Chapter I

INTRODUCTION

Background of the study

The knowledge of mathematics is in essential tool in our society The term "mathematics" is etymologically drive from ancient Greek Word "matheneian" which means 'to learn'. Mathematics is an ancient science, which is part of human civilization and also the part of all the educational programmers. It is taken as the science of all science and the art of all arts. Mathematic is so much significant to human life that no one can be away from its use. .

Mathematicsresults from the discovery, the formulation, the systematic development and the application of patterns of inductive and deductive thinking. Mathematic is central part of the school curriculum, not only in school but also in the entire world. Every society has observed mathematics as basic needs of human civilization .New discoveries in mathematics and mathematics education are still in the continue action. Today other disciplines such as science, engineering, medicine and technology might be handicapped without mathematics and the world cannot run smoothly without it. Thus the importance of mathematics is realized due to its role for the development of science and technology in one hand and on other it has become gatekeeper in the life of the students for career choice in further study. Those students who do not have good performance do not get chance of admission in socially valued field of education such as engineering, medicine, economics, computer related field etc. so it is concerned of both the stakeholder and teacher to make the teaching of mathematics better for getting the better score in mathematics.

The important of mathematic realized both for the needs everyday life and academic study.Mathematics is important subject to solve daily life needs.

Mathematics plays an important role in the organization and maintenance of our structure. We use mathematics activities directly or indirectly to solve daily life problem. Mathematics is the logical study of shape, arrangement, quantity and many related concepts.

The government of Nepal decided to introduce the higher secondary education act, which came into effect in 1989AD. Later, as stipulated in the act, the higher secondary education assembly was constituted under the chairmanship of the minister of education. Subsequently higher secondary board (HSEB) was established in1989AD under the higher secondary act. The board is involved in running the 10+2 system in country.

Nepal national commission of education 1992 recommended of importance of the 10+2 structure in the educational system viewed it was first step towards specialization.

Higher secondary education board (HSEB) has paid grate contribution to the backward and marginal group. All the students who were far from the access of higher education are benefited now. Especially the economically weak people has benefited a lot from this program. Now the number of higher secondary school increased and reached 3596 and above. The board is involved in running the 10+2 system the country in both English and Nepali medium but for science stream, English medium compulsory.

The world's technological advance today involved a solid mathematical background which leads to job opportunities in the world (Raj, 2013). At its most basic level, mathematic is a requirement for sciences, computer technology and engineering courses. This is based on the fact that from homes to the workplace technology and engineering tools have become a part of our day to day life activity.

Because of the important of mathematic, introduce of itself already highlighteda above, school must respond with effective teaching and learning of mathematics from grad one to university level.

In, Nepal, there are establishing so many higher secondary school but we can see less inclusion of mathematics education in high school. It becoming a great issues. Also the total number of students' subject students is less the others subjects we can see poor achievement in high school mathematics so it is relevant topic for research in present time. Thus this research centered on learner continue getting low achievement and poor performances such that this rate in mathematics results over 5 year period "2068-2072 in LaxmiBallavNarsing Higher Secondary School Babhangamakattiat saptari district in table no.1as shown"

Table no 1.1 Result in mathematics at   grade 12.

Year	2068	2069	2070	2071	2072	2073
Pass rate	38.89	34.79	40.00	28.00	44.44	33.34
Fail rate	61.11	65.21	60.00	72.00	55.56	66.66

Table no. 1.2National achievement of regular student at grade 12;

Year	2068	2069	2070	2071	2072	2073
Pass rate	72.56	78.30	75.32	70.43	71.65	73.66
Fail rate	27.44	21.68	29.68	29.57	28.35	26.34

 Source: status of HSEB result, SanothimiBhaktapur.

The performance of learners in the selected higher secondary school from the above table clearly indicates as the rate is low in the in the comparison of each years and national achievement.

From the researcher's point of view not much research focusing on mathematics so low achievement rate have been conducted in LaxmiBallavNursing highersecondary schoolBabhangamaKitti at Saptari district yet the examination results continue to be unsatisfactory in the subject mathematics that the present study would want to find causes of low achievement of mathematics in L.B.N.H.S.S at Saptari district.

StatementofProblem

Mathematics is a significant subject in human life. Mathematics is a very technical subject so the successful learning depends open the teaching process or method of the teaching that can motivate learners in the learning process through active participant doing things themselves.Most of the people consider mathematics as a very difficult subject. It can be shown through their failure rate in the mathematics. As mathematics is emphasized like language, most of student fail and getting low achievement in mathematics as a difficult subject. In the context of Nepal most of the students have failed at mathematics in the HSL due to the poor and traditional infrastructure and instructional strategy. The government of Nepal is increasing to invest day by day for developing education sector but as a result most of the student are getting low achievement and failed in mathematics at HSL like as L.B.N.H.S.S. Saptari district. By this problem the great deal of time, money, effort and manpower of nation have been wasted. So the educationists, professionals as well as the state are facing the challenge with problem of low achievement in mathematics at a higher secondary level.So research is going to find out the causes of low achievement in mathematics at HSL.

Although mathematics in higher secondary level is optional subject, desired students are devoted to study it, but must of them are also getting low achievement in

mathematics. Low achievement in mathematics is affected by various factors like home and school environment, physical facilities, attitude toward mathematics, peer groups teaching learning materials and process, economical status of the parents etc.

The researcher found that there are greater different between national achievement of regular student mathematics at grade 12 and students achievement of L.B.N.H.S.S. Thus for finding causes of low achievement in mathematics and then improving mentioned factors and then minimizing low achievements in H.S level was the main focus of this study. The statement of the study mainly concerned with the causes of low achievement in mathematics at higher secondary level.

Research Questions

The following were the research questions of the study:

- What are the causes of low achievement in mathematics at HSL?
- What are the techniques to analyze the causes of low achievement in mathematics at HSL?

Objectives of the study:

The main objective of this study is to identify the causes of low achievement in mathematics at higher secondary level. The following objectives designed for this study;

- To find out causes of low achievement in mathematics at higher secondary level
- To analyze the causes of low achievement in mathematics at higher secondary level.

Significance of the study

Mathematics is widely used and most applicable discipline in the field of science and technology. The result of the student in mathematics is low in average at higher secondary level. Maximum number of students have been getting low achievement in mathematics at most of them feel difficult to understand in this context this research is going to find the following significance;

- This study will help to improve mathematics achievement.

- This study will help mathematics teachers to do effective teaching in classroom by using teaching materials.

- This study will help the parents, teacher, student with aware of the responsible factors of the low achievement in mathematics at every level.

- This study will help the policy makers, educators, administrators and teacher to improve the teaching learning procedures.

- This study will open the door for further research in the areas of factors affecting low achievement in mathematics.

Delimitations of the study

The study has following limitations:

- The study is limited to Saptari district.

- The study is limited to L.B.N.H.S.S.B. katti.

- Math teachers and 11 students of class 12, head teacher and parents.

- This study is limited to explore the causes of low achievement at higher secondary level only.

Definition of Terms

Causes: The term "causes" is defined as the reasons that affecting in the low achievement in mathematics at 10+2 (Higher Secondary Level).

Low achievement: Low achievement is a condition in which students cannot obtain

50 percentage marks (obtain below average) on the examination.

L.B.N.H.S.S.: LaxmiBallavNarsing Higher Secondary School

Student. The students who studying mathematics higher secondary level

inL.B.N.H.S.S.B.katti

Classwork: It is related to amount of the class work that is done by student during the

    mathematics class period.

Class sized: It is related to number of student studying in class.

Pre-knowledge: Previous knowledge in related topic or in subject.

Literate: It is related to those persons who can read and write or may also have

    formal education.

Peer's interaction. It is related to the interaction among students about

mathematical ideas, problems and their solutions for discussion.

Chapter II

LITERATUR REVIEW

This chapter deals with review of related literature of this study. The related study provides research in making her problems more realistic, precise, researchable and meaningful. In order to get a better understanding of subject of one's study. It is essential and helpful to survey the literature and study related to it. Bearing these advantage in mind, the researcher reviewed several studies some of them are given below;

Empirical Literature

Shubedi (2005), studied on ''factors affecting failure in mathematics in SLC examination.'' The major finding of the study are given below:

The variable school environmenthas strongly positive effect in the failure's mathematics achievement. The variables effective classroom teaching and time variable which is significant, the teacher's behavior, peer's behavior, interest of learners and motivation with occupational goal are low positive correlated with the achievement of mathematics. School environment is an important causing agent on the failure of mathematics.

Acharya (2006) conducted a thesis in titled 'A study on the problem faced HSEB teacher in teaching mathematics of grade 11'. It was descriptive survey and questioner was used for data collection. It has chosen 15 higher secondary schools of ktm district of this study were to identify the problems faced by HSEB mathematics teachers. He concluded that prescribed curriculum and existing text books are not well planned, sequential and practical problem are not well manage.Trainedand untrained teachers on the part. It was found the both where facing similar kind a problems in ktm.

