveyed pre-schools in Nansana Municipality.

In addition, the study looked at child' learning in terms of reading, whereby the findings generated an average mean of 2.66 and standard deviation of 0.74, which implies that teachers agreed that children learning in terms of reading was satisfactory. Therefore, the key issue is that in pre-primary child learn the skills of reading. In light of the findings, children in pre-primary are able to read the vowels, as well as the alphabet, identify the letters and are able to pronounce the words correctly. These are key issues that they learn at pre-primary which they use in future. Reading is a vital aspect of learning in pre-primary. One task that is vital in pre-primary is the ability of the children to learn letters and alphabet in general and identify them since they use them as they move from one level to another.

In light of the findings, Snow, Burns and Griffin (2006) suggest that there are three potential obstacles to reading, namely difficulty understanding and using the alphabet, inability to transfer comprehension skills from spoken language to reading, and lack of motivation and appreciation for reading. They added that children with early reading problems lack prior knowledge and related skills such as the ability to distinguish sounds, the ability to master reading mechanisms and the ability to recognize letters.

It should be observed that, a large number of children go to school without reading proficiency, which is a real national concern if we are to achieve vision 2030 and the sustainable development goals. Reading in the early school years should aim to read for fun by exposing learners to a variety of reading materials, to help students develop vocabulary, and to expose students to ideas and structures; new sentence structure that will be used later, to communicate

verbally and in writing (Gathumbi, 2008). Uwezo(2011), an organization promoting learning in East Africa, published a review of teaching and learning in the region showing low levels of uptake in educational institutions.

This is done at lower levels among children in order to help them master and acquire necessary knowledge and skills that they will use in future.

A part from reading, the study further looked at ability of children in pre-primary to play, whereby the findings generated an average mean of 2.70 and standard deviation of 0.91, which implies that children learn to play in pre-primary. This means that children in pre-primary are exposed to activities that help them to play. Therefore, the children learn to play while in pre-primary as they get involved in play outside the class, they further use the available materials like balls and ropes to play and teachers arrange them in such a way that help them to play even when in class.

Play is an important aspect of supporting children's social interactions, which are central to their learning, which makes play even more important in helping their social development and their association. There are different types of learning environments and some are better than others in terms of supporting social interactions. School interactions involve at least two people and can involve both verbal and nonverbal communication (Semrud and Clikeman, 2007).

Depending on the child's developmental needs, different play environments can be used to meet these needs. Outdoor environments are especially important for learning skills such as social competence, problem solving, and creative thinking. In outdoor environments, children can also grow emotionally and academically, as outdoor environments offer different opportunities for exploration and experimentation.

During play, children learn verbal and nonverbal communication skills and these skills help them learn to socialize and get along with people. By engaging in social play, children learn skills such as becoming receptive to the feelings and attitudes of others, learning to take turns, and learning to work with others (Spodek & Saracho, 1988). During play, children also learn social skills such as sharing, cooperation and finding common goals (Hudson & Thompson, 2000). Other skills such as negotiation, emotional crisis resolution and conflict management are also learned during social play

Lastly, the study looked at writing skills as part of children learning in pre-primary, in which the findings generated an average mean of 2.77 and standard deviation of 0.81. The findings imply that children learning involve writing aspects such as mastering the letter writing through practice, mastered easy letter writing which they learn daily, able to write numbers and letters as well as their names correctly. This is vital for the children to learn since they will use writing in many different ways a learners and in future work or activities. The ability to write letters of the alphabet, figures and others things could help to promote efficiency of the learner.

Thus, children learning in terms of numeracy, reading, writing and play are crucial for learners in pre-schools.

#### **4.4 Relationship between School Environment and Children's Learning**

The last objective of the study was to establish the relationship between school environment and children's learning in pre primary schools of Nansana Municipality Wakiso District. In order to ensure that the relationship among the study variables are ascertained the regression was used.

**Table 4.4: Relationship between School Environment and Children’s Learning Coefficients<sup>a</sup>**

| Model |                     | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|-------|---------------------|-----------------------------|------------|---------------------------|-------|------|
|       |                     | B                           | Std. Error | Beta                      |       |      |
| 1     | (Constant)          | 1.313                       | .192       |                           | 6.856 | .000 |
|       | Staff               | .259                        | .066       | .336                      | 3.903 | .000 |
|       | Space               | .029                        | .065       | .044                      | .450  | .653 |
|       | Physical facilities | .236                        | .075       | .318                      | 3.140 | .002 |

a. Dependent Variable: Children's Learning

Table 4.4 provides the result on the relationship between school environment and children’s learning in pre primary schools among three variables. In calculating the scores using linear regression with a statistical package SPSS indicates that there is a significant influence between the study variables. In this case, staff had beta of 0.336 and p. value of 0.000 which was significant at 0.05 significant level (2-tailed). Space had beta of 0.044 and p. value of 0.653 which was not significant. The third variable physical facilities had beta of 0.318 and p. value of 0.002 which implies that there was a significant relationship between physical facilities and children’s learning. The inference is that the two of the three independent variables staff and physical facilities had a significant relationship with children’ learning, whereas space had not significant relationship or influence with children’s learning. In addition, it should be further pointed out that the relationship was positive in nature, whereby as the independent variables increases and dependent variable also increase among the two (Staff and physical facilities). For instance, as there are more qualified staff and physical facilities it increases the chances of pupils learning.

The findings imply that staff and physical facilities play a significant role in promoting children’s learning while space does not influence children’ learning.

VinMbah (2012) notes that teaching as a versatile profession is related to human resource development for economic and personal growth. Teaching is also an attempt to help someone acquire or change a skill, attitude, knowledge, idea, or appreciation. In other words, the teacher's task is to induce or influence desired changes in behavior or behavioral tendencies in his/her students. Effective teaching involves providing information and explaining stimulation, directing, instructing, administering, determining what to learn, learning methods, problems, assessment, reporting, taking notes, classroom management, socialization and relationships between school and community, among others.

The findings support Fabian and Dunlop (2007) that poor primary school infrastructure is a barrier to improving access to primary education in Kenya. On the other hand, improving primary school infrastructure is a top priority for schools. The delivery of infrastructure is delayed and there is a lack of solid classrooms, especially in poor neighborhoods. Existing infrastructure is also in poor condition due to lack of capital investment, poor construction standards and inadequate maintenance. This scenario was especially observed to a large extent during the implementation of Free Primary Education (FPE).

