

CHAPTER - I

INTRODUCTION

This chapter begins with its introductory part, highlighting the background of study, statement of the problem, objectives of the study, justification of the study delimitation of the study and definition of the related terms.

Background of the Study

Mathematics directly deals with human life. It is believed that the development of mathematics and development of human civilization go together. Mathematics was created to fulfill the human needs. Through mathematics was introduced later in the education system, it has been developed simultaneously with the development of society. Mathematics is not only through and practiced through the formal institution, the contemporary societies have been practicing it with own ideas and belief system.

Mathematics is dynamic in nature as discipline and an essential part of human life. It is etymologically derived from an ancient Greek word "mathēmatiká" mean "to learn". It has been developed through the human endeavors in different eras has come to this height of development and will still be in the mathematics has been accepted as an important components of formal education from ancient period to the present day. History show that ancient people developed mathematics practically being obliged to solve day to day problem. Later on advanced form of mathematics structure, rules, formulas, theories have been developed and used on solving social problem through empirical observation and experiences. Now a day every human discipline is interpreted in mathematical models. Therefore, there is a definite need of mathematics to everybody daily life and also for the base of future studies.

People have a practical need to count certain things: cattle, cornstalks, and soon. There is the need to deal with simple geometrical situations in providing shelter and dealing with land. Once some form of writing is added into the mire, mathematics cannot be far behind. It might even be said that the symbolic approach precedes and leads to the invention writings. Mathematical documents from ancient Egypt date back to 1900 B.C. The practical need to redraw field boundaries after the annual flooding of the Nile, and the fact that there was a small leisure classes with time to think, helped to create a problem oriented, practical mathematics. Early mathematics required a partial basis for its development and such a basic arose with the evaluation of more advanced form of society. It was along some great rivers of Africa and Asia that the new form of society made their appearance that Nile in Africa, the Tigris and Euphrates in western Asia, The Indus and the Ganges in south, central Asia and

Huango Ho and then the Yangtze in eastern Asia. Thus early mathematics can be said to have originated in certain areas of agricultural and engineering pursuits (Best & Khan, 1999).

Mathematics is the central part of school curriculum not only in Nepal but in the entire world. Every society has observed mathematics as basic need of human civilization. It is not easy to say when and from where mathematics had started but one can see that mathematics as an essential part of human civilization. It was created to fulfill the daily needs of human life. Thus the nature and structure of mathematics was built with the development of human civilization ancient civilization such as Babylonian, Egyptian contributed for the development mathematics (Guragain, 2001).

Mathematics has longest history from integrity. It has been developing with the different civilization. It has played an important role in building up by perfecting all the sciences. It is one of the important subjects in school education. It provides platform for the development of entire mathematics education as well as foundation for higher study of science and technology. In general mathematics learning helps people to understand and interpret the very important quantitative except of living and natural phenomena. In Nepal the present curriculum system has introduced mathematics as one of the core subject in school education. Historically, literature shows that mathematics originated from practical experiences. It was used in which building bricks, house, gutter, bridges, temples, pyramids, different handicrafts, and planed cities. This is found from the evidence of Babylonia and Egypt civilization at around 3000 BC to 200 A.D. to you and to me for its method content as well as characterized by order and internal consistency. It is queen of all sciences. Elementary mathematics including ancient in most ancience civilization including ancient Greek, the Roman empire, Vedic society and ancient Egypt. In most cases, a formal education was only available to male children with a sufficiently high states wealth or caste (Tuncay and Omkar, 2009).

Mathematics developed from society. The history of mathematics education reflects that the contemporary society has served today's situation in the field of mathematics. It was developed to fulfill the necessities of the society. Mathematics is developed in different societies in their own means and ways for their requirements (Best and Khan, 1999).

Basically it is very much older which begins in 11th century as well known as for the first mathematician of any note was a Greek named zeno. Zeno of Elea is memorable for arguments like racecourse (Stephen and Sue, 2001).

Mathematics and mathematics education is two separate disciplines in the field of education. Mathematics primarily focuses on the process and product of what mathematics does. The

focus of mathematics is on creating mathematics with understanding its basic structure. It does not give much concern on how mathematics should be taught, what mathematics should be taught, who can learn mathematics and why one can't learn mathematics like issues. Mathematics education deals with mathematics from perspective of education. It is concerned with the development and implementation of appropriate mathematics curriculum and with all issues associated with the teaching and learning of mathematics. In keeping with concept of lifelong learning, mathematics education covers learners of all ages and at all levels from early childhood to adult. Thus, mathematics education is not solely concerned with curricula, classrooms, teachers and learner in school, nevertheless, issues associated with school mathematics will major focus. The area of mathematics education is curriculum, teaching, learning and evaluation. Five foundations philosophies, psychology, sociology, mathematics and technology guide these three areas. Hence mathematics education is applied discipline that deals with the wider application of mathematics in different sector and fields. Mathematics carrying full marks 100 along with optional mathematics 100 marks in both private and public school in secondary level (Ghimire, 1997).

The word "mathematics" itself derives from the ancient Greek word *mathematica*, meaning "subject of instruction", that means "to learn". Therefore, mathematics is the process of learning and it is an expression of human mind, concerned chiefly with idea, process and reasoning. Mathematics is the collection of experience of many previous thinkers. Therefore, it has long history. Different thinkers and philosophers developed mathematics as a discipline for developing rules, formulae and system based on solving their social problems throughout the continuities of the civilization and social life. Mathematics is the necessity of the civilization. It has been originated with the raise of the human beings. Mathematics has been accepted as an important component of formal education from ancient period to till now. History shows us that ancient people developed mathematics practically being obliged to solve day to day problem. Later on advanced form of the mathematics structure, rules, formula, theories have been developed and used on solving social problems through empirical observation and experiences. Now a day, every human discipline is interpreted in mathematical model. Therefore, there is crucial role of mathematics to the everybody's daily life and also for the base of further studies. Early mathematics required a practical basis for its development and such a basis arose with the evolution of more advanced form of society. It was along some great rivers of Africa and Asia, that the new form of society made their appearance. Thus, early mathematics can be said to have originated in certain areas of agricultural and engineering pursuits (Yadav, 2001).

Nowadays, more of the students seeking admission in the previous fields of science and technology is increasing every year. Most of the educated parents in Nepal want their son and daughter study science and mathematics. They not only inspire but also compel their children to study these subjects. In effect most of time they get adverse result due to their children's interest, aptitude, attitude, ability and intelligence. They are even not capable to find whether their children have a favorable attitude for the study of the particular subject (mathematics) or not. As a result, there is a huge failure rate in mathematics subject.

Therefore, it becomes essential before giving admission to student in any specified branch of the subjects to investigate the attitude and capability of the students. The factors, which affect achievement level of students of any grades in mathematics, are changeable in time and space. So achievement itself requires further analysis after the certain interval of time. In order to suggest measures for enhancing achievement level of secondary level students in mathematics first the factors affecting it needs to be identified. Relevant to this context, the present research was under taken to make a thorough assessment of achievement level of secondary level students and also identify the factors that determine the level of achievement among those students. In fact, such types of studies are necessary in order to make education better and fruitful (Joshi, 1997).

According to Gofoor & Kurukhan (2015) in his research article entitled "Why high school students feel mathematics as difficult subject?". In this article, there are discussions about some factors which are related to mathematics difficulty. What are the possible reasons behind the decreasing interest of students in mathematics? And how can we encourage the students in learning mathematics by minimizing those factors? My research moved forward to find out these reasons/factors why many students feel mathematics is a difficult subject and how to increase the number of students studying mathematics by removing these factors.

Before the development of mathematics education there were no trained teachers, teacher used to teach through teacher's centered method without using teaching materials and there were no appropriate textbook but after the development of mathematics education there are trained teacher in school and they use student centered method by using appropriate teaching materials.

Syllabus is also designed according to need and demand of society. Due to development of mathematics education it affects positive attitude in the school. Mathematics education effect in private school better than public school because the achievement in mathematics is better than in public school. There may be different reasons behind it such as physical facilities, lack

of textbook, lack of teaching materials, large size of class which are school related factor as well as parent's participation, home environment, parents education etc.

Therefore, I am motivated to explore the factors affecting learning mathematics in school level.

Statement of the Problem

It has been depicted in various achievement researchers that student achievement in mathematics in Nepal is relatively low and unsatisfactory.

There is a deeper relation between achievement and learning variables. As mathematics is emphasized like language, most of students feel it as a difficult subject and some of students fail in optional mathematics in SLC examination. By this problem the great deal of time, money effort and manpower of the nation have been wasted. And it seems that it is affected by various factors like home and school environment, physical facilities, attitudes towards the subject, peer groups, teaching learning process, equipment etc. We cannot achieve the expected goal without improving appropriately the management of above mentioned factors to facilitate the students learning.

Regarding this many students feel to learn the optional mathematics is very difficult task.

That is why; the result of SLC in 2073 was not so good in public schools. The private schools have been somehow successful in effectively teaching learning activities and getting good result of their students in SLC examination with higher scores. Even though the result of SLC in 2073 was not so good on both private and public schools. It is due to the case of learning process. There may be some factors which affect the learning process of students. So I wanted to seek the factors affecting learning in optional mathematics. There was no investigation on factors affecting on learning in optional mathematics. I sought the answer of the following specific questions: What factors affect the learning optional mathematics? What types of strategies could be adopted by the school for low achiever to improve their score? How can the low performer students in optional mathematics be increase? Questions like these occurred in my mind so I am motivated to carry out this research entitled Causes of Students' Low Performance in Mathematics Learning at Secondary Level.

Objectives of the Study

Every research needs the objectives. Without the destination, nothing can be achieved. Therefore, the researcher was keen interested to meet the following objectives

1. To explore the causes that affecting low performing of optional mathematics of students.
2. To explore the strategies for improving performance of optional mathematics of the students

Research Question

My Research Questions are follows;

1. Why the students low performance in optional mathematics in secondary level?
2. How do the students improve the performance in optional mathematics?

Justification of the Study

As far as possible, researcher will be great endeavor to assemble his real experience, feeling and thought. As his belief and great effort on this study, researcher hopes that his finding will be fruitful for me as well as also productive for others. This study is helpful to the students who are teaching optional mathematics. Those teachers who are novice in teaching career they may take benefit from this study. This study will be helpful for the author of optional mathematic who will write text of optional mathematics. Also it will be beneficial how the optional mathematical content will be associated in the curriculum. It will be fruitful for the stakeholder and agencies to step further. In short, following are the significance of the study.

-) It contributes to finding out the difficulties faced by the students in learning mathematics at the secondary level.
-) It is helpful for mathematics teachers to select effective teaching strategies to motivate the students in learning mathematics.
-) It would contribute to find the way to decrease the failure rate of the Students
-) It would help to guide the instruction on the basis of the individual difference.
-) It would help the curriculum planners, textbook writer, and policymaker equally.
-) It would help the government to adopt globally for the education level.
-) It would be beneficial to the math teacher and parents.