Pandey (2007), conducted a case study of effective secondary school of Kailali district in about ' factors influence mathematics achievement' where objectives to find the current mathematics achievement, the influencing factors of low achievement in ineffective secondary schools a Kailali district. Some finding based on personal factors are: girls to be involved in household work which has resulted to be poor in mathematics because they had less time for their mathematics homework, motivation plays important role in students mathematics achievement, prior knowledge and present achievement are strongly correlated, more students study and labourhard at home the more success is seen in mathematics learning, some finding based on environmental factors 1) Teachers activities, emphasis on extra mathematical context, IQ-test had positive result for the students.2) Laziness of teachers and their lack of knowledge students psychological understanding have given poor result to the students. 3) There was no lesson planning of mathematic teachers daily use of teaching materials in classroom was rare. 4) Student centered teaching training activity was neglected because the teachers lacked those kinds of experiences.

Sapkota (2011), studied on 'causesof failure in mathematics at school' a public school in Lalitpur district with object to find the causes of failure in mathematics at secondary level and to identify the strategies taken by the school in improvement of mathematics achievement. This research design was qualitative as well as descriptive in nature. The respondents of the case study where students, corresponding parents and teacher. From the case school six low achievement including three boys and three girls were selected according to different family background and performance in mathematics examination.Collection primary and secondary data from school document observation note and interview guideline were used. The result of this research was classroom practice and curriculum was closely linked. Achievement of

student is always affected by different variables such as school learning environment, facilities at home, classroom environment, school policies, mathematic instruction, and assessment at classroom and so on.

Dangol (2012), did a research work on 'cause's failure in mathematics in SLC examination'. It was case study and qualitative in nature. Interview and class observation were used sample of 30 students of grade 11. The finding of this students shows that the traditional type of exercise in teachings learning activity, proper interaction between teacher and students, schools learning environment, facilities at home and so on were causes of low achievement in mathematics in SLC examination.

Khanal(2012),did research work on 'causes of failure in mathematics in math grade 8 in Nuwakot district. The major finding were as ; parents involvement parents support, house hold activity at home, effective teaching process, motivation and interest, teaching strategies play a very important role in the achievement in mathematics.

Pant(2014), studied on, causes of low achievement in mathematics of Girls students. Main purpose of the study was causes of low achievement in mathematics of Girls School. The researcher was taken low achiever girls' student only of grade X. The conclusion of this study based on qualitative analysis and case study, and causes related to school, home environment and individual such as classroom environment, peer' interaction, teaching learning activity, class work, library, instructional materials, and especially gender suppression were main causes of low achievement in mathematics of girls students.

This study'on the "Causes of low achivement in mathematics" and the main purpose of the study is 'to find out the causes of low achievement in mathematics at S.L. (grade XII) of student of LaxmiBallavNarsing Higher secondary school and

analyze it. The sample of elevenstudents had selected from different cultural&family background with boys and girls students' together, prior achievement and attendance of grade XII. The major causes of low achievement in mathematics were Home Environment, SchoolEnvironment, Peer'sgroup discussion, Interaction with Teachers, Teaching learning process & Attitudes towards mathematics which effected the achivement of the students in mathematics. Significantly predicted which dependent variables and achievement score.

Theoretical literature

There are so many theories which can be used to understand the learning process. The theoretical discussion is needed for the interactive finding of the study. Many theories about learning and development of children such as cognitive, behaviorist, humanist, social constructivism and so on. In which social constructivism is one of the theories to analyze and interpret the data of mathematics of resolved the problem. To analyze and finding the suitable solution in the area of low achievement in mathematics; constructivism becomes one of the positive theory to solved the problem on the topic of ' causes of low achievement in mathematics at 10+2' Every students learns from society from social, contact with home family and universe. According to them, knowledge can be constructed from society. This kinds of thoughts can be given by social constructivism.

Social constructivism is variety of cognitive constructivism that emphasis the collaborative nature of much learning. It was developed by L.S. Vygotsky (1896-1934). He developed "Socio-cultural theory" and believed that children are active seeker of knowledge but he didn't view them as solitary agents. In this theory, rich and cultural context profoundly affect children's cognation.

Constructivists such as Piaget and Perry see knowledge as actively constructed by learners in response to interactions with environment stimuli. But Vygotsky believe that knowledge and reality are socially constructed by means of social interaction, human experiences and communication with group of society. So the knowledge is not a simply constructed, it is co-constructed. According to social constructivism, knowledge is human product, which is socially & culturally constructed in an active manner and not something which can be discover (Denney, 1995; Ernest, 1999)

Knowledge is therefore nethertied to external world nor wholly to the working of the mind, but it exists as the outcomes of mental contradictions that result from ones interaction with other people in the environment (Schunk, 2012). Social constructivism views learning as an active process where learners should learn to discover principles, concept and facts for themselves (Brown et al, 1989). This approach does not see a class as a place where the teacher /tutor pours knowledge into passive students should be actively involved their own process of learning.

In the similar way constructivist idea of learning can point towards number of different teachings practice it encourage the students to involved themselves activity and used techniques of leaner centered,group work discussion, learning by doing use outside tools to be more practical and gain high achievement in mathematics rather than classroom it focus on real life learning environment social instruction and use of complex idea shear with other side of classroom easily constructivism transforms the students from passive receipting of information to active participation in teaching process. Constructivism based on 3 axioms that are as follows:

- Learners gain knowledge from their active participation.
- Learners gain knowledge while reflecting on their own action.

- Learners gain knowledge when they try to convey their solution to others.(Sources: Education Theory)

A main focus of social constructivism is the role that social interaction and social process play in creating knowledge. Vygotsky believed that learning could not be separated from social context. He argued that all cognitive function begins as a product of social interactions. Social constructivism requires one primarily element, two or more participations. These participations must be involved in same from of interaction for the knowledge to be constructed and they must have the knowledge of prior social experience (Gergen, 1995). It is a shared understanding among individuals whose interaction is based on common interests that form the ground for their communication. Therefore during interaction between participants' this prior knowledge in exchanged transection in order to negotiate a meaning. This meaning does not have to be strictly language based, but can also be a product of action.Upadhyay (2001) took three term action, reflection and scaffolding to describe three broad aspects of constructivism: psychological aspect, philosophical aspect and sociological aspect.

Social constructivism emphasis that all cognitive functions including learning are dependent on interactions with others (e.g. teachers, peers, and parent). Therefore learning is critically development on the qualities of collaborative process within and educational community, which is the situation specific and context bound (Eggen and kauchak, 1999; McInerny, 2002; Schunk, 2012).

However learning must also be seen as more than the assimilation of new knowledge by the individual, but also as a process by which learners are integrated into a knowledge community.

Conceptual Framework

A conceptual frame work is an analytical tool with several variations and context. It is used to make conceptual distinctions and organize ideas. Strong conceptual frameworks capture something real and do this in a way that is easy to remember and apply.

This study primarily concerns with to find out the causes of low achievement in mathematics at grade XII (S.L) of student of LaxmiBallavNarsing Higher Secondary School, researcher had studied related empirical literatures which are mentioned on previous topic. Mathematicsachievement affected different various such as school environment, home environment, peer group discussion, attitude toward mathematics, teaching learning process are most related variables.

So, these variables are causes of low achievement in mathematics at a higher secondary level as shown in the following framework.

