

## Chapter – I

### INTRODUCTION

#### Background of the Study

Mathematics is very important subject in the school. Majority of the student who could not get success in the exam, failed in mathematics.

Mathematics is the backbone of our civilization in the world. It is not exaggeration to say that history of mathematics is the history of mankind. Mathematics has led the development of various subjects vocational and technological. It is a science which is still playing an important role in various ways of life. Day to day evaluation in life or daily life evaluation of overall evaluation provides as assessment, judgments, guidance and directions for the future. In this world of today, nobody can live without mathematics for a single day; mathematics is intimately involved in every moment of every person's life. When the man first wanted to answer the question of type How long? How many? How big? How much? etc. It involved in mathematics. This evaluation will have to be mathematical in nature to a great extent. Even the most ordinary citizen has to calculate his wages and buy things from the bazaar. A person may be mere housewife, farmer, shopkeeper, tailor, salesman, accountant, carpenter, booking clerk etc. Some knowledge of mathematics is necessary for them. An understanding of mathematics is essential for every human being. No matter what occupation a student choose in his/her adult life. One cannot achieve complete success without knowledge of mathematics, skills of mathematics, concept of mathematics, and also process of mathematics. It certainly increases his/her efficiency and effectiveness. Mathematics learning logically facilitates study in other areas like business, agriculture, science and technology. The today's world cannot be more and nobody can live without mathematics. People have been utilizing mathematics to solve the difficulties arisen due to natural calamities, political propose, economic development planning and other social events can be perceived from the early history of mathematics of different civilization. Mathematics is taken as the science of all sciences and arts of all arts. It is also known as the queen of science. Goff and Fwter (1982) state that "*knowledge of mathematics is indispensable to our daily life, Counting objects, reading and writing numerals, Performing arithmetic calculation as well as reasoning with number of tasks*

*most people perform in their daily life. A strong back ground in mathematics is necessary for almost all technical careers in societies competence in mathematics have been identified as a critical skill directly related to educational and occupational choice.”*

For more than two thousand years a familiarity with mathematics has been regarded as an indispensable part of the intellectual equipment of every cultured person. Today, unfortunately, the traditional place of mathematics in education is in danger. The teaching and learning of mathematics has degenerated into the realm of rote memorization. The outcome of which leads to satisfactory formal ability but does not lead to real understanding or to greater intellectual independence. This new edition of Richard Courant's and Herbert Robbins's classic work seeks to address this problem. Its goal is to meaning back into mathematics. Mathematics is a process of learning and it is an expression of human mind, concerned chiefly with ideas, processes and reasoning. Its basic elements are logic and intuition, analysis and construction generality and individually. It is a way of organizing a logical proof. It can be used to find out where or not an idea is true or at least where it is probably true. As a way of reasoning, it gives us in sight into his power of the human mind and becomes a challenge to intellectual curiosity. It is a language in which we use ideograms and symbols, instead of words. So mathematics is an organized structure of knowledge in which each proposition is deduced logically from previously proved propositions or assumptions and its comparison skill, techniques and arts by which man conveys ideas concepts of facts.

The main purpose of the teaching of mathematics is to develop the understanding reasoning and analyzing powers which are necessary to various aspects of human civilization and development. So far the formal teaching of mathematics in Nepal is concerned. It has been started with the establishment of Durbar High School in 1853 A.D. during the Rana regime. With the advent of National Education System Plan (1971-76) mathematics was given special emphasis at each level of schooling. This is clear from the fact the 30%, 20% and 12% of school hours are given to mathematics at primary, lower secondary and secondary level respectively. This fact clearly indicates that understanding of mathematics has been accepted as fundamental component of literacy. Mathematics learning helps student understands and interprets the important quantities of qualitative aspects of living. Mathematics is the backbone for daily life, studied in the field of science of technology the implementation of NESP (1971) at all level of school education.

Mathematics as the subject has been given a significant place brought a very essential change in mathematics education in Nepal. The NESP mathematics curriculum states the importance of mathematics as follows.

While tracing out the history of mathematics teaching in the context of Nepal we should not forget the mathematics is the form of 'Astronomy' or Astrology' known as Jyotish' and 'Siddhanta' Ganit Jyotish taught in Sanskrit education. Actually, the formal education of Nepal was started from Durbar School in 1910 Ashwin 27 established by Janga Bdr. Rana. This school was opened especially for Royal family firstly. At that time, Basic Arithmetic at lower level and Algebra and Geometry at upper level are taught. After the establishment of SLC board in 1934 AD the first curriculum was introduced for secondary level in which mathematics was divided into compulsory and optional part and out of 800 full marks, 100 marks was given for each part.

Problems relating to mathematics learning might have affected the achievement in teaching of mathematics. This is a great challenge to mathematics teacher. Some problems of learning mathematics in students might directly be related to the teacher's academic background, classroom practices, school management and leadership, and others. Such situation might affect the efficiency and potentiality of students' performance.

There are many researches about teachers' problems but few researches can be found related students' problems in Lower Secondary Level mathematics. Hence, little solution can be found to address the students' problems. So many problems are occurring frequently in mathematics which is not enough for this problem.

That is way the researcher decided to make a systematic study on "Problem faced by Lower Secondary Level students in learning mathematics."

Generally, students may feel problems when they find new concepts and relations. These problems may have been partially contributed through teaching learning activities. The problems seen in teaching learning activities depends upon the home environment, classroom management, instructional materials used in classroom, School environment provided to both students and teachers, physical facilities given to the learning activities, methods of teaching followed by teacher.

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

Another management refers to skill in the organization and preparation of lesson by the teacher is such a way that all students are actively engaged in learning. So the classroom management can be defined as the process of organizing the willing effects of student to achieve their own and educational objects. Individuals in the classroom apply all their rationales, creativity and talents to the challenges of educational tasks.

