

## Chapter – I

### INTRODUCTION

#### Background of the Study

Education is considered as the most powerful tool to change the world.

Education has become basic needs in 21st century as it produces high quality human resources. It has already been more than many kindergarten schools in our country.

Many strategies, policies, plans have been changed for many times still.

On one hand the situation of educational achievement of students in Nepal is low as explained above and on the other hand, the modern world, all the science and technologies are dependent on mathematics knowledge, so mathematics is a major factor for every student to his/her career. The need of mathematics is apparent for everyday life as well as for his/her studies in the field of science and technology.

Froebel developed an activity based approach to teaching young children involving playing with objects, singing, dancing and gardening or 'child's garden.'

In Nepalese context mathematics is taken as difficult and hard subject in school level and university level also. High failure rate in mathematics has become a headache for most of mathematics teachers, educators and for parents.

Mathematics is the most important subject for school age children to Master. The term Mathematics etymologically derived from an ancient Greek word *mathēneian* which means 'to learn'. Mathematics is an ancient science, which is part of human civilization and also the part of all the educational programmes. Mathematics is the queen of science." The study of the measurement, properties and relationship of qualities and sets using numbers and symbols. (American Heritage Dictionary 2001). Mathematics is so much significant to human life that no one can be away from its use.

Mathematical knowledge results from the discovery, the formulation, the systematic development. Every society has observed mathematics as basic needs of human life. Today other area such as science, engineering, medicine and technology might handicapped without mathematics and the word cannot run smoothly without it. Mathematics is the common heritage of all people. Mathematics by using various methods with the help of different teaching materials. Thus the importance of mathematics is realized due to its role for the development of science and life of the students for career choice in further study.

Kindergarten math is part of life. It should be fun. Kindergarten math were also help students build strong foundation in geometry, algebra, vocabulary, measurement. A child acquires most of his personal and social habits before attaining the age of six. During these impressionable years the child has no inhibition. There is no rigidity in his thinking. The creativity and problems solving capability of the child were developed and considerably enhanced by exposing him to rich and varied activities suitable to the early childhood age.

Early childhood years are critical in a child's life. This is because the rate of development is more rapid during these years. At this stage personality differences among children become increasingly apparent. These become well defined by the time the child attains the age of six. The child begins to learn to use his rapidly developing mental abilities. He starts learning for the first time how to fit his behavior to the accepted pattern of the home, school and society. Mathematics learning is embedded in everyday activities, such as reading, playing, baking, story telling and helping around the home.

Activities an contribute to the development of number and spatial sense in children. Kindergarteners were learn about something we call number sense. Numbers

sense means having a basic understanding of what numbers are and how we use them. They were also explore measurement. They were learn about thing like length, weight, area and volume in a general sense. This helps them begin to understand when and how we use these measurements. They were also gain a better understanding of how we measure time in days, weeks, months and years. In kindergarten, telling time usually means becoming familiar with a clock and being able to tell time to the nearest hour. They were also help students build a strong foundation in geometry. One of the basic skills of geometry is recognizing and understanding different shapes. Math operations involves learning the basic ways that we can use and manipulate numbers. Kindergarten students was learn some basic math vocabulary, concept and skills when it comes to many students learn to identify coins and their values. Most importantly, they understand the idea that money represents something and has value. Algebra is a part of mathematics where symbols represent numbers and we learn that there are rules to operation. kindergarten students learns to identify, sort and classify objects and symbols. They also learn to recognize patterns.

A kindergarten, literally "children's Garden" is a preschool educational institution for children. The term was created by Friedrich Frobel for the play and activity institute that he created in 1837 in Bad Blankenburg as a social experience for children for their transition from home to school. His goal was that children were taken care of and nourished in " children's Gardens " like plants in a garden.

Frobel show play as the highest expression of human development and underlined that play was the free expression of a child's soul.

In 1840, Friedrich Frobel coined the new world kindergarten or child garden to describe the institution in Germany established for the purpose of educating and caring for the little children (Shapiro, 1983) .often referred to as the "Father of

kindergarten ",Froebel believed that children begin to learn as soon as they began to interact with the world around them( Richiesharp, 2002).He viewed child's play as a form of learning and advocated that a highly trained kindergarten teacher or "kindergarten" could assist young children in drawing analogies between objects Found in the world and abstract concepts such as self or color.

A young child's learning gets enhanced when he is engaged in interactive process. He learns by interacting with other children with adult and with various aspects of the immediate environment At this stage the child learns through active exploration and manipulation rather than rote learning. Play and self expression or manipulative activities form the best medium for learning Mathematics.

Froebel,Friedrich[1985].Friedrich Froebel's pedagogy of the kindergarten. Or his ideas concerning the play and playthings of the child.

Froebel developed an activity based approach to teaching young children involving playing with object,singing, dancing and gardening which in 1840 he named the kindergarten or 'child's garten.

Fredrich Wilhelm August Froebel invented the concept and found the first kindergarten(called a play and activity Institute) in the village of Blankenburg in the Thuringian Forest of Germany in 1837. Froebel made up the word kindergarten from two German words meaning children garten. Froebel believed that children should be helped ,to develop according to their natural growth. He said" I shall not call this an infant school because I do not intend the children to be school but to be allowed under the gentlest treatment ,to develop freely."(Froebel).

Here, we glance into the historical development of pre- primary school education. According to George Willard Frasier, the First modern Nursery schools were established in England about the time of world war First and in America were

found a few years later in 192, office of education reported that only three such schools were there in the united states in 1930, the number had increased to 262(Frasier1951:128).Margratte McMillan explained the necessity of Nursing schools. Nursery schools are needed because little children want Nursery of course ,it is correct but in Russia, nurseries have been opened because of the present development in economy of the country for which ladies are found in all spheres of life and when on work ,woman do want their children to be left uncared for. The Education commission (1964-66) stressed the importance of pre-primary education is of great significance to the physical, emotional and intellectual development of the children especially those with unsatisfactory home backgrounds (Aggarwal,1933:55).

Now a day's Nursery and kindergarten education are being launched for children in most of the countries including Nepal. Aggarwal (1993) wrote about the development of Nursery and kindergarten education in the context of USA, UK, Germany and India. The kindergarten movement has spread very rapidly in USA and is rapidly becoming a part of public school system in most American states. Forty states have opened kindergartens as a part of their normal schools .The kindergarten age is generally four years to six and half years. The kindergarten follows different time schedules varying from two hours a day to four hours a day.(Poudel 2005). In the rarely 1800s a steadily increasing number of infant schools were opened in Britain. But the first kindergarten based on Froebel's idea was not established until 1851. The novelist Charles Dickens publicizes Froebel's theories widely in an article in the magazine "Household words". Several kindergartens were founded in these early days. But they changed their name to Nursery schools to quality for grant according to Education Act 1919.

### **Statement of the Problems**

The status of mathematics education at present is not as our expectation. The higher failure rate in mathematics in SEE Examination indicates urgent need of any special treatment from the outset of formal education. It is believed if mathematics is taught through kindergarten approach. The status of mathematics was improved gradually. So, with the following research question I take a research work.