Table.no.1.3
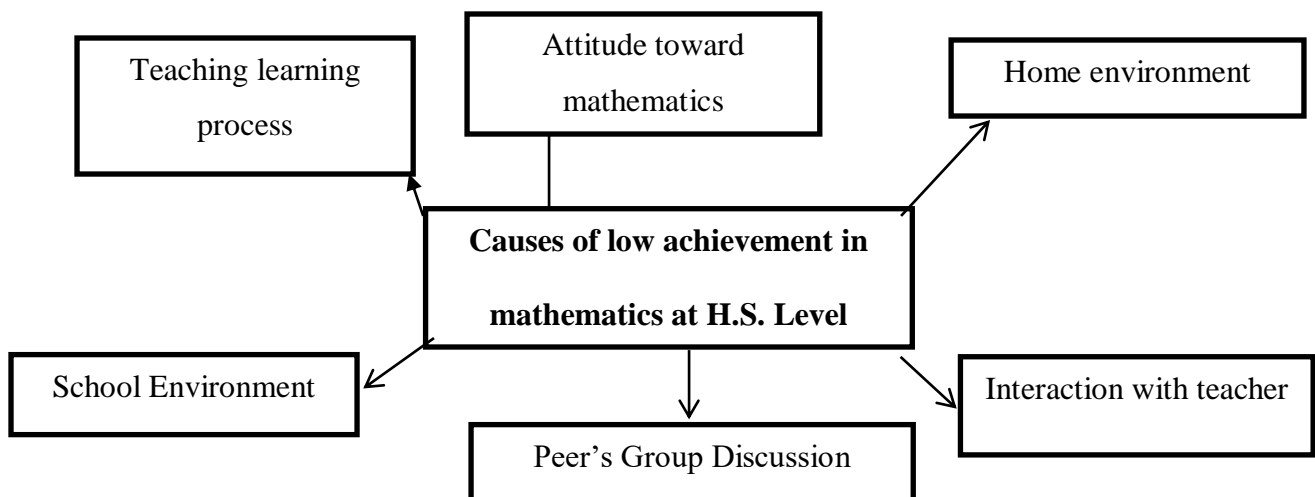
Sources:Panday, T.R. (2008) and Khadaka, M.S. (2014)

This resource tries to test the above model interview and observation to find the cause of low achievement in mathematics at secondary levelof B.N.H.S.S. Hence this is major mathematical base for this study. The above model is developed by

researcher from the help of related literature, previous thesis and supervisor. This study is mainly based on above researcher and already explained them of social constructivism for mathematics learning which focus on socially constructed knowledge. A mathematical achievement is always affected by different variables such as school related, home related, teaching related and personal factors etc. The case study explains and interpreters how the proposed elements work for mathematics achievements.

Home Environment.Home environment refer to aspect of people domestic lives that contribute to their living condition. Environment is outlook and the level of the particular area. And home-environment means what is the state of home. Home is the first school of the children. Every student's education start from their home through formal education start from school. Student spend more time at a home rather than school.

The home-environment is most powerful informal learning situation in which the family, especially parents acts as educators. Taylor (1984; p138) stats that the family is a place in which the whole range of the human experiences take place. Bloom (1984:74) demonstrates that it is what the parents do in the home that counts the learning development of children. It goes without saying that lack of encouragement, low quality of parents' language and lack of stimulating activity in the home will reduce the home' effectiveness as learning environment.

 Thus the factor related to home environment as parent's occupation, parent's support, parent's education, household work are strongly affect the student of achievement.

School Environment. Environment is considered as supplementary aspect with heredity. A good environment includes the 2 important aspects the first is physical environment and seconds is psychological environment.

The physical facilities in schools play and important role in learners' achievement and quality of schooling. The presence of provision of good infrastructure of physical facilities such as good school building, adequate , benches and desks in class rooms, availability of during water, toilet, especially for girls and other facilities affect the process of quality schooling, enrollment of students and performance of student achievement. They also help to create a good school environment. The main focus of improvement is to enhance the quality of class room by creating and improves space for all student and health situation of student. This improvement creates a healthy safe and conductive physical environment to faster effective learning.

Peer's Group Discussion: The discussion about subject matter with friends in class room and after school is called peer's group discussion. Introduction discuss in practice are essential to get better achievement in mathematics. Knowledge can be constructed through active participation. Student gets knowledge while reflecting on their own action. In the class room activities are individually performed and judged on the basis of each individual performance.

*Interaction with Teacher:*Interaction is the communication with some body, especially while in the work or teaching learning activities. It is a social activity and all the human continuously get the any of interaction since human is the phenomenon of the society. Teacher- students interaction is engaged to know or to understand the subjects to encourage students them into investigate in solve mathematical problem by discussing each other and whit the teacher.

*Teaching Learning Process.*Teaching is a process of attending to people's need, experiences and feelings, and making specific interventions to the help

themlearn particular thing. Teaching learning process plays a great role in the achievement of the students. It includes all the functions that are used inside class room to achieve the goals of lesson. Teaching learning process of the school is major aspect for betterment of students' achivement. Teacher, student, instructional material, facilities, and teaching strategy are major tools of effectiveness teaching when it maintained & applied teaching activities effectively.

Teacher created method is the main type of instructional teaching used in the classroom. At the beginning the lesion the teacher always communicated or explained required topic but usually did not check for understanding level of the students. The teacher frequently showed high level of interest in the lesion and reviewed as well as relating new learning to the previous learning.

Attitude toward Mathematics: Positive attitude mathematics leads students towards success in mathematics. Ma, X & J, Xu (2004) emphasis that attitude towards mathematics plays a crucial role in the teaching and learning process of mathematics. It affects students' achievement in mathematics. So the parents, teacher, head teacher, students, senior student should adopted positive attitude in mathematics.

Chapter III

METHODS AND PROCEDURES

This chapter present research design, selection of respondents, data collections instrument, data collection procedure and data analysis and interpretation procedures. The present study focused on identifying causes of low achievement in mathematics in grads12 students.

Research design

A case study is an in-depth comprehensive study (fairly intensive exam nation) of the single unit. A unit may be a person, a social group, an episode, a process, a situation, a programme, a community, an institution or any other social unit.

It is one of the most popular types of research method. It purpose may be to understand the life cycle of the unit under study or the interaction between factors that explain the present status or the development over or pread of time. Some examples of a case study are: a study of life style of working women, a case study of urban poor, a case study of economic offenses etc.

The main importance of this research design helped researcher to collect data, interpret and analyze it. Research design is the way and path of the research that guides the researcher to research the goal of the research. This is a case study and qualitative research as well as descriptive in nature to find out the causes of low achievement in mathematics at higher secondary level.

Selection of Case Respondents

The respondents of the case study were students, mathematics teacher, Head-teacher and parents of selected students. From the selected school, eleven low achiever students including 7 boys and 4 girls where selected according to different family backgrounds and the performance of examination in mathematics.

The researcher selected only one public higher secondary school of Saptari district purposively to the objective of this study. The researcher selected LaxmiBallaveNersing H.S.S.B. kattiwhich is located in east part of 10km far from Rajbiraj, Saptari district because this school had problem of low achievement in mathematics H.S.L students so this school was very suitable for this topic.

Data collection instrument

Researcher had used 3 types of instrument in this study. They were observation form, interview schedule and document analysis.

Observation form. The class observation form was developed to assess the participation and performance of the respondents. The researcher evaluated the attendance and activities of the Student and teachers by using observation form.

The observation mainly focused on school environment teaching learning process student and teacher activities, closure to lesion, evaluation process. The class observation note was prepared to observe school environment, teacher and student activities, and beginning of the class, used materials, closer of lesson, classwork,and current evaluation of the students during teaching learning activities.

Interview schedule. Based on objective of the study the researcher was taken the interview with the selected students, mathematics teachers and principal and corresponding parents to the collect primary data. The researcher had made the interview schedule to fulfill the research objectives and to meet the conceptual framework of the study.

Document analysis. Document like students register, there mark sheet**s,** school result and teachers profile which taken out to derived information to this study. The research evaluated the regularity of the students from the students. Researcher evaluated the mathematics achievement of the students their mark sheet and school result sheet and other.

Reliability and validity of tools

Cross match was adopted to maintain the validity and reliability of the result of the study. The researcher tried to ensure the initial reliability and validity by observing the same phenomenon repeatedly by clarifying his biases and by the help of expert and supervisor.

Sources of data. The data wascollected from primary and secondary sources. Mostly researcher used primary sources to collected data by taking interview with students, teachers principal as well as by class observation. The secondary data were used to collected data by taking information about student scoring on mathematics at class 12. Also information by mark ledger, personal profiles, record and report was used as secondary data.

Data collection producer

The researcher collected data and information by using interview schedule and class observation from with selected school and explain them the purpose of the study and request them for correct responses. The schools records was studied such as mark ledger of the students, teacher profile, physical facilities and other relevant documents. The researcher noted the behavior and activities of both teacher and students during teaching and learning activities. Forgetting information researcher had observed the class room 7 times during his research work.

On first say researcher had gone to selected school and explain the purpose the study to principal and math teacher. After getting permission to observe the class, the researcher had gone in the class room with teacher and explained the purpose of the study to students. Then the researcher was set on last bench of the class although teacher have manage the chair in front of the students for researcher. 3 day later researcher was observed 2nd time. After one week a researcherhad observed 3rd time and noted what he saw in the class room during teaching learning activities.

Similarly 4th observation and noted what res saw in the classroom during teaching learning activities in the Classroom. These above observation is completed before Dashain vacation.

After Dashain vacation researcher had observed the classroom 5th time was guideline of classroom observation form and noted as previous days. The 6th had been completed after5 day from the 5th observation.

The last observation had been completed after few days fromthe 6th observation. After finishing classes, researcher hadthanked to student, teacher and principal for their kindly help and requested for many other helps if researcherneeded.