The statement that "anyone who knows his subject it can teach it" can be misleading. So it is the belief that method is important than subject matter in secondary level. Every teacher needs to prepare himself in subject matter and in method. Method is overall expression of our educational aims. In general, traditionalists have emphasized the learning and progressives have brought us to a consideration of the learner.

There is no single way to teach any subject matter. There are many successful methods some being appropriate for bright student, others for slow learners.

Motivation might be described as those forces, which arouses, direct and for a long period effect. Effective motivation arises from students' interest, problem and desire. Often the term is used to refer to a distinct step in a lesson but in its broad sense should be understood as referring to the whole learning situation and classroom environment. The students helped daily by the teachers in judging their own progress indicates good teaching. The teachers are the source of progress to booth classroom and individual students.

The learning is one of the important themes in mathematics. According to Skinner, *"Learning is a process of progressive behavior adaptation."* Similarly, words worth define *"learning is the process of acquiring new knowledge and new response."* There are certain steps in learning such as goal motivation, recreation, obstacles, response and generalization. Therefore, the effective learning always demands the collaboration of learning methods in the classroom.

The study focuses on the problem faced by lower secondary level students in mathematics. This means it may have been partially contributed through teaching, learning

activities depends on the classroom management, instructional materials used in the classroom, home environment, provided to both students and teacher and physical facilities given to the learning activities.

### **Statement of the Problem**

This study is concerned with the problems faced by lower secondary level students in mathematics

Generally, many people feel that the most of the students are unable to learn mathematics. Also, the number of students studying mathematics in higher level is seen decreasing year by year. The achievement of students is very low in mathematics in School Level Examination, District level Examination and School Leaving Certificate Level Examination. Therefore, there arise different questions related to mathematics and students, such as do they feel difficult in mathematics because of the environments related to school, home and also the perspective of society on mathematics? In which areas of mathematics such as arithmetic's algebra and geometry, they feel more problems? Why? A huge mass of such questions a researcher tried to include some topics of mathematics concern on difficult on algebra, geometry, statistics. In this study the researcher wants to find, where the students feel more difficulty, such as content, using material, teaching learning strategies, class room practices.

This study was intended to answer the following questions;

- ) What are the homes related problems faced by lower secondary level students learning mathematics?
- ) What are the problems which faced by students of lower secondary level about learning activities in mathematics classroom?
- ) What are the problems faced by students related to classroom management?
- ) What are the problems faced by lower secondary level students in mathematics related to content?

## **Significance of the Study**

Mathematics is an essential part of school curriculum. So it is taught as compulsory subject in all levels of school education. The mathematics students are facing many problems in studying mathematics. There seems to be various reasons for it as lack of physical facilities, which are essential for teaching learning activities.

Unavailability of experienced and trained mathematics teachers in various schools. Unavailability of textbook in time, print mistakes in textbook, lack of instructional materials, unavailability of teachers' guide, large size of class, heterogeneity of the students in ability and types and so on.

The major significance of this study was followed.

- ) This study would provide information about the current learning problem of mathematics at lower secondary level.
- ) The most important aspect of the study would be that the mathematics students facing academic problems or not.
- ) This study, however did not cover a wider scope would add a bit of knowledge of the factors influencing learning mathematics?
- ) This study helps mathematics educators to follow the new curriculum effectively and purposively.

## **Objectives of the Study**

The main objectives of the study were to identify the problems faced by lower secondary level students in learning mathematics. This study was be done to attain the following objectives.

- ) To identify the problems faced by lower secondary level students related to home environment.
- ) To identify the problem related to the classroom management.
- ) To identify the problem related to the contents of mathematics.

## **Delimitation of the Study**

Following were the limitations of the study:

- ) This study was concerned only with current learning problems of lower secondary level.
- ) This study was limited to the problems faced by lower secondary level students in mathematics about home and school environment, classroom management, teaching learning activities and contents of mathematics.
- ) This study was limited Ilam district only.
- ) This study was based on sample of 10 school including 10 mathematics teachers and 60 students among them 5 schools were from rural area and 5 schools were from urban area. Out of 10 schools; 6 schools were private and 4 schools were public schools.

## **Definitions of terms**

**Students:** This term is used to both boys and girls of lower secondary levels students in sampled school.

**Teacher:** The person who teach mathematics at lower secondary level in sampled school.

**Home environment:** Home environment refers to the economic, social, cultural, educational conditions of the student.

**Materials:** Instructional materials which used in teaching learning activities.

**Problems:** Problems of the students related to the home environment, classroom management, teaching/learning activities and contents of mathematics.

## Chapter- II

### REVIEW OF RELATED LITERATURE

Review of related literature is research task, calling for a deep insight and clear prospective of the overall field. The main purpose of review of related literature is to find out what works have been done in the area of study being undertaken. It helps to conduct the new research in a systematic manner by providing the general outline of the research study and avoids the necessary duplication. Among the literatures reviewed some were in related to problems faced by students in learning mathematics. Researcher found that during the last three decades there were many studies about the attitudes of teaching profession, studies on the attitude of students and teachers towards mathematics and the achievement of students in mathematics in different classes of school level.

However researcher could not find any investigation on problems faced by lower secondary level students in learning mathematics. So, the researcher tried to find out the problems faced by lower secondary level students in compulsory mathematics for this purpose.

The researcher has reviewed some related literature as follows:

The Curriculum Development Center (CDC) surveyed the school mathematics textbook of grade 1 to 10 and CDC conclude that the most of contents treated in the textbooks did not match the curriculum, also most textbooks were of low quality and inadequate in terms of contents .

Amatya (1978) made a comparative study on the topic 'Effectiveness of teaching mathematics with and without the use of instructional materials'. He concludes that the achievement of students taught by using instructional materials is significantly higher than the achievement of the students taught without instructional materials.

