

**PROBLEM FACED BY SECONDARY LEVEL STUDENTS
IN LEARNING MATHEMATICS**

**A
THESIS
SUBMITTED BY
GANESH THAPALIYA**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF EDUCATION**

**SUBMITTED TO
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Letter of Recommendation

This is to certify that Mr. Ganesh Thapaliya a student of academic year 2065/067 with Campus Roll No. 65, Exam Roll No. 2400104 and T.U. Registration No. 9-2-344-35-2004 has completed his thesis under my supervision during the period prescribed by the rules and regulations of T.U., Nepal. The thesis entitled “Problems faced By Secondary Level Students in Learning Mathematics” embodies the results of his investigation conducted during the period of 2013 under the Department of Mathematics Education, Saptagandaki Multiple Campus, Bharatpur, Chitwan, Nepal. I, hereby, recommend and forward that this thesis be submitted for the evaluation as the partial requirements to award the Degree of Master of Education.

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Date:- 08 December, 2013

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Ganesh Thapaliya

DEDICATION:

*This holy work is dedicated to my father Mr. Shiva Prasad Thapaliya,
mother Mrs. Parbati Thapaliya, my beloved
Wife Mrs. Rukmina Thapaliya and my borthers
Mr. Kumar and Rakesh Thapaliya,
Who even in a very difficult
situation gave me a great
span of their life for
what I'm now.*

ABSTRACT

The purpose of this research was to study the problems faced by secondary level students in learning mathematics. The specific objectives of this study were to identify the problems related to the home environment of students, to identify the problems related to classroom management and to identify the problem faced by students related to the teaching and learning activities in classroom. For the convenience of the study, problems faced by students were categorized into three different areas, problems related to home environment, classroom management and teaching learning activities.

For the study, ten schools (five from institutional and five from community) were selected purposively. From each school, three (mathematics) students were selected in the academic year 2070 B.S. Hence altogether thirty students were selected. Students from each school were selected according to their marks percentage secured at grade VIII. The students who had secured the highest, average and lowest marks were selected to make the data more representative. Similarly, ten mathematics teacher one from each school was selected for the sample of the study.

The quantitative data were collected from questionnaire and qualitative data were obtained from interview and observation. The researcher himself developed the interview schedules and observation form under the guidance of supervisor. The class observation form and interview schedule were the main tools of study. The responses were collected from different teachers and students by purposive sampling method. The collected data were quantified based on five point Likert's scales. Interview schedules and observation form were included in each category of problem and then descriptive analysis of collected responses was carried out. Descriptive research includes studies that provided simple information about the frequency or amount of something. The Descriptive statistical indicators such as mean weightage and percentage were used for the analysis of the problems. The researcher was used percentage and mean weightage to analyze the data.

Most of parents were illiterate and only some of them were literate so students did not get encouragement and idea to improve their study. Students had to engage into different works at home such as cooking, babysitting, cattle rearing, supporting their parents in field etc. so they could not give more time in their study. Some students themselves gave more time for extra activities like playing games, visiting new places instead of giving time on their study. In some schools, the size of blackboard/white board was inadequate as well as low quality. The school administrations were not providing the materials to the teachers. There were lack of reference books, lack of mathematical materials and sufficient library in the school. Most of the schools do not have good facility of library. The size of classroom in some schools were small. So, it is very difficult to carry out supervision. Teacher did not have a good command over subject matter. Training opportunity for the teacher was not provided so they were not clear in subject matter. Lack of prior knowledge was an obstacle to the forward lessons. Besides the lecture and problem solving method, other scientific techniques were not followed. There was no provision of mathematics lab. So they couldn't learn by doing. Daily lesson plan was not used by teacher.

Most of the teachers were unknown about teaching methods, the selection of teaching aids and approaches of evaluation. It is due to their negligence and unavailability of required materials. The usual trends of teaching throughout the generation are as same as lecture and problem solving. Most of the above problems are the products of financial difficulty and inefficient academic management. Therefore more financial resources and effective management should be searched to solve the problems of students and teachers. By providing the solution to above requirements, the problem faced by students may decrease in secondary level. So, school provides good opportunities for secondary level students.

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ACRONYMS

B.S.	:	Bikram Sambat
CDC	:	Curriculum Development Committee
CRC	:	Curriculum Resource Centre
DEO	:	District Education Office
HSEB	:	Higher Secondary Education Board
MOE	:	Ministry of Education
NCED	:	National Center for Educational Development
NESP	:	Nepal Education System Plan 2028-2032 B.S.
NS	:	Number of Respondents
S.L.C.	:	School Leaving Certificate
T.U.	:	Tribhuvan University

Chapter I

INTRODUCTION

1.1 Background of the Study

The word mathematics has been derived from an ancient Greek word "Mathamein" which means "to learn". So mathematics is a process of learning and it is an expression of human mind concerned with ideas, process and reasoning. It is an organized structure of knowledge. Mathematics which was created with human needs is going ahead along with human civilization. The term "mathematics" has been interpreted and explained in various ways. According to Oxford Advanced Learners Dictionary, "Mathematics is the science of number and space". Mathematics is a source as well as an effective/beautiful tool for earning the life smoothly and worthfully in a systematic way. If we try to list the definition of mathematics, the work will be never ended. It is a way to settle in the mind a habit of reasoning in which each proposition follows as a logical consequences of proved propositions. Mathematics is a collective, continuous and expansionable subject so it requires previous knowledge and skills that help for further study. Students should understand the new concepts and relations in mathematical form then after they generalize and use in other situations clearly.

Mathematics is related to measurement, calculation, discovering relationship and dealing with the problem of space. According to John Locke, 'Mathematics is a way to settle in mind a habit of reasoning'. According to James, G. (1986), 'Mathematics is the logical study of space arrangement quality and many related concepts (as cited by Limbu, D. 2009). Achiele D.B. and Rey R.E. (1971) have written their book named 'Reading in Secondary School Mathematics' that mathematics is a way of thinking i.e. way of organizing, analyzing and synthesizing a body of data.

Mathematics is a study of pattern. It is through mathematical description that regularities and similarities in nature can often be clarified. Mathematical is the

language of science and as such use carefully defined terms and symbolic representation that enhance our ability to communicate.

An understanding of mathematics is essential for every human life. No matter what occupation a student chooses in his adult life, one can't achieve complete success without a mastery of the mathematical concepts skills and process. It certainly increases his/her efficiency and effectiveness. Mathematics learning logically facilitates to study in other areas like business, agriculture, science and technology.

In Nepal, mathematics has been taught as one of the main subject in school level curriculum since the beginning of modern school education. Mathematics has been given a significant place in the Nepalese school level curriculum since the implementation of National Education System Plan. NESP curriculum 2028 B.S. explains about the importance of mathematics in school education as follows: "A well-grounded understanding of mathematics is essential for everyday life as well as for higher study in the field of science and technology. Mathematics, like language, is a basic tool of communication, daily transactions and communication involve the frequent use of mathematical concept that is the quite natural that mathematics be given a very important place, second to language in school education, student apply mathematical concept, skill and logical reasoning to solve different kinds of problems not only a student's but also as adults later on".

In order to make teaching effective at primary and lower secondary levels, Curriculum Development Centre had made several attempts at revising school curriculum producing teachers guides and teaching units, besides training teachers after the introduction of National Education System Plan (NESP) still the situation has not improved in the desired direction. Curriculum Development Centre (CDC) surveyed the school mathematics textbooks (grade 1-10). It concluded that most of the contents treated in the text books did not match the curricula. Also most textbooks were of low quality and inadequate in terms of contents CDC-1976 (as cited by Paudel, B. 2008).

Most of the students feel difficulties in Mathematics. They pass after a hard work. Generally, they may have problems in understanding the new concept and relation. For e.g. Matrix, vector, trigonometric and theorem are some topics which are absolutely new to them. These problems were caused by teaching learning activities. The problem seen in teaching learning activities depend on the home environment, classroom management, instructional materials used in the classroom, school environment provided to both students and teacher and physical facilities for the learning activities.