Data analysis procedure

This study was qualitative research hence the major part of data analysis was based on descriptive analysis. The information were collected from the observation and interview by questioning present status of school environment, home environment, peers' group discussion, interaction with teacher, teaching learning process, attitude toward mathematics. Then the researcher explained the data and their perspectives according to the respondent'sresponses. The collected information from class observation, interviews and school records was first categorized according to the categorized to the respondents and then different themes had been given in the text of interview schedule and observation form. These themes had been considered as a code. Similar code versions of the respondents had beencollected together and explained in theirperspectives. The qualitative data's were interpreted descriptively by mutely interrelated with constructivism theory according to triangulation method on basis of conceptual framework and draw conclusion. Cross match wasadopted to maintain the validity and reliability of the result of the study. Data analysis and interpretation had beenconducted onthe basis of theoretical framework developed by the researcher in the literature review.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter deal with the analysis and interpretation of the collected information. The researcher minutely studies and schools documents such as teacher profile, attendance as well as the records of the sampled students. Also researcher had observed Mathematics class of grad XII being participant with math teacher regularity for some day during teaching learning activities. Then classroom observation note was prepared on the basis of class observation. Every activity and behaviors student and teacher were carefully observed and note. The direct interview was taken to the students, math teacher or parents and seniors students who passed grad XII by taking low achievement in mathematics. The responses of the respondents during face to face interview were noted. There was no limitation for respondents for response. They were able to express freely whateverthey have in their in the mind. The data were analyzed with the help of collected information from observation, interview, and School record and on the basis of conceptual framework. The researcher had analyzed data under following heading:

- Home Environment

- School Environment

- Peer's Group Discussion

- Interaction with Teacher

- Teaching Learning Process

- Attitude toward Mathematics.

Before the analysis obtain data the researcher explained here about the case school.

Introduction of the case school

Saptari district lies in the Eastern development region of Nepal and has known as one of the educational place in the region. There are many historical heritages. This is a famous for ChinnamastaVhagwatitemple, Kankalni temple, Rajdevitemple,Mahadevtemple,etc. the main festivals of the districts are Chhat, Samachakewa, Maghiparwa,chaurchan etc. also, people of the Saptari district celebrate Dashain, Tihar, Holi, JaneyPurnima etc.

Shree LaxmiBallav Nursing Secondary School,BhavangamaKatti is one of the oldest educational institution of BavangamakattiVDC. It is located at ward number -9. This school was established on 2043 B.S. The school is situated eastern part of near the Mahadeva temple 10 km far from the Rajbirajcity.

Our country is multi-lingual as multi-religious in nature so cultural diversities could be observed in every part of the nation. The surrounding places of the schools or also has such types of diversities. Mushar,doome, Dhobi, people migrated from different Madhesh area are the local residence of place . Besidethis, people from different part of thsse nation could be found easily and the indigenous group. Yadav, Mandal, Jha, Shah, Adhakari, Dhobi, Doome, Mushar,das, Thakur, Singh,Muslim are also found in majerity here. Theparents of the students were mostly in agricultural profession very few were engaged in job, business, abroad work shoulders as well as labor. Economically, some peoples in the communities were rich and some of them had difficulty even for hand and mouth. Initially, at the time of establishment, there was a temporary buildings, was no enough physical facilities but the school now have 15 separated building (3 concrete and 11 jasta) with enough physical provision and a large play ground with average 400 students. There isno many other secondary schools in this area including this is one. But I selected shreeLaxmibulev nursing

higher secondary school BavangamaKatti, because it as a low performance in mathematics then others the researcher had selected S.L.B.N. H.S BavangamaKatti as a case school among public schools because the school has problems of students low achievement mathematics at grade 12. It can easily see through the result of higher secondary level examination. Since, few years ago which is presented below.

Tab.no.1.4. Past six years of result at grade XII in case school;

Year	No of students appear in exam	No of passed students	No of failed students	No of student appeared in mathematics	No of students failed in math	Failed % in math
2068	155	60	95	18	11	61.11
2069	167	69	98	23	15	65.21
2070	185	78	107	20	12	62.00
2071	255	100	155	25	18	72.00
2072	171	61	110	27	15	55.56
2073	187	79	108	24	16	66.66

The above shows that in 2072BS, 12 students out of 27 students which was the highest passed number of the results. In 2071 BS only 7 students out of 25 students were successed in the examination. Thenthe above table shows that there is undesirable results of mathematics students. There were average 14 students failed in mathematics out of average 87 failed students of class XII last six years. So the low

achievement rate of mathematics as well as total result of class XII in academic years of last six year.

Home Environment

Home environment refer to aspect of people domestic lives that contribute to their living condition. Environment is outlook and the level of the particular area. And home-environment means what is the state of home. Home is the first school of the children. Every student's education start from their home through formal education start from school. Student spend more time at a home rather than school.

The home-environment is most powerful informal learning situation in which the family, especially parents acts as educators. Taylor (1984: 138) stats that the family is a place in which the whole range of the human experiences take place. Bloom (1984:74) demonstrates that it is what the parents do in the home that counts the learning development of children. It goes without saying that lack of encouragement, low quality of parents' language and lack of stimulating activity in the home will reduce the home' effectiveness as learning environment.

Thus parents are considered as first teacher for a child,so the achievement of the students always effected by the parents' occupation, parents' support, parents' education, household works.

Parents' Occupation

Home environment is play vital role in achievement of the students. Parents are first and most influential teach of their students (Child).

Every child spend more time at a home than at school. Parent can support their child schooling by attending schools' functions, and responding to school obligations. Alsochildren are seeking and mostly depended on parents' economical-status and

psychological guidance. Parents'performance and various ways. For example occupation related to income may determine access to learning opportunities and resources also plays a vital role learning outcome (Sah 2006).

The educations and types of skills associated with different occupation modeled by parentsmay motivate student to develop their own skills in a particular ways. Parental occupation may also influence how students perceive the value of mathematics learning and learning environment at home. Parents who perform complex work encourage self-direction and cognitive achievement in their children.

The researcher conducted interview with 11 students about impact of parents' occupation on their study and found that 6 parents were farmer, 3 parents engaged abroad work, one parents engaged on government job and one are INGO.

Also researcher found that parents who were engaged on Gov. job, INGO and abroad worker parents facilitate their students on tuitions classes text book, fees etc properly but the parents who were engaged on farming did not facilitate their child as other parents . Bothabove due to parents' occupation and consequently parents' occupation has major effect on achievement of students on mathematics.

Also researcher on analyzed profiles of 11 students of previous year and mark ledger at the same time, and found that the six parents were engaged on farming, one engaged on GOV job and three on job for abroad work and one on INGO. Alsoresearcher found that 4 students whose parents were engaged on farming were failed in mathematics but remaining 7 students whose parent respectively engaged on GOV, job INGO and abroad worker were passed by taking low achievements in 2071BS. Again according to the results of sampled students given by HSEB, researcher found that 3 students were failed and 8 students were passed by taking low achievement in mathematics. In addition the parents of 3 students who were failed had

occupation on farming (2) and abroad worker (1) among 8 passed students by taking low achievement 4 of them parents were engaged on farming, 2 of them parents were engaged abroad worker, and 2of them parent were engaged on GOV job and INGO respectively.

Thus from comparative study of records and Mark ledgers of previous years students the result found from interview with students, result of sample students of grade 12, researcher concluded that student with their parent having low income were getting low achievement at secondary level . The parents' occupation has major effect on students' achievement in mathematics at Secondary level (grade 12).

Parents' Support

Parents' support is defined as supporting role of parents for effective learning of children. Parents support is one of aspects of home environment which bring the children's creativity that's why parents support play the positive roles for effective learning or purposeful learning. Every parents should have the responsibilities to create friendly environment to bring critical knowledge of student or children.

"Parents are illustrated and they are not aware of students' study, also learners'economic background force them to be engaged on parents supports."

Math teacher

"Our parents are illustrate they could not read and write so our parents could not support and guidance at home for mathematic learning."

Student view

"A*lthough our parents are literate but they can't give time for us because of busy schedule on their job".*

Student view

"Parents are busy on their work(official or farming) so they can't manage time for us and there is a lack of guidance on mathematics activities. They are limited to facilitate books tuition classes, fees and advice and which are not sufficient for us".

Students view

From the above view the researcher concluded that most of parents didn't supports their students (child). They can't aware of students study because of illiterate, lack of time, lack of mathematical knowledge.

Parents Education

Parent Education one of the aspectof home environment. It includes education of parents. The following table show the qualification of the parents of the students are:

Table no.1.5 Parents' occupation and education.