### **Testing Hypothesis**

It was hypothesized that there is no relationship between school environment and children's learning in pre-primary schools of Nansana Municipality. In order to test the hypothesis a correlation was run among the study variables school environment and children's learning.

**Table 4.5:** Hypothesis Testing Correlations

|                    |                     | Children's Learning |
|--------------------|---------------------|---------------------|
| School Environment | Pearson Correlation | .581**              |
|                    | Sig. (2-tailed)     | .000                |
|                    | N                   | 118                 |

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

Findings from Table 4.5 findings show that school environment had a significant relationship with children's learning as shown, whereby computation by computing the scores using Pearson Correlation Coefficient with a statistical package SPSS indicates  $r = .581$  and  $p = 0.000$ . The nature of relationship was moderate. This means that school environment that is staff, space and physical facilities helps and boosts children learning. Since the significant level of 0.000 was less than 0.05 then the null hypothesis was rejected which states that there is no significant relationship between school environment and children's learning in pre-primary schools of Nansana Municipality District and the alternative hypothesis is accepted which states that there is a significant relationship between school environment and children's learning in pre-primary schools of Nansana Municipality.

The relationship implies that school environment is key in promoting children learning in pre-primary. The right environment fosters play, reading, writing and numeracy among the learners. The role of the schoolyard as a meaningful environment for children's learning cannot be separated from its spatial character. Research has found an association between schoolyard quality and physical activity (Ozdemir & Yilmaz, 2008). Arbogast et al. (2009) found that the presence of vegetation in school grounds was related to leisure time outdoors. Another study compared biodiversity and barren schoolyards, and found that more biodiversity in schoolyards was

associated with children's more diverse and nature-oriented interests, as well as using more complex of the external environment (Samborski, 2010).

### **Qualitative Data**

Through the open ended questions, it was found out that lack of physical facilities and staff can affect children learning. For instance, lack of classrooms and materials hinder children learning since teachers cannot afford to acquire enough materials for learners to use. Also, when the space is small children find difficulty to play and carryout other activities that are meant to help them learn. The quality of school facilities impact on children learning in different ways either positively or negatively depending on the nature of facilities available. School transport means make children to report late to school and miss in morning lessons. Nature of latrines affect children hygiene and sanitation and lack of enough furniture affects pupils learning since they lack places where to sit and carryout activities.

Based on the study findings, respondents noted that different means should be put in place to promote children learning in pre-primary schools. Among the few put across was provision of learning materials to cater for inclusive education. This implies that there is need for schools to ensure that there enough learning materials that normal and disabled children can use to learn. Other respondents suggested that there is need for enough teachers to help and cater for all learners. A number of pre-primary schools have many children who need more teachers to be helped individually. Therefore two teachers per class may not be enough to cater for children learning. In addition respondents suggested that there is need for school administers to motivate pre-primary teachers in order to promote effectiveness and efficiency among teachers. This can enhance children learning. Also, respondents suggested that enough time for children play should be

provided. This implies that there should be enough time given to children to play as a way of improving learning.

## **CHAPTER FIVE**

### **DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter presents the summary, conclusion and recommendations based on the study findings on the relationship between school environment and children's learning in pre primary schools in Nansana Municipality, Wakiso District.

#### **5.1 Discussion of the Findings**

The study objectives were: to find out the level of adequacy of school environment for children's learning in pre primary schools of Nansana Municipality, to assess the level of children's learning in pre primary schools of Nansana Municipality; and to establish the relationship between school environment and children's learning in pre primary schools of Nansana Municipality Wakiso District. The study used descriptively correlated study designs with both qualitative and quantitative approaches. Data was collected from 118 pre-primary teachers among 20 schools using a self-administered questionnaire.

##### **5.1.1: The School Environment**

The findings for level of adequacy of school environment in pre primary schools of Nansana Municipality, was found to be adequate with a grand mean of 2.72 and standard deviation of 0.84. This implies that school environment in terms of staff, space and physical facilities was adequate and effective in the surveyed pre-primary schools in Nansana Municipality. The findings therefore imply that the level of adequacy of school environment in preschools of Nansana Municipality is adhered to since it is essential in the operations of the school.

The school environment is an important aspect of supporting children's learning interactions, which are central to their learning. Early childhood teachers, as key actors in early

childhood education, play an important role in the implementation of early childhood education programmes. This may include guiding and disciplining children, respecting cultural diversity, adopting appropriate teaching and learning methods, promoting autonomy, and many others. AzziLaken (2009), in education, infrastructure provides the foundation for the rest. Once infrastructure-related deficiencies occur, it can also cause other problems. In the study of Aktan and Comert (2007), one of the sources of problems in the implementation of the preschool education program is the available facilities in the school.

### **5.1.2 Children's Learning**

The level of children's learning in preprimary schools of Nansana Municipality. The findings generated a grand mean of 2.76 and standard deviation of 0.82 which implies that there was a high level of children learning. This shows that children learn, numeracy, reading, writing, and play which is part of the foundations of children learning. As children associate with environment they learn figures, how to write letters and figures, playing and associate with others in play, reading words or letters and other activities that promote their learning.

Therefore, learning calls for good planning, effective teaching, teachers' concern for the well-being of children, and the beauty reflected in the learning processes (Barth et al. events, 2004). Previous research has investigated factors affecting student learning, including the influence of open learning spaces (Barber, 2006; Graetz & Goliber, 2002; Hunley & Schaller, 2006), flexible seating and writing surfaces (Lombardi & Wall, 2006; Sanders, 2013), integrated technology learning tools (Brewer, Kramer, & O'Brien, 2009; Educause, 2012; Sidall, 2006; Whiteside & Fitzgerald, 2005), lighting (Sleeters, Molenaar, Galetzka, & van der Zanden, 2012) and aesthetics (Janowska & Atlay, 2007). An abundance of studies such as these illustrate how

classroom media can positively support classroom practices by improving student engagement in the learning process.

### **5.1.3 School Environment and Children's Learning**

School environment had a significant relationship with children's learning as shown, with  $r. = .581$  and  $p.= 0.000$ . This means that school environment that is staff, space and physical facilities help and boost children learning. Since the significant level of 0.000 was less than 0.05 then the null hypothesis was rejected which states that there is no significant relationship between school environment and children's learning in pre-primary schools of Nansana Municipality District and the alternative hypothesis is accepted which states that there is a significant relationship between school environment and children's learning in pre-primary schools of Nansana Municipality.