Pathak (1986) studied on the problems faced by the teacher while implementing the mathematics curriculum at school level and reported that the objectives of curriculum were understandable but the textbooks were not compactable with objective, which caused the problems to the teachers. They had faced the problems in selecting proper evaluation devices.



Johnson and Johnson (1989) reviewed over 600 studies on co-operative learning approaches which demonstrate the effectiveness of this approaches to teaching learning. Co-operative learning paradigms set very high expectations that students can understand course content by taking responsibility for their learning.

Baral (2000) conducted "A study on the problems faced by mathematics teacher in implementation of compulsory mathematics curriculum in grade-IX". The study concludes that the objectives of curriculum seem to be highly idealistic hence they cannot be fulfilled in present content of mathematics teacher learning situations. He come up to the conclusion that only paper pencil test was used. They also mentioned that he has difficult to evaluate students' achievement fairly.

Thapa (2004) conducted a thesis entitled "A study on mathematics classroom management at primary level in Kathmandu metropolitan" and concluded that the classroom management play a vital role to achieve the goals which an important part is of school mathematics.

Bhattarai (2005) conducted a thesis entitled "A study on problem faced by the mathematics students in existing curriculum". He concluded that learning mathematics in secondary level was distributed by so many factors such as; lack of teachers involvement in curriculum planning, lack of referential and instructional facilities and aids, students' weak background in the subject matter, student defective promotion policy, lack of opportunity given to upgrade their knowledge and huge numbers of personal of the students and teachers.

Bhattarai (2007) conducted a thesis entitled "Problems faced by students and optional mathematics at secondary level". He concluded that the problems can mainly attributed by highly idealistic curriculum, more abstract course, defective classroom situation, lack of supervision on availability of additional material, untrained teachers and poverty of life and so on.

Poudel (2009) studied on the problems faced by grade VIII students in mathematics and reported that teacher should be trained and command over subject matters. All types of resources should provide for mathematics teachers to improve the leave of mathematics in our situation. Seminars, workshops for teachers and students interaction with parents

should be managed time to time. Everyone should also to create the environment on which every student can be feel that he must read and practice seriously.

Acharya (2010) conducted a thesis on the topic "Impact of socio-economic status of children's mathematics achievement". He concluded that the score obtained by students in mathematics is found significantly co-related with father's education, fathers' occupation, and family income positively but negatively co-related with family size.

Niraula (2010) conducted a thesis entitled "pedagogical practices of mathematics teachers in ethnically plural classroom of secondary level". He concluded that in mathematics teaching the teacher often assigned the task on the blackboard asks all to solve the problem but not give the attention to the students who are poor, who are sitting back of the classroom and who are sitting on the place where teacher often does not reach the students in the classroom.

Therefore training, orientation, multi-ethnic teaching skill, knowledge of local community and cultural variability, and changes in teachers' culture will be a positive back up for the mathematics teaching in teachers in the days to come.

From the review of available literature, the researcher found that no such significant steps have been made to study the problems of mathematics. Therefore, the researcher tried to find the problems faced by lower secondary level students when learning mathematics.

### **Conceptual Understanding of the Study**

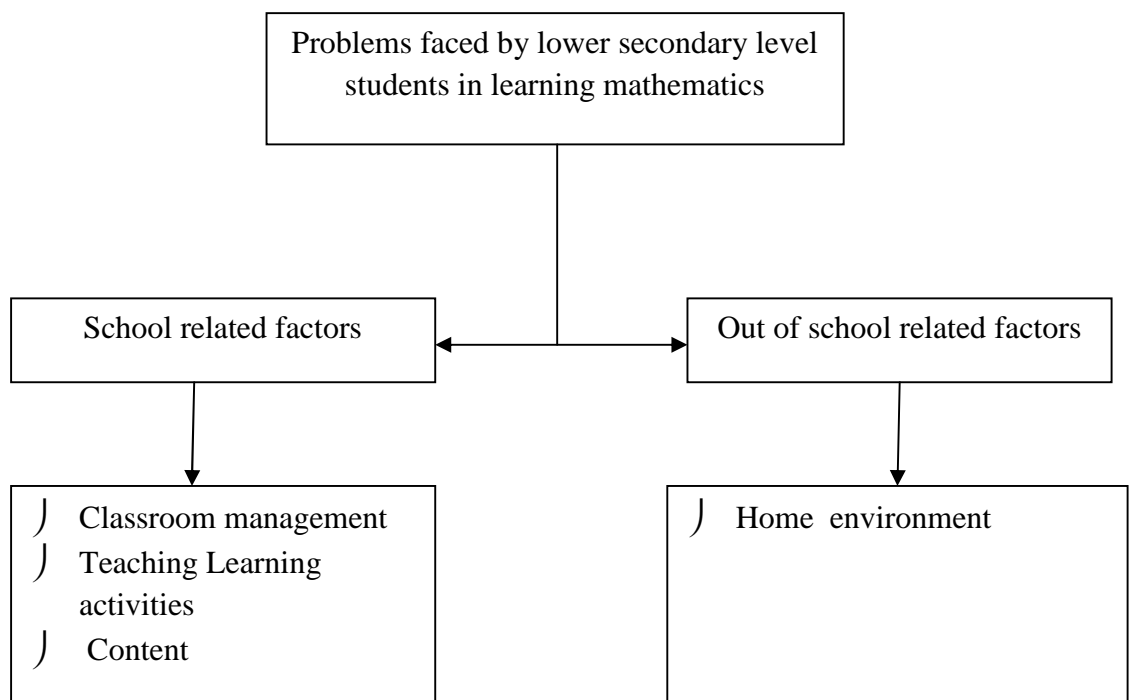
Studies have been done to consider problems faced by students in learning mathematics. Moreover, theories and models of learning have been formulated so as to identify factors involved in student's learning. These things have summarized as to clarify the problems of the study together with some factors consider to main basis to study problems faced by lower secondary level students in mathematics.