- How children learn mathematics through kindergarten pedagogy?
- How to examine classroom teaching and students performance through kindergarten pedagogy?

### **Objectives of the Study**

- To find out the process of learning mathematics in kindergarten pedagogy.
- To examine the classroom teaching skills using kindergarten pedagogy.

### **Significance of the Study**

Kindergarten pedagogy gives more emphasis of children's activities. We know many important things through study of kindergarten pedagogy. From this study we know how children learn mathematics and why they give interest. Children are belongs from different places, tradition, social norms and values and condition. So we must know about their interest and behavior. So that this study helps to finding interest and needs of children as well as this study would helps to achieve national objectives of education.

### **Delimitation of the Study**

This study has following delimitations:

- The study was limited to Kathmandu valley.
- The study was concerned only Green Lawns Academy .

- The study was associated with parents, Grade teacher, Students of selected school.
- The study was based on qualitative method.
- The study was used interview schedule and observation.
- The study was observe 10 students and 8 teachers.

### **Operational Definition of the Key Terms**

**Teacher:** The person involved in teaching mathematics in Kathmandu Valley in Academic Year 2074/2075 B.S. at kindergarten based.

**Kindergarten:** The word "kindergarten" means "children's garden" and for years has conjured up an image of children playing with blocks, games.

**Kindergarten Pedagogy:** Kindergarten pedagogy is a system of imparting education for early childhood development where children are allowed to play and develop cognitive as well as non cognitive skills in respective subject.

**Learning:** Learning is process of acquiring modifications in existing knowledge, skills, habits, or tendencies through experience, practice or exercise.

**Curriculum:** The subjects comprising a course of study in a school or college.

## **Chapter – II**

### **REVIEW OF THE RELATED LITERATURE**

The literature review is an essential part of all studies. It is way to discover what other result in research we were read different journals, books, documents thesis etc. which make research more meaningful and realistic. Furthermore, review of literature provides the ground for my study. In this chapter I have included theoretical and empirical review with their implications for this study.

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

##### **Kindergarten Theory**

According to the age of the children, education activities kindergarten are often the same as those in a Nursery school and in the lower classes of primary school. kindergarten teachers give careful consideration to the child's physical ,intellectual, emotional and social development . Each child needs the help and affection of his teacher in many ways. She can help him to understand closer relationship with other children so that he experiences less frustration and quarreling and more friendship and enjoyment. His social behavior is controlled by the regular routine that sees all the other children following. Kindergarten education encourages his initiative and stimulates his need for adventure by giving him exciting things to do.

The kindergarten teaching methods have spread from all over the world. But these methods are interpreted in many ways .some kindergarten may provide table games and set handwork that are developed only to develop basic skills. Other has large pieces of apparatus on which the children can climb and perform physical ability. These kindergartens may also allow undirected play with many simple materials including sand, water, wood, clay, fabric, paper ,and crayons, valuable



activities in such kindergarten include free painting, finger painting, thumb painting, vegetable painting, dressing up, playing with large wheeled toys playing at sopping and "house" and looking at books.

The kindergarten building should have a much large area than an ordinary school classroom because the various educational activities involve much movement. A kindergarten should have direct access to outdoor space, where the children can run climb, dig, and paddle as well as tend plants, animals and fish. Ideally a kindergarten should be a single story building in its own grounds floor of building is almost essential. much greater storage than in ordinary classrooms. The most of providing such essential features make kindergarten education expansive.

children spends several hours daily with a teacher who he helps them to learn through playing and other activities such as art, music ,language arts physical education and mathematics .In kindergarten children are generally free to express their ideas by talking. Talking to a group increases a child's poise and command of language .kindergarten pupils also express themselves with paints clay and other creative materials. Kindergarten days begin with a discussion time. The period gives each child a chance to report any interesting experiences to other children . many kindergartens activities are designed to help the children learn to adjust their own plans to those of others .Taking turns and being quite while other speak help them to develop self control . During the two those activities we are thinking of as traditionally educational . Developementally appropriate kindergarten class-rooms encourage the growth of children's self- esteem. kindergarten children will continue to develop control of their own behavior through the guidance and support of warm ,caring adults. At this stage, children are already age to learn and posses an innate curiosity. Teachers with a strong background in early childhood education and child

development can best provide the best for children .what they need to grow physically, emotionally, and intellectually. There are 10 characteristics of a good kindergarten classroom.

- Children play or work with materials or others child not aimlessly wandering or forced to sit quietly for long period of time.
- Children have access to various activities throughout the day such as logos ,pegboards and puzzles. All children do not perform the same things at the same time.
- Teacher work with individual children, small groups and whole group at different time during the day. They do not spend time only with the entire group.
- The classroom are decorated with children's art work, their own writing and dictated stories.
- Children learn numbers and the alphabet in the context of their everyday experiences. Exploring the natural world of plants and animals, cooking taking attendance and serving snack are all meaning full activities to children.
- Children work on projects and have long periods of time (at least one hour) to play and explore. Filling out worksheets should be their primary activity.
- Children have an opportunity to play outside everyday that whether permits. This play is never sacrificed for more instructional time.
- Teachers read books to children throughout the day ,not just at group story time.
- Curriculum is adapted for those who are ahead as well as who need help.
- Because children differ in experiences and background, they do not learn the same things at the time in same day. Children and their parents look forward

to school. Their child to safe sending their children are happy: they are not crying or regularly sick.

Individual kindergarten classroom will convert and curriculum will convert according to the interests and backgrounds of the children. But all developmentally appropriate kindergarten classroom will have one thing in common; the focus will be on the development of the child as a whole.(www.kidsource.com)

Frobel, Friedrich[1985]. Friedrich Frobel's pedagogies of the kindergarten . Or His ideas concerning the play and playthings of the child.

Menzel(1982).Many students fail not because they lack ability, but because they do not have adequate study skills.

Morrow (1996) and Becker(1996): a different picture of mathematics teaching is starting to emerge ,where teachers encourage students to make connection with their own experiences and the experiences of others.

Morrow(1996): contends that many connected knowers (particularly girls) in mathematics spend much of their time listening to the ideas of others.

Maria and Robert (1999):write an article on "Enhancing the Transition to Kindergarten connecting families and schools". The kindergarten transition project has developed to enhance connections among children, families and schools and peers during the transition to kindergarten. These connections can be seen as important support to children and families during this period of change and reflect recent, attempts to describe what school's can do.

Collins concise dictionary and (Thesaurus of English Language,2000).

Learning is reflected in the way a child responds to environmental,social, emotional and physical stimulation.

NCTM(2000): NCTM recommends teachers should provide independent hands – on experiences for students so that they are given the opportunity to explore, look for patterns and then make generalization about mathematical concepts.

NCTM content emphasis across grade level bands (2000, P.30).However, traditional mathematics curricula used by schools in the United states heavily focus on numbers and operations with less attention to geometry and measurement

Carpenter and Grogan,(2000). Students as young as six are capable of making conjectures and giving evidence to prove or disprove their ideas. They are also to expand on and provide support for their ideas.