In light of the findings, Reynolds, Temple, Robertson& Mann (2001) note that learning environment in preschool is very important because it affects the learning behavior of children. A 15-year study included 1,539 children attending different kindergartens. This research has shown the positive long-term benefits of attending preschool at an early age. Among the participants, 49.7% versus 38.5% had a higher high school completion rate, 46.7% vs. 55.0% are less likely to drop out of school and more likely to complete more years of schooling. These participants also showed lower arrest rates, lower recidivism rates, and lower rates of exceptional years of schooling. A child's school has become a primary setting for learning and discovery, showing that the preschool environment requires special attention. Research in this area is limited. The exact correlation between the physical environment and children's learning is not known (Olds, 2001).

Fabian and Dunlop (2007) note that poor primary school infrastructure is a barrier to improving access to primary education in Kenya. On the other hand, improving primary school

infrastructure is a top priority for schools. The delivery of infrastructure is delayed and there is a lack of solid classrooms, especially in poor neighborhoods. Existing infrastructure is also in poor condition due to lack of capital investment, poor construction standards and inadequate maintenance. This scenario was especially observed to a large extent during the implementation of Free Primary Education (FPE). Poor physical infrastructure situation leads to overcrowding which is not conducive to a good learning environment. Over time, participation suffers due to high dropout rates and low enrollment rates, especially in poor and disadvantaged areas. This was found to be relevant by Owiti and Associates (2004), who observed that congestion and lack of seating, learning/teaching and play facilities, discouraged some students, consider the ECD centers to be better than the first cycle of elementary school. On the contrary, this has a negative impact on the transfer rate because they have to drop out of school.

## **5.2 Conclusions**

In light of the study findings it was discovered that there was adequate level of school environment in pre-primary schools of Nansana Municipality. The availability of staff, space and physical facilities positively promotes children learning in terms of numeracy, reading, play and writing. With school environments such as school facilities, space and teachers play an important role in a child's development, learning and association of learners while in school. Thus, pre-primary schools should take every precaution to ensure that the learning environment is one that helps children to succeed or obtain.

## **5.3 Recommendations**

Based on the study findings the researcher makes the following recommendations:

The school environment is an important aspect of supporting children's learning interactions, which are central to their learning. Therefore, there is need for pre-schools to ensure that they provide the right school environment that can foster children learning in pre-primary schools in Nansana. This is due to the fact that although the school environment was high there is need to improve for the better.

School administrators should put more efforts towards children learning to foster their learning in pre-primary since it is the core for their future.

There is need for enough teachers to help and cater for all learners. A number of pre-primary schools have many children who need more teachers to be helped individually. Therefore two teachers per class may not be enough to cater for children learning.

The school administrators need to motivate pre-primary teachers in order to promote effectiveness and efficiency among teachers in order to enhance children learning.

School administrators should ensure that there is enough time for children play provided in the timetable. This implies that there should be enough time given to children to play as a way of improving learning.

School administrators need to help teachers to learn professional on how to handle children.

#### **5.4 For Further Research**

This study used teachers in investigating school environment and children learning who may not provide a fully picture of what happens and therefore there is need to use different aspects in ascertaining the impacts in future.

Much still needs to be learned about preschoolers' learning in Nansana Municipality and how school environment affects their learning by carrying out a experimental study to underscore the effects among the variables of the study.

## REFERENCES

- Acar, H. (2014). Learning Environments for Children in Outdoor Spaces. *Procedia - Social and Behavioral Sciences*, 141, 846-853.
- Achieve Inc. (2005). *Rising to the challenge: Are high school graduates prepared for college and work?* Washington, DC: Author.
- Adams, M. J. (2002). *Alphabetic Anxiety and Explicit, Systematic Phonics Instruction: A Cognitive Science Perspective*. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (pp. 66-80). New York: Guilford Press.
- Allwright, D., & Hanks, J. (2009). *The developing language: An introduction to exploratory practice*. London: Palgrave MacMillan.
- Anders, Y., Rossbach, H.-G., Weinert, S., Ebert, S., Kuger, S., Lehrl, S., & von Maurice, J. (2012). Home and preschool learning environments and their relations to the development of early numeracy skills. *Early Childhood Research Quarterly*, 27(2), 231–244. <http://doi.org/10.1016/j.ecresq.2021.08.003>
- Arbogast, K. L., Kane, B. C. P., Kirwan, J. L., & Hertel, B.R. (2009). Vegetation and outdoor recess time at elementary schools: What are the connections? *Journal of Environmental Psychology*, 29, 450–456.
- Atweh, B., Arindam, B., Graven, M., Jayasree, S., & Venkat, H. (2014). Teaching numeracy in pre-school and early grades in low-income countries.
- Azzi-Lessing, L. (2009). Quality support infrastructure in early childhood: still (mostly) missing. Retrieved September 2, 2021 from <http://ecrp.uiuc.edu/v11n1/azzi.html>
- Bailey, D. H., Siegler, R. S., & Geary, D. C. (2014). Early predictors of middle school fraction knowledge. *Developmental Science*, 17, 775–785. doi:10.1111/desc.12155
- BalitbangDepdiknas (2004). *Statistik Persekolahan SD 2003/2004*. Jakarta: Pusat Data dan Informasi Pendidikan.
- Bandura, A. (1977). *Social learning theory*, General Learning Press.
- Barber, J. (2006). Eckerd College: Peter H. Armacost Library. In D. Oblinger (Ed.), *Learning Spaces*. Retrieved from: [www.educause.edu/learningspaces](http://www.educause.edu/learningspaces)
- Barbour, A. (1999). The impact of playground design on the play behaviors of children levels of physical competence. *Early Childhood Research Quarterly*, 14(1), 75-98.
- Blevins-Knabe, B. (2016). Early mathematical development: How the home environment matters. In B. Blevins-Knabe & A. M. Berghout (Eds.), *Early childhood mathematics skill*