Home environment is one of the most important factor on which the students can learn easily. Good environment encourages the students to learn efficiently. Poor environment makes students frustrating mentally and physically. Therefore, the home environment was one of the problems faced by the students.

Classroom management is conceptualized as a process, requiring the selection and use of means appropriate to the nature of the management problems and situations. In an effective's classroom management, individuals are enabled to apply their abilities, talents and energies to educational tasks.

Teaching learning activities play important role to shape knowledge and understanding of the subject matter. Students' performance depends upon how the teacher teaches the subject matter. Student centered teaching methods are now days highly focused.

'Teaching and learning throughout the world occur is social setting called classroom' (Anderson, G. 1998). Some of these classrooms are composed of students who are very similar to one another in terms of their abilities, achievement and a variety of other characteristic. Such classrooms are homogeneous other classrooms can be heterogeneous in terms of their capabilities, prior achievement and other characteristics. This could give rise to a problem.

Next management refers to skill in the organization and preparation of lesson in such a way that all pupils are actively engaged in learning. So the classroom

management can be defined as the process of organizing and co-organizing the willing effects of children to achieve their own and educational objects. Individuals in the classroom apply all their rational, creative talents to the challenge of educational tasks.

The statement that 'anyone who knows his subject can teach it' can be misleading. So it is believed that method is more important than subject matter in secondary level. Every teacher needs to prepare himself in subject matter and update the methods to achieve our educational aims. In general, traditionalists have emphasized the learning and progressives have brought us to a consideration of the learner. The learning is one of the important themes in teaching activities. According to Skinner, "learning is a process of progressive behavior adaptation". Similarly, World worth defines "learning is the process of acquiring new knowledge and new response". There are certain steps in learning, such as a goal, motivation, recreation, obstacles, response and generalization. Therefore, the effective learning always demands the collaboration of learning method in the classroom (as cited by Paudel, B. 2008).

Problems relating to mathematics learning mentioned above was affected the achievement in teaching. This is a great challenge to the mathematics teacher. Some problems of learning mathematics in students might directly be related to the teachers' academic backgrounds, classroom practices, school management and leadership and others. Such situation might affect the efficiency and potentiality of students' performance (as cited by Basnet, 2003). Teachers are the important agent for the successful implementation of mathematics curriculum. Only by the hard work of the teachers the mathematics curriculum can successfully be implemented. It is the teacher who can influence upon the attitude of students to mathematics learning.

There are various researches about students' problems but no research can be found to students' problems. Many government and non-government official research indicate huge amount of time and property were spent to find the problems of students but no satisfactory result was found. Hence no successful

solution can be found to address the students. So, many problems are occurring frequently. That's why the researcher conducted a systematic study on the topic "A study on problems faced by secondary level students in learning mathematics".

1.2 Statement of the Problem

This Study mainly concerned with the problem faced by Secondary level students in learning mathematics of Eastern Chitwan. The aim of this research is to find the answer of the following questions:

- What are the current problems of students related to home environment?
- What are the problems faced by students in classroom management?
- What are the problems faced by student in their class while learning mathematics?

1.3 Significance of the Study

Every research is important in itself because it unfolds various unseen facts in any area of study. As mathematics being the major subject to failure in Secondary level. Every year, more than fifty five percent of the mathematics students failed in this subject. There are many agents responsible for the difficulties of learning mathematics. Therefore, the purpose of this study would be identifying the level and extents of problems faced by students of Secondary level in learning mathematics.

This study would contribute a lot in identifying the problems and thus help teachers and policy makers to know students' actual problems of learning mathematics. This study would provide some logical and valuable information about the current problems. It would also help to provide good information to the concerned agencies to reform and improve so as to avoid such difficulties. Significance of the study can be listed as:

- It would explain about the difficulties of learning mathematics that are being faced by students of Secondary level?
- It will help teachers, policy makers and related agencies to improve the program.
- It will help in designing as well as revising mathematics curriculum of Secondary level.

1.4 Objectives of the Study

The general objective of this research was to study the problems faced by Secondary level students in learning mathematics. To supports this, the specific objectives were listed as follows:

- To identify the problems related to the home environment of students.
- To identify the problems related to classroom management.
- To identify the problem faced by students related to the teaching and learning activities in classroom.

1.5 Delimitation of the Study

This Study was limited to the following facts:

- This study was limited to Secondary level at grade IX only.
- The study was carried out only in the five communities and five institutional school of Eastern Chitwan.
- This study was concerned with current learning problems of Secondary level mathematics students of grade IX.
- This study was limited to the problems faced by mathematics students of grade IX related to home environment, classroom management.

1.6 Definition of Related Terms

Community Schools: Schools receiving regular government logistic and financial support are called community schools.

Institutional Schools: Institutional schools are established by the individual or by the community which do not receive regular government logistic and financial support.

Secondary Level: School level from class 1 to 10 is called secondary level.

Secondary Level Mathematics Teachers: Teachers who teach mathematics at secondary level.

Trained Teachers: The teachers who have passed S.L.C. with major subject education, intermediate level in mathematics education or have ten months special training provided by MOE or NCED or authorized institution are defined as trained teachers.

Chapter II

REVIEW OF RELATED LITERATURE

After selecting the problems and objectives of the study, the researcher was ready for the collecting data. Before, collecting data, the researcher was decided that the research was new for research. So, first of all the researcher was studied the review of related literature. The purpose of reviewing related literature were refining the research problem, developing significance for the research, identifying methodological techniques, identifying contradictory finding, developing research hypothesis and learning about new information and so on. The detailed description about some reviewing related literatures were as follows:

2.1 Empirical Review

The researcher tried to find out the literature on the topic that was related to problems faced by mathematics students. Researcher found so many studies and investigations on the attitudes of students and teachers towards mathematics and the achievement of students in different levels. A number of books, research reports, papers and other thesis were found that were concerned with curriculum, teaching material, methods and so on. However, researcher could not find any investigation on the problems faced by Secondary level students in learning mathematics. Only few of them have done in the related field. Among them I have studied which are considered as a milestone of my study. Reviews of some related literature are as follows:

Bhattarai, T. (2005) conducted a study on problem faced by the mathematics students in existing curriculum and concluded that learning mathematics in Secondary level is disturbed by so many factors like lack of sufficient instructional material, lack of physical facilities, teachers' negligence towards curriculum planning, students' weak background in subject matter etc. Most of the problems were created due to financial situation and lack of proper academic management.

Basnet, D. (2003) conducted a study on teaching problems faced by the mathematics teaching in existing curriculum of grade eight in Jhapa district and concluded that teaching and learning mathematics in Jhapa district was not satisfactory. The teachers and students are facing many problems due to the lack of training, orientation opportunities for the mathematics teachers in existing curriculum, inadequacy of textbook, lack of instructional materials, lack of physical facilities in the classroom, large class-size, defective evaluation system and so on.

Chaulagain, R. (2005) conducted a study on problems faced by secondary school mathematic teachers in teaching geometry and made a conclusion that geometry teaching and learning in Kathmandu is not satisfactory. His nine different categories showed that teachers do not have significant problems on applying educational techniques and using locally available materials. Among the remaining categories, most of teachers have faced problem on either way problems were related to students' evaluation techniques, geometry instruction, teachers' professional development and constructing and using instructional materials.

Pathak, B. (1986) concluded a study on the problem faced by the teacher of Kathmandu district in the implementation of mathematics curriculum for Lower Secondary subject. He took sixty five teachers as the sample of lower secondary schools of Kathmandu districts. He administered a set of questionnaire to the lower secondary mathematics teachers who had faced the problem regarding the problems of mathematics curriculum, teaching methods and evaluation techniques. He concluded that there are problems to the lower secondary level mathematics teachers.

Paudel, D. (2007) did his thesis on problems faced by lower secondary school mathematics teachers in teaching geometry and concluded that geometry teaching and learning was not satisfactory in Parbat district. He further found that both trained and untrained researchers have been facing more or less similar problems. They are all due to the lack of training, crowded number of students, lack of

proper teaching materials, lack of math lab facility, time factors, poor evaluation process and urban oriented curriculum etc.

