

**RELATIONSHIP BETWEEN THE USE OF PLAYGROUND
FACILITIES AND PRE-SCHOOL CHILDREN'S MOTOR
DEVELOPMENT IN KADUNA METROPOLIS**

BY

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**DEPARTMENT OF VOCATIONAL AND TECHNICAL
EDUCATION, FACULTY OF EDUCATION,
AHMADU BELLO UNIVERSITY, ZARIA**

DECEMBER, 2009.

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DEVELOPMENT IN KADUNA METROPOLIS**

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**DEPARTMENT OF VOCATIONAL AND TECHNICAL
EDUCATION, FACULTY OF EDUCATION,
AHMADU BELLO UNIVERSITY, ZARIA**

DECEMBER, 2009.

DECLARATION

I declare that the work in the Thesis entitled “Relationship Between the Use of Playground Facilities and Pre-school Children’s Motor Development in Kaduna Metropolis” has been conducted by me in the Department of Vocational and Technical Education under the Supervision of Dr. (Mrs.) E. Ike and Dr. (Mrs.) E.E. Adamu. The information derived from the literature have been duly acknowledged in the text and the list of references provided. There was no part of this Thesis that was previously presented for another degree at any University.

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CERTIFICATION

This research work titled “Relationship Between the Use of Playground Facilities and Pre-School Children’s Motor Development in Kaduna Metropolis” meets the regulations governing the award of the degree of Master of Education (Family and Child Development) of Ahmadu Bello University and was approved for its contributions to knowledge and literary presentation.

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DEDICATION

This work is dedicated to God Almighty who is my father and who gave me good health and the opportunity to complete this programme successfully. It is also dedicated to my husband Dr. Austin Okosun and my five children, Austin (Jnr.), Omomene, Benedicta, Valentina and Oseriemen for their prayers, encouragement, love and support.

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ABSTRACT

The pre-school year is a period of so many developmental changes in the child. The child at this stage of life is faced with the challenges of coordinating his/her limbs, develop strength and perceptual skill, control posture and balance. The role that playground facilities play with regards to this, need, to be addressed. Therefore, the study titled "Relationship between the use of playground facilities and pre-school children's motor development in Kaduna Metropolis" was aimed at assessing the relationship between playground facilities and the extent of motor development of pre-school child. Experimental research design using field experimental research design was employed for the study. A sample of one hundred (100) children out of the twenty one thousand eight hundred and one (21,801) children and ten proprietors/proprietress and schools out of the hundred and two proprietors/proprietress and schools in Sabon Tasha division of the metropolis were used for the study. Observation score sheet and questionnaire were used to obtain relevant data. Collected data were analysed using frequencies, percentages, mean and Pearson Product Moment Correlation. Four Null hypotheses were stated and all were tested at 0.05 ($P < 0.05$) level of significance. The tested null hypothesis (1) revealed that there was no significant relationship in the extent of motor development of preschool children who use playground facilities and those who did not. Hypotheses 2, 3 and 4 revealed significant relationship in the use of some playground facilities for the development of specific motor skills. The observed probability were all lower than 0.05 which implied significant relationship. However, the study showed that majority of the proprietors/proprietress of private pre-schools in Kaduna metropolis fell within the middle age and were educated. The findings also revealed that some particular playground facilities were common to all the pre-schools. Researcher's recommendations were that: (i) parents should ensure that they enroll their children into preschools that have adequate playground equipments (ii) where they cannot afford to buy the equipment, parents should from time to time take their children to public playground centres so that they can utilize the facilities there (iii) Government at all levels should ensure proper supervision and monitoring of private preschools. The researcher concluded by stating that preschool curriculum should be designed in such a way that it will be play oriented so that preschool owners would have no alternative than providing the children with playground and adequate facilities.

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OPERATIONAL DEFINITION OF TERMS

- * **Adventure Playground:** It is usually an informal, large, fenced-in play area with a variety of “scrap” materials for children to use in imaginative and creative play.
- * **Cephalocandal Trend:** Motor development that proceeds from head to foot, along the length of the body.
- * **Emotional Catharsis:** The ability to get rid of pent-up energy.
- * **Maturation:** The entire process leading to the development of the child including the structural and physiological changes.
- * **Motor development:** It is the development of action and coordination of one’s limbs, as well as the development of strength, posture control, balance and perceptual skills.
- * **Motor:** Physical activities and outlook of the human person.
- * **Neuromuscular mechanism:** Control of the muscles by the brain.
- * **Proxmodistal trend:** Motor development that proceeds from the centre of the body outwards to move peripheral segments.
- * **Traditional Playground:** It is a type of playground that emphasizes exercise and physical development leaving limited room to foster a child’s other critical skills, including socialization and imagination. It typically includes swings, slides, climbers, small bridges, sandbox etc.

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

Every normal child is good at birth and as a growing individual he/she can learn better when he/she is free to develop according to his/her natural impulses. There should be freedom for children to learn in a flexible child-centred and benevolent environment. Childhood is a unique, precious and critical period for effective development (Akpan and Olaitan, 2003). Human development is rich, and enormously complex. One of the outstanding characteristics of the human infant is his/her complete helplessness. Pressey and Kuhlen (1998) stated that the newborn infant is a strangely uncoordinated, helpless mite of humanity. Children's very first years are devoted to the fascinating, but difficult problem of getting control of their own body.

Motor development occurs in the same sequence with all children over the entire world but at different rates (Shaffer, 2006). Spock (2000) defined motor development as a child's control over his/her muscles, his/her coordination, his/her ability to sit, stand and eventually to walk and run. Wikipedia (2007) also defined motor development as the development of action and coordination of one's limbs, as well as the development of strength, posture control, balance and perceptual skills. Spock (2000) also defined motor development as a child's control over her/her muscles, his/her coordination, his/her ability to sit, stand and eventually to walk and run.

According to Santrock [2003], one of the first psychologists to investigate human motor development was Gesell in 1945, who studied films of motor activities of children from birth to early childhood or pre-school years. He concluded that motor development proceeded from the global to the specific in two directions. One direction was called the ***cephalocaudal trend*** and the other was called the ***proximodistal trend***.

These two invariant sequences of development, together with the regular sequence with which the motor milestones are achieved led Gesell to the view that maturation alone shapes motor development. Any other factor has little, if any, effect on motor development (Hocking, Loose and Slater, 2007). One of the first researchers to question Gesell's hypothesis was McGraw in 1945. After carrying out a research on twins, McGraw stated that some other factors contributed to the motor development of children and not only maturation.

Some common motor skills for a preschool child are hand skills which include writing, ball throwing and catching, block building, self-feeding, self dressing and copying. The leg skills include running, jumping, skipping and hopping, climbing, tricycling and bicycling (Hurlock, 1972). A playground is a place for fun, and while many adults remember playgrounds made up of tire swings, swing sets, teeter totters, and monkey bars, there are many more options available for child playground equipment nowadays. According to the Webster's Dictionary [1993] a playground is a piece of ground set apart for children to play on. It is equally seen as a district for recreation. There are two

major types of playground, traditional and adventure playgrounds. These form the basis for other playground. Coursen [1994] defined playground facilities as those facilities designed to promote children's imaginative thinking while they play. Playground facilities are now more widely varied and they are facilities designed with encouraging creativity as well as safety in mind. Playgrounds are now more than a place just for children to run off energy, they are places where children develop their motor abilities (Wallach, 1995). Pre-school playground equipment can include small bridges, swings, musical pieces or play houses. The preschool playground equipment do not always need to be educational, as pieces which encourage movement, motor development and creativity may be more stimulating for small children.

Studies like that of McGraw, Glenn and Poest have shown that the ages at which children achieve muscle control and develop motor skills are by no means the result of differences in intelligence and maturity alone. Very often, they are the result of opportunities in learning and the type of playground equipment available (Hullock, 1972). According to Encyclopedia Britannica (1973) pre-school education involves the earliest phases of childhood, beginning in infancy and ending upon entry into primary school at about five to six years of age. Haskins (2000) defined as children between the ages of 2 to 6 years. The preschool years is a time when stable concepts are formed, mental reasoning emerges, egocentrism begins strongly and then weakness and magical beliefs are constructed.

Despite the benefits of playground equipment in motor development of pre-school children, researchers, educators and parents are concerned that they are not accessible to all children. From the researchers observation, some preschools in Kaduna metropolis, do not have adequate playground equipment that can enhance children's motor development. Some do not even have playgrounds and thereby not having the equipment.

Most of the research findings stated earlier did not state the types of playground facilities the pre-school children were exposed to that enhanced their motor development. Therefore, the present study will find out the types of playground equipment available in the pre-schools in Kaduna metropolis and how they affect lack of motor development in view of the fact that it can conspicuously be noticed if a child is deficient of skills.

1.2 Statement of the Problem.

The researcher observed that there is a shift from the play nature of children to subjecting them to academic activities only. In most families the researcher observed that children spend hours watching television without engaging themselves in any form of play. Even when they are allowed to play, the time given is always inadequate. Some parents see play as something that is done only by children who are "loose and dirty". They confine their children in their rooms providing them with a lot of cartoons and fairy tale movies to watch. The children are never allowed to go out and play except in few occasions with family friends of their class. Ike (2007) affirmed this when she stated that most

parents today have ignored the business of play but put on the television for their children to sit down and watch endless cartoons and films, many of which are not even educative nor do the children understand them.

The researcher observed in Kaduna metropolis that it is difficult to see children coming together along the streets to play. Traditional playgrounds are all past issues and schools that are supposed to take over and provide playgrounds and playground facilities are equally few. Many private pre-schools in Kaduna metropolis do not have space to build well equipped playgrounds but have just little spaces for children to run around during their break time. Some have the playgrounds but they are not well equipped. According to Hullock (1972) motor skills will not develop through maturation alone. Other factors such as the use of playground facilities play significant roles in motor development. A study of the effects of training on ball throwing found that in the 3- to – 4 year-old-group, those who received training made a distinct gain over those who received little or no training. The result indicated that those who performed better did so because they had the opportunity of receiving training in throwing which improved their motor skill in hand coordination. In numerous longitudinal studies, groups of pre-school children have been tested and observed over a period of time to see when certain forms of motor behaviour appeared, why they appeared and to discover whether these forms were similar for other children of the same age. Extensive studies by Gleen, Poest and Graham showed that various motor

performances were developed when the children were allowed to have an outdoor play (Frank, Goldersen and Hartley, 1999).

Santrock (2003) stated that special concerns have emerged about the relationship between playground equipment and motor development in pre-school children. In recent years, it has become recognized that motor development is not the consequence of nature or nurture only and there has been a shift to focus on how motor skills develop (Smith and Thelen, 1998).

It is in view of all these that the researcher felt that there is need to carry out the study to determine the extent to which playground equipment enhanced pre-school children motor development.

1.3 Objectives of the Study.

The major objective of the study was to investigate or assess the relationship between the use of playground equipment and pre-school children motor development. Some of the playground facilities included climbing structures, small bridges, swings, tires, balance beam etc.

The specific objectives were to:

1. identify the different types of playground available in preschools in Kaduna metropolis.
2. identify the different types of playground equipment available in the pre-schools in Kaduna metropolis.
3. to ascertain the categories of preschools that have playground facilities.

4. assess the extent of relationship between pre-school children who use playground facilities and those who do not in their level of motor development.
5. assess the extent of relationship between each playground facility and the development of specific motor skill in the pre-school child.