- development in the home environment (pp. 7–28). Cham, Switzerland: Springer International. doi:10.1007/978-3-319-43974-7\_2
- Bredekam, P. S. (1987). *Developmentally appropriate practice in early childhood programs. Serving children from birth to age eight*. Boston: The center for career development in early childhood care and education.
- Brewe, E., Kramer, L., & Sawtelle, V. (2012). Investigating student communities with network analysis of interactions in a physics learning center. *Physical Review Special Topics-Physics Education Research*, 8(1). DOI:10.1103/PhysRevSTPER.8.010101
- British Columbia Association of Mathematics Teachers. (n.d.). Numeracy for Secondary Students. Retrieved May 20, 2021, from <http://www.bced.gov.bc.ca/irp/resdocs/pnumeracy.pdf>
- Brockman, R., Jago, R., & Fox, K. R. (2011). Children's active play: Self-reported motivators, barriers and facilitators. *BMC Public Health*, 11, 461.
- Bussey, K. (1999). Social cognition theory of gender development and differentiation. *Psychological Review*. 106 (4). 676-713.
- Chan, C. B., & Ryan, D. A. (2009). Assessing the effects of weather conditions on physical activity participation using objective measures. *International Journal of Environmental Research and Public Health*, 6, 2639-2654.
- Chatterjee, S. (2005). Children's friendship with place: A conceptual inquiry. *Children, Youth and Environments*, 15(1), 1-26.
- Cisneros- Chernour, E. J., Cisneros, A. A., & Moreno, R. P. (2000). Curriculum reform in Mexico: kindergarten teachers' challenges and dilemmas. Paper presented at the Lilian Katz Symposium, Champaign
- Clements, R. (2004). An investigation of the status of outdoor play. *Contemporary Issues in Early Childhood*, 5(1), 68-78.
- Copeland, K. A., Kendeigh, C. A., Saelens, B. E., Kalkwarf, H. J., & Sherman, S. N. (2012). Physical activity in child-care centers: Do teachers hold the key to the playground? *Health Education Research*, 27(1), 81-100.
- Del Rosario, B. (2009). *Science and technology society and environment approach in environmental science for science students in a local culture*.
- Dinas Pendidikan Dasar Provinsi DKI Jakarta (2007). *Kurikulum Muatan Lokal Sekolah Dasar dan Madrasah Ibtidaiyah Provinsi DKI Jakarta: Standar Isi, Standar Kompetensi Lulusan dan Model Silabus*. Jakarta: Dinas Pendidikan Dasar Provinsi DKI Jakarta.
- Dinas Pendidikan Dasar Provinsi DKI Jakarta (2008). *System Informasi Manajemen Aset Sekolah (SIMAS)*. Retrieved 20 July 2011 from <http://www.simas.or.id>.

- Dyment, J. E. (2005). Green school grounds as sites for outdoor learning: Barriers and opportunities. *International Research in Geographical and Environmental Education*, 14(1), 28-45.
- Educause.(2012, July).*Assessing teaching and learning in technology-infused TILE classrooms at the University of Iowa* (Case Study). Resourced from: <http://www.educause.edu/eli/programs/seeking-evidence-impact>
- Entwisle, D. R., & Alexander, K. L. (1994). Winter setback: The racial composition of schools and learning to read. *American Sociological Review*, 59(3), 446-460.
- Epple, Dennis, and Richard Romano. (2011). Peer Effects in Education: A Survey of the Theory and Evidence. In *Handbook of Social Economics*, Vol. 1B, ed. Jess Benhabib, Alberto Bisin, and Matthew Jackson, 1053–1163. Amsterdam: North-Holland, Elsevier.
- Fabian, H. & Dunlop, A. W. (2007). *Outcomes of good practice in transition Processes for children entering primary school*, Working Paper 42. Bernard Van Leer Foundation: The Hague, the Netherland.
- Feeney, S & Chun, R. (1985).Effective teachers of Young Children.Research in Review. *Young Children*, 47-52.
- Fuchs, D., Fuchs, L. S., &Burish, P. (2000). Peer-assisted learning strategies: An evidencebased practice to promote reading achievement. *Learning Disabilities Research & Practice*, 15(2), 85-91.
- Fuchs, D., Fuchs, L. S., Thompson, A., Svenson, E.,...Saenz, L. (2000). Peer-assisted learning strategies in reading: Extensions for kindergarten, first grade, and high school. *Remedial and Special Education*, 22(1), 15-21.
- Fujimoto, K., Unger, J. B., & Valente, T. W. (2012). A network method of measuring affiliationbasedpeer influence: Assessing the influences of teammates' smoking on adolescent smoking. *Child Development*, 83(2), 442-451.
- Geary, D. C. (2011). Cognitive predictors of achievement growth in mathematics: A 5-year longitudinal study. *Developmental Psychology*, 47, 1539–1552. doi:10.1037/a0025510
- Good, R. H., Kaminski, R. A., Cummings, E., Dufour-Martel, C., Petersen, K., Powell-Smith, K..., Wallin, J. (2011). *DIBELS Next assessment manual*. Dynamic Measurement Group.
- Goodman, S. H., & Brand, S. R. (2009). Infants of depressed mothers: Vulnerabilities, risk factors, and protective factors for the later development of psychopathology. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (3rd ed., pp. 153–170). New York: Guilford Press
- Gordon, A. M. & Williams-Browne, K. (2004). *Beginnings and beyond: foundation in early childhood education*. NY: Thomson Learning Delmar.

- Graetz, K. A. & Goliber, M. J. (2002). Designing collaborative learning places: Psychological foundations and new frontiers. *New Directions for Teaching and Learning*, 92, 13–22. DOI: 10.1002/tl.75
- Gundogan, A. (2002). Unpublished master's thesis. Pamukkale University, Denizli, Turkey.
- Hanushek, E. A., Kain, J. F., Markman, J. M., & Rivkin, S. G. (2003). Does peer ability affect student achievement? *Journal of Applied Psychometrics*, 18, 527–544.
- Harris, D. N. (2010). How do school peers influence student educational outcomes? Theory and evidence from economics and other social sciences. *Teachers College Record*, 112(4), 1163-1197.
- Harrison, F., Jones, A.P., Bentham, G. Sluijs, E.M.F.V., Cassidy, A. & Griffin, S.J. (2011). The impact of rainfall and school break time policies on physical activity in 9-10 year old british children: A repeated measures study. *International Journal of Behavioral Nutrition and Physical Activity*, 8, 47.
- Higgins S, Hall E., Wall K., Woolner P., McCaughey C. (2005). The impact of school environments: a literature review. *The Centre for Learning and Teaching, School of Education, Communication and Language Science, University of Newcastle*. Retrieved from: <http://www.ncl.ac.uk/cflat/news/DCReport.pdf>. Accessed March, 2021.
- Hong, G., Corter, C., Hong, Y., & Pelletier, J. (2012). Differential effects of literacy instruction time and homogenous ability group in kindergarten classroom: Who will benefit? Who will suffer? *Educational Evaluation and Policy Analysis*, 34(1), 69-88.
- Hudson, S., & Thompson, D. (2000). Planning playgrounds for children of all abilities. *School Planning & Management*, 39(2), 35-39.
- Hunley, S. & Schaler, M. (2006). Assessing learning spaces. In D. Oblinger (Ed.), *Learning Spaces*. Retrieved from: [www.educause.edu/learningspaces](http://www.educause.edu/learningspaces)
- Jankowska, M. & Atlay, M. (2007). Use of creative space in enhancing students' engagement. *Innovations in Education and Teaching International*, 45(3), 271-279.
- Joshi, S. M. (2008). The sick building syndrome. *Indian Journal of Occupational and Environmental Medicine*, 12(2), 61.
- Justice, L. M., Petscher, Y., Schatschneider, C., & Mashburn, A. (2011). Peer effects in preschool classrooms: Is children's language growth associated with their classmates' skills. *Child Development*, 82(6), 1768-1777.
- Kagan, D. M. (1992). Implications of research on teacher beliefs. *Educational Psychologist*, 27, 65-90