Pandit, R.P. (2001) mentioned article on problem faced by mathematics of three years B.Ed. level mathematics curriculum in Nepal. He concluded that mathematics teacher education program in Nepal is disturbed that mathematics teacher education program in Nepal is disturbed by so many factors, such as lack of lecturers involvement in curriculum planning, lack of efficiency to conduct teaching facilities, students' weak back ground in the subject matter, lack of opportunity given to upgrade their knowledge and a huge number of personnel problems of lectures.

Dhital P. (1985) conducted his thesis on problems facing the teaching of English at lower secondary level in Dhankuta district. This thesis concluded that there were number of problems in teaching English related to the curriculum text book, teaching learning activities, teachers' training, instructional materials, classroom teaching, physical facilities. The researcher found that no research has been done to find out the teaching learning problems of mathematics in existing curriculum go grade IX.

Butler and Wren (1995) believed that one of the major problems that confront the teacher of demonstrative geometry is to teach the pupil to reason without reference to un-established circumstantial evidence. Furthermore, they stated the following problems in studying geometry:

- Inability to read well and to understand clearly the meanings of theorems.
- Inability to restate the problems.
- Not knowing how to get started.
- Failing to justify each step in the proof, leaving weak links.
- Proof drawing and sketching of geometric figures.

Limbu, D. (2007) conducted his study on problem faced by the students in geometry at Secondary level and concluded that students have been facing numerous problems during the courses of learning geometry. Different types of

internal and external factors are affecting to arise the problems on the basis of the analysis and interpretation of data such as problems related to teaching and learning activities, classroom management, proving and verifying theorems and constructions and evaluation techniques. On whole, he added that geometry teaching and learning was not satisfactory in Ilam district.

Acharya, P. (2006) conducted a study on the problems faced by HSEB mathematics teacher in teaching of grade XII. He concluded that study prescribed curriculum and the existing textbooks are not well managed, not sequential and practical problems are not well managed. It also concluded that trained and untrained teachers, both were facing the similar kinds of problems in Kathmandu district.

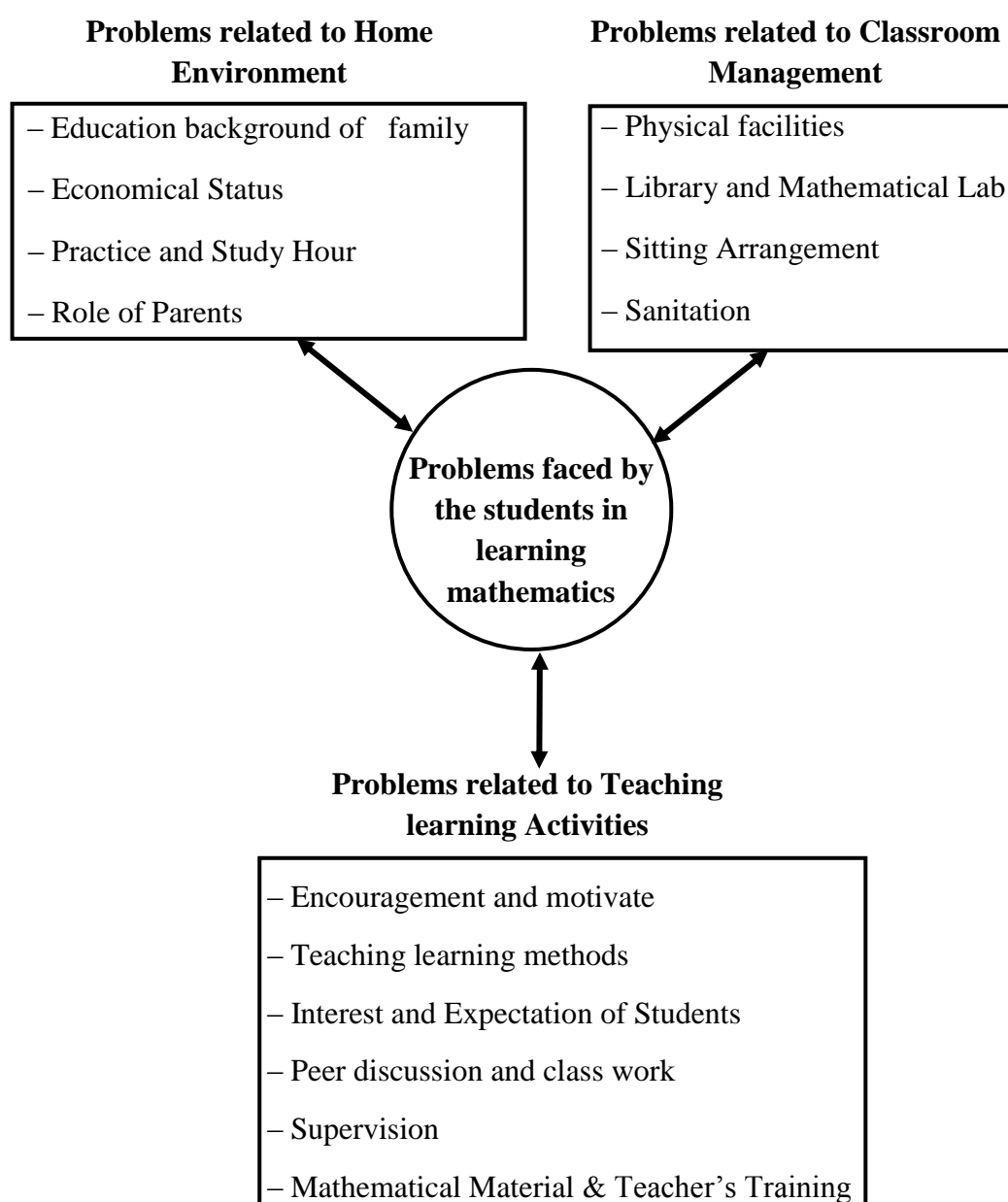
K.C., N. (2009) did his thesis on problems faced by students in compulsory mathematics at Secondary level and concluded that compulsory mathematics teaching and learning is far from being satisfied at grade X in Lamjung district. He further added that the problems are attributed by highly idealistic curriculum, lack of proper teaching materials, lack of supervision, untrained mathematics teachers, unavailability of additional materials, and poverty of parents and so on.

2.2 Conceptual Framework

According to Jeremy Harmer (2008: 19-20), "Some children come from homes where education is highly valued, and where parental help is readily available. Other children, however, may come from less supportive backgrounds where no such backup is on offer. Where students have different cultural backgrounds from the teacher or from each other, they may feel differently from their class mates about topics in the curriculum. They may have different responses to classroom practices from the ones the teacher expected or the ones which the writers of the course book they are using had anticipated. In some educational cultures, for example, students are expected to be articulate and question (or even challenge) their teachers, whereas in others, the students' quietness and modesty are more highly prized. Some educational cultures find learning by rote (memorising facts and figures) more attractive than learning by doing (where students are involved

in project work and experimentation in order arrives at knowledge). And it is worth remembering that even where students all live in the same town or area; it is often the case that they come from a variety of cultural backgrounds". It means the Educational and cultural background of the learners affect the classroom management and teaching learning activities.

On the basis of above discussed related literature on the problems faced by the secondary level students in learning mathematics, there were found to be different variables responsible for problems were shown in the given framework.



From the above framework, there are problems related to home environment, classroom management and teaching learning activities. The problems related to home environment are Education background of family, economical status, practice and study hour and role of parents. Also, the problems related to classroom management are physical facilities, library and mathematical lab, sitting arrangement and sanitation. Similarly, the problems related to teaching learning activities are encouragement and motivate, teaching learning methods, interest and expectation of students, peer discussion and class work, supervision, mathematical material and teacher's training.

After studying above literatures and booklets, there were not found major problems faced by mathematics students of grade IX in the area of their home environment, classroom management and classroom teaching. So, the researcher took a research problem on the title "A study on the problems faced by Secondary level students in learning mathematics".