1.4 Research Questions

The research sought to answer the following questions:

1. What are the different types of playground available in pre-schools in Kaduna metropolis?
2. What are the different types of playground facilities available in pre-schools in Kaduna metropolis?
3. What categories of pre-school have playground facilities?
4. What is the extent of relationship between pre-school children who use playground facilities and those who do not in their level of motor development.
5. What is the extent of relationship between specific playground facility and the development of specific motor skill in preschool children.

1.5 Null Hypotheses

The following Null Hypotheses were formulated for testing at 0.05 level of significant.

1. There is no significant relationship between preschool children who use playground facilities and those who do not in their level of development.
2. There is no significant relationship in the use of climbing structures, small bridges, balance beam, slides, tires and see-saw and the development of leg skills among preschool children.
3. There is no significant relationship in the use of swings, blocks, musical pieces, sand box and ball centers and the development of hand skills among preschool children.
4. There is no significant relationship between specific playground equipment and specific motor development.

1.6 Significance of the Study

This study would contribute to knowledge and literature on the relationship between the use of playground facilities and pre-school children's motor development.

The outcome of the study would be of importance to the Ministry of Education and Curriculum Planners because it would enable them to formulate policies which will centre more on children's development through play facilities or equipment.

The outcome would also help teachers and curriculum planners to develop and evaluate interventions designed to maximize the benefits of playground equipment in the life of pre-school children. That is to say, most of the activities

designed for learning will incorporate the use of playground equipment especially those experiences that have to do with motor development in children.

The findings would guide teachers and owners of pre-schools on how to run and manage the schools in terms of providing good and well equipped playgrounds for the development of children especially in motor skills. It will also help parents to know the importance of provision of playground equipment in the motor development of their children and that will guide them when placing their children in schools.

1.7 Basic Assumptions of the Study.

The study was based on the following assumptions:

- Pre-schools in Kaduna metropolis have playgrounds and playground equipments.
- Use of playground equipments enhances motor development in pre-school children.
- There is no indoor playground equipment in pre-schools in Kaduna metropolis.

1.8 Delimitations of the Study

The study was delimited to the assessment of the relationship between use of playground equipment and pre-school children's motor development in Kaduna metropolis. It was delimited to only private pre-schools in Kaduna

metropolis because pre-schools were mostly run by private establishments and individuals. It was also delimited to only pre-school children who were in nursery one and were three years old. The reason for this was because the children were fresh from home and going by what is happening, most homes do not have playground and the facilities. Therefore, the researcher believed that the children were coming in contact with most of the playground facilities for the first time.

According to the Kaduna State private school board, schools are categorized into five. That is categories A,B,C,D and E based on the population of the school and amount paid as school fees. So, the study was also delimited to all the categories of the preschools. This enabled the researcher find out if the category a preschool belong has anything to do with the type of playground facilities it had.

CHAPTER TWO

2.0 REVIEW OF RELATED LITERATURE

This chapter reviewed the literature that were related to the study under the following sub-headings:

- 2.01 Concept and theories of motor development
- 2.02 Principles and importance of motor development
- 2.03 Motor skills and indices of motor skills
- 2.04 Common methods of learning motor skills and Common motor skills in early childhood
- 2.05 Development of Gross and fine motor skills in early childhood.
- 2.06 The playground and its importance
- 2.07 Preschool playground facilities
- 2.08 Indoor Pre-school playground facilities
- 2.09 How to provide a safe playground for the preschool children
- 2.10 Relationship between playground facilities and pre-school children's motor development.
- 2.11 Empirical studies on the relationship between playground facilities and pre-school children's motor development.
- 2.12 Summary.

2.1 The Concept and Theories of Motor Development

One of the most obvious signs of development in early childhood is the child achieving the various motor milestones. Parents are very proud of these acquisitions and they are focus of parental conversations about their children. The development of motor skills has very important implications for other aspects of development (Hocking, Loose and Slater, 2007). The ability to act on the world affects all other aspects of development, and each new accomplishment bring with it an increasing degree of independence. At birth the infant has a number of well-developed motor skills, which include sucking, looking, grasping, breathing, crying-skills that are vital for survival (Dales, 1996).

However, the general impression of the newborn is one of uncoordinated inability and general weakness. Movements of the limbs appear jerky and uncoordinated, and it takes a few weeks before infants can lift their head from a position. The muscles are clearly unable to support the baby's weight in order to allow such basic activities as sitting, rolling over or standing (Hubbard, 2000).Anderson, [2000] stated that by the beginning of early childhood, all these have changed. The child can walk, run, climb, communicate in speech and gesture and use the two hands in complex coordinated actions.

Motor development is the development of action and coordination of one's limbs, as well as the development of strength, posture control, balance and perceptual skills (Wikipedia, 2007).John and John [2000] equally defined motor development as development of skills resulting from physical development,

enabling children to perform smooth and coordinated physical acts. Spock [2000] also defined motor development as a child's control over her muscles, her coordination, her ability to sit, stand and eventually to walk and run. It also refers to his or her manipulative abilities. Motor development occurs in the same sequence with all children over the entire world, but at different rates (Adolph, Denny and Vereijken, 2000). Much of motor development is tied to the process of maturation (Berger, 2000).

According to Witherington (2001) during the first three to five years, the child gains control over gross movements. These movements involve the large area of the body used in walking, running, jumping, swimming and so on. Unless environmental obstacles or physical or mental handicaps interfere with normal motor development, the six year-old will be ready to adjust to the demands of school and to participate in the play activities with his/her peers. Some of the most important developmental tasks of the pre-schools years consist of the development of motor skills based on the coordinated use of different teams of muscles (Hertenstein, 2000). The child who measures up to social expectations makes good personal and social adjustments unless some personality obstacles stands in his/her way. The child who falls below social expectations, on the other hand, develops feelings of personal inadequacy which weaken his motivation to try to learn what his/her age-mates have already learned (Barbu-Roth, 1999).

There are two things which are apparent in motor development. First is that the different milestones emerge in a regular sequence, that is sitting with

support, sitting unaided, crawling, standing, walking, climbing with support and climbing without support etc, appear almost always in this order. The second is that there is a considerable age range in which children achieve each skill. These two aspects of motor development give separate support to the two major theories of motor development maturational theories and dynamic system theory (Slater, 2003). According to Hocking, Loose and Slater (2007), a theory of development is a scheme or system of ideas that is based on evidence and attempts to explain, describe and predict behaviour and development. From this account, it is clear that a theory attempts to bring order to what might otherwise be a chaotic mass of information.

In every area of development there are at least two kinds of theories, which can be called the minor and the major. What are called minor theories are those which deal only with very specific, narrow areas of development. For example, there are theories about the way in which eye movement develop, about the origin of pointing. Major theories are those which attempt to explain large areas of development and it is in this, category that theories of motor development belong (Wahler, 1998). The question that a theory of motor development needs to explain include the following, first, to state if the early motor activities prepare the way for the more complex voluntary, activities that follow, and if so, how do they do it? Secondly, how do new motor patterns such as painting, running, tool use develop since they appear to be qualitatively different from earlier patterns.

Maturation Theory

Gesell, a psychologist, pediatrician, and educator in the 1940's, was very interested in child development. From his numerous observations of children, Gesell formulated a theory known as Theory of Maturation which stated that developmental changes in a child's body or behaviour area from ageing process rather than from learning, injury, illness or some other life experience. Dales (1996) stated that Gesell's theory of maturation was rooted in the biological, physiological and evolutionary sciences. As a result he centered most of his theory on the power of biological forces, which he felt provided momentary development to occur. Gesell and his contemporaries proposed that development follows a sequence and that the biological and evolutionary history of the species decides the order of sequence. Maturation theory supported the ideas that each child's unique genetic and biological make-up determine the rate of development regardless of other potential environmental influences (Shaffer, 2006).

Gesell, guided by a maturational conception of development said that "growth" is a process so intricate and so sensitive that there must be powerful stabilizing factors, intrinsic rather than extrinsic, which preserve the balance of the total pattern and the direction of the growth trend. Maturation he said is a name for this regulatory mechanism. As for the influences of extraneous factors like environment, on development, Gesell said that they may play a screening or selective role determining which of competing potencies are to be realized, but

the basic mechanism of realization is one of maturation (Salkind, 2001). Salkind went ahead and said that in his studies of infants and young children, Gesell charted the sequence of growth, established norms and postulated a number of explanatory principles of development. His emphasis on the relationship of biological maturation to psychological development represented a position he actively promoted and shared with a number of influential psychologists.

Hocking, Loose and Slater (2007) stated that Gesell, after carrying out his studies concluded that motor development proceeded from the global to the specific in two directions. One direction is called the ***cephalocaudal trend*** and is from head to foot along the length of the body, that is, control of the head is first, then the arms and trunk and finally control of the legs. The other direction of development is what is called the ***proxmodistal trend***, which is that motor control that is from the centre of the body outwards to more peripheral segments – that is, the head, trunk and pelvic girdle are brought under control before the elbows, wrist, knee and ankle joints, which in turn lead to finer control over hands and fingers. These two invariant sequences of development together with the regular sequence with which the motor milestones are achieved, led Gesell to the view that maturation alone shapes motor development. Development is controlled by a maturational timetable linked particularly to the central nervous system and also to muscular development. Experience has little, if any, effect on motor development. But still, some psychologists believe that motor

development cannot be based on purely maturation. That there are other factors that influence motor development.

Dynamic Systems Theory

According to the dynamic system theory, all new motor development is the result of a dynamic and continual interaction of three major factors, nervous system development, the capabilities and biomechanics of the body and environmental constraint and support (Smith and Thelen, 1998). These dynamic interplay can be observed on infant kicking, crawling and walking. What has become apparent is that infants and children develop skills in different ways. As an example, there are infants who simply do not like to crawl. Those infants who do crawl will acquire the skill in their bellies before crawling on hands and knees, other will skip the belly-crawling stage and still other infants will forgo the crawling stage entirely and after several months of sitting and shuffling may stand and then walk (Adolph, Denny and Vereyten, 1998). In addition to these observations, there are what are called micro genetic studies of motor development in which experimenters observe individual children from the time they first attempt a new skill, such as walking, until it is performed effortlessly (Baumrind, 1991). From these studies it becomes clear that children's acquisition of a new motor skill is much the same as that of adults learning a new motor skill. The beginnings are usually fumbling and poor, there is trial and error learning and great concentration, all gradually leading to the accomplished skillful activity, which then is usually used in the development of yet new motor skills.

2.2 Principles and Importance of Motor Development

Hurlock (1972) listed five principles of motor development and they are as follows:

* **Motor development depends on maturation and learning:** The development of body control parallels the development of the motor areas of the brain. The cerebellum, or lower brain, which controls balance develops rapidly during the early years of life and practically reaches its mature size by the time the child is 5 years old. Skilled movements cannot be mastered until the muscular mechanism of the child matures.

* **Learning of Skills cannot occur until the child is maturationally ready:** Trying to teach the child skilled movements before his nervous system and muscles are well developed will be wasted effort. This is equally true of practice of the children may initiate. Such training may produce some temporary gain, but the long-term effects will be insignificant or nil.

* **Motor development follows a predictable pattern:** Motor development follows the cephalocaudal (head to foot) sequence. Early in babyhood, there is greater movement in the head region than in the rest of the body. As the baby's neuromuscular mechanism mature, there is more and better controlled movement in the trunk and later in the leg region.