- Kamil, M. L. (2003). *Adolescents and literacy: Reading for the 21st century*. Washington, DC: Alliance for Excellent Education.
- Kern, L. Kruse, U. & Roehring, G. (2007). Langenbach, M., & Neskora, T.W. (1977). Day care curriculum considerations. Columbus, OH: Charles E. Merrill Publishing Co
- Kimelberg, S. D., & Billingham, C. M. (2012). Attitudes toward diversity and the school choice process: Middle-class parents in a segregated urban public school district. *Urban Education, 48*(2), 198-231.
- Kindermann, T. A. (2007). Effects of naturally existing peer groups on changes in academic engagement in a cohort of sixth graders. *Child Development, 78*, 1186–1203.
- Middle-class parents in a segregated urban public school district. *Urban Education, 48*(2), 198-231.
- L'Abate, L. (2009). *The Praeger handbook of play across the life cycle*. Santa Barbara, CA: ABC-CLIO.
- Lackney, J. A. (2008). Teacher Environmental competence in elementary school environments. *Children, Youth and Environments, 18*(2), 133-159.
- Lehrl, S., Ebert, S., Blaurock, S., Rossbach, H.-G., & Weinert, S. (2019, online). Long-term and domain-specific relations between the early years home learning environment and students' academic outcomes in secondary school. *School Effectiveness and School Improvement, 1–23*. doi:10.1080/09243453.2019.1618346
- Lemons, C. J., Fuchs, D., Gilbert, J. K., & Fuchs, L. S. (2014). Evidence-based practices in a changing world: Reconsidering the counterfactual in educational research. *Educational Researcher, 43*(5), 242-252.
- Loebach, J. (2005). Designing learning environments for children: An affordance-based approach to providing developmentally appropriate settings.
- Lundin, M. (2000). *Creative activities for young children* (6th ed.). Albany, NY: Delmar Publishers.
- Malone, K., & Tranter, P. (2003). Children's environmental learning and the use, design and management of school grounds. *Children, Youth and Environments, 13*(2).
- Martin, S. H. (2004). Environment-behaviour studies in the classroom. *The Journal of Design and Technology Education, 9*(2), 77-89.
- Masburn, A. J., Justice, L. M., Downer, J. T., & Pianta, R. C. (2009). Peer effects on children's language achievement during pre-kindergarten. *Child Development, 80*(3), 686-702.
- Mawson, B. (2010). Environmental influences on independent collaborative play. *International Research in Early Childhood Education, 1*(2), 2-12.

- Maxwell, L. E., & Chmielewski, E. J. (2008). Environmental personalization and elementary school children's self-esteem. *Journal of Environmental Psychology*, 28(2), 143-153.
- Maynard, T., & Waters, J. (2007). Learning in the outdoor environment: A missed opportunity? *Early Years*, 27:3, 255-265.
- Ministry of Education [MOE] (2001). *Health and Safety Standards in Educational Institutions Circular* Retrieved from [http://cwsglobal.org/wp-content/uploads/2017/01/CWS-SSZSchoolsManual\\_Kenya.pdf](http://cwsglobal.org/wp-content/uploads/2017/01/CWS-SSZSchoolsManual_Kenya.pdf)
- Ministry of Education [MOE] (2008). *The development of Education: National Report of Kenya*. Report Presented at the International Conference on Education. Geneva, 25-28
- Ministry of Education and Sports (2018). *The early childhood care and education policy*. Kampala, Government Printery
- Monahan, T. (2002). Flexible space and built pedagogy: Emerging IT embodiments. *Inventio*, 4 (1): 1-19.
- Morrow, L. M. (2007). *Developing literacy in preschool*. New York, NY: Guildford Press.
- Mullis, I. V. S., Martin, M. O., Foy, P., & Arora, A. (2012). *TIMSS 2011 International Results in Mathematics*. United States: TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College Chestnut Hill, MA, USA and International Association for the Evaluation of Educational Achievement (IEA) IEA Secretariat Amsterdam, the Netherlands.
- Munirah, G., Ayminsyadora, A., & Abdul Razak, O. (2013). Preschool children ' s Representation of Numbers on a Linear Number Line : Implications to Teaching and Learning of Number Concepts. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)*, 14(6), 87–92.
- NAEYC. (2005). *NAEYC early childhood program standards and accreditation criteria: The mark of quality in early childhood education*. Washington, DC: Author
- National Association for the Education of Young Children and National Council of Teachers of Mathematics (NAEYC and NCTM). (2010). Position statement. Early childhood mathematics: Promoting good beginnings. Retrieved from <http://www.naeyc.org/positionstatements/mathematics>