Chapter III

METHODS AND PROCEDURES

Research methodology presents the logistics of the study because it determines how the research becomes complete and systematic. The study used basically descriptive method that is analytic and comparative in nature. The study was concerned with the study of problems faced by Secondary level students in learning mathematics. This chapter discusses on the methods used in the studying schools are population, samples, tools, collection and analysis of data. The major procedure following in this study was as follows:

- Design of the study
- Population of the study
- Sample of the study
- Method of sampling
- Instruments
- Data collection procedures
- Data analysis procedures

3.1 Design of the Study

Generally research design helps to layout the plan for study and explains the procedures for analyzing and interpreting the findings. As per Cohen, Marion and Morrison (2000: 73), research design is the plan of a study, which is determined by purposes of the study. Similarly, Long, Convey and Chwalek (1985) argued that research design is the plan and structure of a study. It also provides the procedures to address the research questions and interpret the results. Nachmias and Nachmias (1996: 18) in this connection argued that the research design is the strategy that guides the research process for investigator. It is the logical model of proof that allows for drawing the research process for investigators (as cited by Khadka, A. 2007). This study was concerned with the problems faced by secondary level students in learning mathematics. The design of this study was

descriptive type. So, the descriptive method was adopted to conduct the study. For convenience of using this method, more items were asked and flexible but factual information was gathered.

3.2 Population of the Study

The population of the study was the mathematics students of grade IX and teachers of secondary level of the study area in Chitwan district in the academic year 2070 B.S.

3.3 Sample of the Study

Sample of the study, ten schools (five from institutional and five from community) was selected purposively. From each school, three students were selected. Hence altogether thirty students were selected. Students from each schools were selected according to their marks percentage secured at grade VIII. The students who had secured the highest, average and lowest marks were selected to make the data more representative. Similarly, ten mathematics teacher one from each school was selected for the sample of the study.

3.4 Method of Sampling

Purposive sampling method was used for selecting the schools, students and teachers. Students were selected according to their marks percentage which they had secured at grade VIII. The records of the students were taken from schools administration.

3.5 Instruments

For the collection of data, a set of class observation form, questionnaire and interview schedule were used. Before developing class observation form, the researcher consulted mathematics experts and experienced teachers. The researcher also reviewed related literatures such as articles, documents, thesis, reports and various sites and books. The interaction with the respondents were carefully listed and noted properly. The collected information was categorized

according to the category of the respondents and then different themes were given in the context of interview or the observation note.

Finally the validity of the questionnaire was checked and approved by supervisor. The detail descriptions about these tools are given below.

Class Observation Form

The class observation form was prepared by the researcher himself with the help of supervisor to find the real problems that the students are facing regarding learning activities, classroom management and instructional materials. It was prepared in such a way that the students can give the factual information about all the above mentioned things. Students' behavior was checked time and again by researcher for the validity of their response. The class observation form given in Appendix-J and K includes the items related to physical facilities, teaching learning activities and instructional activities of the school.

Interview

The questions of interview included the items related to the various problems which were faced by the mathematics students of Grade IX. The questions were prepared in such a way that any students can give the factual information regarding his/her home environment, class room management, and teaching learning activities. Same question was asked time and again by the researcher to check the validity of students' response. The guide lines for interview given in Appendix-B and C includes the item related to mathematics teacher and student respectively.

Questionnaire

The questionnaire was constructed after the detail study of related literature such as articles, documents, and thesis. At the end of each section of questionnaire, the respondents were requested to comment on the additional areas not covered by the items of questionnaire.

Before developing the above tools, the researcher consulted mathematics experts, and mathematics teachers. The researcher also reviewed related literature such as articles, documents, thesis, reports and booklets. The areas where possible problems could be faced out were curriculum, text book, background of students and classroom management (Physical facilities). To check the validity and reliability, the researcher asked the same question to the students, so that reliable facts could be brought out. Researcher used three types of instruments in this study one set of Mean Weightage, one set of oppinonaire and one of interviews schedule (Semi-structured interview schedule).

Before finalizing the instruments, they were piloted by ten teachers to check the appropriateness. After piloting, some tools were modified, rejected and added. Thus, the tools were prepared for the study. Finally, supervisor and expertise ensure the validity of tools.

3.6 Data Collection Procedures

Both primary and secondary data was concluded. This study was mainly based up on the primary data. The secondary data were collected from unpublished and published literature, different newspapers and government records. The natures of data were quantitative as well as qualitative. Quantitative data were used while collecting teachers' responses as the answers of questions involved in the questionnaire and qualitative data's were taken from open ended questions.

For the data collection, the researcher visited each of the selected Secondary School along with the interview schedule, recommendation letter from T.U. to render any help needed to the researcher from the college administration. After explaining the purpose of the visit, the researcher requested each of the teachers of the schools to take interview honestly. The researcher took the interview of thirty students and ten mathematics teachers for the intended purpose. The interview was taken with the help of Semi-structured interview form.

Also, the researcher observed the classes of the teacher and observations were recorded with the help of observation form. The researcher observed two times each sample school and field up the observation forms during this study period.

3.8 Data Analysis Procedures

At first the information and opinion were gathered related to study, via interview the data were analysed by frequencies of responses. Although the data analysis procedure if the study was similar to qualitative research, Mean weightage was also used to analyse the quantitative data. The collected data were analysed and interpreted from the framework of study developed by me. I used the descriptive method of data analysis. The obtained data was analyzed and interpreted with the help of following statistical techniques:

The average means weightage was used to locate the central position of the response to the statement as a whole in the rating scale calculated as follows:

$$\text{Mean weightage} = \frac{\text{Total rank score of statement}}{\text{Number of students}}$$

This study concerned with the problems faced by the students. So negative response means the students faced the problems. So, weights of 1, 2, 3, 4 and 5 was assigned to a statement if the response is "always", "often", "sometimes", "seldom" and "never" respectively. The average means weight was calculated by total scores of five point Likert's Scale. i.e.15. Thus its average score is 3. If the calculated mean weightage is greater than three then it was concluded that the statement indicates the problem and it was strongly favorable to it. Similarly, if the mean weightage is less or equal to three then it was less favorable to the problem.

Similarly, a percentage (%) was used to calculate the positive and negative response of the respondents. If the calculated percentage is greater than fifty, then was concluded that it was strongly favorable to the statements. Similarly, if the calculated percentage was less than or equal to fifty, it was less favorable to the statement.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

The purpose of this study was to study the problems faced by secondary level students in learning mathematics. The specific objectives of this study were to identify the problems related to the home environment of students, to identify the problems related to classroom management and to identify the problem faced by students related to the teaching and learning activities in classroom. The data were collected for the study through interview from thirty students, twenty observation classes and interviewing ten mathematics teachers of the reserach area. The collected data were tabulated and analyzed according to the objectives of the study. The obtained data were analyzed and interpreted by using descriptive statistical tools, percentage and mean weightage.

The interaction with the respondents were carefully listed and noted properly. The collected information was categorized according to the category of the respondents and then different themes were given in the context of interview or the observation note. The mean weightage of every item of data was calculated area-wise in various problems faced by the students' related to home environment, classrooms management and teaching learning activities. The collected data were analyzed mainly under the topics students' responses and teachers' responses separately with the following main heading, which related to the developed questionnaires and correspondents to the objectives of the study.

- i. Problems related to Home Environment.
- ii. Problems related to Classroom Management.
- iii. Problems related to Teaching Learning Activities.

4.1 Students' Responses

Stepwise analysis and interpretation of students' responses on the topics home environment, classroom management and teaching learning activities were given below:

4.1.1 Students Responses on Home Environment

The home environment was one of the most problems faced by the secondary level students. Good environment gives the children to learn and encourages him/her to learn something more. If the student does not get the good environment he/she cannot remember it properly and it increases forgetting and makes frustration physically and mentally. Therefore, the home environment is the most necessary factor to the students.

The researcher took interview of thirty students studying secondary level from ten different schools (three students from each school) about their home environment. For this, the researcher took the interview of three secondary level students of each sample school one by one, then after made a record. For the validity of the students' response, the researcher asked the same question time and again.

The information related to home environment likewise Parents help on study, separate study room, home tuition, parents' encouragement on study, financial support, and distribution of parent by drinking alcohol, giving time to brother and sister and so on has been presented in Table No. 4.1.1.