Everson and Neal(2000) describe about what is a learning centered kindergarten? Learning centered classrooms are classrooms where teachers focus on student learning and are continuously working to understand new theories about learning and what these mean for their own teaching . teaching strategies, curriculum, instructional materials assessment , classroom management , the organization of the physical environment , and the use of time all share a common focus on supporting students learning and achievement in the learning centered classrooms.

Gelman(2000) puts it, "we can think of young children as self- monitoring learning machines who are inclined to learn on the fly, even when they are not in school and regardless of whether they are with adults. In the ordinary environment, young children develop a comprehensive everyday mathematics entailing a variety of topics, including space ,shape and pattern as well as number and operations, and comprising several important features. Young children also learn other kinds of mathematical language, like the names of shape ("Square") and word for quantity("big" "less") .Indeed, some of these words (like"more") are among the first words spoken by many babies(Bloom,1970). Mathematical words are so pervasive

that they are not usually thought of as belonging to "mathematics" and are instead considered aspects of general cognitive development or intelligence.

Oli(2001) conducted a research on "cognitive development of pre-primary school children". The major finding of research were the children cognitive development was found highly satisfactory the performance of the children was remarkably high on concept of pre- number and rural school children score lowest in all cognitive test expert on sense of test activities. This study is concerned with the mathematics teaching learning process at pre- primary level through kindergarten approach which is related to cognitive development of pre- primary school children.

Kizlik(2001). Development of good study habits in children depends upon the combination efforts of parents and teachers.

Hamm and perry(2002): students are quite capable of assuming mathematical authority.

The NAEYC and NCTM (2002) have asserted that high-quality, challenging, and accessible mathematical experiences are essential for future mathematics learning.

Hamm and Perry (2002): It is important for students to learn math skills ,but sometimes clear procedures for solving problem can hinder students math concepts and apply their knowledge to other context.

NAEYC/NCTM(2002): Assessment is also an important component of learning and instruction since it enables teachers to monitor students strengths and weaknesses and help individual students deepen their understanding of mathematics.

Raudenbush (2005): conducted a study on the topic "Effects of kindergarten Retention policy on children's cognitive Growth in Reading and mathematics". The

empirical study found no evidence that a policy of grade in mathematics or de retention in kindergarten improves average achievement in mathematics or reading.

Ginsburg, Lee and Boyd (2006): conducted a study about mathematics Education for young children and found that ,young children are capable of a wide range and depth of thinking and learning in mathematics, such capacities appear to be sensitive to environmental input.

Ginsburg (2006): point out that young child is highly motivated to work with numbers and enjoy numeracy activities on their own. They are eager to imitate rote counting, make attempts at counting objects ,make, comparisons of more and less ,and pay attention to patterns and shapes. However, the authors state that children will learn more about mathematics when they have opportunities to engage in numeracy activities on a daily basis in a playful, natural way at home and in other settings. As a result, these children are more prepared when they encounter numeracy activities in formal schooling children who are encouraged to play with talk about numbers at home and in other early learning environments experience mathematical concepts as a natural part of their world. The informal mathematical language and understanding that they use in their play becomes the basis for formal mathematical language and understanding as they move through school.

NCTM (2006): Being able to navigate using a mental map is an important math skill for young children. Teachers can foster this skill by doing navigational activities.

Clements and Sarma (2009): Mathematics is a core component of cognition. In fact, mathematical achievement at an early age has been shown to predict reading as well as mathematical ability later in life.

## **Review of Theoretical Literature**

Everson and Neal(2000) describe about what is a learning centered kindergarten? Learning centered classrooms are classrooms where teachers focus on student learning and are continuously working to understand and new theories about learning and are what these mean for their own teaching. Teaching strategies, curriculum, instructional materials assessment, classroom management, the organization of the physical environment, and the use of time all share a common focus on supporting students learning and achievement in the learning centered classroom.(Scott-Little, Kagan, and Frelow, 2006).

The focus on academics does not align with developmentally appropriate practices that early childhood educators, advocate(Goldstein, 2008, Parker and Neunarth- Pritchett, 2006: Stipek, 2006: wien,2004). Kindergarten was instituted so that children could play and explore as they build a foundation for future school success (Iseman,Rollenberg,and rispens 2001:Ray and Smith(2010)believed that ,over the years, these mandates have altered the playful atmosphere into one that is structured. Cullingford (2007) suggested this structured environment is not where children best learn.

Doughs H. Clements: conducted a study about "Mathematics in the pre - school". He describe on study that anyone who is pushing arithmetic onto pre-schoolers is wrong .Do not hurry children. No math in preschool "what else is preschool for if teachers do not get children ready for school? They should teach the children basic skills and how to sit and listen."

German (2000) puts it, " We can think of young children as self- monitoring learning machines who are in dined to learn on the fly , even when they are not in school and regardless of whether they are with adults". In the ordinary environment,

young children develop a comprehensive everyday mathematics entailing a variety of topics, including space, shape and patterns, as well as number and operations and comprising several important features. Young children's also learn other kinds of mathematical language, like the names of shapes("square") and word for quantity ("bigger" " less"). Indeed, some of these words (like "more") are among the First words spoken by many babies (Bloom, 1970).

Curriculum and pedagogies(2004).In the area of nursery school education, there have been four main approaches of the pedagogical methods.

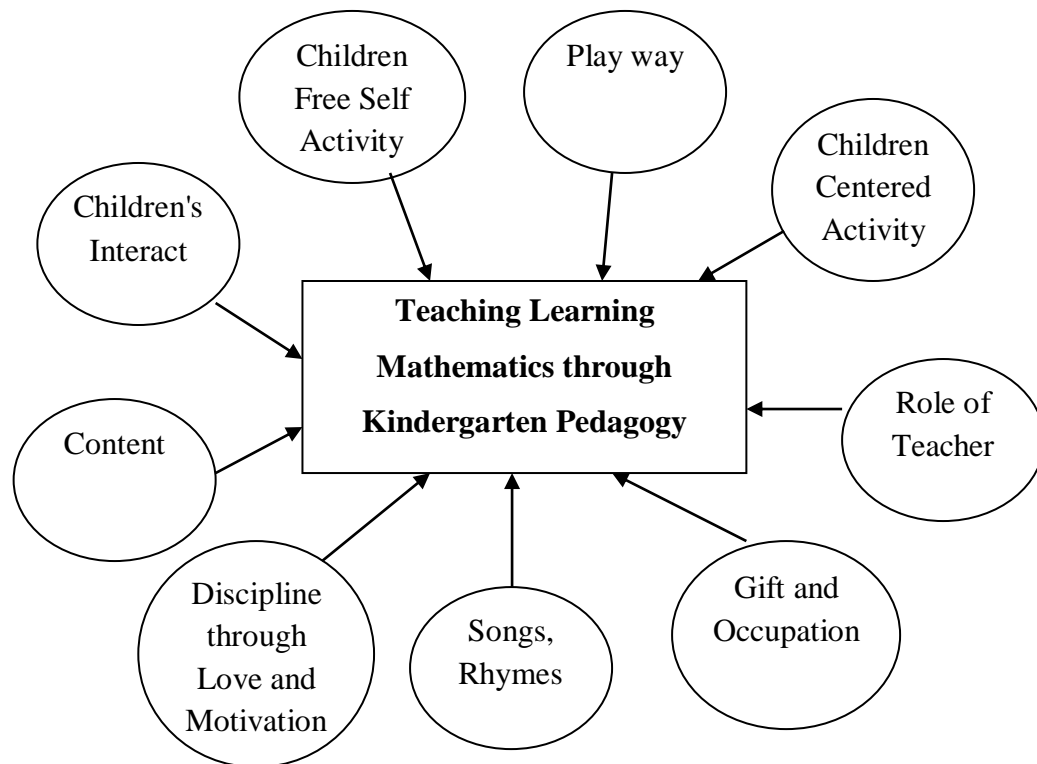
Mathematical words are so pervasive that they are not usually thought of as belonging to "mathematics" and are instead considered aspects of general cognitive development or intelligence.