According Walberg, Fraser, and Welsch (1986) data from a national sample of 1,955. 17 years old participating in the National Assessment in Science in 1981/82 were used to test a model of educational productivity involving ability, motivation, quality of instruction, and the environments of home and class. When a set of 11 individual predictors were regressed on achievement and attitude, the educational productivity model was

generally supported. With predictor variables controlled for one another, student achievement was related to ability, motivation, and science, amount of homework, the class environment and the home environment.

Bigges's described how students' performance is influenced by the learner's personal and situational factors directly or indirectly or maintained through the process of three approaches to learning: deep achieving and surface. The personal factor in the model includes enduring characteristics such as ability, prior knowledge, personality and home background the situational factors in the model include variables such as course structure, instructional method, time or fast demand. In the process, each of learning approaches involves a varying motive and a related congruent strategy.

Form the above review of literature, the following conceptual understanding is prepared by researcher.



## **Chapter- III**

### **METHODS AND PROCEDURES**

This chapter contains the methods and procedure to be done to achieve the objectives of the study and to get the answer of the statement of the problems. It describes the design of the plans and procedures of the study, which are to be carried out, achieve the objectives of the study. The major procedures in the study are described in this chapter as follows:

#### **Design of the Study**

This is the study about the problems of lower secondary level students in learning mathematics. The researcher adopted the 'descriptive survey' method in this study. To explain the term survey method, it can be said that it is a form planned collection of data for the purpose of analyzing the relationship between certain variables. The study was based on qualitative and quantitative data.

#### **Population of the Study**

The population of the study consisted of entire mathematics students of lower secondary level in Ilam district.

#### **Sample of the Study**

The sample of the study was determined by stratified random sampling from Ilam district. Ten schools were selected as the sample of the study altogether from each school six students and one mathematics teacher was selected.

On the basis of developmental status of Ilam district, it is divided into rural and urban areas. The researcher selected five schools from rural and five schools from urban area. Two schools were private boarding schools and three schools were public schools from the rural area and same as urban area. Six students from grade VI, VII and VIII one mathematics teacher from lower secondary were selected for this study. Both the boys and girl students were equally selected.

## **Instruments for Data collection**

There can be used many types tools to get first hand information during the research. Mainly there are methods of data collection.

### **Interview schedule**

Interview schedule was used in this field to gather primary data were Interview Schedule for teacher to identify the problems relating to the teaching/learning activities, students participation in classroom and others.

### **Observation form**

Observation form was constructed for the purpose of identifies the problems related to teaching/learning activities and classroom management and students participations in classroom activities. Before developing class observation form, the researcher consulted with mathematics experts and experienced teachers. The classroom observation form was also prepared to find the real problems of the students about the teaching learning activities such as interest, opinion, behavior.

### **Opinionnaire form**

Opinionnaire form for the students were developed by the researcher himself with the help of supervisor. To collect the actual problems of the students, form was constructed after the detail study of the related literatures such as articles, documents, thesis, reports and books.

## **Data Collection Procedure**

The researcher went to each sampled school with tools to collect the data. Researcher took class observation of mathematics classroom at lower secondary level. Carefully noted each and every notable activity of students in the observation form. Researcher also took interview with mathematics teacher, the set of opinionnaire were distributed to 60 students to find the problems faced by the lower secondary level students in mathematics.

By reviewing the school record researcher noted documents, student's attendance, profile, result sheets, researcher noted punctual, character and behavior of students. By

observing surroundings environment of school, and interviewing with head teacher as well as teacher qualitative information was collected.

### **Scoring Procedure**

Weightage of 5, 4, 3, 2, 1 were assigned to a statement if the response is 'always', 'often', 'sometime', 'seldom' and 'never' respectively. For the statement opposing to this point of view, the items are scored in the opposite order and the mean weightage was calculated. Total rank score of five point Likert scale is 15. Thus its average is 3. If the calculated value is greater than 3 it is concluded that the statement content is favour to the problems. If the index measure is less than or equal to 3, then it is against favour to the problems.

### **Tools for Research**

Being qualitative and quantitative research there can be used many types of tools to get first hand information during the research. Mainly there are methods of data collection in qualitative and quantitative research.

Interview Schedule

Observation Form

Opinionnaire

The main tools in this field to gather primary data were interview, observation form and opinionnaire. Researcher constructed a interview format in semi-structured form. Interview schedule (Appendix-'C') was used to know the problems of students, problems in contents of mathematics, problems in classroom management and difficulties in classroom activities from teacher. Observation form (Appendix-'B') was constructed to know the problems related classroom management such as crowdedness of classroom, spaces for sitting to students, arrangements of materials etc. And opinionnaire for students (Appendix-'A') was constructed to know the students opinion in mathematics subject, their home environment for their study, problems they feel in their teaching learning activity.

## **Data Analysis Procedure**

The obtained data were analyzed and interpreted with the help of the following statistical techniques.

Mean weightage was used to locate the central position of the statements of students as a whole in the rating scale and percent was used.

Data obtained from interview, observation and school documents were analyzed descriptively along with the quantitative data obtained from opinionnaire.

## Chapter - IV

### ANALYSIS AND INTERPRRETATION OF DATA

The data obtained from opinionnaire, interview and oberservation is analyzed and interpreted in this topic. The collected data were tabulated and analyzed according to the objectives of the study. The collected information was interpreted by using statistical tools mean weight. The interaction from the respondents was carefully listed and noted properly. The collected information was analyzed under the following headings which are corresponding to the objectives of the study.

#### **Analysis and interpretation of the responses related to the problems home environment**

Good environment is the source of learning of the children which encourage them to learn smoothly. The students feel physically and mentally disturbed if they do not get good environment.