Delimitation of the Study

The delimitation of the study is as follows:

-) This study was limited in secondary level of shree panchala secondary school junichande gaupalika-9, Jajarkot.
-) This study was limited only the secondary level students.
-) It was limited to optional mathematics.
-) The study was based on qualitative analysis.
-) This study is limited only the responses of head teacher, mathematics teacher, parents and students.

Definition of the Related Term

Amount of Homework. It helps elementary students develop proper studyskills which, in turn, influence grades. The national education association alongwith the national PTA suggests adding 10 minute of homework per night incrementally with each grade level, as a general rule of thumb.

Class size.Class size refers to the number of students in a given course or classroom specifically either the number of students being taught by individual teachers in a course or classroom or the average number of students beingtaught by teachers in a school district, or education system.

Home Environment.Home environment is the components whichdescribes about the reading room, parents and other education related behaviors. It is crucial component which is directly associated with learningof students.

Interest of Learner.Student interest in a topic holds so much power.Factoring for student interests works well with instructional planning based onreadiness and learning profiles.

Peer Group.A peer group is both a social and a primary group of people whohave similar interest, age, background or social status. The member of thisgroup are likely to influences the person belief and behaviors.

Peer's behaviors. It is related to the behavior among student aboutmathematical problem and way of solutions. It helps to exchange theirknowledge.

Public school. All the government school in Nepal

School's Policies for Learning Mathematics.School's policies play great role in the learning process. A critical study of all aspects such as administration, commodity, relations, students' performance, staff's relations etc

Teacher competency.Teacher competence refers to "the right way of conveying units of knowledge, application and skills to students." Competencies understood as excellent capability.

Textbook.A textbook is a manual of instruction in any branch of study. Textbook are produced according to the demands of educational institutions school books are textbooks and other books used in school.

Time schedule.The scheduled time of any crew is the time, calculated at the beginning of the event that they should arrive at any given control, which is fixed from the start of the event.

CHAPTER- II

REVIEW OF RELATED LITERATURES

This chapter begins with its empirical review, theoretical construction, theoretical understanding, and conceptual framework.

A literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of the research. The main purpose of review of related literature is to develop some expertise in one's area to see what new contributions can be made and to receive some ideas for developing a research design.

Review of literature is an essential part of studies. It is a way to discover what other research in the area of one's problem has uncovered. A critical review of the literature helps the researcher to develop through understanding and insight into previous researcher works that relates to the present study. It is also a way to avoid investigating problems that have already been definitely answered. The present chapter attempts to review the research studies and literature in the domain of cause of failure in mathematics in SLC examination with special references. Also, the purpose of this chapter is to analyze the research literature relevant to the purpose and question addressed in this study.

There are some studies related to factor affecting in learning mathematics. The review of related literature helps to make the concept clear for the study and also directed to analyze and interpret the data sufficient literature related to this study in Nepalese context could not be found. Despite the fact, few related literature had been reviewed as follows.

Research in any sector of skill wants a suitable studied with the works in which there many have many research been done in the same area. We get deep knowledge from research which must have already developed theories and researches which is approximately connected with the problem chosen by him or her. From review of literature we became identify of what has been established, known or studied and what has not been try to be found yet. It also provides knowledge find out the difference in research for further study. The purpose of review literature is to spread upon the text and background of the study. There are so many books, report and related studies have been reviewed in order to explain the present problem of the study.

Review of Empirical Literature

Every researcher needs to observe the fundamental background of the related subject and past studies. An empirical review in research methodology is when the write reviews the

information and theories currently available concerning the topic and the historical background of the topic. The point is to do two things. First, it is to demonstrate through understanding of the field in which s/he is conducting research. Second, it is to show that the problem being studied has not to be done before or has not been done before in the way proposed by the writer.

This study provides information of previous research and other related literature on relevancy of online classes in mathematics education. The aim of reviewing the previous researches and literature (like Article, Journals, seminar paper, conference paper) is to explore what has already done before and what is left to be done in the very realm.

I reviewed the literature of Acharya (2017) conducted the research article in the International Journal of Elementary Education entitled "factor affecting difficulties in learning mathematics by mathematics learner". The main purpose of this study was to explore the causes of difficulties in learning mathematics. This study was based on a case study research design under the qualitative research approach. Classroom observation of three schools in the Arghakhanchi district and interviews were taken to the research tools for achieving the research objective. The researcher was concluded that teachers lack linkage between new mathematical concept and previously learned mathematics structures, mathematics anxiety, the negative feeling of mathematics, economic condition and their educational backgrounds, school management system, lack of infrastructure of the school and lack of regular assessment system of school are main causes of difficulties in learning mathematics. I concluded that there are many sorts of factors that affect learning mathematics. Students themselves are not interested in learning mathematics, students not being to spend the time daily in learning mathematics, and family environment of the students are some factors of difficulty in learning mathematics by mathematics learner. Also, the teachers did not encourage the students towards the subject and did not solve the mathematical problems by connecting with our daily life. Due to various reasons like this, the students take mathematics as a difficult subject.

Pant (1978) did an experimental research work on "Effectiveness of the use of unit test results in enhancing pupil achievement in mathematics" with the objectives to find out the effectiveness of unit test as a teaching tool for enhancing achievement in mathematics at the seventh grade level of a secondary school in Kathmandu Town Panchayat. He selected eight students from one school by systematic sampling and taught eight units from textbook. Unit test were given at the end of each unit in experimental group. A comprehensive test has

given the multiple choices, completion items. He found that the achievement of two groups differed significantly.

Raliman (1981) did his thesis for Master's Degree on "Achievement in mathematics by sex: A study of sex differences in achievement in mathematics of seventh grade students in selected schools of Kathmandu Nagar Panchayat Area with the objectives to investigate whether sex influenced the achievement in mathematics. Achievement test (Knowledge, Skill, Comprehension and Application) in Arithmetic, Algebra, and Geometry was prepared and administered in five schools. The t-test was applied to conclude that the superiority of the boys over the girls with respect to achievement in mathematics as a school subject with regard to achievement in mathematics by area and also cognitive levels.

Ghimire (1997), studied on 'A study on factors affecting teaching/learning mathematics at secondary level' with the object to study the factors affecting in learning of schools in terms of the following: school environment, family background, motivational factors, physical facilities, interest of the learners, instructional materials. The tools for the study were administered to a sample of ninety students and test was applied to conclude the following results.

-) Environment of school in both rural and urban areas affects equally but the boys are more affected than those girls. Students of Argakhanchi and Chitwan were more affected than that of Kathmandu.
-) Home environment affects more to the subject of rural areas and girls were affected more than boys.
-) The students of Kathmandu were more motivated to study mathematics than that of Argakhanchi and Chitwan.
-) The students of urban areas were more interested in the study of mathematics and the girls paid more attention for this study.
-) The students of the rural areas were more affected by the use of instructional materials and girls paid more attention to the use of instructional materials.

Guragai (2001) did research on "A study of achievement in mathematics of primary level students of Morang and Dhankuta districts" with the objectives to compare the achievement in mathematics of primary level student's between Morang and Dhankuta districts resembling Terai and Hilly region of Koshi Zone. Researcher developed an achievement test from the prescribed curriculum of grade V. Four hundred students from twenty four schools

were selected. Z-test was applied to conclude that Morang district surpassed Dhankuta district students in every aspect male, female, rural and urban.

Pant (2001) did a research work on "A study of achievement in mathematics at primary level in Doti district" with the aim to study the achievement level in mathematics of grade V students as a whole, by gender and location. Mathematics Achievement Test was prepared by the investigator and administered on two hundred students, in six-government school. He concluded that the achievement level of fifth grade students in mathematics of Doti district was 44.16% and there was significant difference in the achievement among the rural schools' students and urban schools' students in mathematics.

Pokhrel (2001) had studied entitled, "Mathematics achievement in school leaving certificate examination between public and private school student at Kaski district." The main conclusion of this study was to mean achievement scores and correlation of private school student in compulsory and optional mathematics was greater than public school student in Kaski district in

S.L.C. examination he concluded that the mathematics achievement of private school is better than public school. Richard (1983) had made study titled "Factors related to student's school achievement." He concluded the important factors related to students school achievement in mathematics are classroom behavior (time spent in learning, student attention, method of teaching Teachers background (trained, experience ability) of private & public school student's characteristics (prerequisite knowledge student attitude daily attendance)

Neupane (2001) did his experimental research on "A Study on the Effectiveness of Play Method in Mathematics Teaching at Primary Level." His study intended to answer the question whether the performance of the pupil's of primary level taught by play-way method affects on the mathematics achievement as compared to traditional method. He collected the data through pre test and post-test in class one on addition and subtraction. Two equivalent groups were established on the basis of pre test results and randomization. Researcher taught in experimental and control group at the duration of one week and took post-test to both groups in some way. The data was analyzed and interpreted statically with t-test and discovered that experimental group achieved better performance than the control group. Hence his finding is that the achievement of students taught by play way method was significantly different than the achievement of the students taught by traditional method.

Poudel (2001) did a research work on "A study on the effectiveness of class work while teaching geometry at the secondary level" with aim to investigate if the class work turns

to be effective while teaching geometry. The research conducted experimental studies. The researcher taught geometry to both the groups (experimental and control). The experimental group was taught the units class works entwined with the regular classroom whereas the control group was kept detached as far as possible classroom work activities. An achievement test was given. The t-test was used to conclude that experimental group did better than control group.

Yadav (2001) did a survey type research carried out on topic "A study on the effectiveness of the primary school teachers of the district of Sirha" with the objectives to explore the extent of effectiveness parameters in determining the effectiveness of primary school teachers and to compare the effectiveness of rural and urban primary school teachers. Twenty-eight teachers (twenty-two trained six semi-trained teachers) were as a sample. A questionnaire was prepared to solicit the opinions of the teachers. A classroom observation form was also developed to record the classroom situation and activities. U-test and z-test were applied to conclude that teachers were found to be effective. The effectiveness of urban teachers was not found to be significantly different from those of rural teachers.

Shrestha (2002) did research work depending upon the secondary data of the result of SLC examination on "A study of mathematics achievement of private and regular students in SLC examination." With the aims to identify the trend in mathematics achievement of the students attempting the SLC examination privately and regularly and to compare the overall mathematics achievement of private and regular students. Data were collected from Lalitpur district of the five years 2054 BS to 2058 BS. The t-test was applied to conclude that the trends in achievement of private and regular students in Lalitpur district in terms of mean scores were decreasing in both the cases in similar manner. The study concluded that mathematics achievement of the private and regular students did not differ in the examinations. Shrestha (2002), did research work depending upon the secondary data of the result of SLC examination on 'A study of mathematics achievement of private and regular student in SLC examination. With the aims, to identify the trend in mathematics achievement of the schools attempting the SLC examination privately and regularly and to compare the overall mathematics achievement of private and regular students. Data were collected from Lalitpur district of the five years 2054 BS to 2058 BS. The t-test was applied to conclude that the trend in achievement of private and regular students in Lalitpur district in terms of mean. Scores were decreasing in both the cases in similar manner. The further concluded that mathematics achievement of the private and regularly students did not too different in the examination.