### **Implications of the Review for the Study**

Different studies were reviewed. These studies was to some extent related to my study. After reviewing these works researcher were got ideas and knowledge about research methodology. Specially, researcher was get information how to construct interview schedule. How to conduct this sort of research, how that data should be collected and of analyzed and what short of finding they have drawn from the studies. After reviewing all those related to my study, through were highly motivate to conduct research under area.



## Conceptual Framework



Source:- Kelley (2014)

This framework shows teaching learning about kindergarten content children free self activities, children's interact, content, play way, child centered activities, role of teacher, gift and occupation , songs Rhymes, discipline through love and motivation. In the study researcher followed the diagram of the study of ' visual representation of literature review' presented by Kelly(2014) and modified it according to this research objectives. The observation guide line and interview guide line were constructed according to the above conceptual framework for teaching learning for kindergarten pedagogy.

## **Chapter – III**

### **RESEARCH METHODOLOGY**

Research methodology present the procedure of study. Research is a systematic through which one can find the solution of the problem which can be useful in the future. It is a guideline for ways of knowing ,being and valuing reality. Search according to nature of research. Research design is base for researcher to confine the It determines how the research became complete and systematic. Research can be designed from observation and indepth interview schedule.

#### **Research Design**

Researcher design is a way and path of the guides the researcher to research the goal of research. This is a qualitative research with case study approach on causes of Teaching learning mathematics through kindergarten pedagogy. According to patton (1990), qualitative research accepts that people know themselves best and can describe, interpret and talk about their own environment. Qualitative research involves the studies and collection of empirical materials.

Qualitative technique is a form of inquiry that explorer's phenomena in their natural setting and uses multi- method to interpret, understand, explain and bring meaning for them.

Qualitative research involves the use and collection of a practical materials for case study, personal experiences, introspective life story, interview, observation, historical. international and visual, text that describe routine and problematic moment and meaning in individual live.

#### **Nature and source of Data**

Mainly , the researcher was based on primary data. However, both primary and secondary data were collected. I visited myself the case school and data

collected for purpose of data collection were the study side. For Green lawns Academy school was sample of the study.

### **Selection of Case School**

Most of the schools situated in remote area of Nepal have no good results in SEE examination .I have selected the case school from Kathmandu district. Which is considered as an medium school.

### **Selection of Respondents**

From the sample school (Green Lawns Academy Balkhu) 10 students were selected by purposive sampling technique. Thus all together there were 10 students, 5 from class nursery and 5 from L.K.G. for the sampling of my research. There was all together in this 35 teacher in that school including head teacher. I have selected two teachers and head teacher. So , students, mathematics teacher and head teacher were the respondents of this case study.

### **Data Collection Tools**

To collect primary and secondary data for the case study this interview, class observation form and school documents were the instruments of the study. These instruments were used to collect primary and secondary data. The tools were develop depending upon the different variable/causes of the purposed model of this study

### **Interview schedule**

To fulfill the objectives, I prepared another tool; interview schedule. I took interview about the perception towards mathematics performance with the grade teacher and parents .Also took interview with five students of nursery and five students from U.K. G regarding their performance.

### **Observation form**

Observation form was a main tool of my research. I observed classroom activities and recorded and observation form was finalized with the supervisor, observation about the home environment and school environment was get the information of the situation of housing, reading place , activities , within and around houses activities of the other students, location of the school, classroom environment, and facilities was provide by school, school's infrastructures. The direct observation methods were use to collect the information about teacher activities in his class school environments, class room situation, student activities.(Appendix A)

### **Data collection tools**

In this study, information was collected with the help of the interview, observation schedule. Open types of questions were use for interview schedule researcher consults different sources such as survey reports, previous research report, thesis, journals and exports.

### **Data Collection Procedure**

I collected needed data and information by using interview, class observation. The researcher participated in the classroom observation to collect qualitative data. On the basis of observation form, I observed mathematics class of nursery and U .K. G. interview were taken with the students, teacher and parents separately. Answer of the interview were record. The interview was focused on the variables like interest towards subject, regularity and practice, pre knowledge, method, materials and motivation (3M), behavior in classroom, teaching- learning environment of the school.

School documents related to the study of the school, teacher's profile physical facilities, students and teacher regularity was acquired from school for the purpose of collecting data.

The class observation of selected children's were done regularly for 15 days during teaching learning activities. I was observe, listened, interacted and record the essential data from the information on the basis of observation from classroom behavior, interest and needs in mathematics learning and other essential information were carefully observed and noted every day with the help of unstructured interview schedule and observation, the indepth interview were taken with parents of selected children and teacher.

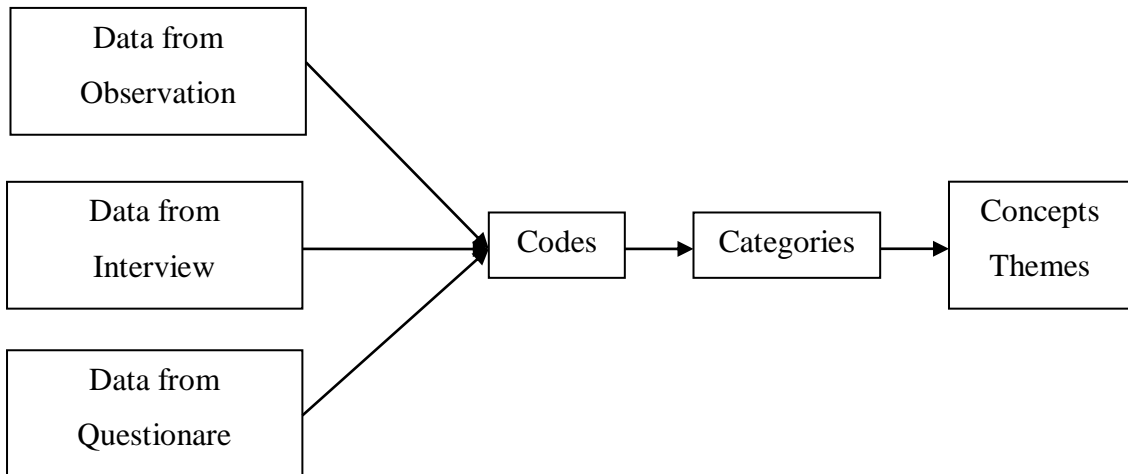
### **Data Analysis and Interpretation**

Data analysis is taking the data apart to determine individual responses and then putting it together to summarize it (Creswell,2012). Taylor and Bogdan (1998) state that data analysis support the theory, the type of data collected and the research question of the study.