Table No.4.1.1

Students' Responses on Home Environment

S.N.	Problems related to Home Environment	Always	Often	Sometimes	Seldom	Never	Mean Weightage	Is it Problem?
1.	Do your parents help you on your study?	2	7	11	5	5	3.13	Yes
2.	Do your parents encourage you on your study?	4	6	10	8	2	2.93	No
3.	Do your parents provide you home tuition?	-	2	3	11	14	4.23	Yes
4.	Do your parents give financial supports in buying mathematical materials?	6	5	9	4	6	2.96	No
5.	Is your study disturbed by the alcoholism of your guardian?	7	9	5	5	4	2.66	No
6.	Do your brother and sister give time to your study?	10	7	5	4	4	2.50	No
7.	Do you have any separate room for study?	3	6	10	5	6	3.16	Yes
Average Mean Weightage							3.08	Yes

The table no. 4.1.1 shows that students are facing problems over the statement 1, 3 and 7 as mean weightage is greater than 3. But remaining statements are not the problems for students. However the average score of table 1 is 3.08, which is more than 3. It indicated that students have problem related to home environment.

At the period of interview or discussion with students, the researcher found that parents were not help to their children in study and they couldn't get a good achievement.

“Ram Bahadur Syangtan (Pseudo name) is the student of grade IX, from a community school told his father and mother is under S.L.C. His father is a security guard of community Milk dairy. Ram said “I have to do some house hold works in my house as my brother and sister are little younger. I have to help them after my classes. I could not get time for study and home work. There are only 2 rooms in my house. Both rooms are used to be kitchen and sleep. I have joint family I with my four sisters, two brother and grandmother use the kitchen room to sleep. Similarly, my dad, mum and little brother use another room. So I do not have a separate room for study. I haven't taken extra classes and tuition. My dad doesn't give sufficient money to buy material. So I have to work hard myself to pass the exam at any cost.”

Likewise, *“Sunder Pathak (Pseudo name) is the student of grade IX, from a community school told his father and mother is illiterate. His father is a farmer. Sunder said “I have to do some house hold works in my house as my brother and sister are little younger. I have to help them after my classes. I could not get time for study and home work. There are only 3 rooms in my house. One room is used to be kitchen and remaining rooms are used to be sleep. I have single family I with my two sisters, one brother use the one room to sleep. Similarly, my dad and mum use another room. So I do not have a separate room for study. I haven't taken extra classes and tuition. My dad doesn't give sufficient money to buy material. So I have to work hard myself to pass the exam at any cost.”*

Ram Bahadur Syangtan and Sunder Pathak are the representative students of most of the students. According to the interview, most of the students had to do some house hold work. They were not supported by their parents. They were not given enough money to buy mathematical instruments and to take tuition classes. They were not getting sufficient time to study at their home. So their performance was poor. If the students were provided a good home environment, if they were given sufficient economical support by their parents, such problems might be somehow overcome.

A study which was made recently in exposing the weakness of the students showed that parents were a main factors of obstacles at the learning process of students. Most of parents were illiterate and the rest who were educated couldn't guide their children properly on their study. They couldn't provide the basic needs such as separate rooms with due materials. After taking the interview of thirty students, the researcher came to know that single room was used for various purposes, which adversely affect the students' curricular activities. Similarly, parents couldn't make any provision for the tuition and home tuition to their children. Furthermore, performance of the children in the internal exams was absolutely unsatisfactory. They had low achievement in mathematics It might be due to insufficient material and the lack of teachers' guidance. Some students claimed that they were not disturbed however their parents drink alcohol or do naughty works. Through this study, majority of students' home environment was found to be the cause of their problems.

4.1.2 Students' Responses on Classroom Management

Educators have been aware that the quality of classroom management is an important factor to pupil's achievement and teaching success. We wrote about management rather than control in classroom because management emphasizes that learning and teaching are complementary activities just as a successful managers in commerce and industry avoid dispute. Therefore, in classroom, successful teachers always try to provide remarkable learning activities. So that the students can develop their conceptual thinking in overall situation concerned with classroom management has been presented in Table No. 4.1.2.

Table No. 4.1.2

Students' Responses on Classroom Management

S.N.	Statements	Yes		No		Re.
		NR	%	NR	%	
1.	Is the class crowded?	10	33.33	20	66.67	
2.	Is there a separate room for Mathematics class?	18	60	12	40	
3.	The classroom is neat and clean.	27	90	3	10	
4.	The classroom is well decorated.	9	30	21	70	
5.	Is the classroom well light and Ventilated?	18	60	12	40	
6.	Well arrangements of desk and benches.	10	33.33	20	66.67	
7.	Blackboard is in appropriate size and position?	27	90	3	10	
8.	Is the classroom equipped with a graph board and bulletin board?	8	26.67	22	73.33	
9.	Can you solve mathematical problem in group?	12	40	18	60	

NR = Numbers of Respondents

The table no. 4.1.2 shows that the condition of thirty students from ten different schools. It reveals that only 66.67 percent students responded that classroom was not crowded and 60 percentage students responded that classroom had the appropriate facilities of light and ventilation. But 66.67 percentage students responded that classroom had no good arrangement of desks and benches were not systematically arranged. Most of the classes have no decoration. But the Birendra Aadarsha Higher Secondary and Aadarsha Bidhya Ashram had a good classroom decoration. There were some maps, figures, charts and some readymade materials. 90 percentage students said that black boards were in better condition because they were marker boarded and large in size. Also, there was no separate room of mathematics instruction. But there, the classrooms were neat

and clean. Most of schools have the facility of marker board. Most of students had positive opinions about the statement. Only few students had complained about the weakness of classroom management.

Biraj Chaudhary (Pseudo name) is a student of grade IX from institutional secondary school told his father's qualification is under S.L.C. His father is a farmer. Biraj says that he sits at the last row due to arriving late in the school saying that he had to engage in the house hold work. There are 35 students of grade IX, so there is silent environment in the classroom. The classroom has two windows. So, it is well ventilated and presence of light is enough. The blackboard is medium in size and is not in appropriate place. "Sometimes we cannot see the letter on the white board because of reflection of light. The teacher doesn't use any other teaching materials except book, chalk and duster. There are not enough dustbins in school. So we threw wastage anywhere", Biraj Said.

While taking the interview of students, the researcher found more or less same condition of students as Biraj had. So Biraj Chaudhary was considered as the representative student from grade IX. From his condition, it reveals and can be generalized that most of Mathematics student have to engage in the house hold work such as cooking, babysitting, cattle rearing, etc. And due to this, they could not give more time in their study. They are also not benefited by their parents' education. The physical condition he told about his classroom also represents the real condition of most of the Secondary Levels schools.

4.1.3 Students' Responses on Teaching Learning Activities

Teaching activities play a vital role in shaping knowledge and being clear in the subject matter. Even students' performance and perception depend on how the teacher presents the subject matter. From different articles and thesis, it is concluded that student centered teaching method is highly appreciated than teacher centered teaching method. The situation related to teaching learning activities has been presented in Table No. 4.1.3.

Table No.4.1.3

Students' Responses on Teaching Learning Activities

S.N.	Problem related to teaching learning activities	Always	Often	Sometimes	Seldom	Never	Mean Weightage	Is it a problem?
1.	The teachers' response to your creativity and curiosity.	2	7	6	10	5	3.30	Yes
2.	The teachers look for student management in the classroom.	6	4	7	6	7	3.13	Yes
3.	Teacher checks homework properly.	4	3	7	8	8	3.43	Yes
4.	Teachers give extra parallel problems with related exercise.	7	4	5	5	9	3.16	Yes
5.	Students are satisfied by the response of teachers.	6	5	9	8	2	2.83	No
6.	The class starts with an interesting way.	5	3	7	6	9	3.36	Yes
7.	Teachers provide chance to present students' activities.	3	5	6	10	6	3.36	Yes
8.	Teachers provide opportunities for weak students	3	7	9	4	7	3.16	Yes
9.	Teacher has good command over subject matter.	8	9	5	6	2	2.50	No
Average mean weightage							3.13	Yes

The table no. 4.1.3 shows that students are facing problems in most of the statements because the mean weight is greater than three. But they have not problem in some statement. However, the average score of table no. 4.1.3 is 3.13, which is more than three. It indicated that students have the problem regarding teaching learning activities.