The researcher took sixty students for the purpose of interaction. Among them six students were participated from each school on which thirty were boys and thirty girls.

The responses of the students given in the opinionnaire about the home environment is presented below:

**Table no. 1**

#### **Student's responses related to the problems home environment**

S.N.	Statements	Always	Often	Some time	Seldom	Never	Mean weight	Remarks
1.	Your parents tell something about the importance of mathematics	-	8×4=32	10×3 = 30	25×2 = 50	27×1 = 27	2.8	No
2.	Your parents help you on your study.	-	10×4 = 40	22×3=66	10×2 =20	18×1 =18	2.4	No



3.	You have to work like making food, cutting grass etc.	30× 5 =150	10× 4 =40	8× 3 =24	8× 2 =16	4× 1 =4	3.9	Yes
4.	You spent more time by playing games.	11× 5 =55	20× 4 =80	16× 3 =48	10× 2 =20	3× 1 =3	3.4	Yes
5.	You use home arithmetic's in your daily life.	5× 3 =15	14× 4 =56	18× 3 =54	10× 2 =20	15× 1 =15	2.6	No
	Average mean weight						3.02	

The above table shows that the students are facing problems over the statement 3 and 4 because mean weight is greater than three. But other statements do not expose any problem to the statements. However, the average mean score is 3.02 which is less than three it indicates that student do not have problems related to home environment.

The students must engage in household work like making food, cutting grass etc. These works are their daily routine. This indicated that the students are spending more time on physical work at their home. It is found that most of the students spend their valuable time by playing games rather than study. So achievement level of students is decreasing specially in mathematics because mathematics needs more time for practices.

### **Analysis and interpretation of the responses related to the problems classroom management**

Educators have been aware the quality of classroom management is an important factor for student's achievement and teaching success. We have written about management rather than control in classroom because management emphasizes the learning and teaching are complementary activities just as successful managers in commerce and industry avoid dispute, which disturb production. Therefore, in the classroom, successful teachers have the capabilities to provide remarkable learning activities so that students can develop their conceptual thinking.

The table given below was record from classroom observation related to classroom management.

**Table no. 2**

**Classroom observation records related to the problems classroom management**

S.N.	Statement	Yes		No		Remarks
		NR	%	NR	%	
1.	The class is not crowed	4	40	6	60	Yes
2.	Students have sufficient space to live	4	40	6	60	Yes
3.	Arrangement of desk and benches are good	3	30	7	70	Yes
4.	There was noise outside the classroom	2	20	8	80	No
5.	Classroom are well lighted and ventilated	7	70	3	30	No
6.	Black/white board management are sufficient in classroom	9	90	1	10	No

Table no 1, 2 and 3 shows that there were 60% classrooms which were too crowed and remaining were not so crowded. Similarly, 60% classroom was not properly arrangement. 70% classrooms have no good arrangement of desks and benches.

It was observed that 60% classroom had not the sufficient spaces for students. This was due to the large number of students in small size classroom building which indicates the crowdedness of the classroom. The classrooms were well ventilated and lighted as well as there was no disturbance of outer environment and also the management of the boards was good.

From the observation of the classes, the students feel difficult to sit in the classroom due to the crowdedness, insufficient spaces. It is found that, the researcher took the interview with mathematics teachers and head teacher of related schools. Many teachers agreed that the administration does not provide good furniture like desks, benches etc. and well classroom for students. Therefore teachers are not able to manage the class. Some problems about classroom management are given below. The head teachers agreed that the school have no sources to manage the furniture and other materials in the classroom.

### Analysis and interpretation related to teaching/learning activities

The teaching/learning activities play important role to gain knowledge about the subject matter. Student's performance and perception depend upon how the teacher presents subject matter. Student centered teaching methods are now highly appreciated. The student's responses on teaching learning activities are given below as:

**Table no. 3**

#### Student's responses related to the teaching/learning activities.

S.N.	Statements	Always	Often	Some time	Seldom	Never	Mean weight	Remarks
1.	The classes start from interesting way.	6× 5 =30	10× 4 =40	16× 3 =48	8× 2 =16	20× 1 =20	2.5	No
2.	Your teacher solves the problems with discussion.	20× 5 =100	8× 4 =32	26× 3 =78	6× 2 =12	6× 1 =6	2.5	No
3.	You are satisfied by the responses of your teacher.	10× 5 =50	7× 4 =28	12× 3 =36	20× 2 =40	11× 1 =11	2.8	No
4.	Problems are frequently solved by the teacher.	30× 5 =150	18× 4 =72	10× 3 =30	2× 2 =4	-	4.3	Yes
5.	Teachers have the suggestive and future oriented behavior.	4× 5 =20	16× 4 =64	14× 3 =42	16× 2 =32	10× 1 =10	2.8	No
6.	Your teacher checks your homework.	6× 5 =30	6× 4 =24	8× 3 =24	16× 2 =32	24× 1 =24	2.2	No
7.	Your teacher emphasizes weak	102× 5 =50	8× 4 =32	12× 3 =36	14× 2 =28	16× 1 =16	2.7	No

	students to learn in the classroom.							
8.	Your teacher does not show the material while teaching.	25× 5 =125	15× 4 =60	8× 3 =24	8× 2 =16	4× 1 =4	3.8	Yes
9.	Your teacher does not explain about the topic by giving examples of daily life events.	20× 5 =100	10× 4 =40	18× 3 =54	10× 2 =20	2× 1 =2	3.6	Yes
10.	Your teacher does not help the students the clear about the concept by establishing to co-related topic.	15× 5 =75	15× 4 =60	18× 3 =54	7× 2 =14	7× 1 = 7	3.4	Yes
	Average mean weight						3.1	Yes

The above table shows that the students are facing the problems over the statements 4, 8, 9 and 10 because mean weight is greater than three. But other statements do not expose any problem to the students. However, the average mean score is 3.1 which also greater than three it indicates that student are facing the problems in teaching learning activities.