- National Center for Education Statistics (2013). *The national's report card: A first look 2013 mathematics and reading* (NCES 2014-451). Institute of Education Sciences, U.S. Department of Education, Washington, D.C.
- Ngasike, J. (2004). Teachers' use of play as a medium of bridging pre-school children's mathematic experiences: A case study of Kasarani Division, Nairobi. (Unpublished M.Ed. Thesis) Kenyatta University.
- Norman, D. (2002). *The design of everyday things*. New York: Basic Books.
- Owiti, F. O. & Associates (2004). *Qualitative Evaluation of Kenya Early Childhood Development: Final Report* Ministry of Education, Science and Technology
- Ozdemic, A., & Yilmaz, O. (2008). Assessment of outdoor school environments and physical activity in Ankara's primary schools. *Journal of Environmental Psychology*, 28, 287–300.
- Park, R. (2008). Justifying Curriculum Decisions, In: J. R. Martin (Ed) *Readings in the Philosophy of Education: a study of curriculum* Boston: Allyn and Bacon
- Peraturan Mendiknas RI Nomor 22 Tahun 2007 tentang Standar Isi untuk Satuan Pendidikan Dasar dan Menengah.
- Peraturan Mendiknas RI Nomor 24 Tahun 2007 tentang Standar Saran dan Prasarana Sekolah Dasar/Madrasah Ibtidaiyah (SD/MI), Sekolah Menengah Pertama/Madrasah Tsanawiyah (SMP/MTs), dan Sekolah Menengah Atas/Madrasah Aliyah (SMA/MAK).
- Piper, B. & Mugenda, A. (2013). *The Primary Math and Reading (PRIMR) Initiative: DFID/Kenya Rural Expansion Programme. Bungoma and Machakos baseline study*. RTI International.  
[https://globalreadingnetwork.net/sites/default/files/eddata/PRIMR\\_DFID\\_Baseline\\_071613.pdf](https://globalreadingnetwork.net/sites/default/files/eddata/PRIMR_DFID_Baseline_071613.pdf)
- Pomerantz, E. M., & Grolnick, W. S. (2017). The role of parenting in children's motivation and competence: What underlies facilitative parenting? In A. Elliot, C. S. Dweck, & D. Yeager (Eds.), *Handbook of competence and motivation* (2nd ed., pp. 566–585). Theory and Application. New York, NY: Guilford Press.

- Prayoonwong, T., & Nimnuan, C. (2010). Dental Students' Perception of Learning Environment. *South-East Asian Journal of Medical Education*, 4(1), 49-54.
- Prellwitz, M., & Skär, L. (2007). Usability of playgrounds for children with different abilities. *Occupational Therapy International*, 14(3), 144-155.
- Read on Get on (2014). *A mission to ensure ALL children in Scotland are reading well by 11: Helping children escape poverty*. Save the Children Fund.  
[https://www.savethechildren.org.uk/sites/default/files/images/Read\\_On\\_Get\\_On\\_Scotland.pdf](https://www.savethechildren.org.uk/sites/default/files/images/Read_On_Get_On_Scotland.pdf)
- Republic of Mauritius (2009). *Education and Human Resources Strategy Plan 2008- 2020*: Ministry of Education, Culture and Human Resources.
- Roda, A., & Wells, A. S. (2013). School choice policies and racial segregation: Where white parents' good intentions, anxiety, and privilege collide. *American Journal of Education*, 119(2), 261-293.
- Runo, M. N. (2013 July). *Teachers, Methods and Materials: Exploring Opportunities and Challenges in Learning to Read in Primary Schools in two Kenyan Contexts*. *Journal of Special Needs and Disabilities Studies*. 1:45-56.
- Sacerdote, B. (2001). Peer effects with random assignment: Results for Dartmouth roommates. *Quarterly Journal of Economics*, 116, 681-704.
- Sacerdote, Bruce. (2011). Peer Effects in Education: How Might They Work, How Big Are They and How Much Do We Know Thus Far? in E. Hanushek, S. Machin, and L. Woessmann, eds., *Handbook of the Economics of Education*, Dordrecht: Elsevier, 249-277.
- Salleh, N. M., Kamaruzzaman, S. N., & Mahyuddin, N. (2013). Sick building symptoms among children in private pre-schools in Malaysia: Association of different ventilation strategies. *Journal of Building Performance*, 4(1).
- Samborski, S. (2010). Biodiverse or barren school grounds: Their effects on children. *Children, Youth and Environments*, 20(2), 67-115.

- Semrud-Clikeman, M. (2007). *Social competence in children*. New York, NY: Springer.
- Shim, S., Herwig, J., & Shelley, M. (2001). Preschoolers' play behaviors with peers in classroom and playground settings. *Journal of Research in Childhood Education, 15*(2), 149-163.
- Sidall, S. (2006). Denison University: MIX Lab. In D. Oblinger (Ed.), *Learning Spaces*. Retrieved from: [www.educause.edu/learningspaces](http://www.educause.edu/learningspaces)
- Sifuna, D.N. (1986). The quality of primary schools and pupil's achievement in Kenya. *Journal of Education, 42*.
- Silva, P., Santos, R., Wel, G. & Mota, J. (2011). Seasonal differences in physical activity and sedentary patterns: The relevance of the PA context. *Journal of Sports Science and Medicine, 10*, 66-72.
- Slegers, P., Moolenaar, N., Galetzka, M., Pruyn, A., Sarroukh, B. & Zande, B. (2012). Lighting affects students' concentration positively: Findings from three Dutch studies. *Lighting Research and Technology, 45*(2), 159–175.
- Snow, C. E., & Biancarosa, G. (2003). *Adolescent literacy and the achievement gap: What do we know and where do we go from here?* New York: Carnegie Corporation of New York.
- Snow, C. E., Burns, M. S. & Griffin, P. (Eds.). (1998). *Instructional strategies for kindergarten and the primary grades In Preventing reading difficulties in young children* (pp. 172-94). Washington, DC: National Academy Press.
- Sonnenschein, S., & Dowling, R. (2019). Parents' socialization of their young children's interest in math. In O. Saracho (Ed.), *Contemporary perspectives on research on motivation in early childhood education* (pp. 75–100). NY: Information Age Publishing.
- Sonnenschein, S., & Munsterman, K. (2002). The influence of home-based reading interactions on 5-year-olds' reading motivations and early literacy development. *Early Childhood Research Quarterly, 17*, 317–338. doi:10.1016/S0885-2006(02)00167-9.