According to students, classes aren't started interestingly. The teachers do not manage the classroom properly. Most of the students responded that the teacher doesn't check their homework. The teacher use lecture method to solve the problem. According to students, due to lecture method, the weak students do not get more chance to learn clearly while the talented students do not get more chance to learn in the class. They claimed that the teacher does not listen to their creativity, curiosity and present their activities. Some students responded that the teacher doesn't give the extra parallel problems for their ability.

4.2 Teachers' Responses

Stepwise analysis and interpretation of teachers' responses on the topic home environment, classroom management and teaching learning activities were given below:

4.2.1 Teachers' Response on Home Environment

Educational status of country is improved when there is a nice co-operation between school, curriculum and the community. Similarly, there should be a good relationship between guardians, students and the teachers for effective teaching and good achievement. Home environment plays a vital role to meet the intended purpose. No student can do better at their study unless there is good environment. Here, the researcher has interviewed some teachers about how they play the role for building a good environment to enhance their learning of mathematics. Opinion of different teachers on the subject has been presented in Table No. 4.2.1.

Table No. 4.2.1

Teachers' Responses on Home Environment

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	Do the parents help the students?	3	30	7	70	
2.	So the students do homework daily?	3	30	7	70	
3.	Do the parents discuss and interact about the study of their children in school?	2	20	8	80	
4.	Are the parents providing any tuition or home tuition to their children?	6	60	4	40	
5.	Are the parents giving the financial support to their children?	7	70	3	30	

The table no. 4.2.1 shows that 70 percentage guardians couldn't help their children on their study because of their illiteracy or due to their own work. But above 20 percentage teachers confirmed that they come to school to know the learning status of their children. Some teachers also remarked that most of students come to school without doing homework. Most teachers agreed that neither student afford time to their study nor parents show any interest on it, which brings obstacles in teaching mathematics. Teachers also have felt difficulties to reinforce the learning of talented and weak students at the same time. So teachers think that students couldn't do better unless the home environment gets improved.

4.2.2 Teachers' Responses on Classroom Management

Classroom management is an important factor in teaching learning activities for the impressive teaching, in which availability of every kind of facilities and requirements to students is essential. Other minor but important things like good light and ventilation systems are necessary things of a classroom. The management committee has to arrange all the requisites and teachers should make

them effective too. The teacher should also carry out the rules and regulation in maintaining of the discipline in the school. The opinion of different teachers on the subjects has been presented in Table No. 4.2.2.

Table No. 4.2.2

Teachers' Responses on Classroom Management

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	The school administration support in classroom management.	6	60	4	40	
2.	Blackboard/whiteboard and other furniture are sufficient in the school.	8	80	2	20	
3.	The classroom is neat and clean.	9	90	1	10	
4.	The classroom has sufficient of light and well ventilated.	6	60	4	40	
5.	Students' participation at any class work and interaction in the class.	6	60	4	40	
6.	Difficulty in controlling classroom while using materials.	4	40	6	60	

The table no. 4.2.2 shows that the teachers of the schools remarked that School Management Committee has provided all the physical prerequisites that a school needs. Most of the teachers use Marker board. 70 percentage teachers said that because of its large size and neatness, it has been convenient to teach mathematics. However, they said that it has become very difficult to manage that classroom while demonstrating teaching aids to the students.

4.2.3 Teachers' Responses on Teaching Learning Activities

Teaching learning activity is an unavoidable part of teaching activities. A suitable and proper way of teaching learning activity leads the students towards the right path. On this subject, the researcher has asked eight questions to ten teachers, whose opinions has been presented in Table No. 4.2.3.

Table No. 4.2.3

Teachers' Responses on Teaching Learning Activities

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	Does the subject matter included in the text book possess the high spirit of curriculum?	6	60	4	40	
2.	Is the subject matter appropriate with the level of students?	8	80	2	20	
3.	Are examples and exercise correlated or not?	7	70	3	30	
4.	Is the sufficient teacher training?	5	50	5	50	
5.	Do you encourage your students to use extra materials in solving problem?	3	30	7	70	
6.	Do you use any parallel problems from other book?	4	40	6	60	
7.	Do you check homework regularly?	6	60	4	40	
8.	Do you finish the course in time?	6	60	4	40	

The table no. 4.2.3 shows that teachers regarded that the existing textbook has been successful somehow to cover the wide range of teaching items. About 80 percentage teachers claimed that the textbook is appropriate. They also said that because of many chapters included in the textbook, it is very difficult to finish the course in time. Only 60 percentage teachers have been able to finish the course. They also demanded for training. During teaching, only a few teachers have emphasized equivalent problem and exercise while others do not introduce extra mathematical problems to students due to inadequate time to complete the textbook prescribed by CDC. Some teachers take evaluation after teaching while others give problems to students as homework to check their understanding the rest of the teachers don't do either.

4.3 Classroom Observation

The analysis of classroom observation was intended to identify the problems that arise in classroom. While the actual teaching goes on, the researcher observed the twenty mathematics classes. The detailed distribution of classroom observation on physical and teaching learning activities and instructional activities results has been presented in Table No. 4.3.1 and 4.3.2 respectively.

Table No. 4.3.1

Classroom Observation on Physicality Facilities and Activities

S.N.	Observed Items	Good	Satisfactory	Poor	Mean Weightage	Re.
1.	Physical Facilities					
1.1	Arrangement of classroom	6	12	2	1.8	No
1.2	Light and Ventilation	6	10	4	1.9	No
1.3	The appropriateness of black/white board	4	10	6	2.1	Yes
1.4	The graph board and bulletin board	2	12	6	2.2	Yes
1.5	The availability of furniture	6	10	4	1.9	No
2.	Activities	Frequently	Sometimes	Seldom	Mean Weightage	Re.
2.1	Did the teacher use any picture & chart?	-	4	16	2.8	Yes
2.2	Did the students give the answer to the teachers'?	5	10	5	2.0	Yes
2.3	Did the teachers encourage the students?	4	10	6	2.1	Yes
2.4	Was the material appropriate to the lesson?	-	5	15	2.75	Yes
2.5	Students participation	8	10	2	1.7	No

The table no. 4.3.1 shows that in general mathematical classroom was not crowded because of teachers' command. The most of the schools were used marker board. But still there were some schools that used black board. Also, incentive handling and lack of cognition about the construction and use of instructional materials rose to the problems. The students' participation in the class was not satisfactory. Due to this reason, it had created problems in teaching learning activities. These were classroom observation related on physical facilities and teaching learning activities. Likewise, the classroom observation related on instructional activities has been presented in the Table No. 4.3.2.

Table No. 4.3.2

Classroom Observation on Instructional Activities

1.	Instruction	Yes		No		Remarks
		NR	%	NR	%	
1.1	Was the start of the lesson?	8	40	12	60	
1.2	Was the lesson based on the previous one?	14	70	6	30	
1.3	Was the presentation logical?	13	65	7	35	
1.4	Level of discipline	11	55	9	45	
1.5	Were the students ready to learn?	12	60	8	40	
1.6	Teacher's command	14	70	6	30	
1.7	Was the subject matter relevant to the students level and interest	14	70	6	30	
1.8	Was the lesson summarized?	7	35	13	65	
1.9	Were the objectives achieved?	8	40	12	60	
1.10	Was the lesson evaluated?	6	30	14	70	
1.11	Was the appropriate assignment given?	16	80	4	20	
1.12	Indication about next lesson.	6	30	14	70	

From the table no. 4.3.2, it was found that only problem solving method was found to have followed by many teachers, which was not based on previous one. Most of teachers faced disciplinary problems in the classes. The researcher also observed that most of the teachers were not prepared lesson plan. The summarization of lesson and quality of homework were observed to be satisfied but the achievement of objectives and indications to the next lesson were not satisfied. The status about physical facilities of the school answered by mathematics teachers of ten samples Secondary School in the interview, which also represents the physical condition of the schools has been presented in Table No. 4.3.3.