Problems related to the teaching/learning activities according to above table are the teachers solve the problems frequently which decrease the creativities of the students, the use of materials to the related topics which helps the students to understand the concept about the topics. Teacher doesn't explain the topics which are relating to the daily life events, it also create the problems to relate the daily life events for students and the teacher does not clear the concepts by establishing the correlation between the topics of mathematics.

By the interview of mathematics teacher and the head teacher, most of the teachers said that they have not enough ideas to construct the materials and some of them said they could not use the materials in the classroom due to the courses of mathematics. They said if they use the materials in the classroom they have to construct so many materials due to the large number of students of the classroom which they feel difficult. Weak students were always passive and they do not participated in class activities which create the problems for teachers. The head teachers of related school told that they could not provide workshops, seminar etc for their mathematics teacher and most of the private schools have no subject teacher of mathematics who have not good command over the subject matter. Also the teachers, head teachers agreed that the school unable to manage the extra classes for weak students.

#### **Analysis and interpretation related to classroom observation.**

The researcher observed ten mathematics classes to collect some information about teaching learning activities. The class observation record related to teaching learning activities are given below:

**Table no. 4**

#### **Classroom observation records related to teaching/learning activities.**

S.N.	Statement	Yes		No		Remarks
		NR	%	NR	%	
1.	The teacher moves in the classroom	3	30	7	70	Yes
2.	All students involved in all activities	4	40	6	60	Yes
3.	Teacher provided clear instruction for new concepts	3	30	7	70	Yes
4.	Sufficient examples provides for new concepts	4	40	6	60	Yes
5.	Teachers encourage all students	4	40	6	60	Yes
6.	Teacher solves problems himself	5	50	5	50	No
7.	Teacher shows positive behavior on difficult questions.	6	60	4	40	No
8.	Teacher has good command over subject matter	4	40	6	60	Yes

9.	Teacher provides opportunity for weak students	3	30	7	70	Yes
10.	Teacher shows materials related topic	2	20	8	80	Yes
11.	Teacher motivates the students to learn	3	30	7	70	Yes

From the ten class observation the researcher concluded that some classes are not good. The movement of the teacher has not seen in seven classes. The teacher does not care to all students in classroom. The teacher does not provide good opportunity for weak students. Six classes out of ten, it is seen that the teachers have not good command over the subject matter. Teacher does not use materials to the related topic and the teacher does not motivate their student to learn or practice for given problem in their text book.

Most of the teachers are agreed that we are facing various problems on teaching learning such as large number of students, different learning capacities of students, lack of knowledge about construction of the materials related to the topic, engage all the students to classroom activities are more difficult, more emphasis should be given to finish the course rather than students learning. The teachers said difficult to motivate students towards leaning mathematics is very difficult and also provide the opportunities for weak student is difficult.

Weakness of the students, the teachers face difficulty in teaching mathematics which further leads to slow speed of teaching. The different category of students and their negligence towards mathematics creates problems in teaching.

It is generally agreed that the students in the classroom are differ in mathematics learning abilities due to various backgrounds such as age, intelligence, gender, maternity and socio-economic status. It is almost same in the students for public and private schools of Ilam district.

Most of students responded that the teachers do not use the materials while teaching, the teacher evaluates them at the end of the lesson but they were not able to involve all the students due to the large number of students in a class and lack of time period and also the teachers do not check the homework daily because of same condition. Again the students responded that the school administration does not provide the extra

classes or extra time for their learning difficulties which helps them to clear the confusions about some topics.

Students explained the mathematics is more useful for further study like science, engineering, management etc. So students say that they are much interested to learn mathematics.

**Analysis and interpretation related to contents of mathematics.**

Students explained the mathematics is more useful for further study like science, engineering, management etc. So students say that they are much interested to learn mathematics. After interaction, response of students over content in mathematics of lower secondary level is tabulated below:

**Table no. 5**

**Student's responses related to the content of mathematics**

S.N.	Statement	Yes		No		Remarks
		NR	%	NR	%	
1.	You can write sets in different methods like; listing method, set builder form, descriptive method.	44	73.33	16	26.67	No
2.	You can construct the ven-diagram of disjoint or overlapping sets.	45	75	15	25	No
3.	You can find out union and intersection of sets from ven-diagram.	50	83.33	10	16.67	No
4.	You can convert the fraction, decimal and percent to each other.	50	83.33	10	16.66	No
5.	You can solve the problems related to unitary method.	15	25	45	75	Yes
6.	You can find out the profit or loss from the verbal problems.	25	41.67	35	58.33	Yes
7.	You can convert the given ratio into minimal form.	35	58.33	25	41.67	No
8.	You can find out the simple interest by using the formula in verbal problems.	24	40	36	60	Yes

9.	You can solve the problems related to percentage.	12	20	36	60	Yes
10.	You can do addition of monomial and binomial algebraic expression.	20	33.33	40	66.67	Yes
11.	You can do subtraction of monomial and binomial algebraic expression.	25	41.67	35	58.33	Yes
12.	You can do multiplication of monomial and binomial algebraic expression.	27	45	33	55	Yes
13.	You can find out HCF from two algebraic expressions.	18	30	42	70	Yes
14.	You can do factorization of algebraic expressions.	20	33.33	40	66.67	Yes
15.	You can find out perimeter of triangle, rectangle and prisms.	22	36.67	38	63.33	Yes
16.	You can find out the area of rectangle and square.	20	33.33	40	66.67	Yes
17.	You can sketch the histogram from the given data.	52	86.67	8	13.33	No
18.	You can find out the mean from individual series.	54	90	6	10	No
19.	You can find out the midmean from individual series.	54	90	6	10	No
20.	You can find out the mode from individual series.	60	100	-	-	No
21.	You can find out the range from individual series.	58	96.67	2	3.33	No

From the above table it was found that most of the students have no problem to notation to set, to construct the ven-diagram to the disjoint or overlapping sets and to find out the union and intersection of set from the ven-diagram. In this case the researcher asked to the teachers they replied that most of the students solve the problems of set easily than other topics.