Tharu (2004) studies on 'Impact of socio-economic status on mathematics achievement' with the objective to find the level of mathematics achievement of students with respect to their socio-economic status and to determine the correlation between socio-economic status and mathematics achievement and to determine the correlation between socio-economic status and mathematics achievement by gender. The tools for the study were administered to the sample of 140 students of Bardiya district and mean, standard deviation, correlation co-efficient and multiple regression were used applied to conclude the following results :-

-) The mean scores of educated father's children is higher than the mean score of illiterate, illiterate father's children and the mean score of literate fathers' children is higher than those illiterate father's children.
-) The mean score of job father's children is higher than the mean score of trade and agricultural occupation father's children.
-) Mathematics achievement of students was found to be strongly associated with the father's education and father's occupation whereas family income variable had the low relationship that positively affected children's mathematics achievement.
-) The variable family size and birth order of child were negatively correlated with mathematics achievement that adversely affected children's mathematics achievement.
-) The variable family size and birth order child had a mid negative effect on mathematics achievement.
-) Mathematics achievement status of boys and girls were found consistently positive associated with their variable father's education, father's occupation and family income that positively affected on boys and girls mathematics achievement and family size and birth order of child had negatively correlated that adversely affected boys and girls achievement in mathematics.

Sapkota (2005), studied on 'A Comparative Study of the Mathematics Achievement on SLC Result of Kathmandu and Kavre District of Nepal.' The major findings of the study in several variables are presented as follows: There is signs scant difference between the achievement in mathematics students of Kathmandu and Kavre district. There is significant difference between the achievement of boys and girls in mathematics of Kathmandu district. There is significant difference between the achievement of the students from rural and urban area of Kathmandu district.

Subedi (2005), studied on "Factors Affecting Failure in Mathematics in SLC examination". The major findings of the study are given below: The variable school environment has strongly positive effect on the failure's mathematics achievement. The variables effective classroom teaching and time variable have a mid positive effect on the mathematics achievement. The physical interest of the learner has low positive effect on mathematics achievement.

Neupane (2006) conducted a research on "Effect of socio-economic status on mathematics achievement". For this study researcher developed the achievement test paper, parent's questionnaire form and 84 sample students of grade III from V government school's of Lamjung district. From this research he concluded that the score obtained by students in mathematics was found significantly correlated with parent's education, occupation, family size and structure of family size and structure of family were found negatively correlated with mathematics achievement.

Bhattarai (2007) identify the factors that "Affect the use of instructional materials in teaching mathematics at primary level". And to study the existing condition of availability and use of instructional materials. It is also intended to answer the questions.

-) How many instructional materials are there in the primary schools?
-) Are the available materials come into practice?

This study through the purposive sampling twenty public schools and twenty primary mathematics teachers were chosen from the Tanahu district. The sample of the teachers was selected on the basis of one from each school. The data of sampled schools and teachers were obtained through the questionnaire and check for the purpose of analysis and data mean correlation co-efficient and regression analysis was used. After the analysis and interpretation of the obtained data the researcher found the following results:-

-) The variables teacher training space available pre-students, availability of instructional materials and students teacher ration have strongly positive effect on the use of instructional materials.
-) The variables teacher's attitude toward the use of instructional materials and teaching experience had negative effect on the use of instructional materials.

Nath (2007), did a study on a topic "A Study of Causes of Failure in Optional Mathematics in SLC Examination". The main findings of this study are as follows, which are the causes of being failure. Text books are more theoretical. Lack of teaching materials in teaching activities. Teaching without familiar with students' previous knowledge.

Giri (2008) "A critical analysis of SLC Compulsory Mathematics scores 2063." Intending well educational out comes the state has finance large amount of money as well as guardian also have invented their children education, but result of SLC is still poor. Mathematics is being the major causes to make students failure. There is a saying that the course content, the way of managing circumstances, evaluation system all are within the favor advantages group, which always ignore the marginalize and deprived group. Almost all research finding have shown that there is not a unique determination, with affects students' achievement. Factors or variable such as students' gender, as parents' education, occupation, location of school, students' religion, eco-status, teaching skill, environment, class size, medium of instruction are supposed to be the most influencing factors in mathematics achievement. This study was carried out with the view of finding among all variable state about which variable is most influencing.

Yadav (2008) did a survey type research work on "Causes of low achievement mathematics" with the objectives are to analyze the mathematics achievement of Musahar students, to find the mathematics learning environment of Musahar students at school and home, to find the causes of low achievement of Musahar students at primary level.

Parajuli (2011) has studied entitled "Causes of failure in mathematics in S.L.C. examination in community school (A case study of Dhankuta district). In his study he found school related factors are peer group, class structure, school presentation, amount of homework and out of school related factors are parent's participation, curiosity of learner, time schedule, father's education affects the student's mathematics achievement by using one way Anova at the significance level $\alpha = 0.5$ with the objective what are the causes of failure in mathematics in S.L.C. exam, to what extent school related factors such as peer group, class structure, amount the homework affects the student's achievement. The tools for the study were administered to the sample of 100 students. The population of his study students failure in mathematics in SLC examination of 2066 B.S. one way ANOVA was applied to conclude the following result:

-) There was favorable opinion in parents in academic learning
-) There was significantly different in children in mathematics achievement on basis of parent's involvement.
-) There was significantly difference in children mathematics achievement of non involved parents.

CERID did a national work shop (12 - 16 January, 1987) and found the following factor play great role on achievement in raising the performance level in primary education such as teaching strategies parental support and school management. The student who completed secondary school can achieve differently in private and public S.L.C. examination but what is influencing factor in private and public S.L.C. examination? What is the significance of influencing factor in mathematics examination? These are interesting questions so researcher will want to be comparing the mathematics achievement of private and public school's student achievement.

Baral (2011) has studied entitled "Causes of failure mathematics in SLC examination (A case study of school in Bharatpur)." In his study he found school related factors are associated with school environment, physical facilities, teacher's behavior, peer's behavior, manageable library, classroom environment, regularity of teacher and student, instructional teaching material etc. and out of school related factors are associated with family background, interest of learner towards mathematics, amount of time student spent on school activities such as leisure reading, homework, discussion with peer, economic condition, motivation etc. affect mathematics achievement through qualitative as well as descriptive research. With the objective to explore the main cause of failure in mathematics in SLC examination and to suggest the main causes of bring improvement in result by finding the improvement programmed that can be carried out in school level. The population of his study student's failure in mathematics in SLC examination of 2066 B.S. in public school of Saptari district. The tools for the study were administered to the sample of eighty students of eight school in which forty boys and forty girls from the population of the student failure in mathematics in SLC exam which concluded the following result:

-) The student were found to be indifferent in study because the same teacher who taught more than two subjects (i.e. comp. mathematics, science, opt. math's)
-) The mathematics teacher was unable to address for varied cognitive level's students in class room while teaching.
-) The school was trying to reduce problem of mathematics failure by managing extra classes in the evening

Tuncay Saritas and Akdemir (2009) study indicated the studies are affected by various factor. In their study they found school related factors are curriculum, instructional strategies and methods, teacher competency in math education, motivation or concentration method, participation instrument procedure analysis, self directed learning, arithmetic ability and out

of school-related factors are associated with gender, socio-economic status, parents' educational level. They concluded purpose of the study as follows:

- J How much do mathematics department students think demographic factors, including gender, parents' educational level and socioeconomic status, influence their achievement in mathematics?
- J How much do mathematics department students think instructional factors including curriculum, instructional strategies and methods, teacher competency in math education, and school context and facilities influence mathematics achievement?
- J How much do mathematics department students think individual factors including self-directed learning, arithmetic ability, and motivation or concentration influence mathematics achievement?
- J What are the three most influential factors on the mathematics achievement of students?

The finding of their study reported that instructional design of a mathematics course is important and should be compatible to the factors identified for mathematics achievement. Educators need to adapt and create alternative innovative learning and teaching strategies for effective mathematics education. The findings also suggest that different instructional design strategies should be studied and applied in different contexts.

Above literature mainly focused on the causes of failure and low rate of achievement. In the past decades it was practiced researching about the causes of failure of students in mathematics. To improve the learning not only finding causes of failure and low achievement but here needs to find affecting factors of learning mathematics. So I was interested to find the affecting factors of learning. Still the researcher is unable to address the factors affecting mathematics at secondary level. The previous researcher had addressed only comparison of public schools and private school's marks result. By comparing that the researchers have shown better result of private school in the comparison of public schools. It was found that there is gap between causes of failure and low learning. Thus, to fulfill this gap, this research had been conducted.

Research gap. In the above empirical literature review, some research shows that "students' difficulty in learning set", "students' difficulty in learning algebra", "students' difficulty in learning trigonometry", "Causes of failure mathematics in SLC examination", "A Study of Causes of Failure in Optional Mathematics in SLC Examination" and so on. As shown in other researches, students take only mathematics content as a difficulty? Or,

whether students take the whole mathematics subject as a difficulty? Thus, the research gap between other research and my research was mathematical contents (set or trigonometry or probability, etc.) are not the only one factors for mathematics difficulties, there are various other factors which have been affecting the students' learning mathematics. Those other factors have been discovered and explored from this research.

Theoretical Review

The researcher chooses some suitable theories related to his research to explain his research work and draws concrete conclusions by interpreting the data collected based on those theories this is called the theoretical framework (Niure, 2018). There are various learning theories related to children's learning and development, some of them are classical conditioning, operant conditioning, trial and error, social learning, constructivism, cognitive learning, socio-cultural, multiple intelligence, and so on. These various theories are also related to learning mathematics. I had chosen constructivism learning theory as the theory that directs my research. Thus, I have drawn concrete conclusions by interpreting and analyzing the collected data related to this theory.

Constructivism theories in learning mathematics. The constructivism theory has been in Vygotsky's since the 1960s. Various philosophers including Kant and Dewey appear to be in favor of constructivism, while the contributions of psychologists Piaget and Vygotsky are considered specific. The main aspect of this theory is that the learners build new knowledge using the pre-existing knowledge and mathematics knowledge can be a creation by social interaction (Pandit & Bhattarai, 2011). Generally, in constructivist theory, students need to construct the knowledge from their understanding and practice. The new knowledge that learners build by interacting information with their previous experience is called constructivist learning theory (Acharya, 2017). According to this theory, students are free to solve their problems in their way. Students can build real knowledge by interacting with other people or the environment. Knowledge is not a fixed object; it is constructed by own experience. Therefore, learning based on social interaction, emphasis on double interaction, learner-centered method, collaborative teaching-learning, scaffolding, contextualize learning, Zone of Proximal Development (ZPD), and so on are specific aspects of constructivist learning theory (Sharma & Sharma, 2010, p.298). I concluded that social interaction, discussion, debate, and collaborative learning among students are essential for learning mathematics. Also, the mathematics teachers should be taught the mathematical contents according to the individual ability of the student, using the

learner-centered method, interacting with each other, and motivating the students to solve their problems.