In the qualitative research design data are gained and analyzed by descriptive and interpretive method. Primary data was organized according to individual respondents on interview, observation, document analysis and focus group discussion. The collected data were analyzed by the help of different theories and literatures.

The recorded interview was transcribed and the information gained from class room observation documents were categorized to different causes of mathematics through kindergarten pedagogy and different themes were given in the text of the interview and the observation. These themes were considered as a code. The data were analyzed and interpreted on the basis of different theories and by using proposed model of students learning. I was apply triangulation theory for data collection .

which elaborating, memorizing, thinking, exploration, self thinking, self-taking, discussion, monitoring, playing, using, co-operating, questioning. After coding the data, researcher was categorized on the basis of similarities and differences as per responses of respondents. The task of analysis of data were following procedures.



## **Chapter – IV**

### **ANALYSIS AND INTERPRETATION**

This chapter is mainly focused on the analysis and interpretation of the collection information. In this chapter I have addressed my research questions; How to mathematics learn through kindergarten pedagogy? To answer this research question systematically, the qualitative information was collected for answering the research question related to the cause of mathematics learning in kindergarten children. I research the respective sample school and necessary information were taken during my observation period. Various information from different classroom were observed and taken interview with participants and carried out from the grade teacher and parents.

For answering the second research question I took the interview with Grade teacher, parents educationist and subject experts. The interpretation of analyzed data was done using different theoretical perspective as explained in literature review section. For this the chapter is divided into two section. first section was discussed about process of learning mathematics in kindergarten pedagogy. And second section was discussed about teaching skills using kindergarten pedagogy.

At first the collected information was categorized according to the category of the respondent themes and the different themes were given in the text of interview or observation note. These themes were considered as a code and similar code versions of respondents were collected together and explained in their perspective.

The teaching and learning environment for mathematics learning in a kindergarten school was analyzed in terms of teacher and children's activity in mathematics classroom as well as purposeful teaching, songs and rhymes, play way interacting way for mathematics classroom and children's free self- activity in the

classroom. Thus, the collected information were analyzed and discussed under the following headings;

- Introduction about case school
- Mathematics learning process through kindergarten pedagogy.

### **Introduction of case school**

#### **Location of the school**

Green lawns Academy is a private educational institute suited in Kathmandu metropolitan city Balkhu. The population of the school Neighbourhood Is Bramin and old Newar community. There are three schools buildings. Six founders shared investment to run the Green Lawns school . According to principle of the school economically the parents are middle classes. The parents of the school children were doctors , engineers, businessman, teachers and local peoples. By observing the data most of the parents were found well educated. Children are from Brahmin, Newar, chhetri, Dalit,Jha, Yadav.

#### **History of the school Establishment**

The Green Lawns Academy was establishment in 2050 B.S. with 34 children only. The school was established at Kathmandu metropolitan city. The school established as a full day kindergarten school for local citizen decided to establish a kindergarten school in that area because in that area were only traditional educational institute for every childhood one founder said;

In the context of Nepalese society is traditional institution focus on rote learning and these institutes could not prepare the children as independent human being. There was any educational institute for holistic development of the children in this area. If the children had to send to popular school than it will more expensive and for far distance.



We decided to establish a kindergarten school for applying kindergarten system to provide early childhood education at minimum charge.

### **Founder and principal**

According to founder member Mohan Kumar Basnet, the traditionally education system for children is not suitable. He got this idea through the Montessori training for early childhood education. The school is registered in Kathmandu metropolitan city. They set the school mottoes as "Enlightenment towards knowledge". They named the classes as play group, lower kindergarten, upper kindergarten, and upper- class respectively in order to avoid the pressure of children concepts that they are going to school for reading. The school has set up the term wise themes. At the time of classroom observation the school themes was "Me and myself" per day different children were set up as the leader to develop leadership skill.

### **Process of Learning mathematics in kindergarten pedagogy**

#### **Children free self Activity**

Researcher with several remarkable findings through observation up to 15 days children were found learning through playing the games simultaneously. Christina and Alex used to live together Christina oftenly appeared busy while working. She used to do something with pencil, books, eraser, copy and colours. She remained busy in her task guided by the teacher. But at that time was playing busy in playing games with the friends or involving in the extracurricular activities. Researcher found that one day Alex was learning the counting number alone and facing the difficulties while counting with her pencil, colors and paper of exercise copy etc. But regular counting to them prepared her perfect, regarding correct counting as we say that practices make the man perfect. Alex was found playing at the lesser time like Christina with pencil

,eraser ,colors and enjoying with such a self activity. He was seated beside sanich. His habit was very good and helping to sanich. Besides accomplishing his task speaking to self and generalizing about activities was habit of Alex while ha was found self. Likewise Rabin resembled to the habit of Alex resembled to the habit of Christina learner perfect counting by regular practice of counting to his educational physical and the mental development for fine relation to their friends they are largely practiced into many socializing process like game discussion."

### **Grade teacher**

The kindergarten Grade teacher of the case study school has understood that physical activities are necessary for the early childhood's development. She focused that reading activities is valuable then writing which empower vocabulary. She emphasized that teacher should allow children to perform self- activity to develop. children psychological concept and to avoid children negative felling towards school.

The teacher did allow children to talk to each other most of classroom observation the researcher found that children played with four certain materials everyday Someday. Someday children extended their ideal about learning matter on the presence of object. Few days children were doing activities independently. Activities related with cards, counters and spindle box were separately done by children in the concept of counting clear. They were taught to count the number of cards and one to one to match the counter as wellas. The children were made to write one single digit number and to fill colour in a single day. The next day they were taught by showing rectangle, circle, triangle in the white board.

Children were including in the activities of moving geometrical shaped objectives in the following day. The children were made aware of four sides of rectangle by showing a rectangular object and giving it to the children to touch the

corners. The activities of the children doing without the teacher's direction was restricted but other children free self- activities was not controlled in the condition when a child was given individual activity.

### **Maria Montessori(1870-1952)**

Maria Montessori also agree about learning by free self- activity. She much stress on experience or self- activity as the basic for acquiring knowledge, she emphasized on the freedom of child.