Parents	Occupations	Education
A	Job for abroad work	Class VIII passed
B	Job for abroad work	Class V passed
C	Job for abroad work	Class VII passed
D	Farming	Class V passed
E	Farming	Illiterate
F	Farming	Illiterate
G	Farming	Illiterate
H	Farming	Illiterate
I	Farming	Illiterate

J	GOV job	Class XII passed
K	INGO	Class X passed

From above table after conducting interview with 11 students & parents' researcher found that above 70% of mother's education level was lies on illiteracy and that 30% of mother education level was lies on literacy. Similarly above 50% parents' education level was lies on literacy and less than 50% parent's education level was lies on illiteracy. Also researcher found that fathers education level had less effect achievement of child but mothers educations level had major effect on achievement in mathematics being base level of child is directly related with mothers activity and their qualification .

The learning performance of child related with parents' level of education investigatedthat mother's education level had major effect than fathers education level (Khanal,2012). Also five parents were illiterate and six were literate.

"I don't know about mathematics so I don't ask any thing about mathematics performance from my child".   *Parent view*

"It is a better for children to learn traditional occupation followed by their father instead of wasting time in obtaining education ".

Parents view

"Parents never come to meet us at school and ask about our reports card…. But sometimes I understand they do not have the time and lack of literacy."

Students view

"I know, my parent don't have mathematical knowledge, so how can they involve on my mathematical activity.   *Student view*

"Although my parents had mathematical knowledge but their busy schedule on their office disturbed us for their guide and mathematical help."

Student view

"Most of parents are illiterate and they are not aware of child's study."

Math teacher

From the above table and views, the researcher found that lack of literacy of parent, lack of aware of child's study, lack of mathematical knowledge of parents, lack of guidance, lack of time to go to school by taking students report, lack of positive think for study. Since most of the students have not educated parents and also not educated culture and they have not full support in studying mathematics that also leads the poor achievements.

Thus it is concluded that the parents' education level directly affects the achievements of students in Mathematics. Sothe parents' education related to home environment was causes of low achievement in mathematics.

Household Work

The work for house is called household work. It directly linked with mathematics study at home and consequently students' achievement. The effect of students'Household work on students achievement in mathematics, was analyzed according to their interview and researcher found that the students having much work load on home had low achievement and less work load on home had high achievement on mathematics. The common view of student's parents, math teacher about house hold work and mathematics study at home were as follow:

"Before and after school time I have to finished so many household works steal my parents come home, so I haven't timefor studying mathematics at home."

Students view

"Usually I can't go to school because I should do household work and other I do laborious work with my parents for making money so I haven't time for study mathematics at home."

Student view

" my father and mother both go to work out in the field and that time I have to also contribute my family by working in the field some time has carrying goods so I didn't get time to study in mathematics at home."

Student

"Mathematics is hard subject. Due to the money problem we are unable to provide their tuition class to improve achivement. So I guidance to his to select other subject".

Illustrate parent

"Majority of the students arefrom poor family. They are studying throughout the academic yearweak economic status they can't afford. Also it is very hard to buy book, uniforms and to pay school fee."Math teacher

Again, the study on causes of failure in mathematics at SLC level indicates that householdworkeffect in mathematics achievementhad major factor. (khanal, 2012).

From the above views, the researcher found that lack of a time for study mathematics sat home, lack of responsible parents for child study, lack of positive thought of daughter studying, lack of study environment at a home, poor family background, poor economical-status, illiterate parents and lack of a regularity of students because of load of household works.

According to the Vygotsky," cultural plays essential role in human intellectual development and learning. Above responses also shows that culture of behavior also effect in learning. Mainly daijo-Pratha, marriage of small age girls' student so it is factor of causes of low achievement.

Thus from about all evidences, the researcher conclude that household work and mathematics study at home has major effect on student's achievements on mathematics at HSL.

School Environment

Environment is considered as supplementary aspect with heredity. A good environment includes the 2 important aspects the first is physical environment and seconds is psychological environment.

The physical facilities in schools play and important role in learners' achievement and quality of schooling. The presence of provision of good infrastructure of physical facilities such as good school building, adequate , benches and desks in class rooms, availability of during water, toilet, especially for girls and other facilities affect the process of quality schooling, enrollment of students and performance of student achievement. They also help to create a good school environment. The main focus of improvement is to enhance the quality of class room by creating and improves space for all student and health situation of student. This improvement creates a healthy safe and conductive physical environment to faster effective learning.

The HSS was located east part of the saptari district. It was situated 3bighaa of land area among of them in one bighaa, 15katha and 12dhur the compound was surrounded by wall and remaining was play-ground outside of the school compound area. The school had total 33 rooms in which with 3 concrete building with 12 and 11

jestabuilding with 22 rooms. There were one library, staff room and administrative room separately with in one concrete building. The school had 14 building with 33 room separated.

The researcher asked to head teacher, *"How is your school environment and class room environment?"* Then the head teacher said that, *" environment of our school is very good. All physical facilities are available in the school like playground, little garden, two floors with a lot of classroom, canteen is available in the boundary of school. School is located in the peace and beautiful place where no out sounds are coming to disturb and no pollution is here. But we have notcomputer lab, e-library, mathematics lab, a lot of the teaching materials; we should manage them recently. Classroom environment little bit poor of mathematics class due to lack of sufficient teaching materials, lack of trained math teacher. The trained teacher also didn't try to use their knowledge properly by understanding psychology of the students to teach as student centered teaching method. So, students don't participate teaching learning activity properly. There was no extra class provided to students. So the mathematics achievement of our schools is not satisfactory we solve this problem soon."*

 Head Teacher

"School has not sufficient and strict rule to maintain, discipline, the students are from different cultural backgrounds, cast and socio-economic status mainly, students from middle and low socio-economic status are studying but due to lack of regularity of parents, enquiry the problems like bunking, fighting with friends, speaking rough words are found frequently."

Math Teacher

"There are not sufficient teaching materials, there are few materials but teachers ignored to use in classroom also there is no math library and math lab".

Student

"All government schools are seems same like our school in government school no hard rule to teach, no regularity, not good management but the school of being old."

Parent

Above response shows that the physical environment of the school was satisfactory but the psychological environment was not good. The policy of the school is not good for low achiever students. Head teacher cannot make the school environment is good for learning mathematics. The head teacher should be the man of task oriented in order to make the school effectives. School leadership should be handled over to such person. The head teacher should work in school such a way to make the teacher task oriented being regular in the school and taking care of the problem of the teacher in academic and social needs. The head teacher is the instructional leader of school. He had to provide class room support, administration, teaching observation as the central figure of the school. But in a case school such type of a work not be seen.

From the above view, the researcher concluded that there is lack of discipline in the school, lack of library for the study reference books, lack of math lab, lack of parent participation and hence because of negative thinking of teachers, students and parents about the government school, there were nobody tried to made effective teaching learning environment at school and no one interested to make a good classroom environment which was direct related and effect to achievement of mathematics.

Peer's Group Discussion

The discussion about subject matter with friends in class room and after school is called peer's group discussion. Introduction discuss in practice are essential to get

better achievement in mathematics. Knowledge can be constructed through active participation. Student gets knowledge while reflecting on their own action. In the class room activities are individually performed and judged on the basis of each individual performance. Activities are detached from meaningful context and from real life situation and communities of practice (Khanal 2012).

The researcher conducted interview with 11 students and math teacher to find out the influence of peer group discussion in mathematics achievement. For this purpose researcher asked the question to students and mathematics' teachers about peer group discussion and found the common view which are following:-

"Although we study mathematics but reality is that we were very weak in mathematics from earlier classes. We have still problem in learning mathematics so I have no interest to peer group discussion in mathematics class and if peer's group discussion can solve such types of problem then we are ready to that."   Peer's group

"Talented friends did not take interest on peer group discussion and did not give time on discussion in the class room for us but such types of environment if we got then we participate"   peer's group   *"I always afraid to speak in front of other. I feel ashamed to do so because I always doubt in my performance. If I do mistaken and errors my friends laugh at me and teacher also scolds me. I wish I never deliver and speech. But I do feel better do more task silently".*Students view

"The student who participate in peer group discussion they had got better achievement in mathematics. So I have tried to motivate all of these students for peer group discussion but they ignore".

Math teacher

Also on direct observation, the researcher found that there was lack of active participation of peer group discussion between students. On the leisure time students were busy on mobile activities, joking and something else. Social constructivism demands that learner gain knowledge when they try to convey their solution to others. But it can't found in case school.

The above response shows that students who less participated in peer group discussion they got low achievement. Thus it can be concluded that peer group discussion has major effect on achievement in mathematics.

Interaction with Teachers

Interaction is the communication with some body, especially while in the work or teaching learning activities. It is a social activity and all the human continuously get the any of interaction since human is the phenomenon of the society. Teacher-students interaction is engaged to know or to understand the subjects to encourage students them into investigate in solve mathematical problem by discussing each other and whit the teacher.