The nine productive factors the students related variables

-) Ability or prior achievement
-) Age
-) Motivation of self-concept; the instructional variables
-) Quantity of instructions
-) Quality of instructional experiences; and educationally stimulated psychological aspects
-) Home environment
-) Classroom or school environment
-) The peer group environment
-) The mass media (especially television)

These factors were classified into three general groups by Wilkins et al (2002) :

-) Personal variables, such as prior achievement, age and motivation of self-concept
-) Instructional variables, such as amount or instruction, and
-) Environmental variables related to the home, teacher, classroom, peers and media exposure

Vygotsky's constructivist learning theory. According to this theory, mathematics knowledge can be a creation by social interaction (Acharya, 2017). A fundamental aspect of Vygotsky's theory is the Zone of Proximal Development (ZPD). Another part of this theory is scaffolding, which is giving the learner the right amount of assistance at the right time.

This theory shows that students learn from each other and co-construct knowledge.

According to Vygotsky, social constructivism is focused much on cooperative group learning and it emphasizes our cultural context. According to this theory, mathematical knowledge can be built from our context and our society. Social interactions are more effective in building knowledge than in thought processes and cognitive structures (Bhattarai, 2017).

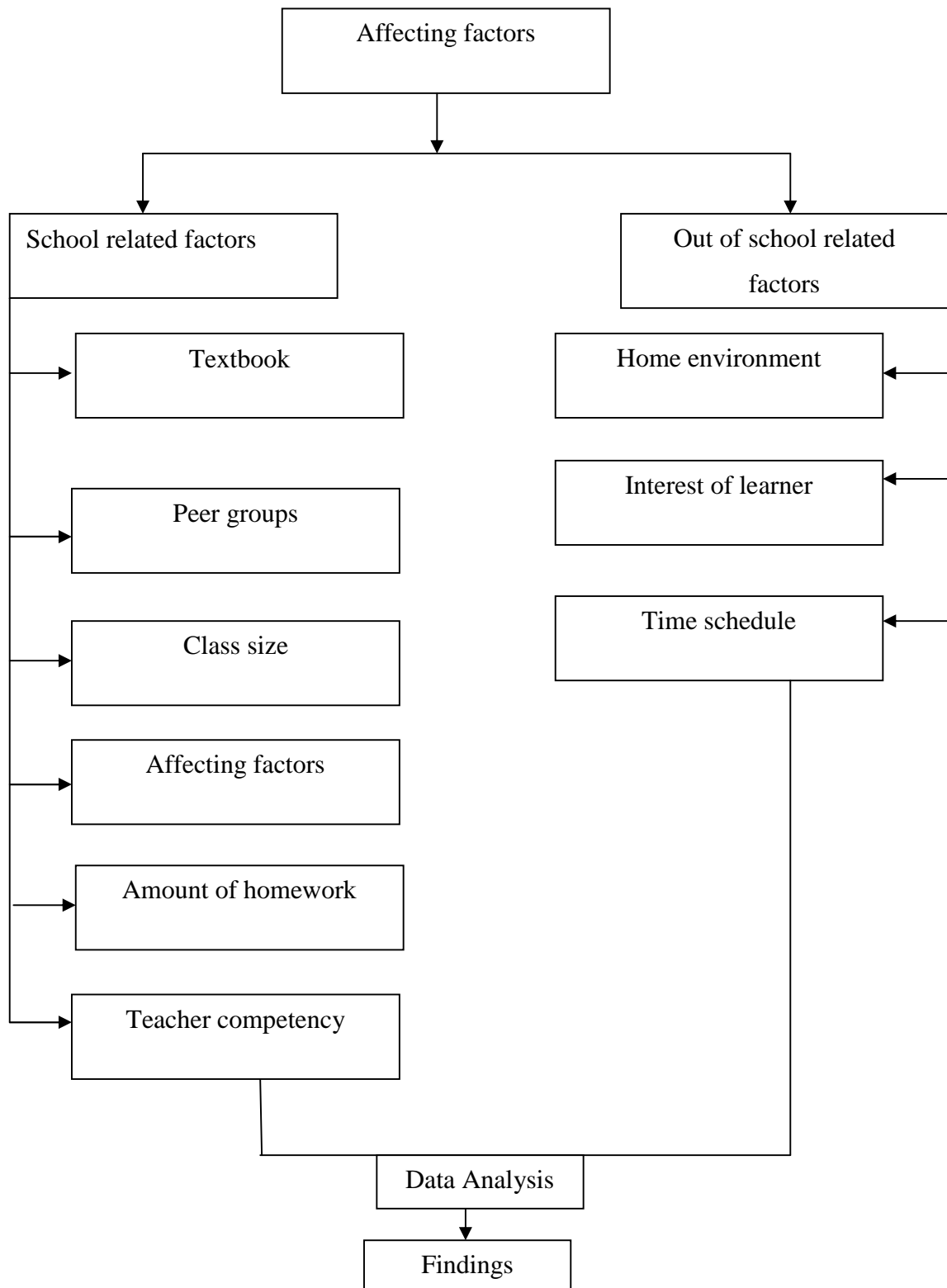
So, in Vygotsky's constructivist learning theory I concluded that this theory can be applied in our mathematics classroom in several ways. Mathematics can be taught by dividing the students into small groups with having discussions and interactions with each other. For example, if a student cannot solve the problem of mensuration then give an opportunity for another student to explain this concept who knows about it. And also, effective mathematics teaching/learning depends on the learner's pre-existing knowledge, co-

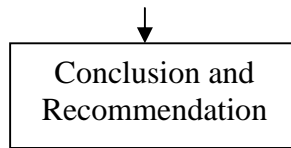
operative with each other, learner's previous experience, students' abilities, and interaction between student-student and student- teacher.

Finally, in this theoretical framework lesson, I concluded that how does a child construct her mathematics knowledge using constructivist theories? In this question, mathematical knowledge is not imitation, for that you must be active and you should build the knowledge for yourself. When we solve the mathematical problems, first of all, we need to understand that problem then modified and finally grasped this problem. In addition, learners can build mathematical knowledge by participating in a variety of social activities, interacting with others, and debating with others. In point, mathematical knowledge can be a creation by social interaction, co-operative, and discussion with each other students. Thus, the learners can build mathematical knowledge from their cultural context and own understanding. And also, in this study the implication of this constructivism learning theories, the collected data has been explained related to how the mathematical contents can be taught effectively by connecting to our culture, our social activities, and our daily life problems.

Conceptual Framework

The study is on “Causes of Students’ Low Performance in Mathematics Learning at Secondary Level ”will bebased on following conceptual framework.





CHAPTER - III

METHODS AND PROCEDURES

This chapter begins with its design of the study, population of the study, sample and sampling strategy, study area/field, data collection tools and techniques, data collection procedure and data analysis procedure. Qualitative research takes an interpretative, naturalist approach to its subject matter, qualitative researchers study things in their natural setting, attempting to make, phenomena, in terms of meaning that people bring to them, so, I chose this methodology. The chapter explained the plan and method of study which helped to achieve the objectives of the study.

Design of the Study

The qualitative research design/method helps to discover the individual views for data collection such as group discussions, individual interviews, and participation of others (Carol, 2016). It is difficult for measuring and calculates the numerical value of students' difficulties in learning mathematics from the quantitative method; therefore, I will use the qualitative research method. Qualitative research can be regarded as 'naturalistic inquiry' in the sense that it is conducted in the natural setting by trying to avoid any intentional manipulation and distortion of the environment of the informants by the researcher (Creswell, 2007).

Case study approach. According to Jack & Hersh (2008) case study research approach is a research methodology that helps in exploration of a phenomenon within some particular context through various data sources, and it undertakes the exploration through variety of lenses in order to reveal multiple facets of the phenomenon. In case study, a real-time phenomenon is explored within its naturally occurring context, with the consideration that context will create a difference (Peter & Kaarbo, 1999). The major concern of my study was to find out the perception of students about which factors are affected in their learning mathematics. So, for achieving this major concern the case study approach was adopted under the qualitative research method because according to Creswell (2007) in the case study approach, the data is collected through direct observation in a natural setting and the actual incident on the spot. Here, the case is the process of selecting a limited number of students & doing research on those students and then collecting data from them. And also, the objectives

of this study were to explore the causes of difficulties faced by the students in learning mathematics and to explore the ways to improve the interest of students in learning mathematics. I thought that only the case study approach could fulfill these objectives, so I applied this approach in this study.

Selection of Respondents and Selection Strategy

First of all the list of secondary school prepare from the list maintained by the district education office. There are Seventy-one secondary schools in Jajarkot district, according to district education office in Jajarkot. But I was chosen one school from public selected by purposive sampling. Thus, the four students were select as samples for the case study. And also, two guardians, one head-teacher and one mathematics teacher from the sample schools were selected as respondents for data collection. Base on the school's annual result with high, medium, and low score abilities students will be selecting according to their knowledge level. Thus, I used the purposive sampling technique for the selection of participants.

Study Area/Field

The research area selection is also a very important task for the study in order to obtain easy access, establishing immediate rapport with informants and gathering data directly related to the research objectives. Every study needs study area; researcher was chosen one public secondary schools of Jajarkot district the name of school is panchala secondary school, junichande gaupalika-9, kalli.

Data Collection Tools and Techniques

The study intends to find the affecting factors behind the optional mathematics learning in governmental school in S.L.C. graded students. To fulfill the purpose of the study different tools will be select for data collection. Thus, the in-depth interview, observation notes, and document analysis will be use as tools for the data collection.

In-depth interview. According to Kerlinger (1986; as cited in Shrestha, 2016) describes interview as face to face interpersonal role situation in which one person, the interviewer, asks a person being interview, the respondent and questions designed to obtain answers pertinent to the purpose of the research problem. In-depth interview also known as unstructured interview could be regarded as informal interview. It was use to discover the in-depth understanding of people in the context under the study (Bailey, 1982; as cited in Adhikari, 2006). I was developed the different interview schedule forms for students, parents, and mathematics teachers. The in-depth interview was conduct with the mathematics teacher, students, and their parents using open-ended or semi-structured questions. After observe the mathematics classroom, I was taken an interview with the mathematics teacher and students

then I asked some questions to the mathematics teacher and students related to difficulties in mathematics. The in-depth interview was helping me for face-to-face communication with the students and also to get information about the personal gestures, habits, attitudes of the students towards mathematics. It also helped me to understand the personal thoughts, ideas, and experiences of the students. I was used this tool as required to the key students and their mathematics teacher.