In arithmetic, it was found that the students have no problem to convert the fraction, decimal and percent into each other and to convert the ratio in minimal form but in same topic they have some problems to solve the problems related to percentage also they have problems in unitary method, simple interest of verbal problems and have the problems related to profit and loss in verbal problems. In this case the researcher took interview to the teachers; they replied that students are often confuse to find the amount, principle and rate in the verbal problems of simple interest and which is the cost price and which is the selling price on the verbal problems of profit and loss and also they added the students are in trouble to which operations is to be done in unitary method. Most of the teachers are agreed that they are unable to clear the concept about percentage, unitary method, simple interest and profit and loss relating with the daily life events.

In the above table, in algebra most of the students are facing the problems relating to the addition, subtraction, multiplication, factorization of monomial and binomial expressions. Teachers said that students often confuse in addition and multiplication more than subtraction. they added sometimes increase the coefficient in multiplication and sometimes increase the indices of algebraic expression by the students. In case of factorization, teachers replied that cause of lack of the knowledge of addition and subtraction the students are facing the problems also in factorization due to it is abstract for students. Also teachers agreed that they never used the materials in teaching algebra and some of them said that they have no ideas to construct and use of these materials in teaching algebra.

Students have the problems in find out the perimeter of triangles, rectangles and prisms, also other problem is to find out the areas of rectangles, squares and some other shapes which seen in above table. In this problems teachers agreed that they only use geometrical figures in the class instead of concrete materials or cardboard models.

But in last four tables, it is seen that there is no problems in the chapter of statistics. Most of the students response that they have no problems in find out the mean, median, mode and range from the data and also to sketch the histogram of given data.

## Chapter - V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary

This chapter is basically concentrated in deriving some findings from the discussion of chapter IV. Problems relating to mathematics learning might have affected the achievement in teaching of mathematics. This is a great challenge to mathematics teacher. Some problems of learning mathematics in students might directly be related to the teachers' academic background, classroom practices, school management and leadership, and others. Such situation affected the efficiency and potentiality of students' performance. Lack of use instructional materials also created the problems for students to understand the concept of some topics in mathematics and the selection of teaching techniques. Some problems of learning mathematics in students related to their home environment such as their economic, cultural, social conditions. These conditions directly affected their learning. Also the management of the classroom is one of the problems which are faced by the students such as the crowdedness of the classroom, uncomfortable sitting situation in the classroom, arrangement of desks and benches.

Learning environment at home and school is not appropriate of the students so they become irregular in the class and sometimes leave the school too. The teacher teaches them by using his/her teaching techniques. The teacher doesn't teach them by understanding the interest of students. Teacher should pay attention about the interest of students while teaching them in the classroom. Teaching techniques used by the teacher is also one of the problems of students which they can't understand easily. They feel difficulty in learning mathematics problems. Described above are the problems faced by the students. So this study was focused to determine the problem faced by the lower secondary level students in mathematics

To fulfill the following objectives

- ) To identify the problems faced by the lower secondary students related to the home environment.
- ) To identify the problems related to the classroom management.

- ) To identify the problems related to the teaching learning activities in the classroom.
- ) To identify the problems related to the contents of mathematics.

The problems were related to home environment, classroom management, teaching learning activities, instructional materials and content of mathematics. To fulfill the purpose of this study, the researcher chooses Mean weightage used to locate the central position of the statements of students as a whole in the rating scale. Data obtained from interview, observation and school documents analyzed descriptively along with the qualitative data obtained from opinionnaire.

On the basis of analysis and interpretation of data, most of the students are involved in household work so they are unable to give more time for their study. Students' participation in the classroom is poor, there is a gap between talented students and weak students which creates more difficulties for mathematics teacher, weak students do not get good opportunities to learn in the classroom. Besides the lecture and problem solving methods, other appropriate techniques were not used while teaching. Class control and motivation are difficult for teacher in mathematics. Misconception about mathematics in students creates various problems for learning mathematics such as they were not laborious, interested. The crowdedness of classroom creates insufficient spaces to sit in the classroom. The school administration does not provide good furniture for students, lack of space in classroom affects the demonstration and proper use for teaching materials. Classes were not started in interesting manner, which could not help for students' motivation. Students have problems in some special topics like geometrical theorem, scientific number system and direct and indirect variation etc. Most verbal problems included in content do not related real life situation. Teachers were not interested to collect and construct the local materials for mathematics teaching.

## **Conclusion**

Society as a whole believed that mathematics is very difficult subject. This belief is communicated by parents and teachers to students. Then this study was depended with the assumption that mathematics teaching and learning is far being satisfactory at lower secondary level in Ilam district. To find out the reason why mathematics teaching is not

effective in this case, the researcher tried to identify the problems by collecting data concerning with the mathematics.

After analyzed the data on the basis of "average weightage mean" and percentage, it can be concluded that most of the students involved in the household activities, crowded classroom without properly managed furniture made the obstacle in learning of the students, mathematical problems were frequently solved by the teachers. Mathematical concepts and problems were discussed without the help of instructional material, little practice was exercised by the teachers to encourage the poor students, teachers did not start their classroom so interestingly and occasionally check the homework, teachers were not so perfect in their profession.