In this case study, first of all, researcher had assessment in the class room teaching learning activities of the subject mathematics to evaluate how does the teacher interacts with the students?Moreover, is the participation of the student is satisfactory or not? The one episode of a class room activities was follows:

Episode no 1

"The teacher had entered in class with a text book and marker only. He hadn't any kinds of teaching materials to be showed to the students or to be displayed in the class rooms. He wrote the topic 'limit and continuity' on the white board and started to teach. He didn't review previous lesson. He had done two questions on the white board and go to the office. After some time he come to the class and ask the student whether they understood one of the students said that he couldn't understand completely. The teacher become angry and warned him-"if u say again like this u will be punished, u most be serious to learn and understand the lesson from my teaching." Most of the students didn't seemed afraid with the teacher and class in very noisy but them afraid and heisted to ask the questions to the teacher. Students couldn't raise their hand to ask any question to the teacher. In addition, teacher did not try to understand them properly whether they comprehend the lesson or not. Teacher even did not go up to the back benchers. He just made the students remind the formulas

> *and ask them to resent at any rate. One of the students ask the teacher if there is aexample to be comprehended the formula easily. He didn't care much her but he told her to see the text book and find herself. The teacher said the students to do remaining exercise as the homework assignment and he said the class was over.*

The above response shows that the class room is teacher dominated and students' oriented class was totally deductive. The co-operative between teacher and student could not be established. Social constructivism theory emphasis on the teacher should help the learner to get to him or her own understanding off the content, teacher should previous guidelines and creates the environment for the learner to arrive at his or her own conclusions. But incase school it could not found.

Thus it is a concluded that there is known proper interaction between teacher and students. The interaction in mathematics class room teacher and students may be whole class presentation and practicing problem solving investigation or projects etc, any of these approach couldn't be seen in the observed class room. Thus obviously that is one factor creating the difficulties to achieve the desired expectation or achievements of mathematics from the mathematics class room.

Teaching Learning Process

Teaching learning process plays a great role in the achievement of the students. It includes all the functions that are used inside class room to achieve the goals of lesson. From the observation researcher found that usually, the teacher used teacher-directed structured practice with students. He didn't used any relevant teaching materials during teaching learning activities. He was not trying to encourage low performer students in discussion and engagement on task.

Teacher created method was the main type of instructional teaching used in the classroom. Teacher didn't curious and active while teaching and he used the teacher centered method to teach. Hecould'tmake the mathematics classes interesting. Teachers were not sufficient trained no motivating students with different ability .Teachers didn't focus to the student while teaching. And math teacher did not teach regularly in classes. He solved the one or two question in the board and gone to the office and next day he started the new topic. Teacher didn't interest to give class work to students and didn't interested to check the homework of the students there was not peer group and no interaction between teachers in class room. Students also didn't curious and active while learning mathematics they did not enjoy while solving the mathematics problems. They felled mathematics is less interesting than other subject. They didn't go to school regularly. They didn't complete homework given by math teacher because can't solve the all of problems of mathematics and they did not have enough time to study mathematics. They studied mathematics whenever they were free. It is difficult to ask the problem with teacher which had not the understood. Students didn't keep on practice already were through mathematics problems.

Views of students about teaching learning process were as follows:

"Teacher give focus only talent students I didn't get proper guidelinefrom our respected teacher." Student view

"I fell escape from the mathematic class because I can't give attention on study of mathematics in cass room teacher didn't care about our study and our future". Student view

"I can't understand what the teacher teach us, class room is very noisy so I can't listen what teacher said discipline cannot maintained in mathematics classes".

Student view

"Teacher never encourages us by providing the guidance about learning for our golden future. He didn't focus that we should labor hard for better position in math."

<div align="right">Student view</div>

"Although I study mathematics but realityis that I was very weak in mathematics from earlier classes. I have still problem in learning mathematics so I have no interest in mathematics class".

<div align="right">Student view</div>

The above responses were showed that because of lack of effective teaching process, lack of the student interest in mathematics subject and teacher didn't use discoverymethod or problem solving method etc. Bruner's theory emphasis that students can learn from guided discovery learning, problem based learning. Discovery learning believes that it is based for learners to discover facts and relationship themselves. But in case school these learning method did not use in class room teaching of mathematics.

Social construction explain that motivation is the key component for learning which makes class room more interesting and encouraging. The teacher should become facilitator in the class room and should provide positive reinforcement. The positive reinforcement is always emphasizing in good learning. But the case school had not adopted this approach in class room teaching of mathematics.

Thus, it is a concluded that teaching learning process of school is the major aspects for the betterment of student achievement. The teacher should play attention to improve the condition of the teaching and learning environment otherwise student's progress tends to zero. Thus traditional class room environment during teaching learning activities is a responsible factor for low achievement in mathematics.

"No one student's come regularity in school. If they missed today topic or the mathematics and how can they understand and yesterday topic of mathematics, so they pre-knowledge is very poor because of they can't understand mathematics .Than how can I teach all of them which topic they mixed in classes? And how can I give pre knowledge to everystudents'. That is their fault. Because of adolescence, they have physical, mental, economical changes because of they can't mind concentration on learning's so they are busy in taking each other non- subject matters. So class is noisy this is another causes of low achievement in mathematics. I think ever students should be on same level of understanding and if time of a class period in much only than interaction with students or peer group discussion and effecting teaching process could be done."   Math teacher

"Most of the students are irregular in the school because of her house hold problem. So student should be regular in the school to improve the poor performance in mathematics achievement"   Head Teacher

The above responses shows that a regularity of the students affect's on them performance in mathematics. Because of aregularity of the students they can't get better pre knowledge of them, they can gain new knowledge and they can find the relation between pre knowledge and new knowledge. But incase school students didn't have better pre knowledge and they have poor mathematical background.

Thus it is concluded that in teaching learning process pre knowledge of the students also play important role. Because of lack of pre knowledge students can't gain new knowledge. So this is also the factor of causes of low achievement in mathematics

Attitude toward Mathematics

Attitude as a concept is concerned with an individual's way of thinking, acting and behaving. It is a very serious implications for the learner, teacher, the immediate social group with the individual learner relates, and the entir school system. Attitude are found a result of some kinds of learning experiences student go through. Attitude towards mathematics includes the tendency to be fearful of and anxious about mathematics.

Behaviours that are following positive consequences reinforced and are more likely to repeat than are behaviors and attitudes that are followed by negative consequences (Moris and Maiosto, 2001). Operant conditioning requires the use of reinforcement and punished.

Some authorities regard attitude towards mathematics as just a like or dislike for mathematics, while other extend meaning to embrace beliefs, ability and usefulness of mathematics. For, Zan and Martino (2007and 1969), however, define, attitude towards mathematics as aggregated measure of "a liking or disliking of mathematics, a tendency to engage in or avoid mathematical, a belief that one is good or bad at mathematics, and a belief that mathematics is useful or useless."

"Most of my friend thought that mathematics is very easy subject so I choose it as major subject."   *Student*

"*I like mathematics since studying in secondary level so I choose mathematics as major mathematics in +2 level but I ingaze different so that I can't give more time for studying in mathematics then I feel mathematics is very difficult subject.*

Students

"I was a good in mathematics in 10th class so I choose but I got negative behaviour of mathematics by teacher and parent so I can't continuous good in mathematics on 10+2".Girl's Student

"In secondary (class 10), my mathematics achievement was very poor so I think if I do hard work then I will improve mathematics achievement in 10+2 level butlack of positive response for mathematics and lack of inspire to learn mathematics of senior soI can't success to improve in mathematics achievement." Student

"No one students come regularly in school. If they missed earlier class of mathematics then how can they understand today's topic of mathematics. Then how can I teach all of them which they missed in class?" Math teacher

"Due to less exposer of mathematics teacher couldn't performance well in class room". Math teacher

Senior Students views-*"Due to less achievement in mathematics and less information of positive aspects of mathematic so I could not get the proper opportunity".*

M.Ed. Passed Student

"I can't get the teacher speech in mathematics classes because of less achievement in earlier classes of mathematics". B.Ed. Passed Student

"There was no senior literature people who could give the positive response for mathematics but the society did not inspire to mathematics. The society believed that mathematics is hard subject girls can't study and getting good in mathematics so the society did not admire the girls in learning mathematics, it is better to take other non-mathematics subject as optional due to the lack of confidence, girls are weak in mathematics so that I can't success to mathematical achievement as I want"

B.Ed.Passed Girl Student

"Due to less achievement in mathematics in earlier classes, I can't get the proper effort for the higher study".   *10+2 Pass Students*

The above responses shows attitude of students followed by negative consequences due to the lack of positive consequences reinforced as lack of positive reward, inspire, motivation in learning mathematics and also negative attitude of society, parent, teacher and senior for girls student in learning mathematics. Similarly lack of responsible behavior of teacher, parent, senior or society for the student attitude towards achievement in mathematics.