Observation note. Observation is a kind of tools that helps to seek knowledge through the use with sense i.e. eyes, nose, tongue, and skin. It has great importance not only in research work but also in our daily lives (Adhikari, 2006). Observing in a setting is a special skill that requires addressing issues such as the potential deception of the people being interviewed, impression management, and the potential marginality of the researcher in a strange setting (Hammersley and Atkinson, 1995; as cited in Creswell, 2007).

Observation note was used to identify the student's activities, teacher's activities, the interaction between students-students and students-teachers, classroom management and physical environment of the classroom while teaching/learning mathematics. The already established semi-structured observation forms were used to fulfill the intended objective of the study. The different outlook of the student's behavior in the classroom and the activity of mathematics classes were carefully observed in the school. I observed three times mathematics teaching/learning classrooms of each sample school. And also, I observed the family background of the students like their daily life, their home environment, their parent's professional and economical condition. Observation helped me in collecting detail information about respondents, their everyday practices and capture actual experiences of the participants.

Document review. The review of documents is an approach, which researchers use to gain a detailed understanding of the setting analyzing the content of a given document (Bajaracharya, 2009 cited in Shrestha, 2016). In this study, I reviewed some documents which are closely related to students such as students' previous result sheet, students' marks sheet, files of schools, etc. And also, I was review various journals and articles which helped me identify the guideline for observation and components for an interview as well as arriving at the research objectives.

Data Collection Procedure

The schools record as studied such as mark ledger of students, teachers, profile, physical facilities and other relevant documents. The researcher record the behavior and activities both teachers and students during teaching learning activities. Firstly for the purpose

of the study, I was visit my sample school. For the research interview will be conduct to parents, head teachers, teachers and students to collect require facts. I organized the interview schedule in which parents, teachers, students and guardians for the teacher's knowledge in subject matter. Parent's role discussed with parent and subject teacher.

Primary sources and secondary sources will be use for the data collection process. The primary information collected from mathematics teacher, mathematics students, their parents, and as well as from educated people of the society. And secondary information was collected from books, articles, reports, newspapers, and so on. After collecting the data, the collected data were interpreted and analyzed then the finding and conclusion have been drawn. Related documents also reviewed and analyzed on the basis of need.

Data Analysis Procedure

The data was collected from the different ways. The different data was collected from interviewing the students, record of school, as well as from the various people who will interested about this case. While analyzing the data head teachers, students, parents will be involved. We collect important data and remarks of those people. The researcher collects data through interview of head teacher, teachers, students and parents. School records of students helps researcher to collect data. The collected data in qualitative research is not of structured form and it is time the research has to do a lot in making workable structure of the collected information so as to make the meaning or theory. First of all, I was organized and edit the collected information from interviews and classroom observation then I was generate the difference code according to the responses of participants. I adjusted those codes according to their similarities and also, I was given the title for them which are known as a theme. At last, I was analyze and interpreted those themes by using the constructivism theory and conceptual framework which I have developed in the literature review.

Quality Standards

After completing the construction of the research tools, it is necessary to maintain quality standards. For quality standards, I was use cross-match, triangulation, member checking, prolong stayed in the field. For quality standard, I followed the following ways;

Credibility. Credibility is the key criteria of the quality standard in qualitative research. To maintain credibility of my research I have spent more time for interview, one week for classroom observation. I also gave special focus on document analysis. And also, to maintain the credibility of my research I tried to spend as much time as the observation needed and engaged with different people with their work.

Transferability. Transferability is in preference to external validity in the positivist approach. Guba and Lincoln (1985) "Transferability showing that the finding have applicability in other contexts." To maintain transferability, I took photos of classroom teaching and voice recorded while taking interview from participants. And also, to maintain transferability, I had tried to capture most of the scenario by using the thick description of observation, interview, and my meaning-making.

Dependability. Dependability is in preference to reliability. It shows that findings are consistent and could be repeated. This is the third standard for judging qualitative standards and refers to the stability or consistency of the inquiry processes used over time. For this I took rational idea to select the people. Also, I tried to ensure credibility and transferability to maintain dependability. To maintain it I had presented the logic used for selecting people and events to observe, interview and include in the study.

Conformability. Another quality standard for qualitative research is conformability, which refers to the quality of the results produced by an inquiry in terms of how well they are supported by informants who are involved in the study and by events that are independent of the inquiry (Khanal, 2019). So, to maintain conformability before concluding information I reviewed that information myself several times and sometimes I confirm that information to my other students/friends before concluding information as well.

Ethical Considerations

If any kind of research involves the person, special attention should be paid to the person's rights, dignity, freedom, and privacy (Khanal, 2019). The ethical considerations of my study where I was observed the classroom only to take the permission with the subject teacher of related school, interviews conducted only after giving all the prior information to the participants about the study and getting their approval, data has not been collect for my personal gain and my personal benefit, respecting the diversity in school the data was collect in a biased manner, comfortable language was use in the data collection process for easily understandable to the participants, and at last name & address of participants have been published in the statistics only with their approval.

CHAPTER - IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with analysis and interpretation of the collected information. The researcher visited the school, parents and students. Researcher takes the responses of the respondent during the face to face interview were carefully noted. The researcher had observed mathematics class with math teacher during teaching learning activities. Then, the classroom observation note was prepared on the basis of the class observation. Every activities and behaviors of the students were carefully observed and noted. The responses of the respondents during faced to face interview were carefully noted. They were able to express freely whatever they have in their mind to analyze the data. First he collected information were categorized according to different themes given in the vent of interview. There was no limitation to responses for respondents. They were able to expresses freely whatever they have in their mind. To analyze the data, first collected information categorized according to different themes given in the text of interview. The observation note and themes were considered as code and the similar code version of the respondents were collected and explained in their perspectives.

There are 71 secondary schools in jagarkot district according to district Education office in jagarkot. panchala secondary school, junichande gaupalika-9, kalli School was selected for the study of the factors affecting learning in mathematics Education. This school lies in the middle of the jagarkot district. The surrounding places of the school's area also have such types of diversities. The Brahmin, Chhetri, Tamang, Magar, Chaudhary, Dalit etc. are the local residents of this area. Mostly, the parents of the students are engaged in agriculture as well as labour. Economically, some people of this area are weak; some even have difficulty to join land and mouth. Initially, at the time of beginning, panchala secondary school had an L-shaped building but now the school has an story building and another trust building. There are 21 teachers and 600 students in school in which 350 boys and 250 girls. The district can develop as a religious and tourist hub if its infrastructure is created and government seeks development.

School Related Factors

Textbook

A textbook is a manual of instruction in any branch of study. Textbooks are produced according to curriculum. Most of the textbooks are only published in printed format many books now are available as online electronic books. The textbook has been crucial role for learning any subject. But the researcher had pointed over the especially the optional mathematics textbook. C.D.C. has made the syllabus and textbook. Private publications have published different reference books. Textbook is important because it is the reservoir of knowledge. It sharpens the minds of students. It helps to supply the reflection of society, nation and international and university. The researcher asked the question about the textbook, to the head teacher, math teacher, students and parents. The received version in their own word as below:

"The government has made the syllabus satisfactory. But the linkage of the one chapter to another chapter is different. So it should be more satisfactory if it is reorganized systematically."

[Head teacher]

"Syllabus is outdated. It should be reformulated. New topics, essential chapters should be added and not essential chapter should be removed."

[Math teacher]

"We don't know about the syllabus. We are uneducated so we don't know the quality of textbook. So we are unaware about the syllabus. "

[Parents]

"But somewhere answers are wrong so the wrong answers make confusion so it should be reedited or revised date to date."

[Students]

I found that the different voices such as satisfactory, reformulated, and uneducated. But according to students view, it is found that they were neglecting textbook. After observing we found that the book followed by school unique publication Pvt. Ltd. as reference book. In this book exercise is lengthy, unnecessary, answer's mistake. Textbook was not concise. The binding of book was not good. Papers were not quality. But the main book which was followed by school, published by CDC, Bhaktapur. It is concise in size. It has few questions in exercise group to solve for students. There was not suitable textbook, effective practice book so that student could develop their potentiality them self, unit test and class test were done according to teachers interest.

Peer Group

A peer group is both a social and a primary group of people who have similar interest, age, background or social status. The member of this group are likely to influence the person belief and behaviors. Peer group is both a social group and a primary group of students who have similar age, background, interest and behaviors. In other words peer is groups of students in similar types in their age, class, feelings, behavior etc. Does peer group affect the learning is the desirable questions. For this I made questions and asked the same group and noted their respected voices.

"Talented students have their own group. They will be busy on their group. But other students are from poor economical background so we cannot make discipline tight. So they are not serious in their study."

[Head teacher]

"Yes definitely, I have made group of talented students. I give them task to solve. Talented students solve easily but poor students are careless."

[Math teacher]

"Peer group helps the students to learn properly, learn effectively, and learn enthusiastically. It helps to students to minimize their problem."

[Parents]

"We have all students' friendship. We have group of talented students. They cooperate us in our study. They are helpful but few students are jealous."

[Students]

I found that the different voices such they are from poor economical background. It helps to learn properly and effectively. They have their group. After observing we found that students were not busy in solving problems. They were copying from the talented students. They were not looking serious on solving. Girls were sitting according to their group. They had 5 or 6 number of groups with classroom. They help their belonging group and neglect the other group. There was not group coordination between and among students. Some students felt themselves superior some other was poor. One or two students were very good with helping behavior. Students were not regular in classroom.

Teacher competency

Teacher competence refers to "the right way of conveying units of knowledge, application and skills to students." Competence is understood as excellent capability. It includes knowledge, skills, attitudes and experiences, which has to be target category of profession of educator. Competency is the talent, ability to do something. Here teacher

competency is to compete with knowledge, course and supply the mathematical knowledge among the students. It is the strongest component according to Walberg (1981).

Researcher felt about teacher competency to know from the side of headteacher, math teacher, parents and students view. For this he asked the some question and noted as answers in their respected voices.

"Here in our school mathematics teacher are qualified, talented. So they can teach the students very effectively but they did not give proper support to the students and give proper time."

[Head teacher]

"We accept the competency and talency of the teacher. In our school allmost teacher are BED and MED, MSC, MA passed. Also we are given training by the government."

[Mathematics teacher]

"Nepali teacher is most talented. Math teacher is also talented. Teacher are engaged in politics therefore they are not careful about their students."

[Parents]

"Teacher competency is primary, essential, so that they can pass their knowledge to us very effectively other noise it will be worthless."

[Students]

I found that from the different voices as qualified, talented, effectively, competency is very necessary and important part of learning. It is primary, essential part of learning.