- Sonnenschein, S., Baker, L., & Serpell, R. (2010). The early childhood project: A 5-year longitudinal investigation of children's literacy development in sociocultural context. In D. Aram, & O. Korat (Eds), *Literacy development and enhancement across orthographies and cultures* (pp. 85–96). New York, NY: Springer.
- Sonnenschein, S., Metzger, S.R., & Thompson, J.A..(2016). Low-income parents' socialization of their preschoolers' early reading and math skills. *Research in Human Development*, 13, (207–224). doi:10.1080/15427609.2016.1194707.
- Southern Regional Education Board. (2006). We Have Literacy: Now Can We Have A Math Across The Curriculum. In *2006 Connection Conference*. Retrieved from <http://docslide.us/download/link/southern-regional-education-board-we-have-literacy-now-can-we-have-a-math>
- Spodek, B., & Saracho, O. (1988). The challenge of education play. In D. Bergen (Ed.), *Play as a medium for learning and development: A handbook of theory and practice* (pp. 11-28). Portsmouth, NH: Heinemann.
- Stites, M.L. & Brown, E.T. (2019). Observing mathematical learning experiences in preschool. *Early Child Development and Care*. doi:10.1080/03004430.2019.1601089.
- Strategic Marketing and Research (2013). *Factors affecting reading ability in school age children*. [http://evancedsolutions.com/wpcontent/uploads/2015/01/Factors\\_Affecting\\_Reading\\_Ability\\_White\\_Paper.pdf](http://evancedsolutions.com/wpcontent/uploads/2015/01/Factors_Affecting_Reading_Ability_White_Paper.pdf)
- TIMSS 2011 International Results in Mathematics*. United States: TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College Chestnut Hill, MA, USA and International Association for the Evaluation of Educational Achievement (IEA) IEA Secretariat Amsterdam, the Netherlands.
- Titman, W. (1994). *Special places, special people: The hidden curriculum of school grounds*. Surrey: World Wide Fund for Nature/Learning through Landscapes.

- Uline, C., & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate and student achievement. *Journal of Educational Administration*, 46 (1), 55-73.
- UNESCO (2008). *Global Monitoring Report: Chapter 2. The Six Goals: How Far have we come?* UNESCO, Paris.
- Uwezo (2011). *Are Our Children Learning? Annual Assessment Report, 2011*
- Vassileva, J. (2009). Towards social learning environments, *IEEE Translation on Learning Technologies*.1, (4).
- Vin-Mbah, I. F. (2012). Learning and teaching methodology. *Journal of Educational and Social Research*, 2(4), 111-115.
- Watts, T. W., Duncan, G. J., Siegler, R. S., & Davis-Kean, P. E. (2014). What's past is prologue: Relations between early mathematics knowledge and high school achievement. *Educational Researcher*, 43, 352–360. doi:10.3102/0013189X14553660.
- White, R., & Stoecklin, V. (1997). Children's outdoor play and learning environments: returning to nature. *Early Childhood NEWS*. Retrieved from <http://www.whitehutchinson.com/children/articles/outdoor.shtml>
- Whiteside, A. & Fitzgerald, S. (2005). Designing spaces for active learning. *Implications*, 7(1), 1-6. Retrieved from: [http://www.informedesign.org/\\_news/jan\\_v07r-pr.2.pdf](http://www.informedesign.org/_news/jan_v07r-pr.2.pdf)
- Wolff, D., & Fitzhugh, E.C. (2011). The relationships between weather-related factors and daily outdoor physical activity counts on an urban greenway. *International Journal of Environmental Research and Public Health*, 8, 579-589.
- Zimmer, R. W., & Toma, E. F. (2000). Peer effects in private and public schools across countries. *Journal of Policy Analysis and Management*, 19, 75–92.

## APPENDICES

### Appendix 1: Self-Administered Questionnaire for Teachers

Kampala International University  
P.O Box  
Kampala

May 2021

Dear Respondent

I am a student of Kampala International University currently undertaking research titled “**School Environment and Children’s Learning in Preprimary Schools in Nansana Municipality, Uganda.**” You have been selected to participate in the study by providing important information regarding the above topic. The researcher kindly informs you that the information you give will be used only for the purpose of satisfying an academic requirement and will be treated with utmost discretion. Your participation in this study is voluntary but necessary for the success of this work. Confidentiality will be ensured for information provided by ensuring anonymity.

Sincerely

.....  
Nakimuli Rachael

#### SECTION A: Background Characteristics

Tick in the appropriate place provided

1. My Sex

| Male | Female |
|------|--------|
| 1    | 2      |

2. The age bracket you fall in

| Below 30 years | 30-40 years | 41-50 years | 51 and above years |
|----------------|-------------|-------------|--------------------|
| 1              | 2           | 3           | 4                  |

3. Educational Quantification

| Certificate | Diploma | Degree |
|-------------|---------|--------|
| 1           | 2       | 3      |

**Section B:**

This section presents items on School Environment (IV). You are kindly requested to indicate how you rate yourself on the following statements using the scale where, 4-Very Adequate (VA) 3-Adequate(A) 2-Inadequate (IA) 1-Very Inadequate (VI).

| Very inadequate | Inadequate | Adequate | Very Adequate |
|-----------------|------------|----------|---------------|
| 1               | 2          | 3        | 4             |

| <b>B1</b> | <b>Staff</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
|-----------|---|----------|----------|----------|----------|
| 1         | There are enough teachers for pre-primary to handle the children at school.                             |          |          |          |          |
| 2         | The school has employed extra teachers to ensure that each pre-primary has two teachers in each lesson. |          |          |          |          |
| 3         | As a teacher I promote child guidance to learners in school.  |          |          |          |          |
| 4         | The school has enough staff to cater for the numbers that are growing in preprimary.                    |          |          |          |          |
| 5         | There are qualified teacher of early childhood at school  |          |          |          |          |
| 6         | The school provides motivation to teachers for pre-primary  |          |          |          |          |
| 7         | Pre-primary teachers are interested in teaching children  |          |          |          |          |
| 8         | Teaching children at nursery level involves use of songs  |          |          |          |          |
| 9         | Teachers for nursery are approachable by all children   |          |          |          |          |
| 10        | Teachers at nursery level help children to be sued with the school environment                          |          |          |          |          |
| <b>B2</b> | <b>Space</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| 1         | Classroom furniture caters for all types of learners in terms of space                                  |          |          |          |          |
| 2         | The school has formal space where pupils carry out their activities of learning.                        |          |          |          |          |
| 3         | There are outdoor spaces for pupils to play or use at school.   |          |          |          |          |
| <b>B3</b> | <b>Physical facilities</b>  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> |
| 1         | Classrooms are well built to suit the learner's needs.  |          |          |          |          |
| 2         | Toilets are in good conditions.   |          |          |          |          |
| 3         | The school has adequate classrooms to accommodate pre-primary children.                                 |          |          |          |          |
| 4         | The school has a playground where the children play from freely   |          |          |          |          |
| 5         | The school buildings are spacious enough for the pre scholars   |          |          |          |          |
| 6         | The school buildings have enough furniture for the pre scholar.   |          |          |          |          |
| 7         | The school has balls and other resources that children can use for play                                 |          |          |          |          |

**Section C: Children’ Learning**

This section presents items on Children’s Learning (DV). You are kindly requested to indicate how you rate yourself on the following statements using the scale where, **4-Strongly Agree (SA) 3-Agree (A) 2-Disagree (D) 1-Strongly Disagree (SD)**.

|                   |          |       |                |
|-------------------|----------|-------|----------------|
| Strongly disagree | Disagree | Agree | Strongly Agree |
| 1                 | 2        | 3     | 4              |

| DV | Children’s Learning  | 1 | 2 | 3 | 4 |
|----|--|---|---|---|---|
|    | <b>Numeracy</b>  |   |   |   |   |
| 1  | Children are able to write numbers in class as they learn.                         |   |   |   |   |
| 2  | The children have mastered writing numbers 0-9                                     |   |   |   |   |
| 3  | Children are able to recite the numbers in class correctly.                        |   |   |   |   |
|    | <b>Reading</b>   |   |   |   |   |
| 4  | Children in pre-primary are able to read the vowels as they learn them             |   |   |   |   |
| 5  | Children read the alphabet as they learn them                                      |   |   |   |   |
| 6  | Children are able to read the letters with the right sound as they learn them      |   |   |   |   |
| 7  | Children can identify the letters  |   |   |   |   |
| 8  | Pupils are able to pronounce the words correctly                                   |   |   |   |   |
|    | <b>Play</b>  |   |   |   |   |
| 9  | Children get involved in play outside the class as part of learning                |   |   |   |   |
| 10 | Children use the available materials like balls and ropes to play                  |   |   |   |   |
| 11 | In class pupils are arranged in such a manner that they can play during the lesson |   |   |   |   |
|    | <b>Writing</b>   |   |   |   |   |
| 12 | Children have begun mastering the letter writing through practice.                 |   |   |   |   |
| 13 | Children have mastered some easy letter writing which they learn daily.            |   |   |   |   |
| 14 | Pupils write numbers and letters   |   |   |   |   |
| 15 | Children can write their names correctly   |   |   |   |   |
| 16 | Pupils are able to write a thirteen letter word in class                           |   |   |   |   |

**Suggestions**

1. In your view, how do Physical facilities affect children learning in your school?

.....

.....

.....

2. In your view, how does staff affect children learning in your school?

.....

.....

.....

3. What should be done to improve children's learning in pre-primary?

.....

.....

.....

.....

**THE END**

## APPENDIX II: INTRODUCTORY LETTER



**KAMPALA  
INTERNATIONAL  
UNIVERSITY**

Ggaba Road, Kansanga \* PO BOX 20000 Kampala, Uganda  
Tel: 0709654233/0774393791 Fax: +256 (0) 41 – 501974  
E-mail: dhdrinquiries@kiu.ac.ug \* Website: http://www.kiu.ac.ug

### Directorate of Higher Degrees and Research Office of the Director

Our Ref. 2019-01-05350

Wednesday 8<sup>th</sup> December, 2021

Dear Sir/Madam,

#### RE: INTRODUCTION LETTER FOR NAKIMULI RACHEAL REG. NO. 2019-01-05350

The above mentioned student is a student of Kampala International University pursuing a Master's Degree in Education-Early Childhood Education.

The student is currently conducting a research study titled, “*School Environment and Children's Learning in Pre-Primary Schools in Nansana Municipality Uganda*”.

Your organization has been identified as a valuable source of information pertaining to the research subject of interest. The purpose of this letter therefore is to request you to kindly cooperate and avail the student with the pertinent information needed. It is our ardent belief that the findings from this research will benefit KIU and your organization.

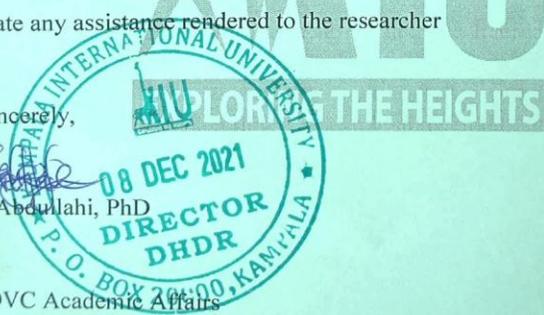
Any information shared with the researcher will be used for academic purposes only and shall be kept with utmost confidentiality.

I appreciate any assistance rendered to the researcher

Yours Sincerely,

  
Ibrahim Abdullahi, PhD  
Director

C.c. DVC Academic Affairs  
Principal-CEODL



“Exploring the Heights”

## APPENDIX III: FIELDWORK LETTER



### NANSANA MUNICIPAL COUNCIL

DIRECTORATE OF EDUCATION AND SPORTS

P.O. Box 7218, Kampala Uganda, Tel: +256 772-462722

Email: [nansanamc@yahoo.com](mailto:nansanamc@yahoo.com) / Website: [www.nansana.go.ug](http://www.nansana.go.ug)



14<sup>th</sup> February, 2022

The Headteacher,

**Re: A study Research in Pre-Primary Schools in Nansana Municipality.**

This is to introduce to you Ms. Nakimuli Racheal a student of Kampala International University pursuing studies leading to award of Master's Degree in Education –Early Childhood Education.

She is conducting a research study titled “**School Environment and Children’s learning** in Pre-Primary Schools in Nansana Municipality Uganda as part of the requirement for award of degree.

Any assistance extended to her will be applauded.

Lwanga. H. Ssempijja  
Municipal Education Officer



Cc: Municipal Inspector of Schools-Nansana Municipal Council

## APPENDIX IV: STATISTICS

### ANOVA<sup>b</sup>

| Model |            | Sum of Squares | df  | Mean Square | F      | Sig.              |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1     | Regression | 5.823          | 3   | 1.941       | 19.687 | .000 <sup>a</sup> |
|       | Residual   | 11.239         | 114 | .099        |        |                   |
|       | Total      | 17.062         | 117 |             |        |                   |

a. Predictors: (Constant), Physical facilities, Staff, Space

b. Dependent Variable: Children's Learning

### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .584 <sup>a</sup> | .341     | .324              | .31399                     |

a. Predictors: (Constant), Physical facilities, Staff, Space

**APPENDIX V: MAP OF NANSANA MUNICIPALITY**