Ma,X and J,Xu,(2004) emphasis that attitude towards mathematics play a crucial role in the teaching and learning process of mathematics. It effects student'sachivement in mathematics. The teaching method, the support of structure of school, the family and students attitude towards school affect the attitude towards mathematics. Positive attitude towards mathematics leads students towards success in mathematics. Attempt to improve attitude towards mathematics at lower level provides base for higher studies in mathematics. It also causes effect in achievement of mathematics at secondary school.

Thus it is concluded that because of negative attitude of society and family, teacher towards mathematics, especially for girls and also have negative attitude towards mathematics. So that attitude towards mathematics is also effect in achievement of mathematics.

Chapter-V

SUMMARY, FINDING, CONCLUSION AND RECOMMENDATIONS

After analysis and interpretation of the collected data an attempt has been made to summarize enlist the finding to draw the conclusion and to recommend the suggestion for further study.

Summery

This is the case study of Shree L.B.N.H.S.S. B. Katti. The purpose of the study was to find out the causes of low achevement in mathematics at 10+2(HSL) and to analyze the causes of low achievement in mathematics at +2 level in community school in Saptari district.

This higher secondary school facing of low achevement in mathematics. The design of this study was qualitative as well as descriptive in nature.The major tools of this study were class observation, interview schedule and document analysis (school document). The respondent of the study were student, corresponding parents, math teacher and head teacher of the study.

The total no. of the students were 885 in from I to XII class of secondary level. From 198 students studying class XI and 187 students were studying in class XII among them 44 students were studying the mathematics. From 11 students were selected as a sample.

In this study the researcher found that there is a strongly association with causing variables of mathematics achievement.

The variable are home environment, school environment, interaction with teacher, peer's group discussion, teaching learning activity, attitude towards mathematics, lack of parent education, irregularity of students, lack of student centered teaching learning environments, gender suppression, attitude of senior

students view, poor financial condition, and non-extra class for low achiever students are the causes of low achievements mathematics at +2 level.

Finding

This case study was mainly focused factor that causes of low achivement in mathematics at +2 level. The researcher use observation, interview schedule, administrative records and field note, to achieve the objectives for data collections and interpret it. The major finding of this study on the basis of collected data as follows;

- Family supports (Parent's occupation, parents-supports,parents' education, house hold work at home) for learning in mathematics were major causes on students' achievements related at home environment variable.

- Classroom environments, physical facilities, library, math-lab, parents participations, negative thinking of teacher ,parents' about the government school, non-trends of extra class for poor students, irregularity of students, poor pre-achievement, lack of proper guidance and consoling were major causes of low achievement in mathematics related to school environments.

- Policy of school hasn't concerned about mathematics learning. There was no math-lab and sufficient learning materials which were causes of low achievements in mathematics.

- Teacher dominated classroom, lack of cooperative behaviour between students and teacher, lack creative environment, proper guidance and consoling, reinforcement where were major causes of low achievement in mathematics on interaction with teacher related variable.

- Poor class-room environment for peer's groups discussionas less participation in peer group discussion due to lack of pre-knowledge were causes of low achievement in mathematics related to peer's groups discussion variable.

- The students were taught with poor learning cultural such as teacher did not start the lesion by connecting the previous lesson (or concept),did not apply technique ofpositive motivational reinforcement, did not check the understanding level of students and teacher directed practice as student centered teaching learning process properly were major causes of low achievement related to teaching learning process.

- Although most of the students choose mathematics as major subject but without understanding the meaning in our life behaviour importance so that they had feel mathematics is very hard and tedious subject, they did not come and read regularly as negative thought develop, lack of getting positive motivation to mathematics immediately by teacher, parents and senior as a result negative attitudes towards mathematics learning so they couldn't get proper effort higher study were major causes of low achievement in mathematics.

- As a whole poor home environment and school environment, non-proper interaction with teacher and peers' groups discussion, lack of student centered teaching learning process, lack of positive attitude towards mathematics by teacher, parents andsenior, else other lack of extra class for low achiever students and technique etc.

Conclusion

Curriculum practices and curriculum are closely linked. Achivement of student is always affected by different variables such as home environment, school

environment, interaction with teacher, peer's group discussion, teaching learning process, attitude towards mathematics and so on. These variables affected on the mathematics learning achievement. These above mentioned variables should be positively carrying then students of achievement in mathematics could be improved (or increased).

The causing variables related to school environments such as physical facilities of school, class environment, class works, peer interaction, interaction with teacher have strongly positive or -ve effected on mathematics achievement. The causing variables related to home environment such as family backgrounds as parents' education, parents' occupation, parents support, hose hold work, studying in mathematics at home had strongly effects on achievements of students. The causing variables related to peers' group discussion and interaction with teacher also effects achievements in mathematics because it established friendly learning environments in mathematics between students-students, students-teacher. Similarly the causing variables related to teaching learning process as it treatment students psychological problem, students' performance, class-roomenvironments, learning environments such as student centered teaching method effects achievements in mathematics. And the causing variables related to attitude towards mathematics as attitudelead teaching and learning process of mathematics, students' performance in mathematics towards success or un-success so that it effects achievement in mathematics.

Therefore all parents, math teacher, students, administrate should be commitment to improve above these variables then the result of 10+2 and mathematics achievements of students would be betterments as we wish in case school comparative to +2 result of Nepal.

Recommendation

From the above finding and conclusion, the researcher should like to suggest some recommendation for the improvement of mathematical achievements in 10+2 level examination of case school. The following educational implications for teacher, students, parents, educators, educational planner and administrate working in the related field many laid down;

- Parents should attention about their students' (children). They have to look about how their children are doing. They should have to provide enough time to study at home and also have to visit.

- Students should need to be motivated by their teacher, parents and senior, significant others so that they develop positive attitude towardsmathematics.

- Teacher should provide mathematics concept according to their pre-knowledge,connecting the previous lession by teaching time and apply the recent technique and innovator of mathematics.

- Student centered teaching learning method and techniques should be emphasized.

- School should manage the physical facilities to improve the quality of education and manage extra class for low achiever students.

- School should manage co-operative environment for interacting between student-students, students-teacher, parents-teacher, teacher-teacher and teaching learning activityespecially for mathematics.

Appendix-A

Classroom Observation Note

The classroom observation form prepared on the basis of following indicates being participant with mathematics teaching during teaching learning activities.

Teacher Name: Date:

School Name: Grade:

Address   :   No. of Student:

Topic   :

Report of classroom observation form:

S.N.	Do Main	Reason		
	Physical Management	Good	Satisfactory	Unsatisfactory
	- Classroom size - Cleanliness - Light and ventilation - Availability of furniture - Set planning of students - Arrangement of white board and graph board - Mathematics laboratory - School environment			

S.N.	Teaching Strategies	Good	Satisfactory	Unsatisfactory
	- Beginning of the classes - Creates & maintain a physical setting that promotes learning - Review & relates New learning - Managing classroom diversity			

	*Instructional Method - Teacher centered method - Student centered method Students Teachers interaction			
	*Closure of lesson:			
	- Relatives lesson to objectives - Student involvement is learning - Checks the understanding of students - Provides assignment/Home work/project work relevant to the learning that has been practiced without guidance - Social environment ground the school - Co-curricular activities			

	- Other
	
	   • Concept
	
	   • Summarize
	
	   • End of time/Starter on time
	
	   • Confidence			

	*Technique of Assessment - Assigning classwork - Classwork checking - Homework assigning			

	- Checks for individual understanding			
	- Utilizes questioning techniques			

Appendix-B

Guidelines for Interview Schedule with Students

Name :   Date:

Age:

Sex :

School Name:

Address :

The interview schedule with students was taken on the basis of following main topic:

- Home Environment of the students: Task, help, facility, parents, family
- Opportunity to learn at home
- Teaching learning activities as starting situation, Methods, response, management, question, evaluation system, summarize
- School Environment as physical environment or facility and psychological environment.
- Instructional Materials
- Nature of materials, effectiveness etc
- Relation between teacher and students
- Class behaviour towards students
- Sources of economy
- Opportunity provides by school group work, discussion given in classroom
- Factor affecting achievement in mathematics
- Attitude towards mathematics

Appendix-C

Guidelines for Interview Schedule with Math Teacher

Name   :   Date:

Address :   Age:

Qualification: Sex:

Teaching Experience: Training:

School Name:

The interview with mathematics teacher had taken on the basis of following main topic:

- Home Environment as parents' states, qualification of parent, help of parents, financial supports.
- School Environment such as
  - Classroom management (space, black board, physical facilities, no. of student)
  - Peer's group discussion
  - Relationship with guardians
  - Teaching Learning Activity (Method, encouragement for student, relative question, use of material, learning environment)

- Instructional materials
- Supervision of class
  - Causes of low achievement in mathematics
  - Relationship with students
  - Strategy of low achievers' students
  - Application of home-work and class work.