* **The pattern of motor development follows predictable stages:** Not all researchers agree on the exact number of stages in motor development, though

all do agree that the stages are predictable. Some researchers said that there are 14 stages in crawling and creeping alone and so on.

* **Individual differences affect the rate of motor development:** even though motor development follows a pattern that is inflexible in its broader aspects, individual differences occur in the detail of the pattern. These affect the ages at which different individuals reach different stages. Santrock, (2003) in line with what Hurlock described as the principles of motor development stated that motor development depends on maturation and the environment in which the child lives. A child cannot learn motor skills until he/she is maturationally ready and also living in an environment that can promote or enhance the learning of motor skills. Being able to control his body as well as, if not better than, his peers is important to a child for a number of reasons. Spock (1999) identified six importance of motor development in the life of a child. They are as follows:

* **Good Health:** Good health, which is vital to the child's development and happiness, is partially dependent on exercise. If motor coordination is so poor that the child performs below the standards of the peer group, he/she will derive little satisfaction from physical activities and will have little motivation to take part.

* **Independence:** The more the child can do for himself/herself certain things, the greater his/her self confidence and happiness. Dependency leads to feelings of resentment and personal inadequacy.

- * **Emotional Catharsis:** Through strenuous exercise, the child gets rid of pent-up energy and frees his body from the tensions of anxiety and frustration. He is then able to relax both physically and psychologically.
- * **Socialization:** Good development contributes to the child's acceptance and provides opportunities to learn social skills. Superior development puts the child in line for a leadership role.
- * **Self-entertainment:** Motor control enables the child to engage in activities which give him enjoyment even in the absence of playmates.
- * **Self Concept:** Motor control leads to feelings of physical security, which are soon transacted into psychological security. Psychological security, in turn, leads to a generalized self-confidence which affects all areas of behaviour.

2.3 Motor Skills and Indices of Motor Skills

As physical development proceeds, the child acquires various physical skills known as motor skills, which require coordination between brain and muscles. These skills often require a great deal of practice before becoming automatic (Aboud, 1988). A skill can be described in such words as automatic, rapid, accurate and smooth. It is wrong, however, to think of a skill as some single, perfected action. Any skilled performance, even writing the letter a, is a series of hundred of nerve-muscle coordination's. A skilled movement is a very complex process involving differentiation of cues and continual correlation of errors (Anderson, 2000).

According to Astington (1996) a motor skill is one that requires an organism to utilize their skeletal muscles effectively in a goal directed manner. Motor skills and motor control depend upon the proper functioning of the brain, skeleton, joints and nervous system. As the preschoolers bodies grow slimmer, stronger and less top-heavy, and as their brain maturation permits greater control and coordination of their extremities, children between 2 and 6 years move with greater speed and grace and become more capable of directing and refining their own activity. The result is impressive improvement in motor skills (Berger, 2000).

The clumsiness of the eighteen-month-old child in walking passes into the awkward, flatfooted run of the two-year-old; and this passes into the increasing skill and balance of the three and four-year-old. But one seldom sees the flow and ease of movement which are referred to as grace in walking or running until the child is five. So it is with roller skating or bicycle riding (Caur, 2002). As skills develop, speed, accuracy and economy of movement increase, much to the child 's satisfaction. Self-assurance grows, along with motivation to make further improvement through continued practice. Motor skills can be divided roughly, into two major categories: the gross muscular skills, such as running, jumping, lifting and climbing and the finer muscular skills, such as writing, playing musical instruments or doing skilled manipulatory work. A well-learned skill develops into a habit (Bronwyn, 2000).

2.4 Common Methods of Learning Motor Skills and Common Motor Skills in Early Childhood

Hurlock (1972) identified three common methods of learning motor skills during the preschool years. They include:

- a. **Trial and error learning:** having no guidance and no model to imitate, the child tries out different acts at random. This usually results in a skill below the child's capacities.
- b. **Imitation:** learning by imitation or observing a model (e.g. a parent or an older child) is faster than learning by trial and error, but is limited by faults in the model. A child will not learn to swim well, for example, if he imitates a poor swimmer. Even if the model is good, the child is not likely to be an efficient observer.
- c. **Training:** Learning under guidance and supervision in which the model demonstrates the skill and sees that the child imitates it correctly is especially important in the early phases of learning. Faulty movements and bad habits, once established, are hard to eliminate.

Some skills are commonly found among preschool children in a given culture because of similar learning experiences and adult expectations. In our culture, every child is expected to learn to feed and dress himself or herself, to read and write, and to play the games approved by the social group with which he is identified. Furthermore, he is expected to learn these skills at approximately the same age that other children learn them. One of the skills the preschool

children engage in as stated by Farrar and Goodman (1999) is the hand skills. Control of the muscles of the arms, shoulders and wrist improves rapidly during the preschool years and almost reaches the adult level of perfection by the time the child is 12 years. Control of the five muscles of the fingers by contrast, develops at a slower rate. Some of the aspects of hand skills are as follows:

* **Self-feeding:** by the end of the second year, the preschool child uses fork as well as spoon to feed. By the third year and fourth year, he/she may have mastered the complicated skill of using knife to cut with. By age five, the preschool child can comfortably feed himself/herself. (Bushnell and Boudreau 1993).

* **Self-dressing:** it is easier for a little child to pull off his socks and shoes than to put them on; the motor skills involved in the former are much less than in the latter. The period of most rapid improvement in dressing is between 2 and 3½ years. By the time the child is 5 years old, he should be able to dress himself/herself completely, with the exception of tying the bowknot on his shows. This he/she generally learns to do by the age of six.

* **Writing:** Studies of writing showed that the development of this skill follows a fairly definite pattern in which there is a clear-cut gradient in the age changes. By 18 months, the child scribbles in the middle of the page and by 3 years, he will attempt to make simple symbol units, though these are scarcely recognizable as letters. On the average, the body is not biologically ready for handwriting before the child is approximately 6 years. Until that age, the nerves

and muscles of the fingers, hand, wrist and arm are not developed enough to make the fine coordination's needed in writing.

* **Ball Throwing and Catching:** The ability to throw and catch balls requires well coordinated movements, not only of the arms and hands, but of the entire body. As Gasell (1999) stated "skill in throwing a ball requires a fine sense of static and dynamic balance, accurate timing of delivery and release, good eye hand coordination and appropriate functioning of the fingers, as well as the arms, trunk, head and legs in controlling the trajectory of the ball". Some children roll and even attempt to throw balls before they are two years old. Even at four, however, few can throw well. By six years most children are proficient, though there are marked variations in the skill at every age.

* **Block Building:** The child first carries blocks from place to place and manipulates them in regular masses. By the age of three, he places them in regular piles or rows to build simple structures or enclosure. Gradually, his constructions become more complex and are often used as part of dramatic play. According to Boudreau and Bushell (2000), another common motor skill in early childhood include: leg skills, under which we have running, jumping, climbing, skipping and hopping.

2.5 Development of Gross and Fine Motor Skills in Early Childhood

Gross motor skills, involving large body movements such as running, climbing, jumping and throwing improve dramatically. This is apparent to anyone who watches a group of children at play. Two-year-olds are quite clumsy, falling down frequently and sometimes bumping into stationary objects. But by age five, many children are both skilled and graceful. Most North American five-year-olds can ride a tricycle, climb a ladder, pump a swing and throw, catch and kick a ball (Berger, 2000).

Stones (2001) defined gross motor skills as the child's ability to control different parts of her body. Most young children practice their gross motor skills wherever they are, whether in a well equipped nursery school with climbing ladders, balance boards, and sandboxes or at home, with furniture for climbing, sidewalk, curbs for balancing and gardens or empty lots for digging. Generally, children learn basic motor skills by teaching themselves and learning from other children, rather than through adult instruction. According to socio-cultural theory, this is no problem, as learning from peers is probably the ideal way for children to master skills needed for the future (Haskins, 2000).

The preschool child no longer has to make an effort simply to stay upright and to make around. As children move their legs with more confidence and carry themselves more purposefully, moving around in the environment becomes more automatic (Poest, 1990). According to Santrock (2005), children at age 3 employ

simple movements, such as hopping, jumping and running back and forth, just for the sheer delight of performing these activities. They take considerable pride in showing how they can run across a room. At 4 years of age, children are still enjoying the same kind of activities, but they have become more adventurous. They scramble over low jungle gyms as they display their athletic process. Although they have been able to climb stairs with one foot on each step for sometime, they are just beginning to be able to come down the same way. They will often revert to marking time on each step.

At 5 years of age, children are even more adventuresome than when they were four. It is not unusual for self-assured 5-years-old to perform hair raising stunts on practically any climbing object. Five years old run hard and enjoy races with each other and their parents. Preschool children are very, very active. Indeed, 3 years old children have the highest activity level of any age in the entire human span (Bloom and Nelson, 1997). They fidget when they watch television. They fidget when they sit at the dinner table. As a result of their activity level and the development of large muscles, especially in the arms and legs, preschool children need daily exercise. The development of young children's gross motor skills also includes perceptual motor activities. That is to say, teachers can ask children to copy their movements, such as putting hands on toes, hands on head, or hand on stomach.

Stones (2001) defined fine motor skills as a child's level of coordination of the different body parts, such as picking up a raisin with his thumb and forefinger.

Fine motor skills, involving small body movements, especially those of the hands and fingers are much harder to master than gross motor skills (Ellen and Sullivan, 2003). Such things as pouring juice from a pitcher into a glass, cutting food with a knife and fork, and achieving anything more artful than a scribble with a pencil are difficulties for young children, even with great concentration and effort. Preschoolers can spend hours trying to tie a bow with their shoelace, often producing knots upon knot instead. The chief reason many children experience difficulty with fine motor skills is simply that they have not yet developed the necessary muscular control, patience and judgement. This is because the central nervous system is not yet sufficiently myelinated (Laosa, 2002).

Leach (1997) said that at three years of age, children are still emerging from the infant ability to place and handle things. Although they have had the ability to pick up the tiniest objects between their thumb and forefingers for some time, they are still somewhat clumsy at it. Three years old can build surprisingly high block towers, each block placed with intense concentration but often not in a completely straight line. When 3-year-olds play with a form board or a simple jigsaw puzzle, they are rather rough in placing the pieces. Even when they recognize the hole a piece fits into, they are not very precise in positioning the piece. They often try to force the piece in the hole or pat it vigorously.

By four years of age, children fine motor coordination has improved substantially and become much more precise. Sometimes four-year-old children

have trouble building high towers with blocks because, in their desire to place each of the blocks perfectly, they may upset those already stacked. By age five, children's fine motor coordination has improved further. Hand, arm and body all move together under better command of the eye. Mere towers no longer interest the 5-year-old who now wants to build a house or a church, complete with steeple, though adults may still need to be told what each finished project is meant to be (Leach, 1999).

2.6 The Playground

“Play takes many forms, but the heart of play is pleasure-an important component in learning” (Perry, 2001). Play can be defined in many different ways and can take many different forms. It is the general consensus among educators that “if it isn't fun, it isn't play” (Perry, 2001). Play starts immediately after birth just in different forms. Children play using different methods such as building things, fantasy and humor, which are all pleasurable. Play can also be viewed as the “Passion of young children” (Honig, 2000). Play allows children to learn about their surroundings and become comfortable in their environments.