After observing we found that teacher started directly the exercise and started solving he was not democratic teacher. He was roughly presented in the classroom. But sometimes he made crake jokes. He was old traditional teacher in his teaching methods. He was traditional in his methods. He was not using ICT in his classroom. They are not cooperating to each other in their behavior. They are bounded with politics. Teachers were capable in academically but they were not using ICT. They were teaching traditionally. Some young teacher was using less ICT.

Teachers were not following the teaching methods.

Class size

Class size refers to the number of students in a given course or classroom specifically either the number of students being taught by individual teachers in a course or classroom or the average number of students being taught by teachers in a school district, or education system. The term may also extend to the number of students participating in learning experiences that may not take place in traditional classroom. Class size indicates the number of enrolled students in a classroom. It is the important components. In foreign developed

countries has adopted the small class size. But in Nepalese context it is hard to apply. Researcher willing reaches to optimum level to gather the real information from head teacher, math teacher, parents and students level. For this he raised questions to them and noted as below:

"We have many students in the classroom. Rooms are full, tight. So we can't give proper time to each student."

[Head teacher]

"It is very difficult to handle the students. We can't give especial focus to the poor students. Talented student ask in the classroom. Poor students sit in the middle and last bench."

[Math teacher]

"We don't know how they sit in the classroom. Teacher should focus all the students equally. They should focus the poor students more than talented students."

[Parents]

"Sir cannot teach soundly. Most of the students busy in out topic discussion. Also they focus to the talented students. They will not care poor student."

[Students]

I found that from above statement as very difficult in Nepalese context, difficult to handle the large size, teacher give most time to talented students etc. From this researcher concluded that it is also very important aspect which affects learning. From the literature review and theoretical understanding, I found that it is the important component. They advised for limited class size. But in the context of Nepal it is not found. Therefore, I suggested the class size should be limited for effective learning. After observing we found that class size was too big students were tightly sitting. There were almost 60 students in the classroom. Classroom was noisy. Most of students were busy in making gossip; front line students were only serious in their study. Class had two column and each 8 rows consist 8 benches. Class looked like hall. There was big size classroom but students were sitting tightly. No of boys were more than girls. Benches and desk were not suitable for different level of students. Teacher was focusing only talented student's proper benches and desk were there.

Amount of Homework

It helps elementary students develop proper study skills which, in turn, influence grades. The national education association along with the national PTA suggests adding 10 minute of homework per night incrementally with each grade level, as a general rule of thumb. Thus a first grader get a total of 10 minutes, a second grader 20 minutes, a third grader 30 minutes, and so on, not to exceed two hour per night total in high school. More than 30

minutes of homework per class may be an exercise in futility because the student can feel overwhelmed by the quantity of work, get distracted or bored and end up giving it a halfhearted effort just to get it done. Homework is the such task which makes the students busy at home about their classroom task. They search the materials, read the book, write the answer, solve the problem, etc. Researcher made question related to this.

He noted them as their respected voice. "We give them too much homework. We have made the strict rule. Talent students solve easily but poor student don't solve because most of time they will be busy in their cornfield."

[Head teacher]

"Homework makes them busy in their classroom. They will solve which will shape their learning. So we focus to give homework."

[Math teachers]

"All the time they say we don't have homework. Therefore they go to play football with their field. Some of them go to cornfield to help their parents."

[Parents]

"Homework is not necessary to give. Teacher will not check our solving even in classroom. So they are all time wasn't to be free, out of checking their class work, homework copies."

[Students]

I found that from the respected voices as they are given amount of homework which is necessary. They made them busy in classroom. But student's voices are different. It is not necessary. After observing we found that the teacher gave few numbers of questions to solve. It was not sufficient to practice the taught lesson. Also a classroom activity was not provided to students. Also teachers were not caring their homework. Few students had done the homework. Teacher checked two and three copies of homework and started to solve exercise. Teacher provided too much homework to the students. But teacher did not check regularly. So students were careless about their homework.

School's Policies for Learning Mathematics

School's policies play a great role in the learning process. A critical study of all aspects such as administration, commodity, relations, students' performance, staff's relations etc. and development of operational policies can reduce all the problems that can be observed at school. The following are some of the representative responses of head teacher, math teacher, parents and students in respective question for school's policies for learning mathematics in the days to come.

"We have started semi-hostel and full hostel facilities at minimum cost for SLC appearing students from this year aiming to 100 percent with the help of teachers. Recently, we have managed one extra math teacher and started extra classes for grade ten." [Head teacher]

"Students are called for weekly test but they will not come. They say that we have to go our corn field to support our parent."

[Math teacher]

"We have sent our children for extra classes in time but what they do? Where they do? We don't. They come to home at evening. But some parent can't send their children for extra class because of their poor economical background."

[Parents]

"The school has provided extra class in the morning at minimum cost but the number of students is same as previous class, so the school should manage us at least two sections by observing the level of students."

[Students]

Especially, the school provided the extra class to support for learning mathematics. So the students are getting happy to pass the SLC exam. For this, the parents are sending their children in time at school and supporting by financially. The above views indicate that a lot of improvements will be done from this year and the process of improvements is still continuing. The results as well as learning of mathematics cannot be no more analyzed due to the beginning of the implementation, but the visions of school are clearly mentioned by head teacher, teacher and parents.

After observing we found that school was running itself without any discipline. There were policies between among teacher. Head teacher was not so tight because he was also the member of political party. School was big in size, with physical facilities. But no regulation was there. But few teachers were conscious about school. They were angry with school's rules and regulation. School had provided hostel facilities but cost was not high. But students were not in hostel because of their poor economical background. There was not any punishment system for teacher who was engaged in politics, not reward system for regular teachers. Unit test and class test were not running according to rules and regulations. Management committee will not look after any exam to begin regularly as not.

Out of School Related Factors

Home Environment

Home environment is the components which describes about the reading room, parents and other education related behaviors. It is crucial component which is directly associated with learning of students. Some parents are educated while other is not. So they could not make the home environment according to will of students because they are poor.

I asked the question to head teacher, math teacher, parents and students and noted them as below.

"But home environment is very essential part of learning. Most of the students are from poor economical background so that they don't have safe and good home environment. "

[Head teacher]

"Home environment is crucial part of learning so that it helps to boost up their learning. They are busy with their field in their surroundings."

[Math teacher]

"We have few rooms in our home. So we can't make concentration our children to their study. So we can't give the home environment to our children."

[Parents]

"We sit together with our family members. We don't have proper home environment in our home. We can't concentrate our mind to study. So we cannot solve all homework properly.."

[Students]

I found from the above statement that environment is essential part of learning. It helps to learn every one. But some students were worried about their home environment. Due to poor economical home environment they couldn't learn. After observing we found that students passed their 2 or 3 hrs in the playground which was near to school. Also home environment was not good. They had small house, few number of room, poor economical background. So they could not get the good home environment to their children. Parents weren't educated; they earned money working in others cornfield. So they had miserable life. But few of parents were educated. They used to send their in boarding school. Home environment was not good. They had not separate room to study. They used to sit together. They had poor economical background. They used to help their parents in their corn field. So they could not get proper time to study in their home. Most of the parents were engaged in agriculture.

Interest of Learner

Student interest in a topic holds so much power. Factoring for student interests works well with instructional planning based on readiness and learning profiles. One example is student watching videos, listening to speakers, and journaling to make comparisons between

social injustices from the past and forms a bullying that occurs in today's schools and communities.

First step to differentiate for interests is to find out what student care about and like to do student surveys and learning profile cards are two methods for collecting data. Parents and students providing these details send the Message that their experiences matter. That is powerful message to start off the school year or semester. Interest is associated with the success and failure of life and achievement. Here interest of learner indicates the willingness of student toward subject, behaving with optional mathematics. Researcher has asked the question and noted them in their respected voices as below:

"Interest of learner plays vital role in learning. So make the classroom effective. But most of the students are not interested in their study because of their home environment."

[Head teacher]

"We try to make the classroom effectively learning environment. Talent students are interested towards their study but poor students are not focused to their study."

[Math teacher]

"They are not interested in their study. They go to bed fast not get up in the morning. They are stubborn. They are out of our control."

[Parents]

"Class books are not tied up with junior graded books. It is haphazardly edited and formulated. Exercises are not proper. We are not interested to solve because we don't understand teaching."

[Students]

I found from the above statement that interest of learner is the essential part of learning. It helps to gain knowledge. It is depend on the competency of students. Talent students are focused to their learning but poor students neglect study.

After observing we found that there was not extra time to students from teacher side. Students only finish their homework but they did not work seriously and practice extra exercises. There were not motivating activities to students. Students were not curious to solve homework but not class work. They were coping from talented students. They had no interest in learning. Students were not interested in mathematics subject. There was traditional teaching strategy therefore students felt bore in their study. Textbook was referred to the government book which was not suitable and enough for practice.

Time schedule

The scheduled time of any crew is the time, calculated at the beginning of the vent, that they should arrive at any given control, which is fixed from the start of the event. A schedule or a timetable, as a basic time management tool, consists of a list of times at which possible tasks, events, or actions are intended to take place, or of a sequence of events in the chronological order in which such things are intended to take place. For ex; calendar. Calendar where the people making the schedule can not the dates and times at which various events are planned to occur. For the mystery of success and failure. There is "invisible hand" which is directly associated. That important component is time schedule. Researcher feels the important components. He asked the question related to this and noted them in their respected voices.

"We have allocated 40 minutes every day for optional mathematics. We have divided equal time to equally to all subject."

[Head teacher]

"Students don't give proper time to the difficult subject. They don't give enough time to their mathematics subject."

[Math teacher]

"They are lazy. They don't give time to their study. We are from poor economical background. So that we can't make them free all time. They also support in our corn field."

[Parents]

"We don't have proper time to read and give time to all subjects equally. So that we are weak in those subjects."

[Students]

I found from the above statement that allocation of time is very important for learning. It should be focused equally on all prioritized. But the students being lazy they don't give proper attention toward study. After observing we found that teacher was late to classroom. School had allocated 40 minutes time per period. But teacher were not serious about time schedule. They were careless. Some were very serious, they were young teacher. There was 45 minutes break time at 1 pm to 1:45 pm. School had allocated enough time but teacher were not in time. They were 5 minutes late to class every day. School has allocated equal time to the all subjects. But mathematics and science teacher were late to classroom. Also they were not regular to the classroom

Classroom Environment

The classroom environment includes the two important aspects. The first is physical environment; it includes the location of room, arrangement of desk benches chair, position of

white board, facilities such as fan, ventilation etc. Another is psychological; it refers to the relationship of students and teacher to each other. As well as classroom environment includes teaching technique of the teacher, methods all psychological and educational factor related to teaching learning activities. For collecting data, the researcher was observed the classroom environment participating with mathematics teacher while teaching mathematics about 15 days.