It had been noticed that the main problems are due to the lack of training and orientation opportunity for the mathematics teachers in highly idealistic curriculum, inadequacy of textbook, defective classroom situation and lack of supervision, lack of instructional materials and poverty of life and so on.

More financial resources should be allocated to each home and schools to make environment parents must be satisfied economically. Furniture and modern buildings should construct to improve the school environment. The environment for construction of instructional materials should create.

Teachers should be trained. All types of resources should provide for mathematics teachers to improve the level of mathematics in our situation. Seminars, workshops for teachers and students interaction with parents should be managed time to time. Everyone should also to create the environment on which every student can feel that he must read and write seriously.

## **Recommendations**

This study was concerned to find the problems faced by students in mathematics at Ilam district. This conclusion draw from the study cannot be generalized in all the schools. But the study might be possible to identify the more problems related to many sectors for students to get better preference in mathematics learning. The following are some issues not answered and need be further studied to validate the results of the study.

- ) This study was done in Ilam district as a care. For the generalization of the results of the study, similar study can be done in wider scope and large sample.
- ) This kind of studies should also be conducted at all levels of schools and in other subject as well.
- ) Emphasis should be laid on the preparation of reactive and durable teaching aids.

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## Appendix - A

### Opinionnaire for students

Dear students,

I am a student like you. I am going to carry out a small study on the topic "A Study on the Problems Faced by Lower Secondary Level Students in Learning Mathematics".

This opinionnaire is addressed to you. There are 16 statements concerning with attitude. There is no right or wrong answer. The right answer is your own opinion. Please, read the statement carefully and give own opinion by putting tick (✓) on any one of the given five rating of each statements.

Here,

A= Always, O = Often, St. = Sometimes, S = Seldom, N = Never

School's Name :

Date :

Student's Name :

Class :

Roll No. :

Address:

S.N.	STATEMENTS	A	O	St.	S	N	Remarks
1.	Your Parents tell something about the important of mathematics.						
2.	Your parents help you on your study.						
3.	You have to work like making food, cutting grass etc.						
4.	You spent more time by watching T.V, playing games etc.						
5.	You use home arithmetic in your daily life.						
6.	The class starts from the interesting way.						
7.	Teacher solves the problems with class discussion.						



8.	Students are satisfied by the teacher's response.						
9.	Mathematical problems are frequently solved by teacher.						
10.	Teachers have the suggestive and future oriented behavior.						
11.	Teacher check homework.						
12.	Teacher emphasizes weak students to learn in the classroom.						
13.	Teacher uses the materials to the related topic of textbook.						
14.	Teacher explains about the topic by giving the examples related to daily life events.						
15.	Teacher helps the student to clear the concepts by establishing correlation on the previous topics.						
16.	School managed the extra classes for weak students.						

## Appendix - B

### Class Observation form

School's Name:

Date:

Period:

Starts at:

Ends at:

Teacher's Name:

Class Size:

Boys:

Girls:

S.N.	STATEMENTS	Yes	No	Remarks
1.	Teacher moves in the classroom.			
2.	All Students involved in class activities.			
3.	Teacher provides clear instructions for new concept.			
4.	Sufficient examples provided for new concept.			
5.	Teacher encourage all the students.			
6.	Teacher solves the all problem by himself.			
7.	Teacher shows positive behavior on difficult problems.			
8.	Teacher has good command over subject matter.			
9.	Teacher provided oppertunities for weak students.			
10.	Teacher used materials to the related topics.			
11.	Teacher motivates the students to learn mathematics.			

## Appendix - C

### Guidelines for Interview with Mathematics Teacher

Name: Age: Sex: M/F

Qualification: Major Subjects:

Training:

Location: Urban/Rural Nature: Private/Governmental

Time to reach school:

The interview with mathematics teachers undertaken on the basis of following main topics:

Teaching experience:

Classroom management:

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

Instructional Materials:

effectiveness, preparation, time, use etc.

Teaching Learning Activities:

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

Cause of low achievement.

Home environment for learning.

Contents of mathematics:

**Appendix - D**

**Table no. 5**

**Student's responses related to the content of mathematics**

S.N.	Statement	Yes		No		Remarks
		NR	%	NR	%	
1.	You can write sets in different methods like; listing method, set builder form, descriptive method.					
2.	You can construct the ven-diagram of disjoint or overlapping sets.					
3.	You can find out union and intersection of sets from ven-diagram.					
4.	You can convert the fraction, decimal and percent to each other.					
5.	You can solve the problems related to unitary method.					
6.	You can find out the profit or loss from the verbal problems.					
7.	You can convert the given ratio into minimal form.					
8.	You can find out the simple interest by using the formula in verbal problems.					
9.	You can solve the problems related to percentage.					
10.	You can do addition of monomial and binomial algebraic expression.					
11.	You can do subtraction of monomial and binomial algebraic expression.					
12.	You can do multiplication of monomial and binomial algebraic expression.					
13.	You can find out HCF from two algebraic expressions.					

14.	You can do factorization of algebraic expressions.					
15.	You can find out perimeter of triangle, rectangle and prisms.					
16.	You can find out the area of rectangle and square.					
17.	You can sketch the histogram from the given data.					
18.	You can find out the mean from individual series.					
19.	You can find out the midmean from individual series.					
20.	You can find out the mode from individual series.					
21.	You can find out the range from individual series.					

## **Appendix - E**

### **List of sampled schools**

#### **A. Public Schools:**

1. Shree Devi Lower Secondary School.
2. Shree Jyoti Lower Secondary School.
3. Shree Kankai Higher Secondary School.
4. Shree Saraswati Secondary School.
5. Shree Adarsha Higher Secondary School.
6. Shree Amar Higher Secondary School.

#### **B. Private Schools**

1. Shree Ilam Newlight English Secondary School.
2. Shree Nepal Academy.
3. Ilam Vidya Mandir School.
4. Green Valley Academy School.