Playground History

Although play has been integral in children's development throughout human history, it was not until the 19th century that western society developed the play yard (Hendricks, 2001). Before the early 1800s, children were thought of as small adults and as such, an area for them to play in was thought

necessary. Play occurred more sporadically and only after chores and work was complete. A few playgrounds graced the American country in the 1890's, but support waned and depended completely on philanthropy. Compounding the problem of the development of the playground was a lack of space. Cities were constructed around the grid system with little open spaces for play or playgrounds (Eriksen, 1995). However, play activities were increasing in the first two decades of the 20th century as schools began developing physical education programs (Eriksen, 1995).

The reform movement in the early 1900s sought to free children from labour and the hardships of industrialization that prevented play. With the passage of labor laws, the growth of public education, and increasing prosperity in the lower class, the stage was set for play and playground to develop (Coursen, 1994). The reform movement gathered public and private funds for playground in urban areas (Hendricks, 2001). However, most support for the playgrounds did not come from the reformist ideas about childhood, but from studies of urban young men's physical fitness when entering the military. It was determined that boys from urban areas were denied military approval because they were weaker, and therefore unfit for service, as compared to boys from rural areas. Because of a need for soldiers in World War I, support grew for play areas to help children's physical development (Hendrick, 2001).

Types of Playgrounds

The major types of playground are traditional and adventure. Other divisions of playground include the creative, preschool playground, educational playground, background playground and designer playground. However, the adventure and traditional playgrounds form the basis for other subdivisions (Amanda, Clint, Dora, Holly, Jamie, Jonathan, Jordan, Sharika, Yellon and Yokel, 2003). The traditional playground dominates the American perception of playgrounds (Brett, 1993). It typically includes jungle gyms, swings, slides, and teeter-totters. Traditional playgrounds are often arranged in circular fashion, with a sandbox at the center (Wikinson, 2000). Critiques of the traditional playgrounds include its “one-dimensional” style, lacking the ability to respond to children’s imagination and individual needs. The traditional playground emphasizes exercise and physical development, leaving limited room to foster a child’s other critical skills, including socialization and imagination (Amanda et al, 2003).

The adventure playground is usually an informal, large, fenced-in play area with a variety of “scrap” materials for children to use in imaginative and creative play (Brett, 1993). Instead of the traditional playground equipment, the adventure playground contains lumber, pipes, tires, and other pieces of “junk”. Many refer to the adventure playgrounds as the junk playground or work yard but the adventure playground movement sought to bring elements of rural play to city children (Eriksen, 1995). The adventure playground movement began in the 1940s, flourished in the late 1970s and decreased in popularity shortly thereafter

because of money constraints, lack of aesthetic appeal and safety concerns (Amanda et. al, 2003).

The first adventure playground was built in Emdrup, Copenhagen, in 1943, 12 years after C.T. Sorensen developed the concept of a “junk” playground in his book, *open spaces for Town and Country* (Bengtsson, 1972). The first American adventure playground was built in Minneapolis, Minnesota, in 1950. Although deemed “highly successful”, the idea of adventure playgrounds was not duplicated anywhere else in the country until the mid-1960s (Eriksen, 1995). Adventure playgrounds never fully took off in America, although, they are common in Europe and Japan, because Americans are more worried about safety and visual aesthetics and have therefore shied away from these unstructured “junk” piles (Shell, 1994). An adventure playground needs staff members, or leaders, to organize activities. However, the play leader does not initiate or direct the activities, but supervises for safety and assistance. Bill Michealis developed six basic values the adventure playground has over the traditional playground,

1. At adventure playgrounds, the lack of adult-prescribed structure encourages social and moral growth.
2. Adventure playgrounds provide change and flexibility.
3. Adventure playgrounds provide for fantasy making as opposed to fantasy feeding.
4. Adventure playground provide for physical and psychological development through self-selected risk taking.
5. Adventure playgrounds provide for mainstreaming and integration of diverse groups.
6. Adventure playgrounds are creative settings for the modeling of play behaviour for children by adults [Brett, 1993].

In the 1950s, playgrounds focused on motor skills. Parallel bars, monkey bars, and seesaws were common to all playground (Seligman and Cohen, 2003). The newest revolutions in playground design are playgrounds focused on learning (Seligman and Cohen, 2003). Playgrounds now contain equipment that teaches children about science, music and other subjects.

Importance of Playground

The goal of people involved in children's play is to improve children's play environments and to increase the quantity and quality of children's play opportunities and positive play experiences (Wikinson, 2000). Many principles and criteria have been used to evaluate different play experiences. It is important to include the following values no matter where the playground is located: physical fitness, intelligence, creativity and imagination, emotional stability and initiative, social assurance and cooperation, self-confidence and competence, individuality, a sense of responsibility and integrity, a non-sexist outlook, and a sense of humor (Wikinson, 2000). Evidence showed that not only does the school and home influence a child's development, but his or her "play life" also has a major role. It is important to be able to evaluate the type of play a child is engaging in so that the "perfect" play experience can be developed. It is important that children have opportunities requiring the use of large muscles and presenting a challenge. A child's development should be pushed, but challenges cannot be restricted. The opportunity to explore and experiment with new things

will foster the development of a child's intellect and prepare the children for tackling real-world problems.

The right play environment can also promote social interaction, self-confidence, individuality and a sense of responsibility (Frost, Worthman and Reifel, 2001). The value of play environment to a developing child is that it allows interaction among other children, which is an invaluable experience. It gives children the opportunity for physical, social and mental development. The facility in which children are best able to engage in play is the playground. A playground provides a setting where children can interact on a variety of equipment and utilize their mental and social skills simultaneously (Frost and Klein, 2002). At its most basic level, a playground can be considered an environment made up of a "collection of large play objects in close proximity to each other" (Frost and Klein, 2002). Most parents would agree that toys are necessary to a child's upbringing, and playgrounds are just as important. The types, amount and complexity of play equipment within a playground have vital roles in children's development. The activities which occur during free play on the playground form a valuable part of any child's developmental programme (Ensign, 2003).

2.7 Pre-school Playground Facilities

Children need spaces where they can play with other children and use their energy to have some fun. A public or school play area is the best choice for

this, as children get to play while their guardians can watch them in comfort, assured that every precaution has been taken to promote their child's safety (Jambor, 2001). Playgrounds can also be educational and encourage kids imaginations to grow. Playground facility is designed with encouraging creativity as well as safety in mind. Small children need an outdoor place to play, whether they are attending preschool or daycare. Preschool playground equipment can include small bridges, musical pieces, or playhouses (Palmer, 2001). A preschool playground does not always need to be educational, a piece which encourage movement and creativity may be more stimulating for small children.

A preschool playground might be made up of:

- A climbing structure
- A playhouse
- A trike path
- Water Stations
- Building blocks
- Or a theme, such as garden theme or a science theme (Jambor, 2001).

Children will enjoy climbing around structures that challenge them. For older preschoolers, overhead climbing structures help them to develop upper body strength. For slightly older children, a playground might include a climbing structure with many different elements. Daycare playground equipment depends on space available. A small climbing structure with a path for trikes or play cars

might work in a small space. A larger space can allow for more variety in climbing structures, a playhouse, or a more extended theme. Pre-school playground equipment is expected to be extremely creative, as well as carefully designed to allow many preschoolers space to play on climbing structures that include decks suited for preschoolers heights. A climbing structure with bridges at a school-aged appropriate height will be too high for preschoolers. The right height, as well as a good allotment of space for running children, is important. Preschoolers also enjoy trike paths and themed play sets, which include space to run as well as pieces to encourage their imaginations (Wallach, 2005).

2.8 Indoor Preschool Playground Facilities

An indoor play area does not always have the space to include such elements as a trike path, large water toys, or a tire swing, but there are many options when it comes to indoor playground equipment. There is no need to be limited to climbing structures and ball rooms, as indoor areas can also have theme elements, such as a playhouse or a music theme play area. According to Grounds for Play (2006), a music themed play area can include large maribas or a rainwheel, which usually works well outside, but could be brought inside. For a pre-school indoor playground, large blocks or other construction items are educational and a good way for children to play together. They allow children to build their own play places, rather than rely on an adult design. These also encourage children to work together to build, as the pieces are large enough to

encourage sharing of space and some require more than one child to move the piece.

A fun addition to any indoor playground is a portable tunnel, which preschool children often enjoy crawling through. This needs to be placed by the teacher and can add variety and exercise to a play area while taking up a minimum space (Jambor, 2001). Indoor playground equipment is usually bright and inviting, which helps encourage kids to be more active and thus promote healthy living in children. Keeping kids active is especially important in this generation where many children are choosing less active means of entertainment. Play spaces which encourage creativity and imagination allow children to be children and design their own stories without having to work too hard at it. And indoor playground might also include water stations or sand stations, where children can build small structures which manipulate the directions of water. This is important not only to help develop a child's motor skills and creative thinking, but to also give them an engaging way in which to spend their time (Donaldson, 2000).

2.9 How to Provide a Safe Playground for the Preschool Children

Outdoor playgrounds can be exciting places where children explore their environment while developing motor and social skills. However, they also can pose serious safety hazards. With the exception of those in California, no mandatory state or federal standards currently exist regarding the manufacture or

installation of playground equipment or surfaces (Hendrick, 2006). However, the American society for Testing and Materials (ASTM) had established a voluntary industry standard for public playground safety (F1487-93) and the U.S Consumer Product Safety Commission [CPSC] has established voluntary guidelines (Consumer product safety commission, 1997).

Each year in America, hospital emergency rooms treat an estimated 200,000 children who have been injured in playground accidents. About 60 percent of these injuries are caused by children falling from playground equipment into a hard and unyielding surface such as asphalt, concrete or even the ground. (Hendrick, 2006). Most playground injuries are caused by preventable hazards. According to the U.S. consumer product safety commission (1997), these hazards and their remedies include:

- * **Inadequate fall zones under and spaces between playground equipment:** The area under and around equipment should be covered with a minimum of 12 inches of protective, resilient surfacing material, such as wood chips, mulch or rubber extending a minimum of 6 feet in all directions. Fall zones around swings should extend twice the height of the swing hanger in front of and behind the swings. Swings should not be attached to play system. There should be a minimum of 12 feet between play structures.
- * **Absence of guard rails:** Elevated surfaces such as platforms, ramps and bridge ways should have guard rails to prevent accidental falls.

* **Dangerous protrusions and entanglements:** Objects such as nails, screws, bolts, pipe ends and sharp or pointed hardware can impale or cut children. Hooks or paths that catch strings and clothing can cause strangulation. Open hooks allow swing seats to slip off their chains and can cause children to fall.

* **Hazardous entrapment areas:** Openings between posts, ladder rungs or entryways are fine for foot first entry, but they can also entrap children's heads. Ideally, openings on playground equipment should measure less than 3 inches or more than 9 inches.

* **Dangerous Swing seats:** Hardwood or metal swing seats can hit children passing too closely to or jumping off a swing. Heavy animals type swings are particularly dangerous because they act as battering rams, bumpers attached to these swings do not reduce the risk of injury.

* **Other dangerous playground equipment:** Equipment such as suspension bridges, merry-go-rounds, swinging gates, and see saw may have moving parts that can pinch or crush children's fingers or other body parts.

* **Age-inappropriate equipment:** It is important to ensure that playground equipment is appropriate to the age group using it. Equipment for preschool children should be separated from equipment for school-age children. Small children may not have the coordination and balance to climb on equipment designed for older children.