Table No. 4.3.3

Physical Facilities of Ten Sample Schools

S.N.	Facilities	Yes	%	No	%	Remarks
1.	White board system	7	70	3	30	
2.	Sufficient benches	8	80	2	20	
3.	Facility of drinking water	9	90	1	10	
4.	Separate room for mathematics class	6	60	4	40	
5.	Good toilet facilities	4	40	6	60	
6.	Sufficient library	4	40	6	60	
7.	Mathematics lab	1	10	9	90	
8.	Neat and clean classroom	9	90	1	10	
9.	Lecture table	2	20	8	80	
10.	Use of lesson plan	1	10	9	90	

From the table no. 4.3.3, about 70 percentage schools use marker board and 80 percentage schools have sufficient benches and desks. The facility of drinking water was also good. About 60% schools have a separate classroom for mathematics. The facility of good toilet was poor in many schools. Only 40% of the schools had a good toilet facility. Similarly, most of the mathematics

classrooms were neat and clean. But the conditions of Mathematics lab, use of lecture table and use of lesson plan in most of the schools were still poor.

The illustration given below is typical reflection about an educational atmosphere of the classroom prevailing in the community school where most teachers are indifferent to maintain their responsibility. The researcher has found this case when he visited a school at a village in the study area.

When the researcher entered in the classroom the teacher was solving a problem. There were 26 students and there was a separate classroom for mathematics. There were two fans in each classroom of the school but only one fan in classroom. It may be due to few students. There were adequate benches for students also a lecture table. The marker board was medium in size and was in right place. There was a good ventilation and sufficient light. The teacher was teaching the Trigonometry and describing the definition of Trigonometry. The classroom was silent at first but later students began to make noise. The students were careless and didn't concentrate in the learning. He did few items of problems and finished the class.

After the class, the researcher asked him the following questions:

Sir! Do you have a textbook and its reference book? What types of teaching material would you make for the solution to the problem? The class is small but the students are noisy. How do you manage the class? Do you think the black board is suitable for mathematics class? Do you prepare a daily lesson plan for daily teaching?

The teacher replied as: "yes, I've a text book but I do not have any reference book or solution book. I'm absolutely a fresh teacher. I haven't taught anywhere in grade IX before this. I strongly appeal for the reference book and solution book to the principle. I know, my preparation to handle a class is not sufficient, but I'm sure when I get those material, I'll not have such problem and obviously the class will be silent for whole period. Yes the black board is fine for mathematics teaching. So far, I have not prepared any daily lesson plan. But I always make up

my mind on how much subject matter to teach in a period. Sometimes it becomes impossible to finish the intended subject matter.

The condition described above is the real problem of a community and institutional schools of the study area. Most of parents were illiterate and only some of them were literate so students did not get encouragement and idea to improve their study. Students had to engage into different works at home such as cooking, babysitting, cattle rearing, supporting their parents in field etc. so they could not give more time in their study. Some students themselves gave more time for extra activities like playing games, visiting new places instead of giving time on their study. In some schools, the size of blackboard/white board was inadequate as well as low quality. The school administrations were not providing the materials to the teachers. There were lack of reference books, lack of mathematical materials and sufficient library in the school. Most of the schools do not have good facility of library.

The size of classroom in some schools was small. So due to congest sitting arrangement, it is very difficult to carry out supervision. Teacher did not have a good command over subject matter. Training opportunity for the teacher was not provided so they were not clear in subject matter. Lack of prior knowledge was an obstacle to the forward lessons. Besides the lecture and problem solving method, other scientific techniques were not followed. There was no provision of mathematics lab. So they couldn't learn by doing. Daily lesson plan was not used by teacher. Teachers were unknown about teaching methods, the selection of teaching aids and approaches of evaluation. It is due to their negligence and unavailability of required materials. The usual trends of teaching throughout the generation are as same as lecture and problem solving. All these above problems were the products of financial difficulty and inefficient academic management. Therefore more financial resources and effective management should be searched to solve the problems of students and teachers. By providing the solution to above requirements, the problem faced by students may decrease in secondary level. So, school provides good opportunities for secondary level students.

Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Study

The purpose of the study was to identify the problems faced by secondary level students of grade IX in studying mathematics. The specific objectives of this study were to identify the problem related to home environment, classroom management and teaching learning activities.

The population of this study consisted of thirty students and ten teachers of ten different institutional and community schools situated in Eastern area of Chitwan district in academic year 2070 B.S. The quantitative data were collected from questionnaire and qualitative data were obtained from interview and observation. The researcher himself developed the interview schedules and observation form under the guidance of supervisor. The class observation form and interview schedule were the main tools of study. The responses were collected from different teachers and students by purposive sampling method. The collected data were quantified based on five point Likert's scales. Interview schedules and observation form were included in each category of problem and then descriptive analysis of collected responses was carried out. Descriptive research includes studies that provided simple information about the frequency or amount of something. The descriptive statistical indicators such as mean weightage and percentage were used for the analysis of the problems.

5.2 Findings of the Study

From the classroom observation form and interview schedule of the collected data, it was found that students have been facing many problems in grade IX. Different types of factors are affecting to arise these problems. On the basis of the analysis and interpretation of data findings are presented below:

a. Problem related to Home environment

The findings of problems related to home environment are presented below:

- Most of parents were illiterate and only some of them were literate so students did not get encouragement and idea to improve their study.
- Students had to engage into different works at home such as cooking, babysitting, cattle rearing, supporting their parents in field etc. so they could not give more time in their study.
- Some students themselves gave more time for extra activities like playing games, visiting new places instead of giving time on their study.

b. Problem related to Classroom management

The findings of problems related to classroom management are presented below:

- In some schools, the size of blackboard/white board was inadequate as well as low quality.
- The school administrations were not providing the materials to the teachers.
- Lack of reference books and sufficient library in the school.
- Lack of mathematical materials.
- Most of the schools do not have good facility of library.

c. Problem related to Teaching Learning Activities

The findings of problems related to teaching learning activities are presented below:

- The size of classroom in some schools was small. So due to congest sitting arrangement, it is very difficult to carry out supervision.
- Difficult to complete the course in time.
- Teacher did not have a good command over subject matter.
- Training opportunity for the teacher was not provided so they were not clear in subject matter.

- Lack of prior knowledge was an obstacle to the forward lessons. Besides the lecture and problem solving method, other scientific techniques were not followed.
- There was no provision of mathematics lab. So they couldn't learn by doing.
- Daily lesson plan was not used by teacher.

Most of the teachers are unknown about teaching methods, the selection of teaching aids and approaches of evaluation. It is due to their negligence and unavailability of required materials. The usual trends of teaching throughout the generation are as same as lecture and problem solving.

5.3 Conclusion

After more than three months continuous work, the researcher came to the conclusion of his study and found some significant facts that mathematics teaching and learning is far from being satisfactory at grade IX in the study area. The researcher had tried to identify and analyze the problems by collecting data with regard to the mathematics situation.

It had been noticed that these problems can be mainly attributed by highly idealistic curriculum, lack of teaching materials, defective classroom management, lack of supervision, untrained mathematics teachers, unavailability of additional material, and status of parents and so on.

Learning mathematics in secondary level is affected by so many factors such as illiterate parents, low economic status and lack of encouragement in study. Similarly, exam oriented teaching, heterogeneous nature of classroom, unavailability of teaching and learning materials, lack of mathematical lab, sufficient furniture and physical facilities and lack of teachers' training were problems faced by students in learning mathematics in grade IX. Likewise, lack of good administration and proper management of classroom were some problems faced by students from administration.

According to the suggestion for students and teachers, the above mentioned problem should be minimized by providing good physical facilities in the

classroom, co-operative home environment from parents and appropriate method of teaching learning activities in the school.