Episode 1

In the observed classes, mathematics teacher went into the class, then after researcher enter in the classroom with the permission of subject teacher, the all the students stood up and said good morning sir. It was noticed that the school environment was respectable to the teacher. Among 58 students there were 48 present in the class. The desks and benches were sufficient for them but not well managed. The white board was small. Usually, teacher opened the book and asked the homework but only few students done their homework but not properly. On the other hand the teacher started teaching without even warm up and reviewed the previous lesson, wrote the question from the book and solved the problems on the board. Teacher taught his own way but the maximum students were busy in talking to each other with peers. They have no concentration towards the study. It was like as the students had no interest about the lesson but teacher did not try to control and motivate them. Then he writes the question from exercise and solves it. After, he gave one similar questions to students for class work. Few students try to solve the problem, but teacher did not show any response towards these types of activities of students. Lastly, he gave some questions as homework and teacher existed from the classroom without summarized the lesson and without evaluate. These types of classroom activities were repeated day to day. Teacher had not a prepared plan, did not use any materials, he did not try to control the students noises. Only teacher came into the classroom and solved the question after that existed from class. Also students did not try to complete homework, class work; they had not pay concentration towards study.

From above observation, it indicates that physical environment of a classroom was not good. For example, furniture were sufficient but not well managed, while board was also small which was not enough in the case of number of student. Therefore, physical environment of the classroom was hampered to increase and improve students' learning achievement. It can be said that physical environment is main factor affecting teaching and learning mathematics.

In the same way, the psychological environment of the classroom was good. There was good relationship between teachers and students. Teachers were respected but they couldn't warm up to motivate their students. Furthermore, the researcher also found that, the way of teaching was also not good. Students couldn't get chance to practice a lot in the classroom, they were talked while their teacher taught in the classroom. Likewise, the researcher also found that, the classroom was also noisy, he/she couldn't control. It was also found that neither the teacher repeated the previous lesson nor students done their homework. It indicates that the psychological environment also plays vital role to improve students learning achievement in a particular subject.

Episode 2

The observation was took place during the case study; it was done at mathematics period in class X in the observation day, the math teacher entered in the classroom and used the same regular materials. He wrote the topic "Problems including three sets" and writes the formula $n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(B \cap C) - n(A \cap C) + n(A \cap B \cap C)$ after that he wrote the problem from exercise and solve step to step in the white board. But student were busy on side talking. After that teacher gave same problem to the student for class work but only few students try to solve that problem and show teacher for correction but the other students were busy on whispering and teacher did not care. The teacher did not response them at all rather he turned again towards white board to solve another problem. At the end, teacher gave a problem to solve at home and he left out the class.

The above observation shows that the teacher taught through deductive way. At first teacher presented formula and then he entered in the exercise based question. Similarly, the teacher used teacher centered way so that the student were busy to talk with each other while the teacher taught in the classroom. Likewise, the teacher provided same problem for further practice but only few students did and others were busy to talk with their fellows. Furthermore, the researcher was also found that the teacher didn't care those students who were busy to talk with each other in the classroom. The teacher had solved the same sort of exercise on the board and did not pay attention towards students. In the same way, the teacher provided homework and left the classroom. It can be concluded that teacher should pay attention towards his/her student while teaching otherwise students while teaching otherwise students lost opportunity of learning. Classroom environment hampers the learning which is directly related with learning achievement of the students. Therefore, teacher's role is very essential while teaching in the classroom for better performance of the students. The teacher

should provide exposure to those students who are very poor in mathematics. That's why they can improve themselves.

Similarly, researcher observed few other classes and found that there was no change in teacher's activities. By above observation, there is no any motivation and reinforcement class from teachers as well. Teacher was trying to use student centered method by giving some questions to student for self-practice but not properly. This shows that there is no sufficient teacher competency and interaction method with students in the classroom. Although the teacher considered being the main facilitator of students while teaching learning activities inside the classroom, there was a poor condition of teaching delivering to the students by math teacher. And there was no any subjective teaching training for teachers as the revised course so it is also the main causes of low achievement in mathematics.

Whether teachers are teaching in the classroom, students are busy in side talking and teasing each other. Researcher asked "why don't you try to control the noise in the classroom?" On this occasion mathematics teacher replied, *"It is difficult to motivate these secondary level students by telling stories, tales, jokes and other funny chats because they have already familiar most of the terms from mobiles, internet and other social media. It is not the time to scold and under pressure because it has the new government policy from the post. It has declared, child oriented teaching learning environment, fearless learning plan and other self-learning discipline are generated day by day. Actually, secondary level is not the time for motivate in learning they must have innate, inborn desirous, interest in learning new things."* As well as he said, *"student did not get the fundamental knowledge and skills from the junior classes. Actually they have the lack of fundamental skills to match these secondary level. Due to this it is much difficult to learnt mathematics in this level."*

Knowledge and skills must be developed from the lower classes. If they did not have their habitual concentrating power to reading and writing, it is difficult to draw the affection in such field in terms of study. That has the main cause of the problem to teach in secondary level. Simply moral behavior and social functions are learnt from the young age. How to teach? How to motivate them? And how do we convince them? It is not easy task for the subject teacher. So the authorized agency, educational researcher and experts must manage the training seminar and other skill developing program to develop the professional skills. So that teachers are facilitated different types of psychomotor aspects according to the need of time.

Above data shows that the achievement of mathematics was not satisfied. Similarly, the achievement of optional mathematics was very low. Mathematics was very hard and difficult

for students; therefore, maximum number of students was failed in the mathematics. Thus it can be said that, the achievement of student in mathematics is very low because the students felt very hard and difficult to read mathematics subject, also the teacher do not teach every chapter in effective way and they not used teaching materials according to the chapters.

Students are so passive in learning new things. They do not have little conscious in teaching learning sequence. On this sense the headmaster said, *“They are very poor in economic status, in terms of fulfill the daily needs and requirements forcefully engage in domestic tasks and search other income oriented profession instead of going to school. They get something if they engage in work but they do not get at once by means of reading. If, they directly participate in work that facilitate up bring the child and facing the easiness of feeding. Due to this, their mind diverts to the non-academic environment.”*

For the supposition of this statement mathematics teacher said, *“Majority of the students are going to ‘Kalapahad’ (A place of India where Nepalese are going to participate in work) and some are fully engaged in labor task in local area. Their main function is to earn money and solve the domestic problems. Due to this they are deprived of educations through money.”*

According to the students, *“we do domestic work as a whole day so we do not have a time to read and write. Due to this we feel mathematics is more complicated than the others with lack of regular practices. After that we did not interest in study.”*

On supporting this view guardians said, *“We encourage our child to read and write but we are unable to guide them because we are illiterate. Our children ask the question, we are unable to reply the answer than they live in passive mood.”*

From the above aforementioned statement, student are well participate in short term profit than then the long term or life long career formation task due to their backwardness. They are doing that for compulsion for someone whether their interest also. Through this they are deprived of education. Students do not get the solution on the spot so their interest and need also on that field decreasing day by day, no doubt.

Thus the researcher concluded by all above evidences that, main causes of low achievement in mathematics which are irregularity, lack of active participation in classroom, lack of interaction between teachers and students. And, irresponsive nature of teacher inside the classroom for example some students are busy in chatting while teacher is teaching but teacher's ignorance on it. Also, there are other reasons like, poor economic condition of parents, lack of parent's education and awareness. Similarly, other

reasons are lack of reinforcement in classroom by the teacher, unplanned learning environment, and not continuous evaluation procedure, lack of teacher training and lack of instructional facilities.

The analysis reveal that majority of the student get 'E' grade due to their poor family background, educational qualification of the parents, lack of sufficient teaching and learning materials. Likewise, most of the students were failed and get 'E' and 'D' grade in SEE. This is because; the school not provides good environment and exposure to those students who had low achievement in optional mathematics. However, at practice level the teacher should start the lesson in time, content should be review, they should prepare lesson plan. Moreover, teachers should motivate those students who had low achievement in mathematics.

This study was mainly concerned with causes of low achievement in mathematics. On the basis of the students failed in mathematics due to economic background, careless of parents, ignorance of head teacher, awarenessness of mathematics teacher. There is not sufficient teaching and learning materials in the school. Similarly, the school should not conduct extra classes for those students who were very poor in mathematics. It can be said that the teachers, parents and school administration should consider those students who are poor and less motivated towards teaching and learning

CHAPTER - V

FINDINGS, CONCLUSIONS AND IMPLICATION

This chapter deals with the major findings of the research and conclusions and implication for further study. The first section reveals the summary, the next sections lists the major findings and conclusions derived on the basis of research analysis and finally presents recommendation for further study.

Findings

The following points were observed while conducting this study which is the major findings of the research.

-) It was found that lack of sufficient teaching learning materials student as well as mathematics teacher did not get opportunities to practice in mathematics.
-) . The relationship between teacher and student was not good. Due to lack of interaction achievement of mathematics was very low.
-) Teacher's didn't motivate and repeat previous lesson in the classroom.
-) There was not suitable textbook, effective practice book so that student could develop their potentiality them self, unit test and class test were done according to teachers interest.
-) There was not group coordination between and among students. Some students felt themselves superior some other was poor. One or two students were very good with helping behavior. Students were not regular in classroom.
-) Teachers were capable in academically but they were not using ICT. They were teaching traditionally. Some young teachers were using less ICT. Teachers were not following the modern teaching methods.

-) There was big size classroom but students were sitting tightly. No of boys were more than girls. Benches and desk were not suitable for different level of students. Teacher was focusing only talented student's proper benches and desk were there.
-) Teacher provided too much homework to the students. But teacher did not check regularly. So students were careless about their homework.
-) School had provided hostel facilities but cost was not high. But students were not in hostel because of their poor economical background. There was not any punishment system for teacher who was engaged in politics, not reward system for regular teachers. Unit test and class test were not running according to rules and regulations. Management committee will not look after any exam to begin regularly as not.
-) Home environment was not good. They had not separate room to study. They used to sit together. They had poor economical background. They used to help their parents in their corn field. So they could not get proper time to study in their home. Most of the parents were engaged in agriculture.
-) Students were not interested in mathematics subject. There was traditional teaching strategy therefore students felt bore in their study. Textbook was referred to the government book which was not suitable and enough for practice.
-) School has allocated equal time to the all subjects. But mathematics and science teacher were late to classroom. Also they were not regular to the classroom.
-) Extra classes should be conducted for poor and low achiever students.