She said , "self-activity leads to better and permanent learning on the part of the child . The teacher's role is that of a facilitator who contries the learning environment in a structured and organized manner." **(Maria Montessori) (Early childhood care and Education P- 16)**

### **Friedrich wilhem August Froebel(1782-1852)**

Also argued that freedom of action on the part of children. He says that, "the child develops himself through self- activity and self – compression." He leads that the curriculum at the pre- school stage should be based on the native and nature of the child.

### **Play is Essential**

And gain the self- confidence required to engage in new expanses and environments. Researcher took sampling of ten students. They were found in playing. They learn many things by playing the games. Christina seems excited for coloring the paper which she was asked by her class teacher selecting various colors from the basket. She started colouring on the papers. In that way she construct their concept of counting number and shape of circle etc .Another interesting thing of Alex, Ujjwol, Mohit, Sunish, Sanich, Rijab, Siwas, Jeevan sohan, was used to play through singing

and hand expression besides coloring and also used to remind to him for restarting the task.

Teacher lets out the students to ground for playing students for ten students Christina Rabin, Jeevan, Sanich ,Mohit, Alex, Ujjwol, Sunish, Sohan, Rijab ran being extreme delighted. They appear excited play being guided by the teacher. All seemed to have intense and busy towards playing. It was fruitful to learn many concepts of the students.

Teacher used to apply educational materials for teaching learning activities. Teacher used glass ring which is called as "churi" for teaching about circle . after distribution of glass ring to all they draw a circle inside them. They used to play with such a educational material, they gained knowledge and concept about this.

*"The system of producing knowledge by play was a method in kindergarten is very fine and good. The children with the age of 2.5 years to 6 years are taught through learning by doing method. Play way method plays very great role to the holistic development of children. This method emphasize in interaction which is adequate for socialization as well as increasing vocabulary power. We involve children in playing game for one an half an hour daily. The process becomes very significant for social and physical development of children which makes children healthy and a healthy child can do better than those unhealthy children in learning process."*

The kindergarten teacher was know about play way method of kindergarten approach. She argued that kindergarten approach is a method of education that emphasize on 'learning by playing'. She expressed that play- way method increase social development and power of the children. She illustrated that play way method is important for physical development as well as mental development. She expressed

that playing children become healthy and they do better in learning process than unhealthy children.

In the period of classroom observation most of the days children played with mathematical materials- cards, counters and spindle box .In few days children played with their friends. Children gained concept by playing with these materials. After the school time they played with playing materials for physical development. The researcher found that there was a deep relation between play and mathematical knowledge.

The children used to play freely for one and half hour in a single day and they were found on large muscular activities like swing, Scooter riding bus riding etc. on the other hand they were found on fine muscular activities in classrooms like cards, counters and coloring.

**Ginsberg, (2007)**

Argued that, "play is essential to development; play allows children to use their creativity while developing their imagination, dexterity and physical, cognitive and emotional strength."

**Jarrell referenced in pronim Tromberg and Bergen(1998)**

*says "play is vital to the development of children's mathematical thinking. Unlike some forms of knowledge, mathematical knowledge, which deals with relationships between and among thing, cannot be learned by hearing adults talk*

The pressure for academic achievement, coupled with the mistaken idea that today's children have outgrown the need to play , have led to increased emphasis on "basic skills" in kindergarten. The principal source of development in the early years is play(Vygotsky,1976); in fact ,Catron and Allen(1999) state that the optimal development of young children is made possible through play. Play involves not only

use of materials and equipment, but also words and ideas that promote literacy and develop thinking skills, consequently, in addition to the three R's, play also promotes problem-solving, critical thinking, concept formation, and creativity skills. Play fosters wholistic learning (Isenberg and Jalongo,1997).

### **Psychologist and mathematician Jolton P. Diene**

states that teaching mathematics is better to understand through games, rhymes etc. he believes that learning mathematics is more meaningful and reinforcement or stimulus doing on different activities for the students for better learning.

Advocated short school hours. There should be more play so that students develop better body and health. In his opinion plays on various themes can be quite useful.

### **Jean Jacques Rounau(1712-1798)**

Jean Jacques argued that things before words play way methods, creative activities, direct experience are more meaningful to the child.

### **Children's Interact**

Children learn and develop by interacting with others. Their interactions promote children's learning and development and help children to reach their full potential.

While doing classroom observation the small children play and interacted with others and with different educational materials like pencil, color, etc. They learn to make circle by interacting with the help of "churi" in the class of circle. The children interact, play and learn in leisure time or class-work time provided by teacher with their friends. Christina was learning counting number class with Alex by talking. Teacher provided coloring paper written with counting number to Mohit, Alex, Sohan. Sanich, Rijob, Jeevan, Rabin, Christina, Sunish, and Ujjwol than they started colouring. They all the time interact with color as well as with their friends. While

doing so they coloured differently on counting number and because of it they took the concept of counting number.

Ujjwol asked to the teacher and taught to his friends, sohan as well. In this way , the children learned how to count and to count and to make shape through interacting with others.

*"The children with the age of 2.5 years to 6 years are taught through learning by interacting methods .children are interacting to things, materials then learn themselves. In the classroom, children's are interacting with each other and book, pencil, colours, materials,etc. from that interacting process, children are learning continuously."*

Kindergarten Teacher

The kindergarten Teacher was known about interacting method of kindergarten approach. She argued that kindergarten approach is a method of education that emphasize on "learning by interact with other". She expressed that interact method helps to make concepts of shapes, counting etc.

*"Child always interacting with any things, with friends and this way child make concept of all things."*

Parents

The parents children argued that children always learn by interact with other. The parents has clear concept about children's interact way.

In the period of classroom observation most of the time children interact with other i.e. interact with friends, mathematical materials- cards, counters, pencil, book etc. Children gained counting concept by interacting with these things. The research found that there was a deep relation between interact and mathematical knowledge.

### **Jean Piaget(1896-1980)**

Jean piaget considered an individual as active biological organism who constantly interacts with the environment. Piaget argued that "children at this young age learn best through direct interactions with the environment. They should be actively involved in play and in a variety of activities so that they obtain first hand experience of objects and materials." Piaget also argued that , "children also gain through their interactions with others."

### **Songs Rhymes**

Children who are actively involved in songs and Rhymes do better in reading and math when they start school. They are better able to focus and control their bodies and they make strongest connections.

Researcher found the kindergarten teacher started her class through songs by raising and with shaking their hands in everyday class in the beginning lesson .they liked songs and rhymes when the teacher taught them . the songs were different but all the songs well based on students learnt different things through songs and rhymes. The selected ten students developed their language when the researcher observed them by teaching through songs and rhymes. In the previous day, Mohit was not all to spell Well , when she was taught through songs and rhymes . She developed her language well.

*Based on the counting number teacher prepared the songs according to the numbers and told the students to sing the song. When they got an opportunity to sing the song they fell happy and started to sing. After the long practice, the selected students developed their skill on counting concepts.*

*"song, Rhymes are very much important for learning as adult like music . By the use of songs and Rhymes, mathematical can exit forever in the memory of*



*children's mind they can learn easily and develop their language through rhymes. I use the number concept Rhymes method to teach them number concept."*

Kindergarten Teacher

The teacher had positive concept about songs and rhymes. She expressed that teaching songs and rhymes would be interesting and retention so at the same time the school has been the researcher conclude that the kindergarten teacher of case study school has positive attitude towards songs and rhymes.