Appendix-D

Guidelines for Interview Schedule with Parents:

Name   :   Date:

Sex   :   Age:

Qualification: VDC/Ward no:

Occupation: Religion:

The interview with parents had taken on the basis of following topics:-

  - Parents behaviors towards child at home.
  - Views towards socio-economic.
  - Views towards school's facilities and policies.
  - Views about cost of education.
  - School and home environment in learning for students.
  - Reading opportunity at home.
  - View about improvement of their children achievement.
  - Views towards children educational achievement.
  - Relation among schools staff.
  1. Do you encourage your children to study at home or to do house work?
  2. Which occupation of the parent help to improve student learning performance? Why?

3. What kinds of the problem have you got in school for your children?

4. Do you agree that parent's economic status of family influences student's achievement? And why?

5. Do you agree the parent's education influences students achievement level?

6. Are you satisfied from your children achievement level in mathematics? If not what are the main reason?

7. Any further suggestions regarding the improvement of student's achievement level.

Appendix-E

Guidelines for Interview Schedule with Head Teacher

Name: Date:

Address: Age:

Qualification: Sex:

Scholl Name: Experience:

The interview with head teacher had taken on the basis of following main topics:

- View towards mathematics achievements
- View towards low achievements in mathematics of students
- View towards peer's group discussion
- View towards teaching learning activities
- Attitude towards mathematics

- View towards financial status and background of parents
- School Environment
- School's facilities
- Relation between staff (head teacher, teacher, other) and students
- Classroom management
- Role of school management committee
- Evaluation of students learning difficulties and process

Appendix-F

Guideline for Interview Schedule with Peer's group

Peer's   Group   Name:

Date:

Qualification:

 Name of School: No. of students'

participation:

        The interview with peer's group had taken on the basis of following topics:

1. Do you participate for peers' group discussion? Why?
   …………………………………………………………….....................

2. Do you get classroom environment to discuss in the group?
   ………………………………………………………………………

3. Does the school provide instructional material for peers' group discussion to
   you? If not why?

…………………………………………………………………………………
.....

4. What kinds of problem have you got in your school & home for peer's group discussion about mathematics' problem?

………………………………………………………………………………

5. What are the view of teacher, parents, head-teacher for peers' group discussion?

……………………………………………………………………………….....
..

6. Do you satisfy to organization for extra activity about mathematics in group?

……………………………………………………………………………….....
..

7. Why do you need to organize for peers' group discussion to improvement of the students' achevement in mathematics?

………………………………………………………………………………….
....

Appendix-G

Physical Facilities

S.N.	Description	Quantity	Remarks

#	Item	Value	Notes
1.	Play ground	150m*130m	1bigha,15katha,12dhur (school compound surrounded by walls)
2.	Toilets		
	- Boys toilets - Girls toilets - Staff toilets Drinking Water	2 2 2	
3.	Library	2	
4.	Math lab	3 tube well	
5.		1	
6.	Building	No	
7.			
8.	Room	3 Concrete (12)	Science lab
9.		And 11 Jasta (22) rooms	
10.	Desk and Bench	34	
	Chair table	300	
	Bus	40 chairs and 16 tables	

		No	
	Instructional Materials		
1.	White board	6piece	
			22 Blackboard
2.	Text Book	300set	
3.	Reference	60piece	
4.	Practice Book	200set	
5.	Teacher Guide and Curriculum	2(11th class-1 & 12th class-1)	

6.			
	Different Board	Notice Board	
7.			
	Other Chart	No	

References

Acharya, P. (2006).*A study on problems faced by HSEBMathematics teachers in teaching of grade XI. Ktm.*An unpublished master thesis, T.U, Kirtipur

Baroody, A.J. (1987). *Children's Mathematical thinking:Developmental framework for preschool, and special Education teachers*. New York: Teacher college press.

Bloom,B.S.(1984). *Stability and change in human characteristics*. New York: John Wiley and sons

Bradley,R.H.(1989). *Home environment, Social status and mental test performance.* Journal of educational psychology,69(6),69-71

Brown et al, (1999). *Middle School Social Studies incognative revolution*. The

    Clearing House.V72, 327-331

Conboy,M.F.(2006). *Secondary student's perceptions of factors effecting failure in*

    mathematics. Eurasia journal of mathematics.

Chheri D.B., *Studies in mathematics education,* sunlightpublication.

Dangol, A.(2012), *Causes of failure in mathematics in SLCexamination.*

    *(*AnUnpublishedmaster thesis). Depart. Of mathematics education, T.U.

    Kirtipur

Denny, (1995), Ernest, (1999), *Social Constructivism as a philosophy of mathematics*:

    Radical Constructivism.

Edmonds. (1997*). Theory of school effectiveness.*Published.

Eggen and Kauchak (1999). *Educational Psychology: windows on classrooms* (4[th]ed.)

    Prentics Hall.

Gergen (1995), K.J. *Social Construction and the Educational process*, Constructivism

    in Education.

Ghimire,T.R. (1997). *A factors affecting teaching learning mathematics at second*

    level. An Unpublished master thesis. T.U. Kirtipur

Kalhotra, S.K. (2013). *A study of causes of failure inmathematics at high school*

    Stage. Hyderabad;published

Khanal,P. (2010). *Introduction to educational Research:* Sunlight Publication

Khanal,K. (2012). *The cause of failure in mathematics at SLC level. KTM;*An

    unpublishedMaster's Thesis T.U. Kirtipur.

Khadaka, M.S, (2014). *Causes of failure in Mathematics at higher secondary*

    level;(An Unpublished Master's thesis) Department of Mathematics

    education.*T.U.Ktm.*

Keith, T.Z. (1982). *Time spend on homework and high school grade: A large sample*

    path analysis. Journal of educational psychology, 74,248-253.

Ma. X. and J. Xu (2004). *Assessing the relationship between attitude towards mathematics and achievement in mathematics:* A mata-analysis. Journal forResearch in Mathematics Education*, 28(1), pp.26-47.

McInerney,V.(2002). *Educational Psychology*. Constructing Learning(3rd.ed) Prentice Hall

Moris, C.G. &Maisto,H (2001). *Understanding Psychology (5ed). Boston: pearson.*

Mensah, J.K., Okyere, M. and Kuranchie, A. (2013). *Students Attitude towardsMathematics and Performance: Do the teacher attitude matter?* Journal ofeducation and practices. *Vol.4, no.3, 2013 (www.iiste.org).*

Niure, D.P. Educational Research Methodology, Quest publication*,* published. Text book of M.ED. Ktm.

Pandit, R.P. (2007). *Fundamental of Mathematics Education, shanti Nagar Marg, KTM.*

Panday, T.R. (2008). *Causes of low achievement in mathematics.* KTM An unpublished Master's thesis, T.U, kirtipur

Panday, R.P. (2007). *Factors influencing mathematics Achievements. Ktm;* Anunpublished Master's Dissertation, Department of Mathematics Education, T.U, Kirtipur

Pant, G.K. (2014). *Causes of low achievement in mathematics of Girls students.sssKtm:* An unpublished Master's thesis Department of Education, Kirtipur.

Raj, K.(2013). *Higher failure Rate in Mathematics Examination in Rural senior secondary school in Mthatha district. Walter: Published*

Sapkota, M. (2011). *Causes of failure Mathematics at school.* M.Ed. TU, Ktm*:* An unpublished Master's thesis.

Schunk, D (2012).*Learning theories: An Educational Perspective*(6thed.) (Pearson Education, Boston,MA)

Subedi,G.P. (2005). *Factor affecting failures in mathematics in SLC examination. An Unpublished Master thesis,T.U. Ktm*

Taylor,C.A.(1984). Non formal education as a strategy for the alleviation of inadequacies in the home-environment, South African journal of education (413) 138-142

Upadhyay, H.P., Pradhan, J.B. and Dhakal, B.P. (2067). *Trends in Mathematics Education.* Balbalica publication pvt. Ltd. Somakhusi, Ktm.

Upadhyay, H.P., (2001). *Effects of constructivism on Mathematics Achievement of grade V in Nepal,* Ph.D. dissertation, Punjab University, India.

Zan,R& Martino, P.D. (2007). *Attitude towards Mathematics: overcoming positive/negative dichotomy. The Montana Mathematics, EnthasiastsManograph, 3, 157-168.*

 www.google.com/Wikipedia /www.ucdor.ie/index.php/Education Theory/Socialconstructivism

http://www.psy.gla.ac.uk /- steve / courses/archive/CERE 12-13-safari-archive/topic3/webarchive-index.html (CERE 12-13: Combined Student wikis)