Conclusions

Classroom practices and the curriculum must be closely linked while teaching inside the classroom, practice solving system and interaction is the main things while studying mathematics. Achievement of students is always affected by different variables such as school's learning environment, physical infrastructure, learning materials, psycho-social activities knowing children's interest, leisure time at home for homework and for entertainment to the students at home, reinforcement and feedback class at school, equal evaluation and monitoring of each child in the class. Student's activeness inside the classroom with the help of teaching materials are the main things that directly affects children's good result. Most importantly the changed and new teaching style of teachers in the age of science and technology are mostly needed to build a competitive student in the competitive world

Unit test and class test is done according to the teachers interest. It is not conducted according to the rules and regulations of school. Management committee will not look after any exam to be taken regularly as not. Students are not regular in classroom. They are absent no regularity of the student's attendance. The main occupation of parents is agriculture. Thus, it is difficult to earn money therefore their income is used for their basic needs. Parents do not have extra money to pay for extra class and hostel. The inter-personal relationship between the teachers and students were not maintained properly Teacher biased the students. The teacher will not follow the required teaching methods. The teaching materials were not well prepared or used in class room. The environment of classroom were effected the economical condition of the school. Due to the poverty there were many lacks of facilities. The teacher, students, parents must join hands together to uplift the educational system. The school must provide refresh training to the teacher time and again. Lack of teaching materials and adequate instructional materials were caused of being weak in mathematics learn in school must manage new policies for improvement of teaching learning process.

There are the main causes which are low performance in learning mathematics achievement in secondary level students.

-) Educational policies
-) Educational system
-) Educational environment
-) Physical availability at school
-) Poor trained teachers in mathematics
-) Traditional curriculum
-) Paper and pencil test
-) Uneducated family background
-) Poor management
-) Interest of learner, textbook, teacher competency, peer group and time schedule etc.

Implications

From the above findings and conclusions, the researchers would like to suggest some implication for the improvement of mathematics learning of the mathematics.

In the context of Nepal, many students have low learning in mathematics and the trend is still continuing. Only the researcher has researched about factors which affect learning. Although qualified, trained and experienced teachers are working at public schools. Continuous assessment system, implementation of operational mechanism and its continuous analysis, a

change from syllabus focus to student's outcomes as well as a move from teacher directed classrooms to students centered learning is necessary to maintain quality education at school. This was the case of one school so the results cannot be generalized in all situations. It is due to lack of time and resources. Thus, similar research should be done in large schools district wise. Government should research about this problem. Government and policy maker should make good mechanisms so that school can adopt to promote mathematics learning.

References

- Acharya, B.R. (2017). Factors affecting difficulties in learning mathematics by mathematics learner. *International Journal of Elementary Education*, 6(2), 8-15
- Acharya, B.R. (2017). *Studies in mathematics education* (2nd ed). Kirtipur: Dikshanta publication.
- Adhikari, K. (2006). *Cultural discontinuity & learning difficulties in mathematics* (Unpublished master's thesis). Tribhuvan University, Kathmandu.
- Australia using TIMSS.
- Baral, K. (2011); *Causes of failure mathematics in SLC examination (A case study of school in Bharatpur)*. Master thesis, Faculty of Education, T.U., Kirtipur.
- Best, J.W. and J.V. Khan (1999); *Research in education* (7th ed.), New Delhi :
- Carol, T. (2016). Why choose the qualitative research method. Retrieved from <https://medium.com/@thomascarol1988/why-choose-qualitative-research->
- CERID (1998); *Evaluation system in the primary schools of Nepal*. Kathmandu, Nepal.
- Creswell, J. W. (2007). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage
- examination*. M.Ed. Thesis, University Campus, T.U., Nepal.
- Ghimire, T.R. (1997); *A study on factors affecting teaching/learning mathematics at secondary level*. M.Ed. Thesis, T.U., Kirtipur, Nepal.
- Giri, G. (2008); *A critical analysis of SLC compulsory mathematics score 2063*, M.Ed. Thesis, T.U., Kirtipur, Nepal.
- Guba, E.G. & Lincoln, Y.S (1985). *Naturalistic Inquiry*. Newbery Park, CA: Sage Publications.
- Guragai, P. (2001); *A Study of achievement in mathematics of primary level students of Morang and Dhankuta districts*. M.Ed. Thesis, T.U., Kirtipur, Nepal

- Heider, F. (1958); *The psychology of interpersonal relations*. John Wiley & Sons Publications, New York, USA.
- Jack, S., & Hersh, Reuben (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*. 13, 544–559.
- Journal of Education and Research*, vol. 2, 17-25.
- Khanal, P (2019). *Research Methodology in Education*. Kathmandu: Sunlight PVT
- Khanal, P. (2065 BS); *Educational research methodology*. Student's Book &
- Maskey, S.M. (1975); *A comparative study of mathematics achievement of primary school student under different class sizes*. Master thesis, Faculty of Education, T.U., Kirtipur.
- Nath, K. (2007); *A study of causes of failure in optional mathematics in SLC*
- Neupane, D. (2001); *A study on the effectiveness of play method in mathematics teaching at primary level*. M.Ed. Thesis, University Campus, T.U., Nepal.
- Niure, D.P. (2018). *Research Methodology in Education*. Kathmandu: Kwest PVT
over-quantitative-research-8cf3141d99a5
- Pandit, K. (2016). *Effectiveness of group learning in the mathematics classroom*.
- Pant, B.B. (1978); *Effectiveness of the use unit test results in enhancing pupil achievement in mathematics*. M.Ed. Thesis, TU, Kirtipur, Nepal.
- Pant, Y.R. (2001); *A study of achievement in mathematics at primary level in Doti district*. M. Ed. Thesis, T.U., Nepal.
- Parajuli, D. (2011); *Causes of failure in mathematics in SLC examination in community school (A case study of Dhankuta district)*. Master thesis, Faculty of Education, T.U., Kirtipur.
- Peter, T., & Kaarbo, J. (1999). A Practical guide to the comparative case study method in political psychology. *Political Psychology*. 20, 369–391.
- Pokhrel, M. (2001); *Mathematics achievement in school leaving certificate examination between public and private students at Kaski district*. Master thesis, Faculty of Education, T.U., Kirtipur.
- Poudel, J.P. (2001); *A study on the effectiveness of class work while teaching geometry at the secondary level*. M. Ed. Thesis, T.U., Nepal.
- Pradhan, J.B. (1999); *Development of standardized achievement test in mathematics for seventh grade students and its implication on their achievement*. M.Ed. Thesis, TU, Kirtipur, Nepal.
- Prentice Hall of India.

- Rahman, M.H. (1981); *Achievement in mathematics by sex : A study of sex differences in achievement in mathematics of seventh grade students in selected schools of Kathmandu Nagar Panchayat area*. M. Ed. Thesis, T.U., Nepal.
- Sharma, K.R. (2001); *A study on the attitude of teachers' guide of mathematics for grade X*. M.Ed. Thesis, TU, Kirtipur, Nepal.
- Shrestha, P. (2016). *Cultural diversity and difficulties in learning mathematics*. (Unpublished master's thesis). T.U, Kathmandu.
- Shrestha, P.D. (2002); *A study of mathematics achievement of private and regular in SLC mathematics*. M.Ed. Thesis, TU, Kirtipur, Nepal.
- Stationary, Kirtipur.
- Stephen Lamb and Sue Fullarton Study (2001); *Classroom and school factors affecting mathematics achievement: a comparative study of the US and*
- Subedi, G.P. (2005); *Factors affecting failure in mathematics in S.L.C. examination study in Saptari district*. Master thesis, Faculty of Education, T.U., Kirtipur.
- teachers of the district of Sirha*. M. Ed. Thesis, T.U., Nepal.
- Wagle, L. & Jha, G. (2013, July 13). *Use of ICT in Education*. Retrieved from <https://pedagoo.com/2013/uses-of-ict-in-education/62.html>.
- Yadav, P.K. (2001); *A study on the effectiveness of the primary school teachers of the district of Sirha*. M.Ed. Thesis, TU, Kirtipur, Nepal.
- Yadav, V.K. (2001); *A study on the effectiveness of the primary school*

Appendix- A
Classroom Observation Note

The classroom observation note prepared on the basis of following indicators being participant with mathematics teacher during teaching learning activities.

Teacher's Name:

Topic:

Grade: No. of students:

1. Physical environment of the classroom.

2. Teaching learning activities.

i. Beginning of the class

) Creates and maintains a physical setting that promotes learning.

ii. Setting the stage for learning.

) Communicates objectives appropriately.

) Reviews and relates new learning to previous learning.

) Raises level of interest in the lesson.

iii. Acquisition of learning

) Combines auditory explanation with visual references and student involvement.

) Checks students' understanding of objectives.

) Uses motivational techniques to maintain interest and involvement of student.

) Provides guided for practice.

) Encourages relevant discussion.

) Utilizes flexible grouping for practices.

) Uses a variety of strategies such as discussion, cooperative, peer teaching, project work, and class work.

) Checks for individual understanding.

-) Communicates the methods of the increasing the ability of thinking topic, formulae, etc.
-) Utilizes questioning techniques.
-) Provides corrective feedback.
-) Provides independent practice.

iv. Integration of teaching materials

-) Applies the materials truth.
-) Sources of the teaching materials: hand-made, local or bought.
-) Student's attractive materials.

v. Closure of lesson

-) Relates lesson to objectives.
-) Allows for student involvement.
-) Reviews the learning of the day to set the stage for the next learning.
-) Checks the understanding of students.
-) Encourage students to reflect on and take responsibility for their learning
-) Provides assignments/homework/project work relevant to the learning that has been practiced with guidance.

Appendix- B

Guidelines for Interviewing Head teacher

The interview with head teacher took on the basis of following topics.

Name:

Qualification:

Teaching Experience:

-) School facilities:
-) Classroom management :
-) Relation with parents/guardians :
-) Opinion towards mathematics learning in classroom :
-) Opinion towards low learning in classroom :
-) Policies for low learning in classroom :

Appendix- C

Guidelines for Interviewing Mathematics Teacher

The interview with mathematics teacher took on the basis of following topics.

Name:

Qualification:

Teaching Experience:

-) School facilities :
-) Classroom management:
-) Relation with staffs and students:
-) Relation with parents/guardians of the students.
-) Opinion towards mathematics learning in classroom :
-) Opinion towards low learning in classroom :
-) Policies for low learning in classroom:

Appendix- D
Guidelines for Interviewing Students

Name:

Roll No.:

Sex:

Place of Residence:

-) Opinion on facilities of the school :
-) Opinion towards mathematics teaching and learning :
-) Opinion towards mathematics learning in classroom:
-) Opinion towards mathematics teacher :
-) Classroom practice
-) Opinion towards causes of low learning in classroom :
-) Opinion towards school policy for low learning in classroom:

Appendix- E
Guidelines for Interviewing Parents/Guardians

Name:

Sex:

Qualification:

Occupation:

Family Size:

Annual Income (Approximately):

Teaching Experience:

-) Opinion towards child's educational learning:
-) Activities of the child at home:
-) Opinion towards schools facilities and policies:
-) Relation among school staffs:
-) Role at School