*"I have to give the construction work to children in the classroom according to kindergarten system .Especially about the mathematics, I should give work sheet to children individually in the classroom."*

Kindergarten Teacher

The case study of kindergarten teacher had understood the importance of constructive work in the classroom. She remembered only one material work sheet for children in mathematics classroom.

The researcher found the children doing songs and rhymes related with mathematics only for half days out of total observations. In those days when the teacher started singing songs these were converted into rhymes.

It had been that song and rhymes provided exercise to the sense, limbs and muscles of children. While doing counting in songs and rhymes the researcher found the children active and happy too.

### **Psychologist and Mathematician Jolton P. Diene**

Jolton P. Diene states that teaching mathematics is better to understand through rhymes, music etc. He believes that learning mathematics is more meaningful and reinforcement or stimulus doing on different activities for the students for better learning.

### **Gift and occupation**

Forebel's materials consisted of geometrical patterns called gifts and various activities like drawing, coloring, sewing etc. called occupations. These gave the child maximum opportunities for free play, which helped in the harmonious development of child's personality.

While observing the classroom the students learnt mathematics through gift and occupation. They utilized the geometrical patterns in the circle class like using "churi" etc. They got knowledge by playing on the geometrical patterns. Mohit Christina,Alex, Sohan , Sanich,Sunish,Rabin,Jeevan, Rijob,Ujjwal, Siwas

All they seen happy when they utilized the geometrical patterns in the classroom. They wanted to make an entertainment on the geometrical pattern. Continuous practice on the geometrical patter they were able to make circle easily. Mostly the selected ten students were learning through occupation. Mohit and Sohan like drawing very much. Others remain selected students also like drawing . All ten students feels happy when they get chance to draw something. When the teacher told then to draw on counting number,Sunish, Mohit,Jeevan,sohan,Rijob are finished .

With drawing , they feel happy when they get an opportunity to color and sew . The researcher found that all the ten students gained knowledge by drawing, coloring and sewing they practiced, where they were able to writ up to 100 and able to draw circle.

*"We should not give gift to students rewarded even if they do well. If we deal like this they only do for gift. We have to stimulate them by saying 'thank you' 'very – nice' 'well' done' etc. We can reward them by smiling too.*

Kindergarten Teacher

Kindergarten teacher of the case school was unknown about kindergarten principle that gifts are the materials to activate activities and occupations are the various activities like drawing, coloring etc. but she assumed gift as the reward only. Hence she was unknown about gifts according to kindergarten educational philosophy.

*"When I demonstrate the numerals with my fingers while in teaching , the activities and learn it. After by using cards the counting concept becomes clear and the concept of more and less can be in the same way".*

Kindergarten Teacher

Kindergarten teacher of the case school had positive attitude towards student's occupation for mathematical knowledge. She expressed that occupation are activities in the classroom.

In 15 days of classroom observation period teacher provided some gifts to do occupation. Teacher demonstrated ideas to perform occupation. The children were given only cards as gifts while teaching mathematics. The teacher took gift as reward , which was not knowledgably matching with kindergarten principal because the children participation in activities only seeking the Reward.

Friedrich Froebel divided materials and techniques which he called gifts and occupations. Froebel's materials consisted of geometrical patterns called gifts and various activities like drawing, coloring, sewing etc. called occupations. These gave the child maximum opportunities for free play, which helped in the harmonious .

### **Role of Teacher**

The teacher's role is to be active and involve with the children's doing. Teacher's role in kindergarten school as a friend, as a manager etc.

*"I get pre-school teaching training to educate the children of 2 years to 6 years in Montessori Method. Teacher should not only of bookish knowledge. They should have capacity to play the role as an artist, singer , dancer, friend, manager, organizer, fascinator and guider according to the demand of time to entertain children .Here teacher should be more action oriented which make the children active and curious to perform activities."*

Kindergarten teacher

The kindergarten teacher seems to have own idea about role to teacher for teaching early childhood education. She emphasized that teacher should be active to perform different activities activates according to the need for full development of children.

*"In kindergarten system kinder means children and Garten means garden .here children are a like plants and the teacher should act as gardeners for the exploration of development of children as gardener care about plants."*

Kindergarten Teacher

*"The teacher was clean that in kindergarten system the role of teacher is a gardener where as children are a like plants. Teacher should perform their activities to children as gardener does for plants of garden. In kindergarten school, Teacher's role in important part of learning."*

Parents

Parents were clear that in the kindergarten system the role of teacher is a important part as a gardener where as children are a like plants.

During the time of classroom observation the teacher managed learning environment by arranging sitting, by arranging teaching tools and by managing place for s students to do activities. The teacher was found to be active and was involved

with the children doing counting rhymes. She used to demonstrate every activity seriously while teaching about jumping activity. She herself seemed to be jumping. The teacher was addressing the children with respect, the way we do our seniors. She used to observe children's individual activity and found to be providing necessary feedback to the children. The researcher found the kindergarten teacher as a friend, actor, fascinator, guider, manager, and organizer.

Froebel argued that role of teacher is only to follow where the child leads a side from parents, teachers frequently are the most significant adults in young children's lives. Therefore, quality kindergarten programs must be staffed by caring teachers who have faith in every child's potential to achieve and succeed.

Assigning primary and upper elementary teacher to the kindergarten is a questionable practice indeed, it is cause for great concern many of these teachers have limited understanding of appropriate programs for 5 years old, and so they operate under the false assumption that young children learn in the same way that older children do (**Association for Childhood Education International, 1986**).

### **Discipline through Love and motivation**

Effective discipline helps children learn to control their behavior so that they act according to their ideas of what is right and wrong.

*"While I am teaching to children I should not give the corporal punishment to increase their attention and concentration. I should give more and more exercise for the development of their concentration. While doing I promote loving coordination between eye and hand. I should use different way for their self-motivation. I would make them capable to find their own mistake."*

Kindergarten Teacher

The teacher told the researcher above quotes. This indicates that kindergarten children can not sit quietly in the classroom. She illustrated that corporal punishments is harmful for children and she controlled the class by engaging children in the activities and by calling with their name. it meant that she has knowledge to maintain children discipline in the classroom through love.

*" I should not keep them forcefully in discipline. If I do that, children make noise while I go outside but children become silent while they see me on the basis of materials and activities .I can keep them attentive while teaching in the classroom if children are playing, jumping and making noise at that I motivate their attention by calling their name individually."*

Kindergarten teacher

The kindergarten teacher of the case study school was well known about kindergarten principle through love and motivation. The above code indicates the children should not be forced to keep in discipline, children discipline can be maintain by motivation.

It had seen that, most of the time Teacher provided love for children to maintain discipline on the classroom children were taught according to their psychology by including in different activities. No corporal punishment was found.