5.4 Suggestions

Through the above description, the researcher made the following suggestions:

- Physical facilities should be supplied in classroom as much as possible.
- The school should provide a sufficient library, mathematics lab with all required equipment.
- While building the school, much attention should be given for ventilation and light.
- Time to time modern and refreshment training for up to date knowledge, orientation and supervision should be provided to the teacher.
- Teachers' training, workshop and orientation programs for teacher should be organized in the presence of mathematical expert.
- Much greater attention needs to be given to the matter of age and individual difference.

5.5 Recommendations

The researcher has found many problems of mathematics students of grade IX in study area of Chitwan district. This conclusion cannot be generalized in all the school; however it could be possible to describe the problem related to different levels of students for the better performance in mathematics. For the validation of the results, the following studies are suggested:

- Textbooks should be revised by making close relation with the objectives of mathematics curriculum, there should be compatibility between objectives and text books and it should be relevant to the needs students and society.
- Time to time modern and refreshment trainings and orientation programs should be provided to the teachers.
- School administration should focus on the interaction among students, teachers and guardians so that problems could be identified.

- Nepal Government should supply the essential teaching materials and should encourage the school administration to purchase such teaching materials.
- The classroom seating should be so arranged that the entire student could equally and easily participate in the classroom activities.
- Each and every school should be managed well-qualified and trained teachers in preparing teaching materials and their use.

For Further Study

- The similar study should be done in other district of Nepal as well.
- Similar study should be carried out with a large sample.
- Similar study can be done by taking all the influence factors of teachers' and students problems.

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Appendix A

Sample Secondary Level Schools

S.N.	Name of the Schools	Located Place
1.	Shree Bhanadara Higher Secondary School	Bhandara
2.	Shree Buddha Shanti Higher Secondary School	Piple
3.	Birendra Aadarsha Higher Secondary School	Birendranagar
4.	Kathar Higher Secondary School	Kathar
5.	Khairahani Higher Secondary School	Parsa
6.	Aadarsha Bidhya Ashram	Bhandara
7.	Sangrila English Boarding School	Bhandara
8.	Iris Academy	Piple
9.	Sakura Academy	Birendranagar
10.	Daisy Higher Secondary School	Parsa

Appendix B

Guidelines for Interview of Secondary Level Students of Grade IX

Name:

Sex:

Age:

Name of School:

Location:

The interview with secondary level students of grade IX will be taken on the basis of following main topic.

a. Home Environment

Parents help on study, separate study room, home tuition, parents' encouragement on study, financial support, distribution of parent by drinking alcohol, giving time to brother and sister.

b. Classroom Management

Noise in classroom, light and ventilation, arrangement of benches, size of blackboard/whiteboard, separate room for mathematics instruction, neatness of classroom, classroom decoration, solving mathematical problem in group, graph board and bulletin board.

c. Teaching Learning Activities

Class starts interestingly or not, teachers look for student management in the classroom, checking homework providing chance to present students' activities by teacher, providing opportunities to the weak students, teachers' command over subject matter, students' satisfaction, giving extra parallel problems by teacher etc.

Appendix C

Guidelines for Interview of Secondary Level Mathematics Teacher

Name:

Qualification:

Sex:

Age:

Name of School:

Teaching Experience:

Training:

Nature: Community/Institutional

Location:

The interview with secondary level Mathematics teacher will be taken on the basis of following main topic.

a. Home Environment

Parents' status, qualification of parents, help of parents, financial supports.

b. Classroom Management

Space black/whiteboard, physical facilities, number of students, school environment.

c. Teaching Learning Activities

Methods, encouragement for students, relative questions, materials, learning environment.

d. Instructional Materials

Effectiveness, time, use etc.

e. Causes of Low Achievement

f. Schools Environment of Learning

Appendix D

Students' Responses on Home Environment

S.N.	Problem related to home environment	Always	Often	Sometimes	Seldom	Never	Mean Weightage	Is it a problem?
1.	Do your parents help you on your study?							
2.	Do your parents encourage you on your study?							
3.	Do your parents provide you home tuition?							
4.	Do your parents give financial supports in buying mathematical materials?							
5.	Is your study disturbed by the alcoholism of your guardian?							
6.	Do your brother and sister give time to your study?							
7.	Do you have any separate room for study?							
Average mean weightage								

Appendix E

Students' Responses on Classroom Management

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	Is the class crowded?					
2.	Is there a separate room for Mathematics class?					
3.	The classroom is neat and clean.					
4.	The classroom is well decorated.					
5.	Is the classroom well light and Ventilated?					
6.	Well arrangements of desk and benches.					
7.	Blackboard is in appropriate size and position?					
8.	Is the classroom equipped with A graph board and bulletin board?					
9.	Can you solve mathematical problem in group?					

Appendix F

Students' Responses on Teaching Learning Environment

S.N.	Problem related to teaching learning activities	Always	Often	Sometimes	Seldom	Never	Mean Weightage	Is it a problem?
1.	The teachers' response to your creativity and curiosity.							
2.	The teachers look for student management in the classroom.							
3.	Teacher checks homework properly.							
4.	Teachers give extra parallel problems with related exercise.							
5.	Students are satisfied by the response of teachers.							
6.	The class starts with an interesting way.							
7.	Teachers provide chance to present students' activities.							
8.	Teachers provide opportunities for weak students							
9.	Teacher has good command over subject matter.							
Average mean weightage								

Appendix G

Teachers' Responses on Home Environment

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	Do the parents help the students?					
2.	So the students do homework daily?					
3.	Do the parents discuss and interact about the study of their children in school?					
4.	Are the parents providing any tuition or home tuition to their children?					
5.	Are the parents giving the financial support to their children?					

Appendix H

Teachers' Responses on Classroom Management

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	The school administration support in classroom management.					
2.	Blackboard/whiteboard and other furniture are sufficient in the school.					
3.	The classroom is neat and clean.					
4.	The classroom has sufficient of light and well ventilated.					
5.	Students' participation at any class work and interaction in the class.					
6.	Difficulty in controlling classroom while using materials.					

Appendix I

Teachers' Responses on Teaching Learning Activities

S.N.	Statements	Yes		No		Remarks
		NR	%	NR	%	
1.	Does the subject matter included in the text book possess the high spirit of curriculum?					
2.	Is the subject matter appropriate with the level of students?					
3.	Are examples and exercise correlated or not?					
4.	Is the sufficient teacher training?					
5.	Do you encourage your students to use extra materials in solving problem?					
6.	Do you use any parallel problems from other book?					
7.	Do you check homework regularly?					
8.	Do you finish the course in time?					

Appendix J

Classroom Observation on Physical Facilities and Activities

S.N.	Observed Items	Good	Satisfactory	Poor	Mean Weightage	Re.
1.	Physical Facilities					
1.1	Arrangement of classroom					
1.2	Light and Ventilation					
1.3	The appropriateness of black/white board					
1.4	The graph board and bulletin board					
1.5	The availability of furniture					
2.	Activities	Frequently	Sometimes	Seldom	Mean Weightage	Re.
2.1	Did the teacher use any picture & chart?					
2.2	Did the students give the answer to the teachers'?					
2.3	Did the teachers encourage the students?					
2.4	Was the material appropriate to the lesson?					
2.5	Students participation					

Appendix K

Classroom Observation on Instructional Activities

1.	Instruction	Yes		No		Remarks
		NR	%	NR	%	
1.1	Was the start of the lesson?					
1.2	Was the lesson based on the previous one?					
1.3	Was the presentation logical?					
1.4	Level of discipline					
1.5	Were the students ready to learn?					
1.6	Teacher's command					
1.7	Was the subject matter relevant to the students level and interest					
1.8	Was the lesson summarized?					
1.9	Were the objectives achieved?					
1.10	Was the lesson evaluated?					
1.11	Was the appropriate assignment given?					
1.12	Indication about next lesson.					

Appendix L

Physical Facilities of Ten Sample Schools

S.N.	Facilities	Yes	%	No	%	Remarks
1.	White board system					
2.	Sufficient benches					
3.	Facility of drinking water					
4.	Separate room for mathematics class					
5.	Good toilet facilities					
6.	Sufficient library					
7.	Mathematics lab					
8.	Neat and clean classroom					
9.	Lecture table					
10.	Use of lesson plan					