* **Inadequate supervision or lack of supervision:** It is estimated that more than 40 percent of playground injuries are directly related to lack of proper supervision. Most children are unable to foresee danger. School staff need to be alert to potential hazards.

How to Help Children Play safe in the Playground

Proper supervision is essential to safe play. Parents and teachers should ensure that children observe the following rules as stated by Neysmith-Roy (1994).

- Wear shoes, such as sneakers, that do not slide on wet surfaces. However, check for footwear rules at indoor play areas.
- Do not play on slippery or wet equipment or force body parts through small spaces.
- Do not play on hot metal surfaces, such as slides, that may cause third-degree burns.
- Do not cross in front or behind moving swings.
- Get off a seesaw only when your partner's feet are on the ground.
- Do not push or pull others while playing on climbing equipment.

2.10 Relationship between Playground Facilities and Preschool Children's Motor Development

For the preschool child, playground facilities provide an outlet for muscle and coordination development. Interactions occur with the environment through active exploration, helping a child gain valuable insight on their surrounding and abilities. In order to interact with their environment, a child utilizes perceptual and motor processes. Essentially, children use these processes to improve their skills towards perceptual-motor development as they interact with more and more environmental stimuli. These motor experiences build on one another, enabling the child to learn and understand more complex situations. Researchers Joe Frost and Sue Wortham in Frost and Klein [2002,] explained the simple steps that describe this skill acquisition:

1. Our behaviour is touched off by the input of a basic stimulus; either touch, taste, smell or sight.
2. That sensory input then travels to the brain by way of neural channels.
3. The brain collects, organizes and stores this sensory information to mix and match as new information constantly arrives.
4. Based on the sensory information stored, a decision for action upon the environment is carried back down those neural channels and an action response is.
5. The reaction to the response is then feedback to the individual as to its success or appropriateness.
6. Motor response feedback allows for a change in perception, enabling the individual to try out new responses.
7. As the feedback cycle continues, it ensures that the perceptual and motor learning processes are working together.

These steps occur within the context of developmental phases, which depend on the age and maturity of the child (Gassel, 1999). Through play on the

playground using appropriate facilities, the preschool child's motor development is enhanced in the following ways:

1. **Locomotion:** The child's movement becomes a bit steady. He can crawl across a wide plank, step of graduated levels, i.e. platforms, logs etc. jump from varying heights etc.
2. **Balance:** The child is able to gain balance in walking over a walking beam or stand on it.
3. **Body coordination:** The child is able to control his legs, hands, head and other parts of the body. This results in his ability to write and carryout other gross and fine motor skills.

Children who were exposed to playground facilities, most times develop basic motor skills. They are able to join in group games or participate in sports during their school years and in adulthood. Engaging in motor skills fulfills young children's needs and desires for movement, and exercise build muscles, strengthens the heart and enhances aerobic capacity (Santrock, 2005).

2.11 Empirical Studies on the Relationship between Playground Facilities and Preschool Children' Motor Development

The researcher reviewed journal articles, thesis and research related reports and came up with the following on the topic:

Glenn (2003) investigated the effects of playground facilities on the pre-school children motor development with some pre-schoolers at university of

Maryland. The objective was to investigate if there was an effect of playground facilities on the motor development of pre-schoolers and also to find out teacher's and parent's opinions about the effects. To determine whether the sampled population felt that playground facilities affected the preschool child's motor development, the researcher used the experimental research design. The sample size comprised of 20 children each selected from the two preschools involved in the study. One school was used as the experimental group. The total sample size for teacher's and parents was 70, that is, 40 for the parents and 30 for teachers

Research instrument used was questionnaire for parents and teachers and observations for the children. The findings revealed that there was tremendous increase in motor development of the children who were opportuned to play in the school playground with assorted facilities than those who were not. It also revealed that parents and teachers were of the opinions that children should be given the opportunity of using the playground and its facilities.

Glenn's study has similarities with the present study because the present study also used preschool children and experimental research design. The differences lies in the fact that Glenn used two preschool, one as the control group and the other the experimental group, while the present study drew both the control group and the experimental group from the same school that will be used for the study. Glenn equally used parents and teachers for the study who were not part of the present study.

The use of two schools as control and experimental groups by Glenn, in the researcher's opinion, was not a good idea because that must have created room for extraneous factors to affect this study. The population and sample size of preschoolers Glenn used was good but that of the parents and teachers was a bit low.

McGraw (1945) conducted a research on maturation, playground and motor development. The main objective was to find out if maturation had any effect on motor development of the pre-school children or the playgrounds. The sample size comprised of 20 sets of twins where one member of each pair received enriched motor training in the playground with different play facilities. The researcher used the experimental research design and that was why a member of each pair of twins was kept aside as the control group. At the end of the research, it was found that in the trained twins, motor development was considerably accelerated when compared with the 'untrained' twins. The instrument used for the research was observation of the subjects through pretest and post test testing of the subjects' performance in motor skills.

McGraw's study is a bit different from the present study in the sense that McGraw delimited the study to twins while the present study used pre-schoolers irrespective of who they were. McGraw's research compared maturation and playground's effect on motor development in pre-school children but the present study I assessed the relationship between the use of playground facilities and pre-school children motor development. The present study is similar to McGraw's

study because equally used observation of the subjects through pretest and post-test testing of their performance in motor skill.

The way McGraw carried out the study was quite good because since the study involved maturation, using twins was ideal. This is because each of the set of twins might have been born the same day, fed the same way, grew up in the same environment etc. They are therefore expected to have matured the same way. The sample size was good and the design used for the study was equally good.

Another study was carried out by Poest (1990) with some pre-school children in St.Paul, Minnesota, to determine the relative significance of exposing children to playground equipment and development of writing skills.

The sample size for the study was five preschool children selected from a class of 25 in the school used for the study. He exposed the five children on daily basis for about a month after which he assessed the whole class on writing skill. It was discovered that the five children who were exposed to playground facilities were able to perform better in the test than their counterparts who were not exposed. The researcher therefore concluded that a variety of motor activities will be developed if children are exposed to playground equipment.

The present study is different from Poest study because while Poest carried out the research on only writing skill (just an aspect of motor development), the present research carried out on both aspects of motor development. i.e. the

hand and leg skills. The similarity lies in the fact that both studies were concerned with playground facilities and preschool children motor development.

In the researchers view, Poest sample was small compared to the population of the class. Poest could have used at least one quarter of the class population. Though Poest carry out a pretest examination before carrying out the experiment. The researcher believes the results of the experiment were correct since the post test examination was carried out with the same children the five experimental children have been attending classes with.

Another study was carried out by Andrea Jackson in 1985 in USA. The study followed a 399 full-day preschool children throughout the year. The objective was to find out if there were other factors that play a part in motor development of children. Andrea did not select any sample. All the preschool children in the class were involved in the study. After observing the children for a whole year, Andrea discovered that there are a number of interlocking factors that play a part in motor development of children which may be attributed to their exposure to playground equipment.

The similarity of the study with the present one lies in the fact that both were concerned with playground equipment and preschool children. Though the present study worked with selected pre-school children from the target population. In the researcher's view, using all the children for the study was not a good idea because that could hinder Andrea from carrying out the studies extensively, because of the large number of children involved. Another area of

inappropriateness of the study was the fact that it did not state basically the specific aspect of motor skill that was measured. That notwithstanding, the researcher believes the finding of the study was correct.

Kisasa Catherine was another researcher who carried out a study with ten children of preschool age in Mombasa, Kenya in 1989. Catherine had a playground at home with enough facilities which was used for the study. Every evening, Catherine would gather the children at the playground and would allow them to play for an hour. The objective was to find out if sporting skills could be developed in the children after exposing them to the playground facilities, because Catherine was a lover of sports.

After exposing the children for six months, Catherine went to the different schools the children were attending and discovered that the children that received training from her performed better in sporting activities in their various schools when compared with their age and class mates in the school. The present study is a bit different with Catherine study because while Catherine carried out the research on sporting skills, the present study was carried out on all aspects of motor development.

The way Catherine carried out the study was quite good because working with the children at home gave her the opportunity of working more closely with the children. The sample size and design used for the study were equally good.

Fisher, a child psychologist in 1993 in New York, carried out a study on the effect of training on ball throwing among children between the ages of 3-4 years. Twenty children were used for the study. They were trained for just one month. After the training, Fisher discovered that the children who received training on ball throwing made a distinct gain over those who received little or no training. The researcher therefore concluded that those who performed better did so because they had the opportunity of receiving training in throwing which improved their motor skill in hand coordination.

The present study is different from Fisher's study because while Fisher carried out the research on only hand skill, the present study was carried out on both hand and leg skills. The studies are similar because both are concerned with preschool children.

In the researchers view, Fisher would have carried out a pretest examination on the children before the training and thereafter, the post test. This would have helped to find out if there were other factors that contributed to the good performance of the children and not just the training they received. The sample size used was quite good and the age group used for the experiment was adequate.

2.12 Summary

This chapter defined playground, playground facilities and motor development and reviewed the relationship between them in the life of the pre-school children. The chapter discussed the theories of motor development. One of the theories stated that motor development had to do with maturation, while the other opposed to it and said that there were other factors like exposure to playground facilities. The review also discussed the principles of motor development and the importance of motor development.

The review explained the common methods of learning motor skills and also the common motor skills in early childhood. The developments of gross and fine motor skills were also reviewed. The review stated different ages during which the different motor skills occurred. The chapter equally discussed the importance of the playground, different types of preschool playground facilities and the indoor type of pre-school playground. It also reviewed how to provide a safe playground for the preschool children. Many children get injured during play on the playgrounds as a result of lack of safety precautions. Therefore the teacher or whoever is in charge need to know how to make the playground safe for the children. The importance of playground facilities in pre-school children motor development was also reviewed. Playground facilities no doubt accelerate motor development in children. The related literature on past studies on the relationship between playground facilities and pre-school children motor development were reviewed and compared with the present study.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter specifically dealt with the research design and methodology used in carrying out the study under the following sub-headings:

- 3.1 Research Design.
- 3.2 Population for the Study.
- 3.3 Sample size and Sampling Techniques
- 3.4 Instruments for Data Collection.
 - 3.4.1 Validation of the Research Instrument.
 - 3.4.2 Pilot Study.
 - 3.4.3 Reliability of the Research Instrument.
- 3.5 Procedure for Data Collection.
- 3.6 Procedure for Data Analysis.

3.1 The Research Design

Experimental research design was used for this study. Experimental research design is a type of design that is concerned with cause-effect relationships, so as to find out any effect the independent variables have on the dependent variables. There are two types of experimental design, they include, laboratory and field design. For the study, field experimental design was used. It is a process that provides a systematic and logical procedure of identifying and evaluating the relationships between variables that create a particular state of

affairs under controlled condition. Here the researcher was involved in the actual manipulation of conditions in order to determine relations. The researcher selected samples randomly from the target population so as to get the experimental and control groups. A pre-test and post-test was given to the groups to ascertain its effects on the subjects which was measured. The effects of the pre-test and post-test given was observed and recorded.

The experimental group were exposed to the playground with different playground facilities that enhance motor development and the effects were observed and recorded. The motor skills which were measured were hand skills which include writing, ball throwing and catching, block building, self feeding, self-dressing and copying. It also included leg skills which include running, jumping, skipping and hopping, climbing, tricycling and bicycling. The control group were not given any treatment.

3.2 Population of the Study

Table 3.1 shows the total number of preschools and preschool children in Sabon-Tasha division.

Division	Number of schools	Number of children
Sabon-Tasha	102	21,801

(Kaduna state private school Board, 2008.)

According to the Kaduna state private school Board validation report of September 2008, Kaduna metropolis is made up of three divisions, namely, Kaduna, Sabon-Tasha and Rigachikum. Out of these divisions, only Sabon-Tasha is having all the schools located within the metropolis. Kaduna and Rigachikum have some schools located out side the metropolis. For this reason, the population of this study comprised of all private preschools in Sabon-Tasha division. Sabon-Tasha division has a total of one hundred and two schools (102),with a total of twenty one thousand, eight hundred and one children (21,801). There are one hundred and two (102) proprietors/proprietress within the division.

3.3 Sample Size and Sampling Technique

Gay and Diehl (1992) recommended that a minimum of 30 subjects per group is ideal for experimental research. For this study, a total of one hundred (100) preschool children from Sabon-Tasha division were randomly selected using a simple random sampling technique (purposeful random sampling).This enabled the researcher select only children who were three years old and were

coming in contact with most of the facilities for the first time. The researcher used 100 preschool children so as to have good representation for both the experimental and control groups which had 50 children each. The children were drawn from ten (10) schools from the division, that is 10% of the total population of school in the division. This is in line with Gay and Diehl (1992) recommendation for experimental research. Ten children were selected from each of the schools so as to have five children for both the experimental and control groups. The questionnaire was also distributed to only the proprietors/proprietress of the ten selected schools. (that is, 10 in number).

3.4 Instrument for Data Collection

The instruments that were used for data collection for this study were observations and questionnaire. Observation involved the researcher watching and recording activities of both the experimental group and control group to get primary data. The activities were both on hand and leg skills. The hand skills included self-feeding, self-dressing, self-grooming, writing, ball throwing and catching. The leg skills included running, jumping, skipping and hopping and climbing. The researcher while exposing the experimental group to playground facilities observed to see which playground facilities related to each motor skill. The observation covered the forth and fifth objectives and research questions of the study. The questionnaire, which was also used to collect primary data, was developed by the researcher for proprietors/proprietresses of pre-schools based

on the first, second and third objectives and research questions. The questionnaire was divided into two sections, A and B. Section A was on bio-data of the respondents such as age, gender and educational qualification. Section B contained questions that gathered relevant information on the types of playground and playground facilities available in the selected sampled pre-schools. The questions were closed-ended objective questions, such as checklist and categorical responses. Both the observation score sheet and questionnaire helped to answer the research questions and obtain results to test the hypotheses.

3.4.1 Validity of Research Instrument

Two instruments were used for the research, namely questionnaire and observation score sheet. The questionnaire was given to the proprietors/proprietress of the selected preschools and the score sheet was used for observation by the researcher. To validate the instruments, the score sheet (Appendix I) and the draft questionnaire (Appendix II) were given to three senior lecturers in Home Economic section for scrutiny, vetting and any other possible suggestions. The instruments were validated through a pilot study after which adjustments were made based on the observations made by the experts and the results obtained by the pilot study.

3.4.2 Pilot Study

A pilot study was carried out to determine the reliability of the designed questionnaire, assess the ease with which the proprietors/proprietress of private schools will respond to it, and evaluate its ability to fulfill part of the objective of the study. A total of six copies of questionnaire were administered to some proprietors/proprietress of six private schools for filling. The filled copies of the questionnaire were then collected and subjected to statistical analysis in order to determine the internal consistency of the instrument for data collection.

To validate the observation score sheet, a total of ten children from Gaskiya Nursery and Primary School in Kaduna division of the metropolis were used, five for experimental group and five for the control group. A pretest was administered to both groups, followed by a treatment given only to the experimental group and later the post-test was carried out on both groups. The researcher also observed the children while they were using the playground facilities to determine the type of motor development each one enhanced.

Pearson correlation statistics was used to analyze the scores obtained. The result obtained from the second instrument was 0.49 significance which was higher than the correlation coefficient alpha 0.05. This showed that there is no significant relationship between preschool children who use playground facilities and those who do not use in their in their extent of motor development. The result obtained from the second score sheet on the relationship between specific play ground item and specific motor development were 0.033,0.034 and 0.035

significance which are lower than 0.05. This means there is significant relationship between specific playground facilities and specific type of motor development. This is in line with Isaac and Michael, (1995) statement that if the result of any null hypotheses tested is higher than 0.05 alpha, the hypotheses is accepted. But if smaller, it is rejected.

3.4.3 Reliability of the Instrument

The researcher determined the reliability coefficient through the use of parallel or equivalent form reliability(Ajayi and Razaq, 2000). The scores obtained from the pilot study were correlated using the coefficient matrix and the coefficient alpha. The reliability coefficient alpha obtained was 0.7 and the internal consistency coefficient or standardized item alpha obtained was also 0.8. With this the instrument could be said to be reliable because Ekeh (2003) stated that when an instrument has a coefficient of between 0.65 to + 1, the instrument was reliable.

3.5 Procedure for Data Collection

Having selected the schools and children for the study, the researcher on the first day in each of the school carried out a pre-test on both the experimental group and control group. Using the observation score sheet, she gave activities on both hand skills and leg skills to the two groups and recorded her observation. After that, the researcher then handed over the experimental group to the class teachers who served as research assistants to expose them on daily basis to

playground facilities. The children who were not part of the experiment were kept inside the class and other class teachers assisted in keeping them busy. They were promised that they would do what the other children outside were doing after sometime. The activities were on self-feeding, self dressing, self grooming etc. (refer to appendix I). The researcher also observed the children while they used the playground facilities to see what type of playground facility related to each motor skill (also refer to appendix I). This lasted for a period of one month.

After one month, the researcher carried out the post-test examination on both the experimental and control groups. The researcher used the same observation score sheet and activities used for the pre-test.

The questionnaire was given to the proprietors by the researcher. Completed copies were collected same day by the researcher since the number of respondents and items in the questionnaire were few (refer to appendix II).

3.6 Procedure for Data Analysis

Data collected with the questionnaire were statistically analyzed using descriptive statistics like frequencies and percentages. The four Null hypotheses stated were tested at 0.05 level of significance using Pearson Product Moment correlation statistics. This is because Pearson Product Moment correlation test is used for relationships between variables.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

The chapter sought to dwell on the analysis of the data gathered for this research, its presentation and discussion.

4.1 Data Analysis

The analysis for this work was divided into two main groups. The descriptive analysis and the testing of null hypothesis.

For descriptive analysis using SPSSX package, the respondents were drawn from 10 different schools each one responding to the different questions, the analysis of which is hereby presented below in the following tables.

Table 4.1: Distribution of Respondents According to sex

Sex	Frequency	Percentage (%)
Male	3	30
Female	7	70
Total	10	100

Table 4.1 above showed the classification of the respondents according to their sex status. The table revealed that out of the ten respondents, seven of them representing 70% were females while the remaining 3(30%) were males. It means there are more female owners of private schools than males in Kaduna State.

Table 4.2: Distribution of Respondents according to Age

Age in years	Frequency	Percentage (%)
41-45	5	50
46-50	5	50
Total	10	100

Table 4.2 indicated that out of the total ten respondents, equal number of 5 (50%) each were either 41-45 years or 46-50 years. This implied that most private school proprietor or proprietress in Kaduna metropolis were of the middle age (41 to 50 years).

Table 4.3: Distribution of Respondents according to level of education

Level of Education	Frequency	Percentage (%)
NCE	1	10
First Degree	6	60
Masters	3	30
Total	10	100

Table 4.3 presented information on the responses level of education. The outcome of the table revealed that 6 (60%) of the respondents had first degree, while 3 (30%) had acquired master degree only 1 i.e. 10% had NCE certificate. This revelation implied that owners of private schools were educationally

qualified because each had either at least a first degree or even master's degree in addition.

4.2 Answers to Research Questions

One of the objectives of this study was to identify the different types of playground available in preschools in Kaduna metropolis. In relation to this objective, the research question raised was:

Question 1: What are the different types of playground equipment available in preschools in Kaduna metropolis.

To provide answer to this research question and address the objective of the study, the respondents were assessed on the type of playground they have.

Table 4.4: Distribution of types of Playground

Type of playground	Frequency	Percentage (%)
Outdoor	7	70
Both indoor and outdoor	3	30
Total	10	100

The result of table 4.4 showed that 7 (70%) of the respondents have outdoor playground facilities. While 3(30%) of the respondents said they have both outdoor and indoor facilities. It means that majority of the schools in Kaduna have only outdoor playground facilities.

Table 4.5: Distribution of No. of time spent by children during

play period on playground

Time spent by children on playground	Frequency	Percentage (%)
30-40 mins	5	50
40-50 mins	2	20
50-1 hr	3	30
Total	10	100

The researcher wanted to know how long the children were allowed to play in the playground. The table above revealed that 5 (50%) allow their pupils 30 - 40 mins, while 2(20%) and 3(30%) allowed their pupils 40-50 mins and 50mins-1 hrs respectively to play in the playground.

Another objective of the study was to identify the different types of playground equipment available in the preschool in Kaduna metropolis. The research question raised was:

Question 2:

What are the different types of playground equipment available in preschools in Kaduna metropolis.

Table 4.6: Distribution of playground equipment

Types of playground equipment	No. of respondents having it	No. of respondent that don't have it
Small bridges	1(10)	9(90)
Musical pieces	3(30)	7(70)

Playhouse	-	10(100)
Tire swings	5(50)	5(50)
Swings	10(100)	-
Blocks for building	10(100)	-
Climbing structures	6(60)	4(40)
Water stations	-	10(100)
Tricycles	-	10(100)
Sand stations	5(50)	5(50)
Slides	6(60)	4(40)
Spring ride	1(10)	9(90)
Tires	9(90)	1(10)
Ball centres	5(50)	5(40)
Balance beam	6(60)	4(40)
Tunnels	-	10(100)
See-saw	10(100)	-
Teeter-totters	-	10(100)
Trike path	-	10(100)

Table 4.6 showed the types of playground equipment available in preschools in Kaduna metropolis and the number of respondents having it. The table showed that the response on small bridges recorded 9(90%) for those not having and 1(10%) for those having, musical pieces recorded 7(70%) for those not having and 3(30%) for those having, playhouse recorded 10(100%) as not having and tire swing recorded 5(50%) for each response. Swings recorded 10(100%) response for those having it likewise blocks for building and see-saw. 6(60%) respondents said they have climbing structures, slides and balance beam while 4(40%) said they don't have them. Water station, tricycles, tunnels, teeter-totters, trike path recorded 10(100%) respondents not having them and see-saw stations have 5(50%) respondents having it and 5(50%) not having it like wise

ball centres. Spring ride recorded 9(90%) respondent not having it and 1(10%) not having it.

It would therefore be inferred that majority of the preschools in Kaduna metropolis do not have all the necessary playground equipment for the development of motor skills in the preschool child. A few of them to some extent have the equipment.

Objective three of the study was to ascertain the categories of preschools that have playground equipment. The research question raised to guide this assessment was

Question 3:

What categories of preschool have playground equipment.

Table 4.7: Categorization of Pre-School by Private School Board

Category	Frequency	Percentage (%)
Category A	3	30
Category B	6	60
Category C	1	10
Total	10	100

The respondents drawn for this research were from different categories. Majority of them 6 (60%) were from category B. While 3(30%) were drawn from category A and only one (10%) out of the respondents was drawn from category C. This information showed that majority of the preschools fall into category B(60%) following the private school board categorization.

Table 4.8: Benefit expected from a playground

Benefit	Frequency	Percentage (%)
Motor develop in children	6	60
Intellectual develop in children	1	10
All of the above	3	30
Total	10	100

Looking at the table above, it showed that majority of the benefits to be looked for in a playground with all facilities was motor development in children as respondents who supported this were overwhelming majority of 6(60%) of the total sampled population. 3(30%) stated that they expected both benefits from a playground facility while only 1(10%) indicated intellectual development as benefit to children.

4.3 Testing of Null Hypothesis

The second part of this data analysis involved the testing of null hypothesis for the study.

Hypothesis 1

There is no significant relationship between preschool children who use playground facilities and those who do not use in their extent of motor development.

In testing this hypothesis, a correlation statistics was employed for the different schools each having a total of 10 children (i.e. 5 each for experimental and control groups). This gave a total of 100 children. They were divided into two broad groups- those who use equipment (experimental group) and those who do not (control group).

Table 4.9 Pearson Product Moment correlation of motor development of children who use playground facilities and those who do not.

	Mean	N	(Asymp.sig) Pearson correlation
Control	21.40	10	.591
Experimental group	106.00	10	

Table 4.9 above showed that the mean for control group is just 21.40 as against the experimental group which is 106.00. Their correlation coefficient was .591. This is more than alpha value of 0.05. Therefore no significant relationship existed between the experimental group and the control group. Since the Pearson correlation significant value is more than alpha value of 0.05 it means there is no significant relationship between the control group and the experimental group.

It implied that the use of playground facilities play a great role in motor development of the pre-school child as opined by Gleen (2003). The stated null hypothesis (1) that “there is no significant relationship between preschool children who use playground facilities and those who do not use in their extent of

motor development is therefore accepted because the significant level (.591) was higher than the significant level of testing (0.05).

Hypothesis 2

There is no significant relationship in the use of climbing structures, small bridges, balance beam, slides tires and see-saw and the development of leg skills among preschool children.

To test this a correlation statistics was used which is presented below:

Table 4:10: Pearson Product Moment correlation of playground equipment and leg skill development.

	Mean	N	(Sig. value) Pearson correlation
Climbing structures	.8889	10	
Small Bridges	.7778	10	
Balance Beam	.6667	10	.032
Slides	.6667	10	
Tries	.5556	10	
Sea-saw	.5556	10	

The Pearson correlation table showed mean ratio of .8889, .7778, .6667, .6667, .5556 and .5556 for climbing structures, small budes, balance beam, slides, treis and sea-saw respectively. There leg skill development equipment indicated a Pearson correlation coefficient of .032 which is lower than the alpha value of 0.05. This showed that there is significant relationship between these equipment and the development of leg skills as also stated by Kisasa (1989).

In other words, significant relationship existed between these equipment and the development of leg skill among preschool children. Therefore the stated null hypothesis (ii) is rejected.

Hypothesis 3

There is no significant relationship in the use of swings, blocks, musical pieces, said box, ball centers and the development of hand skills among the school children.

In testing this hypothesis a correlation statistics was used and it's presented in the table below

Table 4:11: Pearson Product Moment Correlation of playground equipment and hand skill development.

	Mean	N	(Sig. value) Pearson correlation
Swings	.8889	10	.034
Blocks	.7778	10	
Musical pieces	.6667	10	
Sand box	.8889	10	
Ball centers	.7778	10	

Table 4.11 above showed that the individual hand skill development equipment have means of .8889, .7778, .6667, .8889 and .7778 for swings blocks musical pieces sand box and ball centre respectively. The calculated Pearson correlation significant value is .034, less than 0.05. Therefore there is significant relationship between these equipments and hand skill development. It meant that there is significant relationship between the use of swings, blocks, musical pieces, sand box, ball centres and the development of hand skills among preschool children as opined by Fisher (1993) and Poest (1990).

Therefore, the stated null hypothesis (iii) is rejected.

Hypothesis IV

There is no significant relationship between specific playground equipment and specific motor development.

4.12 Pearson Product Moment Correlation between leg and Hand Skill development equipment.

	Mean	N	(Asymp.sig) Pearson correlation
Leg skill	.5556	10	.0344
Hand skill	.6667	10	

Table 4.12 above was designed to test the significant relationship between specific playground equipment and the development of specific motor skill, that is , hand or leg skill. The mean were .5556 and .6667 for leg skill and hand skill motor development respectively.

The Pearson correlation coefficient was .0344 which is lower than the alpha value of 0.05. It implied that there is relationship between specific playground equipment and specific motor development. The null hypothesis stated is therefore rejected.

4.4 Discussion on Findings

The main objective of this study was to investigate the relationship between the use of playground facilities and preschool children's motor

development. From the result of the analyzed data collected using the questionnaires and observation score cards, the findings are quite revealing.

The first part used different tables to answer the descriptive part involving. Frequency and percentages of the different variables that related to the research topic.

Table 4.1 revealed that most private school owners in Kaduna are females. Infact, proprietresses accounts for more than 3/4 (three quarter) of school ownership. This is true reflection of the fact that female are more into the teaching profession especially in the. pre-nursery and nursery/primary stages as was seen in the Kaduna state private school/board 2008 data of teachers.

The second table 4.2 which sought to ascertain the age range of the pre-nursery school owners is also revealing. The table revealed that all the sampled population were between the ages of 41-50 years. This is also true as this is the labour, age bracket of which these school owners also fall within.

The level of education of the different pre-school owners was also analyzed. The result showed that majority of them have either first degree or even masters degree. This is an indication that the quality of the proprietor/proprietresses of our pre-school is very high.

Table 4.4 revealed that majority of preschools in Kaduna metropolis at least have an outdoor playground. Only few have both (i.e. outdoor and indoor). This indicated that preschool children can only play outside, and during raining seasons or cold weather which are not favorable for outside play, there will be no

play for the children. This showed that private preschool owners are yet to understand the importance of playgrounds in the life of preschool children.

The study also showed that most schools allowed their pupils 30 to 40 minutes on the playground. This finding is contrary to Kisasa (1989) recommendation that children should be allowed at least one hour every day on the playground. The finding is an indication that preschool children are subjected to more of academic work than play. Hurlock (1972) stated that preschool years especially the early pre-school years (i.e. 3-4 years) should be devoted to much of play than academic work. Hurlock believes that if motor development is enhanced during these period, it will significantly affect the child's performance or all round development in later years. These statement s meant that preschool children should be allowed more time on the playground.

Table 4.6 presented a response frequency on the types of playground equipment available in preschools in Kaduna metropolis. It showed that most preschools have only small bridges, swings, blocks, climbing structures, tires, balance beam and see-saw. Only 50% have musical pieces, tire swings, sand stations and ball centers. 60% have slides and only 10% of the preschools have spring ride. None of the preschools have playhouse, water stations, tricycles, tunnels, teeter-totters and trike path. These findings showed that majority of the preschools in Kaduna metropolis do not have all the necessary playground equipment. Some particular ones are common to all while some of the equipment are not available at all in any of the preschools. This finding revealed

what the researcher stated as one of the problems that necessitated the conduct of the research. Table 4.7 showed that majority of the preschools fall into category B following the Kaduna state private school board categorization. Since the categorization is based on number of pupils and fees paid, the implication is that most of them will have almost the same type of playground and playground equipment. This might be the reason why most of the schools have the same type of playground and playground equipment as discovered from the findings.

The study also revealed that majority of the respondents indicated that motor development in preschool children is the benefit they expect from a well equipped playground. The findings of Gleen (2003) agreed with the findings of this study.

The testing of the null hypothesis was carried out in order to either reject or retain the projected hypothesis. The first hypothesis wanted to know the relationship between the preschool children who used playground facilities and those who did not. The two groups were the experimental group and control group. The Bivariate correlations procedure was used as this pairwise association determine the strength and direction of the relationship between the two scale or ordinal variables.

The result of the bivariate correlation table analysis table 4.9 indicated that no significant relationship exist between the two groups. The result showed clearly that the experimental group (those pupils who use playground facilities) were better in terms of motor development than their counterparts in the control

group (those children who do not use any playground facilities). The result has therefore brought out the importance derived from using playground facilities.

Therefore, this finding confirmed McGraw findings in (1945), that playground equipment has great effect on motor development of the preschool child. However, this was contrary to the findings of Gesell in 1945, that maturation was the only factor that affects motor development. The findings of Berger (2000) and Caur, (2002) agreed with the findings of this study.

Table 4 .10 showed that there was significant relationship in the use of climbing structures, small bridges, balance beam, slides, tires and see-saw and the development of leg skills among preschool children. This suggested that these equipment play significant role in enhancing the development of leg skills. This findings however, is in line with the findings of Anderson (2000). Jambor, (2001) stated that a climbing structure is very important in the development of leg skills among children. In confirmation, Palmer (2001) stated that although many playground equipment affect the development of leg skills, slides, climbing structures, balance beam and small bridges play tremendous role in enhancing the development of leg skills. This also confirmed the findings of this study.

Table 4.11 revealed that there was significant relationship in the use of swings, blocks, musical pieces, sand box, ball centres and the development of hand skills among preschool children. This meant that these equipment has effect on the development of hand skills among preschool children. Therefore,

this finding confirmed Fisher (1993) findings that ball centres, musical pieces and blocks enhance hand skill development.

Table 4.12 showed that there was significant relationship between specific playground equipment and specific motor development. This implied that some equipment were meant to enhance leg skills while some were meant to enhance hand skills. This finding confirmed the findings on table 4.10 and 4.11 respectively. It also confirmed why past researchers like Poest (1990), Andrea (1985), Kisasa (1989) and Fisher (1993) carried out their studies using specific playground equipment for the development of specific motor skills. With these findings, it is evident that the conduct of this research was necessary.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter contains the summary, conclusions and recommendations of the study. The conclusions are based on the results of the research findings. Recommendations are made on how to improve the playgrounds in preschools with the view of enhancing motor development.

5.1 Summary

The main purpose of the study was to investigate the relationship between the use of playground facilities and pre-school children's motor development in Kaduna metropolis. The study was conducted in Kaduna metropolis in Kaduna state of Nigeria. The metropolis is divided into three divisions according to the Kaduna state private school board. They include, Kaduna, Sabon Tasha and Rigachikun divisions. The study area was Sabon Tasha divisions.

To conduct this research, a target population of twenty one thousand, eight hundred and one children, (21,801) and one hundred and two (102) schools were used. A sample size of one hundred (100) children and ten (10) schools were used. The children were divided into two groups (experimental and control) each having fifty (50) children. Tested and approved questionnaire was administered to the proprietors/proprietress of the ten selected schools while an observation score sheet was used for the experiment. Data generated were analysed using

frequencies, percentages, means and Person correlations statistics. The null hypotheses were tested at 0.05 level of significance.

The main objectives of the study were to assess the extent of relationship between playground facilities and motor development among pre-school children who use the facilities and those who do not and also the relationship between each playground equipment and the development of specific skill. Research questions raised were: What is the extent of relationship between playground facilities and motor development among preschool children who use the facilities and those who do not and what is the extent of relationship between each playground equipment and development of specific motor skill four null hypotheses were also state for the study among which is, there was no significant relationship in the use of playground facilities and extent of motor development among preschool children who use the equipment and those who do not. Findings of the study based on the tested null hypotheis (i) revealed no significant relationship in use of playground facilities and extent of motor development among preschool children who use it and those who do not. The observed Pearson correlation value was. 591 higher than the significant level of testing (0.05). The mean scores were 106.00 for experimental group and 21.40 for control group. Going by the means, it was evident that experimental group performed better in motor skill than the control group. This finding therefore, implied that no relationship existed between the experimental group and control

group in terms of motor skill performance since the correlation value was higher than significant level of testing.

The result of the null hypothesis (ii) showed significant relationship in the use of some playground equipment and development of leg skill. 0.032 was the observed Pearson correlation value which was less than 0.05 significant level of testing. The mean scores obtained were. 8889 (climbing structure), 7778 (small bridges), .6667 (balance beam), .6667(slides) .5556(tires) and .5556(see-saw). The mean scores showed that there is much relationship between the equipment, that meant all of them enhanced leg skill development. However, there exist relationship in the use of the equipment since the observed correlation 0.032 was lower than the significant level of testing, 0.05.

Null hypothesis (iii) revealed significant relationship in the use of some playground equipment and development of hand skill. The observed correlation value 0.034 was lower than 0.05 level of significance. This indicated that the means were statistically close. The mean scores were .8889 (swings) .7778(blocks), .6668(ball centres). From the means given, all the equipment enhanced hand skill development. Therefore there is relationship between these equipment and hand skill development since the Pearson correlation value 0.034 is lower than the significant value of the testing (0.05).

The result of the null hypothesis (iv) showed significant relationship between specific playground equipment and specific motor development. 0.0344 was the observed correlation value. The mean scores were .6667 for leg skills

and .5556 for hand skills. Since the observed Pearson correlation value was lower than the significant value of testing, it showed that relationship existed between specific playground equipment and specific motor development.

Other findings of the study showed that private preschool owners were predominantly females of middle age level and are all educated. It also revealed that most preschools have only outdoor playgrounds with mainly the same type of equipment.

5.2 Conclusion

The following conclusions are drawn from the findings reported in this study. The study carried out with some private preschools and preschool children in Kaduna metropolis showed that motor development was enhanced in preschool children through the use of playground equipment. It was revealed that:

* Specific playground facilities enhanced specific motor development. This meant that playground equipment like climbing structures, small bridges, balance beam, slides, tires and see-saw helped in the development of leg skills only while playground equipment like swings, blocks, musical pieces, sand box and ball centers enhanced the development of hand skills only.

* Most private preschools have only outdoor playgrounds. This made it impossible for children to use the playground equipment during unfavorable weather conditions. Majority also had very few types of playground equipment.

This resulted in the children being fed up sometimes with the use of the playground equipment.

* On the whole, it was evident from the findings that maturation alone does not shape motor development. The use of playground equipment had great effect on the development of motor skills in preschool children. Therefore all hands must be on deck to provide preschool children with the necessary playground equipment so as to enhance their motor skills.

5.3 Recommendations

The importance of playground equipment in the life of pre-school children cannot be overemphasized. In view of the findings of this study, the following recommendations were made:

* Parents should ensure that they enroll their children into preschools that have adequate playgrounds and playground equipment. They should be interested not just in sending their children to school but in the type of school the child is attending and the opportunities the school can offer. Some preschools are mere walls and furniture. They have little or nothing to offer to the child especially in the aspect of physical or motor development. Children are subjected to academic activities with no consideration on their play life. Parents should avoid such schools because by so doing, the schools will learn to upgrade their standards.

* Parents should provide their children with some play facilities instead of providing numerous cartoons and movies for them to watch. This has become a common scene in many homes. Children sit for hours watching cartoons and movies which are of little or no use to them. Ike (2007) stated that parents today have ignored the business of play but put on the television for their children to sit down and watch endless cartoons and films, many of which are not even educative nor do the children understand them. Therefore parents should have a time table for their children for the different activities they are supposed to do.

* Where they cannot afford to buy the equipment, parents should from time to time take their children to public playground centers so that they can utilize the facilities there.

* Parents should try to produce some of the playground equipment with some local materials available if they cannot buy them.

* Government at all levels should ensure proper supervision and monitoring of private preschools. Most private preschools are substandard. They don't have the necessary facilities and even manpower. Government should ensure that every school follow the standard set or the school be closed down.

* It is of importance to state here that most preschools are owned by private individuals and establishments. Most public schools do not have preschools. Since education is one of the things a good nation should give to its citizens, the government should ensure that well equipped preschools are built and attached

to every public primary school. Because there is a slogan that says “catch them young”.

* Government at all levels should ensure that all private school proprietors/proprietress have a minimum of at least NCE teaching qualification. This is very important because one cannot really perform well in a profession he/she is not trained. Therefore there is a need for all private preschool owners to have teaching experience so that they would know how best to handle their schools.

* Government should also ensure that all teachers at the preschool level are equally qualified teachers. If possible they should have some knowledge on preschool education as it is the case in the developed countries.

* The State Government should stop the categorization of school based on number of children and fees paid. This is not helping the education system at all. It seems government is only interested in the revenue they would collect from the school. The categorization should be based on mainly facilities and manpower of the schools.

* Private preschool owners should endeavour to have well equipped playgrounds which will help children develop motor skills. Since the findings had revealed that playground facilities enhance motor development, it is therefore important that every private preschool should have it.

- * Private preschool owners should from time to time organize workshops and seminars for their teachers. The focus should be on gaining experience on how to manage and teach preschool children.
- * Teachers should ensure that enough time is created on the time table for play on the playground.
- * Teachers should also be patient and friendly with the children especially when they are playing on the playground. They should assist the children where and when necessary.
- * Curriculum planners for pre-school programme should plan it in such a way that it would be play oriented.

5.4 Limitations of the Study

Like any study, the study was not without limitations. The limitations were:

- * Uncooperating attitude of the proprietors/proprietress of private preschools. Some of them refused the researcher to conduct the experiment in their school even when they have the necessary facilities.
- * Inadequate literature materials that are related to the Nigerian preschool child created some difficulties for the researcher.
- * One of the schools where the experiment was conducted refused the researcher the use of one of their teachers as a research assistant. Though the researcher later got one from outside the school who helped.

5.5 Recommendation for further study

Based on the findings and conclusions of this research, a similar research on the following should be conducted:

- i. The effect of motor development on the academic performance of the preschool child.
- ii. The relationship between exposure to playground facilities during preschool years and motor skill performance at the primary years.
- iii. The effect of playground facilities on the social development of the child and language acquisition.

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APPENDIX 1

QUESTIONNAIRE FOR PROPRIETORS/PROPRIETRESS OF PRIVATE PRE-SCHOOLS

Home Economics Section
Department of Vocational & Tech Education,
Faculty of Education
A.B.U., Zaria.

Dear Respondents,

REQUEST TO COMPLETE QUESTIONNAIRE

I am a postgraduate student of Home Economics in the Department of Vocational and Technical Education, Ahmadu Bello University, Zaria. I am carrying out a research on the relationship between the use of playground facilities and preschool children motor development.

I sincerely hope you will consent to complete the questionnaire as your response will be useful in this research, which is purely for academic purpose. The information you will provide will be treated as confidential and will be used only for the purpose of the research, neither will any attempt be made to disclose the identify of the respondents. Please be as accurate as possible to enable the researcher get valid information.

Thanks for your cooperation.

Yours faithfully,

Okosun Chidimma Juliana

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION

Instruction: Please Tick (√) Where Appropriate

1. Gender: (a) Male [] (b) Female []
2. Ages in years: (a) 30-35 [] (b) 36-40 [] (c) 41-45 []
(d) 46-50 [] (e) 50 and above
3. Educational Qualification:
(a) Grade II [] (b) NCE [] (c) HND [] (d) First degree []
(e) Masters [] (f) PhD

Tick the one most appropriate in your case

4. Which division does your school belong to in kaduna metropolis. (a)
Kaduna division (b) Sabon Tasha division (c) Rigachikun division
5. What category do your school belong to following the Kaduna state private
school board categorization.
(a) category A [] (b) Category B [] (c) Category C []
(d) Category D [] (e) Category E []
6. What type of play ground do you have?
(a) indoor [] (b) out-door [] (c) none []
7. What type of playground do you have in your school
(a) Traditional playground [] (b) Adventure playground []
8. How long do you allow the children to play on the playground
(a) 10-20mins [] (b) 20-30 mins [] (c) 30-40 min []
(d) 40-50 []
(e) 50mins-1hour []

9. Which of the following out-door playground facilities do you have in your school. (Please tick all the ones you have).

- (a) Small bridges [] (b) Musical pieces []
- (c) Playhouse [] (d) tire swings [] (e) Swings []
- (f) Block for building []
- (g) Climbing structures [] (h) Water stations []
- (i) Tricycles [] (j) Sand stations [] (k) Slides []
- (l) Spring ride [] (m) Teeter-totters [] (n) Trike Path []
- (o) Tires [] (p) Ball centers [] (q) Balance beam
- (x) Tunnels [] (y) any other _____

10. Which of the following facilities do you have in the indoor playground?

- (a) Climbing structures [] (b) ballrooms []
- (c) play house [] (d) music area []
- (e) large blocks [] (f) portable tunnel []
- (g) Bounce houses [] (h) Sand box []
- (i) balance beam [] (i) Any other _____

11. What benefits would you look for from a playground with the necessary facilities?

- (a) Motor development in children []
- (b) social development in children []
- (c) Intellectual development in children []
- (d) All of the above []

h.	Leg Skills Skipping and hopping	i. Can hop on one foot. ii. Can hop on two feet. iii. Can hop backwards and turn around while hopping iv. Finds it difficult to hop. v. Finds it easy to skip. vi. Finds it difficult to skip	1 1 2 0 2 0						30
	TOTAL								
i.	Climbing	i. Can walk or climb the climbing structures with help, holding the hand of a person. ii. Walks or climbs the climbing structures without help.	1 2						15
	TOTAL								

GRAND TOTAL

Rating Scale

120 - 165 = Excellent Motor Development
90 - 119 = Good Motor Development
70 - 89 = Average Motor Development
50 - 69 = Fair Motor Development
30 - 49 = Poor Motor Development
0 - 29 = Very poor Motor Development

No. 2: To ascertain the relationship between playground facilities and the type of motor development they enhance (Hand or leg skills)

2.A	Playground facilities	Type of motor development they enhance
i	Climbing Structure	
ii	Small bridges	
iii	Balance beam	
iv	Slides	
v	Tires	
vi	See-saw	
2.B	Swings	
	Blocks	
	Musical pieces	
	Sand box	
	Ball centres	

Relationship between specific playground equipment and specific motor development

Play ground facilities	<u>Type of motor development</u>	
	Leg skill	Hand Skill
Small bridges		
Musical pieces		
Swings		
Blocks		
Climbing students		
Slides		
Balance bean		
Sand box		
Tires		
Ball centres		
See-saw		

Note: Each playground facility has a maximum score of 1(one) for each type of motor skill it enhances.

The motor skill envisaged:

- (a) Small bridges :leg skill
- (b) Musical pieces :hand skill, leg skill
- (c) Swings :hand and leg skills
- (d) Blocks :hand skill
- (e) Climbing structures : hand and leg skills
- (f) Slides : leg skill
- (g) Balance beam :hand and leg skills
- (h) Sand box :hand skill
- (i) Tires :hand and leg skills
- (j) Ball centers : hand skill.