### **Child- centered Activities**

In child – centered activities, children construct their own knowledge from their experiences and interactions with other. "All the activities which are done in the classroom teaching are based on child centered methods on various activities. I also do different activities applying same method in my classroom teaching. For examples; Interaction ,playing, singing, dancing, asking questions and giving answer motivational activities giving instructions specific guidance etc. I keep all these

activities according to the child center techniques which help the students for long term memory."

Kindergarten Teacher

The kindergarten teacher of the case study has understood that child centered activities are essential for learning. She emphasized on different activities like interaction playing, singing, dancing, asking questions and giving answer , motivational activities ,giving instructions, specific guidance for better learning."

*Children do the activities actively based on the child centered method and they learn better through it"*

-Parents

The parents of the cases study has well known about child centered activities for better learning.

During the classroom observation, researcher found the child- centered activities in the real classroom teaching. Researcher explored that the teaching was focusing on child psychology in his teaching and learning process. He involved the children in various activities when he taught them in the outside or inside the classroom. Teacher focused during the process and teaching in the classroom doing various activities. When the teacher gave them opportunities. Participating on various activities, they did very interestingly, saw happy and through it they learnt better.

### **Jean Jacques Roussean (1712-1798)**

Who is philosopher and the orginator of the educational philosophy of "Naturalism" , is also argued that education should be child-centered.

### **Dau , Elizabeth (2001)**

States that "A child – centered curriculum offers children the opportunity to make choice about what, how and whom they want to play . this approach enables children to initiate and direct their own play with the support of interest and responsive adults. In child centers education curriculum, children construct their experience and interactions with the world around them". From the above mentor, also argued that young children can do better learning by engaging them on various activities which are based on child- centered method.



## **Chapter-V**

### **SUMMARY, FINDINGS AND CONCLUSION**

With mathematics teaching learning process teaching in kindergarten school conclusions of the study and recommendation of study for further research.

#### **Summary of Finding**

This study is a case- study of kindergarten school. The purpose of the case study is to know how children learn mathematics in kindergarten classroom. The major Tools used for this study were class observation from and unstructured interview schedule. The respondents of the study were grade teacher of kindergarten classroom and parents of selected students. For this case study, how children learn mathematics in kindergarten classroom, the following are major findings.

- This study found that in the kindergarten classroom how children did their mathematical activity with cards, counters, and puzzle and construct their mathematical ideas.
- In the kindergarten classroom, there was a deep relation between play and mathematical knowledge likewise it was also found that when children play they integrate all types of learning.
- Play contributes to the development of early logical (mathematical development).
- In the classroom, it was found that children learn counting by songs, rhymes and in that time children seems like active and happy too.
- Children gained counting concepts by interacting with friends, mathematical materials- cards, pencil, book etc. there was a deep relation between interaction and mathematical knowledge.

- In the kindergarten classroom, it was found that children construct their mathematical ideas by various activities like, coloring, sewing etc.
- The kindergarten teacher was active and was involved with the children while doing counting rhymes.
- The kindergarten teacher had shown love towards for children to maintain discipline and learning in the classroom.
- The kindergarten teacher has focused on child psychology in her teaching and learning process. And he involved children in various activities when he taught them in the outside the classroom.

### **Conclusions**

After carrying any of research activities in any subject, the clear and short necessary to bring such conclusion. This is an important research conducted on the topic of learning mathematics through kindergarten pedagogy, which key focus is to explore the process of learning mathematics in kindergarten pedagogy.

Children construct their mathematical ideas by drawing, coloring, sewing and interacting so that in mathematics classroom, we should take compulsory drawing ,coloring, sewing and interacting for effective learning. From this types of learning process, children show their interest in learning mathematical. As well as in mathematics learning process must include playing games, free self activity, interacting with songs and rhymes. So that it gives permanent learning.

### **Recommendation for the further Research**

These finding, the researcher would like to suggest some recommendations for the further research are following.

- Feasibility of kindergarten method for early childhood mathematics education in Nepal.

- New ideas that children learn mathematics through kindergarten pedagogy.
- The effectiveness of kindergarten pedagogy involved in mathematics teaching learning process.
- The impact of kindergarten approach involved in mathematics teacher training programs of Nepal.

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#### APPENDIX – A

### Classroom observation form

Lesson title :

Date :

Start Time :

End Time :

Teacher :

School :

Students name:

a)

b)

c)

d)

<b>Time</b>	<b>Teacher data</b> <b>What is the teachers doing</b>	<b>Child data</b> <b>what are the children doing</b>	<b>Emotional</b> <b>experience</b>	<b>Inference</b>
First 15 minute	i)	a)		
	ii)	b)		
	iii)	c)		
	iv)	d)		
Next 30 minute	i)	a)		
	ii)	b)		
	iii)	c)		
	iV)	d)		
last 15 minute	i)	a)		
	ii)	b)		
	iii)	c)		
	iv)	d)		

Key symbols used :c.s = cognitive strategies

M.S= meta cognitive strategies

S. /A.S= Social /Affective Strategies

Comments :

i)

ii)i

iii)

iv)

## APPENDIX – B

### Interview schedule for Grade Teacher

**Name:**

**Date:**

**Address:**

**Qualification:**

1 .What do you do in kindergarten education?

Ans:

2. Do you think kindergarten education is essential for early childhood development?

Ans:

3. Do you apply early childhood based mathematics curriculum and content in teaching and learning process?

Ans:

4. what age should be there for kindergarten education? Why?

Ans:

5. What sort of relationship should be there between teacher and students?

Ans:

6. Concerning to encouragement what do you do?

Ans:

7. How do you manage your play time in the classroom?

Ans:

8. Do you teach students through songs, rhymes in the classroom?

Ans:

9. What teacher's role should be there in the classroom?

Ans:



10. What are the things you consider while teaching them in the classroom?

Ans:

11. What are the strategies that you follow while teaching them?

Ans:

12. What types of basic mathematical concepts should you give to the students?

Ans:

13. How do you deliver the concept of mathematics step by step? Give one example.

Ans:

14. Are they really interested towards your teaching and learning process while you provide them subject matter knowledge?

Ans:

15. What response should they give after the class?

Ans:

## APPENDIX-C

### Interview schedule for parents

Student's Name:

Date:

Parent's Name:

Address:

1. What is your occupation?

Ans:

2. How much do you know about the kindergarten education?

Ans:

3. Why you are interested to send your child in kindergarten school?

Ans:

4. Does your child give any mathematical expression while playing at home?

Ans:

5. If , Yes, what types of basic mathematics concept does he/she show?

Ans:

6. Does he/she express any kinds of emotional behavior when he/she see any mathematical materials instruments?

Ans:

7. Does Your educational background support your child to enhance his/her learning process?

Ans:

8. How far is the kindergarten school from the house?

Ans:

9. Why didn't you send your child in other schools?

Ans:

10. Have you ever taught him/her the basic mathematical concept?

Ans:

11. Does your child interest in mathematics rather than other subject? If why?

Ans: