

## Chapter I

### INTRODUCTION

#### Background of the Study

Mathematics is the way of settle in mind and the habit of reasoning and it is an expression of human mind that reflects the active well complete reasons and desires for aesthetic perfection. Mathematics is interpreted, explained and used in different situation to generate logical, intuition, constructivism, analytical, formulation and generalization of judgment power.

Mathematics is considered as one of the most difficult subjects. The exam result from pre-primary grades to schools itself prove its significance to more extent. However, only few of us realize fact that mathematics is more logical. Being a logical subject students do not need to memorize any words. It is primarily concerned with abstraction, logical reasoning from counting, measurement, calculation and the study of shapes and motions of physical object. It has continuously been developed and improved to meet the changing needs of contemporary society.

According to the Mathematics dictionary, "textbook is a material to study which deals with definite subjects of learn systemically arranged things, intended for use at a specified level of instruction and it is used as a given course." Mathematics concern with the development and implementation of appropriate Mathematics curriculum and all issues associated with teaching and learning of mathematics in keeping with the concept of lifelong learning. Mathematics education directly concerns with classroom teachers, learners, curriculum, school and contemporary society.

National Council of Teachers of Mathematics (NCTM) recommended that problem solving should be the focus of mathematics teaching because, they say, it

encompasses skills and functions, which are an important part of everyday life. Furthermore, it can help people to adapt to changes unexpected problems in their careers and other aspects of their lives. More goes on all aspects of mathematics in the world around them. They see problem solving techniques as a vehicle for students to construct, evaluate and refine their own theories about mathematics and the theories of others.

The mathematical process is interconnected within different perspective and values. Problem solving and communicating have strong links to all process. A problem solving approaches encourages students to reasons their way to a solution or a new understanding. As a student's engaged in reasoning teacher further encourage them to make conjecture and justify solutions orally or verbally. The communication and reflection that occur during and after the process of problem solving help students not only to articulate and refine their thinking of others and to continuously adjust their own strategies in order to make their solution as efficient and accurate possible (Dawadi,2005). The mathematical process can't be separate from the knowledge and skill that students acquire throughout the course. Students must solve the problem, communicate, reasons, reflect and so on as they develop the knowledge understanding or concepts and the skills requires in the course.

About the Modern classroom, the teaching tools have long consisted of chalk, board, pen and textbook. However the emphasis today is to use demonstrate model of various shapes and sizes, slide rules, overhead projector drawing instruments, graph paper, different types of picture and mathematical magazines, manipulative skills, teaching machine and being used in the modern classroom.

In the constructivist classroom, both teacher and students think of knowledge not as inert facts to be memorized, but as a dynamic, ever- changing view of the

world, we live in the ability to successfully stretch and explore that view. We can see different in basic assumptions about knowledge, student and learning. It's important, however to bear in mind that constructivist knowledge that students are construct. Constructivist teaching is based on the beliefs that learning occurs, as learners are actively involved in a process of meaning and knowledge construction rather than passively receiving information. Learners are the makers of meaning and knowledge. Constructivist teaching fosters critical thinking and creates motivated and independents learners. A constructivist teacher and classroom in a number of ways: the learners are constructivism and student- centered; and the teacher facilitates a process of learning in which students are encouraged to be responsible and autonomous.

In Nepal everybody complains against the teaching of mathematics. In the world, mathematics is being changed and reconstructed repeatedly but the teacher of remote area has to teach the mathematics as what they know and by the traditional methods due to the lack of teacher training facilities. Towards the teacher, Pandit (1993) says that mathematics is being very difficult to understand to the students of remote area of Nepal due to the lack of background and the concept of mathematics subject and in some area the teacher getting the certificates without entering to the training class even in a single day.

<b>Constructivism classroom</b>	<b>Traditional classroom</b>
Curriculum emphasizes vast concept beginning with the whole and expanding to include the parts.  Pursuits of student's questions and	Curriculum begins with the parts of the whole. Emphasizes on basic skills.  Strict adherence to fixed curriculum is highly valued.

<p>interests are valued.</p> <p>Materials include primary sources and manipulative materials.</p> <p>Learning is constructivism, building on what the student already knows.</p> <p>Teacher's have a dialogued with students, helping students to construct the knowledge.</p> <p>Teacher's role is only scaffold.</p> <p>Assessment includes student's works, observation, point of view, as well as tests. Process is than product.</p> <p>Knowledge is seen as dynamic ever-changing with experiences.</p>	<p>Only Textbook and workbooks are materials.</p> <p>Learning based on repetition.</p> <p>Rote learning is emphasized rather than conceptual.</p> <p>Teachers disseminate information to students; students are recipients of knowledge.</p> <p>Teacher's role is directive, rooted in authority.</p> <p>Assessments are through testing, correct answer.</p> <p>Knowledge is seen as inert.</p>
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In our country, textbooks were used as only major tools to achieve the objectives of the curriculum. So that many teachers have misconception about textbook and curriculum. Because of the financial problems, rules and regulations, lack of training, lack of opportunity etc. Our school couldn't procedure and afford money to spend in materials and equipment. Facilities that are essential for teaching and learning activities are not available in substantial amount. Some school and college do not even have enough classrooms. They don't have opportunity to take on a sit. For this complicated situation, how they learn? Often the classroom is not well lighted and well ventilated. i.e. there is not well physical facility. Also on the rural area teacher have limited on only textbooks. They haven't participated on the different

Mathematical program, and don't familiar with the modern technology. So, the teacher doesn't understood the students interest. They only followed by traditional approach, so there were faced different problem such as: classroom management, Instructional material, Textbook and curriculum, Evaluation system.

### **Statement of Problem**

This study was mainly concerned with the problems faced by mathematics teacher at higher secondary level. This study would seek answer the following research question.

- What kinds of teaching problems and challenges do mathematics teacher face while teaching in classroom?
- What are the current problems faced by mathematics teacher in teaching at higher secondary level of Ramechhap district?
- What are the causes of arising such problems in teaching mathematics?

### **Objective of the study**

The overall objectives of this study was to find out the Mathematics teacher's problem for teaching mathematics at higher secondary level. However, the study had following objectives to guide the research:

- To identify the problem by higher secondary level Mathematics teacher in teaching Mathematics related to knowledge of Mathematics and teaching learning activities in the classroom.
- To find the causes of such problem that was faced by mathematics teacher in teaching at higher secondary level of Ramechhap district.

### **Significance of the Study**

This study intended to explore the current problem, which was faced by mathematics, has taught as optional subject at higher secondary level. This study had

valuable implication for the undergraduate teacher to improving their class, and finding the problem and developing the curriculum at higher secondary level of school education program.

Similarly, another significance of the study is to contribute the knowledge of mathematics education. Such knowledge based on theoretical information for mathematics in terms of classroom environment in teaching mathematics.

For this study would explore the problem of teaching method, material supervision and mathematics teacher and their beliefs in teaching. It is a optional subject for the higher Secondary level at present but it will be compulsory for this level as soon. Even Mathematics has been as compulsory subject there are many factors that hinder student progress in this subject. One of the main factors of this reason may be problem of teacher in teaching mathematics. So there are greater need to identify whether there are problem or not. Problem is not limited on the problem it may arise confusion of subject matter, lack of physical infrastructure, teacher training, teaching material, economic condition, rule of educational policy and exam oriented teaching activities, lack of subjective knowledge. This study may provide some logical and valuable information about the current problem of teaching mathematics at higher secondary level.

The significance of the study were as follows:

- It would find the mathematics-teaching problem related to classroom, content, teaching learning activities, school administration and evaluation system of higher secondary level.
- This study would find the actual situation of the classroom teaching performance of higher level mathematics teacher of Ramechhap

district. This study would be analyzed the classroom teaching performance on various topics .The findings of the study would be of academic significant to improve teaching effectively.

- It would help to curriculum planner, policy maker, and administratoreducationist, mathematician to make further rules, regulation and policy. This Research topic found the conclusion of the higher Secondary level teacher's problem. So the conclusion is applying to developing the curriculum. Then it would be helpful.

### **Delimitation of the Study**

This study was limited in Ramechhap district in view of researcher's constraints on logistic support, time and budget. Therefore, the study was subject to limited generalization and implication to the teaching field, since the study was only being carried out in small sample of population within stipulated time frame. In points, the study was delimited in the following areas:

- This study was only concern with classroom problem of higher secondary level mathematics teacher.
- This study population was drawn from public schools of Ramechhap district taking the population into consideration with line with the stated objectives.
- The major concentration of the study was based on the problem for teaching mathematics at higher secondary level.
- Only 30 teacher's were included in this study.
- The result of this study no more generalized because it took small sample within short time period and the result were only analyzed by using mean, percentage, quantitative data and logical interpretation for

qualitative data The study would be focus on using problem solving method as a higher secondary level.

- Class would observe this study, took by interview, questionnaire and filled up the class record form.

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

Some terminology related to this research study is defined as follows: The terminology may differ from discipline to discipline and these have been defined from researcher perspectives depending upon the literature.

**Teacher:** The teacher who teaches mathematics full time or part time at higher level after completing the master degree with training.

**Training:** It is generally focused on the preparing a teacher in specific areas such as use of classroom aids and recourses, effective teaching techniques, conducting group and pair activities, use of textbook, classroom management and constructing test items.

**Problem:** In this study, problems are the difficulties of mathematics teacher among the difficulties of classroom activities of the students, Mathematical instruction, method, and supervision in the classroom, student's evaluation, textbook and curriculum, school administration and professional development of the teacher is called the problem.

**Classroom Behavior:** Behavior of teacher and students inside the classroom include presentation of subject matter, relation with students, use of teaching materials, encouragement, and motivation.

**Collaborative:** An environment where teachers are working together to solve the problem around the learning issues of the classroom situation of students, professional development with teacher, Mathematical instructional method & material, Evaluation system etc was followed by co-ordination is called collaborative.



## Chapter II

### REVIEW OF RELATED LITERATURE

It is an essential thing to review the related literature to compare the study, which provides strong knowledge about the related topic. Number of books, research reports, investigative paper and other booklets concern with curriculum teaching methods, instructional materials, classroom management, and physical facilities need to review. Only few researches are done in the related fields. Among them, the present studies is considering as milestone for the study. Reviews of some related literature are cited below.

Pandit (1999) mentioned on an article "Problem faced by mathematics of three years B.Ed level mathematics curriculum in Nepal." He concluded that mathematics teacher education program in Nepal is distributed by so many factors such as lack of lectures involvement in curriculum planning, lack of efficiency to conduct teaching facilities, student's weak background in the subject matter, lack of opportunity given to upgrade their knowledge and huge number of personal problem of lectures.

Lamichhane (2001) did a survey type research in kaski district as a "A study of problems faced by the secondary level mathematics teacher in teaching mathematics" with the aim to identify the problem in the rural area and urban area. He selected a sample of thirty teachers from eighteen schools and administered two researcher made tools. One questionnaire and other classroom observation form. He used Mann Whitney, U-test and Z-test to conclude the several problems faced by the urban teachers. Three were not found to be significantly different from those of the rural teachers.

Thapa (2005) conducted a thesis entitled "A study on the problem faced by teacher in teaching mathematics at primary level" she concluded that teacher are

facing many problems due to large class size, irrelevancy of teacher guide, lack of instructional materials, lack of supervisory help and so on. In mathematics teaching, teaching techniques are such aids which are used to make the lesson interesting, to explain the content and to remember it by heart during teaching techniques. Teaching or instruction strategies refer to a pattern of teaching acts that serve to attain certain outcomes and to guard against others. There are several methods of students and some are emphasizing in the supreme source to as a teacher. Among them inductive method, discovery method, filled trip method, discussion method, heuristic method, project method etc are the students centered methods, which always emphasizes on the active participation of the student.

Bhattarai (2005) conducted a study on the topic entitled " A study on problem faced by the mathematics students in existing curriculum" and concluded that learning mathematics in secondary level is distributed by so many factors like lack of sufficient instructional materials, lack of physical facilities, teacher's negligence towards curriculum planning, student's weak background in subject matter etc. Most of the problem were created due to financial situation and lack of proper academic management.

Chaulagain (2005) conducted his study entitled "A study off problem faced by secondary school mathematics teacher in teaching geometry" and made a conclusion that geometry teaching and learning in Kathmandu is not satisfactory. His nine different categories showed that teacher 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 to student's evaluation techniques, geometry instruction, teacher's professional development and constructing and using instructional materials.

Acharya (2006) concluded that a research study entitled 'A study on the problem faced by higher secondary level mathematics teacher in teaching mathematics of grade twelve. He summarize that the prescribed curriculum and the existing textbooks are not well planned, sequential and practical problem well. It also concluded that trained and untrained teachers, both are facing similar types of problem on Kathmandu district.

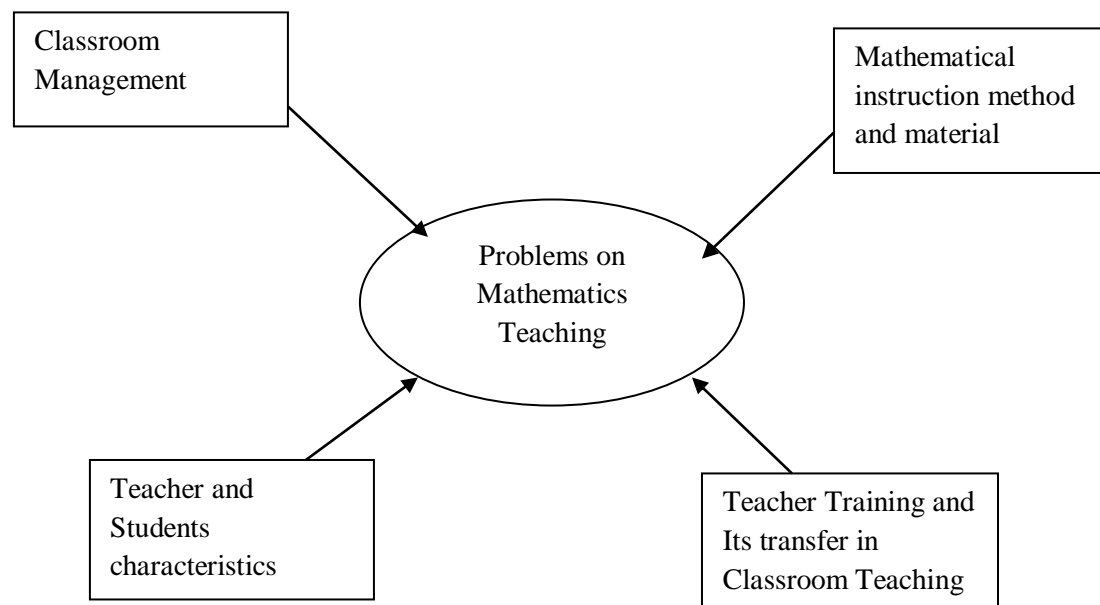
Gautam (2008) conducted his thesis entitled " A study on problem faced by higher secondary school mathematics teacher" and concluded that there are myriads problems that causes teaching and learning process not at satisfactory level in Nawalparasi district. Problems are due to characteristics background of students, classroom management and educational administration. He further added that both public and private HSS mathematics teacher have been facing more similar problems.

Gautam (2009) described a thesis entitled " A study of problem faced by higher secondary school teacher in mathematics". The study of descriptive in nature; the population for the study was considered to be all Mathematics teachers, who have been teaching Mathematics in the Nawalparasi district in the grade XII. Eight teachers were chosen as a sample from 8 different colleges, 4 colleges were from rural area and from urban area. The teachers were chosen by the sampling method of purposive sampling. A questionnaire consisting of fifty two items developed by the investigator was finalized in consultation with Mathematics experts and supervisor. Class observation form was also used for crosscheck information. Data were collected by visiting Sample College concerning the mathematics teachers. The collected data were analyzed and interpreted by the statistical tools like mean weightage. He concluded that the prescribed curriculum and the existing textbooks are not well-managed, not ordered in simple to complex sequences. Practical problems are not well

managed, not much applicable or appropriate, they are neither analytical nor numerical in nature, objectives are good but the need to Mathematics others classroom activities are poor. Language problem, poor economy, lackof refreshment training, examination oriented teaching, quality and size of blackboard, sequence of presentation and Mathematics laboratory were the burning problem in that study. Comparing those problems between public and private college teachers in Mathematics, it was found that public and private of the teachers was facing similar kinds of problem.

Nepal (2010) conducted a thesis entitled" A study on the problem faced by mathematics teacher in teaching mathematics at secondary level of Palpa districts." He focus on identifying the problem and cause of problem on teaching mathematics

**A Study on the problem faced by mathematics teacher in teaching mathematics at secondary level of Palpa districts as**



He concluded that there is a lack of classroom management for the Mathematics training, due to the larger number of students, lack of moral education, Books are not available in time and students are interested in political program. There

are not sufficient mathematical teaching materials and teaching aids, teachers are not using available teaching materials, there is a lack of participatory approach of both students and teacher in classroom, lack of confidence of teacher, lack of irregularity of homework checking, lack of appropriate teaching method, mostly used in lecture method etc are some of the teacher's expressions that they feel difficulty to teach geometry, Arithmetic, Probability and theoretical portion of Algebra etc.

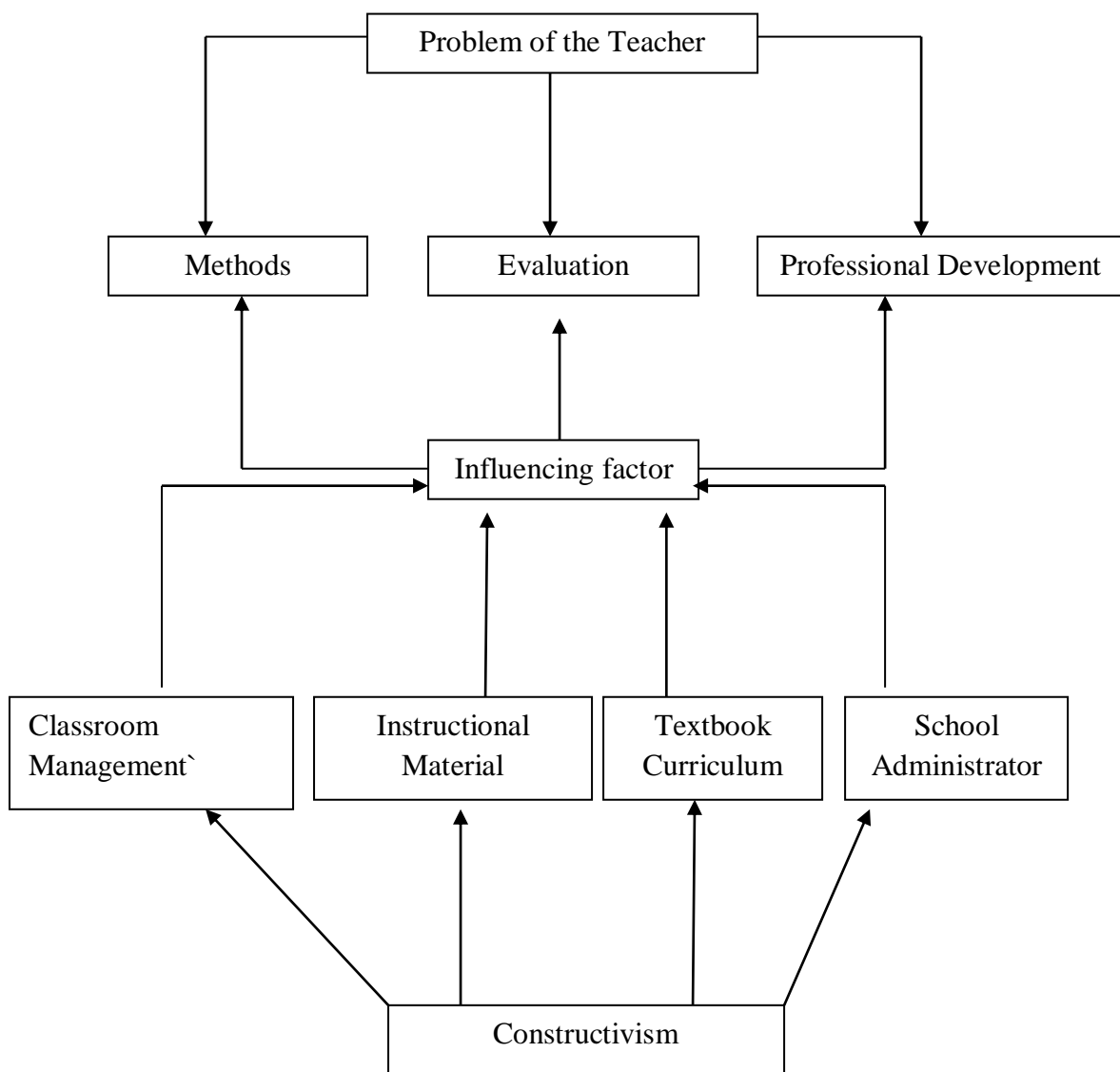
Ojha(2011)conducted a thesis entitled" A study on the problem faced by mathematics teachers in teaching mathematics at secondary level". He concluded that most of the problem and arise because of large class size. irrelevancy of teacher guide book in the sense of teachers need, lack of instructional material, adequacy of teacher training, lack of supervisory help, lack of physical facility etc. Preparedness and the level of motivation to learn mathematics are poor on the part of students.

NCME (2012) 'Project Based Mathematics learning concluded that ' Projects are used to as different practices and policies that mathematics teaching is traditional and students need to learn to pass the examination. To change teaching practices, it is better to start from projects. He recommends that at least one project for each unit in mathematics can be given to students. Projects also be used in continuous assessment system. Assessment system needs to include practical works and projects can be one of the components of the practical works.

## Conceptual Framework

Conceptual framework has been developed as per the objectives of the study, the researcher had a survey the college that represents the teacher by using problem solving approach in teaching mathematics, the following flow charts shows the framework by which the researcher conducted the field of study. This flow charts was constructed with the help of previous research and studies carry out in the similar topics.

### Problem of the Higher Level Mathematics Teacher



This assess and find out the different problem of mathematics teacher while teaching by constructivism and problem solving method. The researcher carried out different tools and instrument namely, they are classroom observation, interview, and questionnaire of the teacher. On the basis of these instruments, data were collected for reaching to draw finding and conclusion of the study. Moreover, the teacher's problem were analyzed and interpreted with the theory of teaching as described previously.

## **Chapter III**

### **METHODS AND PROCEDURE**

#### **Methods of the Study**

This study had included both quantitative and qualitative methods, called mixed methods for the research. Johnson and Onwuegbuize (2004, p.17) defined " mixed methods research is formally defined here as the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study." Among the approaches of mixed methods, the current methods was adopted in which the quantitative method, survey questionnaire and observation were used to collect the data. The quantitative data obtained by the stated tools were supported and validated by qualitative information.

#### **Study Design**

This study was Exploratory, because the survey design to some extent, and descriptive in nature using by logical and statistical interpretation. Quantitative and qualitative approach to collect and generate the data in the field . The quantitative methods, survey questionnaire, notion of data collection and interpretation based on descriptive statistics to present the data in a meaningful way. Similarly the qualitative method was used to support the quantitative data where meaning was less understood. The data emerge from observed instances during interactions with teachers by using questionnaires, recorded interviews, observational notes, and dialogue journals. Written questionnaire about the change that has occurred at the school and recorded interviews about teaching practices were utilized by asking a number of open-ended questions that allow for variations. Observational notes taken from classroom teachers which problem around learning issues were collected. Quantitative data were



analyzed statistically using the mean. Surveys and rubrics will be used to measure teacher's problem and perception as well as classroom teaching practice.

### **Sampling**

In the Ramechhap district , there are 40 higher secondary school . For the purpose of study 30 teacher were selected by simple random sampling. However, the questionnaire were distributed to the teachers of other campuses to collect the quantitative information from large scale as far as possible and also observe the class. Since, this study was qualitative and quantitative in nature, the researcher intended to conduct the study covering the necessary information.

### **Population**

All the mathematics teachers and students studying in concerned campuses at higher secondary level were the population of study.

### **Source of Data**

Both primary and secondary data were used in this study, secondary data were used for the understanding of the past research study related to this study of the literature section and but primary data was the main source of the analytical and interpretation of the study, which was carried out through questionnaire, interview and class observation form .

### **Tools and Instrument of Data Collection**

The tools were constructed on the basis of need and characteristics of the sample chosen. Three major tools:

Questionnaire, observation and interview schedule were used to collect the data of the study. The construction process and area covered by the tools are described by conceptual teaching, knowledge of teacher to subject matter, using instructional material that are directly observed in the class.

## **Questionnaire**

The questionnaire was constructed after the detail study of related literature such as article, documents, and thesis. At the end of each selection of questionnaire, the respondents were requested to comment the items of questionnaire do not cover the additional areas.

Before developing the the above tools, the researcher consulted mathematics experts, and mathematics teachers of the college. The questionnaire consisted of 20 statement pertaining problems to be faced by the mathematics teacher and each statement followed by ranked responses in the five point of likert scale. The statements of the questionnaire was constructed in such a manner that they could find out the problem of teacher while teaching mathematics. The areas of the problems were related to the proficiency of teacher, teaching style, Mathematical instruction, methods and materials.

## **Class Observation Form**

The class observation form which was already prepared by (Subedi, 2064) was used to observe the classroom practice in Mathematics teaching which are related to the real problems that are facing regarding the teaching learning activities ,classroom management, Instructional method and materials, proficiency of teacher, training and students activities. The observation was constructed with the help of conceptual framework based on objectives of the study and all the activities of teachers in the questionnaire were also included in the observation.

The analysis of classroom observation was intended to cross check the student's activities, teacher's activities and methodology, instructional materials and related problems that arouse in the classroom while teaching mathematics. The

researcher observed the classes of all sample teachers. The detailed distributions of classroom observation result are in given by last.

For analysis of classroom observation, weightage of 1,2,3,4 and 5 were assigned to the statement very good, good, satisfactory, poor and worst respectively. The mean weightage were calculated. If the calculated mean weightage index is greater than 3, then it is concluded that the statement implies problem. If the index measures is less than or equal to 3 then it is not a problem.

From the observation it was found that the students are greeting to the teacher and strictly follow up the instruction of teacher and homework and class work done everyday which has not creating problems it is also found that the students were fearing from punishment. Due to the language problem and controlled environment there was no sufficient interaction between teacher and student by the same cause for the discussion in classroom. Peer co-operation was not a problem. Most of the students are unable to evaluate themselves and the activeness of student is very less which was creating the problem. Most of the teachers are teaching without lesson plan. Although the teachers prepared for class but they directly started their own lesson and did not review the matter content. Researcher found that very few of teacher were focus on the concept learning, realistic approach to solve the problem and using instructional material according to subject matter. Some of the teacher were trying to motivate the students and providing reinforcement. Although the teacher had not adopted discussion method very few teacher were adopted problem solving method and most of the teachers were using lecture method. Researcher found that the teacher had given sufficient homework and class work but they were not checking properly due to the lack of time.

### **Interview Schedule**

This tool was used for the qualitative information. Four teachers were selected for the interview. After collecting the questionnaire tools, the researcher selected the for interview. The open ended questions were asked them with the help of interview guidelines that was developed by the researcher herself with the help of supervisor. Its objective to find out the problem and cause of problem related to the classroom management, Mathematical instruction, methods and materials, teacher's training and transfer of classroom, teacher and students characteristics. The questions were prepared in such a way that any teacher can give factual information about, teaching problem, difficult topic of the intermediate level, classroom management.

### **Validation of Instrument**

For piloting the tools, they were validated through concerning the experts of the related field were one of the procedure. Besides, the researcher conducted piloting test among ten teachers of Manthali, Ramechhap, Saipu, Duragaun, Sunarpani and five student's teacher teaching Mathematics Bachelor's level of that district. Which insure the tools of reliability and validity. Finally, the data was triangulated for making study more reliable.

### **Data Collection Procedure**

For the data collection, the researcher visited each of the selected higher secondary school along with the interview schedule, class observation form, and help to needed to the researcher from the school administration. After explaining the purpose of visit, the researcher requested each of the teachers of the college to take interview honestly. The direct observation was researcher to observe the teachers activities in the classroom by the observational guideline. For doing so, the researcher observed the mathematics classes eight times to each from first and second year

frequently. Three class observation were taken by six days. The interaction with the respondents was carefully listed and noted properly.

Similarly the questionnaire were distributed to the 25 teachers of selected area. So, this study included only 25 teachers as sample and thus the data obtained from them . The data were collected analyzed and interpreted. However, almost the teacher filled up the questionnaire under the supervision of the re searcher which reduced the confusion about items. Regarding the observation, the teachers were informed earlier with the purpose the study to be conducted and with permissions; the researcher recorded the information through series of class observation. Similarly the interview were taken by 10 teacher. After collection of data, the researcher appreciated and thanked all the respondent for attentive support in data collection.

### **Scoring Procedure**

For the analysis of positive items, weightage of 5,4,3,2,1 was assigned to statement 'strongly agree', 'agree', 'undecided', 'disagree', and 'strongly disagree' respectively. Mean weightage was calculated. Total score of five point likert scale is 15, thus its average score is 3. If the calculated index is greater than 3 then it was concluded that the statement content in strong favor to the problem. If the index was less than or equal to three, then it was weak favor to the problems.

### **Data Analysis Procedure**

After collecting data, the researcher analyzed and interpreted using both quantitative and qualitative method of analysis and interpretation.

At first, the researcher analyzed the quantitative data by using table and simple statistical methods, descriptive statistics to deliver the meaning of the data, and these result were analyzed with the qualitative techniques to some extend for the validation of data using by likert scale and coding, categorizing as the method of qualitative

approach to data analysis were used for the quantitative data. The researcher grasped and capture the main theme of the data for the meaningful analysis.

Mean weighted was used to find whatever the statement is problematic or not. It uses to locate the central positions of response to the statement of teachers as a whole in rating scale. If the calculated index is greater than 3 then it is concluded that the statement is problematic. If the calculated index is less than 3 then it is concluded that the statement is not a problematic. The information and interview were analyzed in descriptive method.

The researcher triangulated the quantitative data with the result of questionnaire, interview and class observation. Mainly researcher deeply study the responses of respondents in questionnaire and views explored during interview. Further researcher observed the real classroom to find out real situation in natural setting. Finally the researcher conducted that results from qualitative data., questionnaire, interviews and class observation were closely related.

## **Chapter IV**

### **ANALYSIS AND INTERPRETATION OF DATA**

In this chapter, the collected data were analyzed. For the collection of data, the questionnaire, class observation form and interview schedule were used by the researcher for the purpose of the study. In the questionnaire, twenty questions were asked to the teacher. The collected data were analyzed according to the purpose of the study. The tabulated data were statistically analyzed and interpreted by using Likert Scale. These data were analyzed area-wise and question-wise in the various problem faced by the mathematics teacher related to the mathematics teaching at higher secondary level of Ramechhap district.

The researcher used class observation form to observe the class regularly for two days in five colleges. Direct observation was used by classroom behavior was carefully observed and noted of the given result. With the help of interview schedule, mathematics teacher took the interviews. The collected information were categorized in different views in the text of interview and a observation note.

The obtained data were analyzed and interpreted under the following heading:

- Classroom activities of the students
- Professional development
- School administration
- Mathematical instruction, method, material and supervision in the classroom
- Teacher training and transfer in teaching.
- Textbook and Curriculum
- Student's Evaluation

### **Analysis and Interpretation's of Teacher's Responses on Problem Related to Classroom Activities of the Students**

Regarding the classroom activities of the students teachers should be aware while bringing mathematical teaching tools into practicable. There are numerous as well as difficulties in front of the teachers because of the classroom management abilities, social , cultural and family environment, findings are psychological problems to manage the classroom situation to make teaching learning effective. There are some linguistics as well as numeral problems according to the variety level of the students.

**Table No. 1 Classroom Activities**

<b>S. N.</b>	<b>Statements</b>	<b>M. W.</b>
1	Difficulty in classroom management because of individual difference, different intellectual abilities and age.	3.93
2	Difficulty on teaching mathematics because of difference in social, cultural and family environment of students	3.20
3	Difficulty to understanding mathematics using English language.	2.27
4	Problem in teaching mathematics due to poor mathematics background of students at secondary level	3.20
5	Difficulty in managing classroom teaching learning activities due to large class sizes.	3.27
6	Difficulty in motivating students due to passiveness reasoning and creative thinking	3.87
Mean of Total		3.29



It is generally agreed that students abilities are similar in learning mathematics due to various background such as intelligence, gender maturity, socio- economic status. poor motivation and failure to provide clear insight in to the meaning, meaning making and pre- existence of knowledge are the main problem for the teachers. Upadhyay (2006,P.16) says the mathematics classroom environment should be discursive for the interaction and discussion should be full democratic where the view of teacher should not be posed in monotones. Problem related to the students have been categorized into six items to identify the response of teacher. for the convenience of analysis toward the response. Mean weightage for each items has been calculated. About the statements, teaching learning management due to variable of age, individual difference and intelligence of students indicates the problem. Most of the teacher are favor of the problem.

### **Analysis and Interpretation of Teachers Responses on problem Related to Professional Development**

The development of skills and ability of teacher to perform well in related sector is known professional development. As brief, while taking about teaching professional development, one should be aware to bring modern means of teaching learning activities into practical use. The teacher should make the teaching profession more meaningful by using the modern tools, techniques and practical activities. Containing to the students willingness accordingly to there inspirational choices. One can't be professional without bringing the practical application of theory.

**Table No. 2: Problems Related to Professional Development**

S .N.	Statements	M.W.
1	Lack of training opportunity	4.33
2	Lack of information about new instructional techniques and invention	4.13
3	Lack of time to study about related literature.	3.08
4	Lack of opportunity to participate on the interactions, workshops related to the subjects matter.	3.80
5	Lack of opportunity for higher study.	3.20
Mean of Total		3.71

Generally professional development is regarded as teacher development. Different views towards teacher can be found 'teachers as learners' (fullan, 1991), 'teacher as a content knowledge expert' (calderhead, 1994) 'teacher as a researcher' (Hollingsworth, 1990), 'teacher as a problem solver' (furlog et. al, 2000) , 'teacher as a reflective practitioner'( Dear, 1995). From the field study it has been found that most of the teachers were facing problem on professional development. Teachers accepted on lacking training opportunity to update their knowledge and skill. Mean weightage responses 4.33 on this statement shows that this is strongly favour to the problem for teachers. Nepal is a developing country and most of the private schools are opened as a business point of view. So they want minimizing input and maximize output, so it is difficult to develop and to innovate new instructive technique itself. But, teacher are also far from access of new instructional techniques. On this statement asked by researcher, mean weightage response was found to be 4.13, which signify the problems. Sometimes teacher could not be confident while teaching. The mean

weightage response on the question asked by researcher was 3.08. Likewise, teacher had accepted that they don't have opportunity to participate on interactions, workshop etc to become skilled. The mean weightage 3.80 indicates strong on the problem.

**Table: 3 Academic Qualification of the Teacher**

Academic Qualification	Number of Teacher	Percentage
Bachelor Degree	12	30
Master Degree	18	70
Total	30	100

Among 30 mathematics teachers, 70 percentage teacher have passed Master degree with mathematics and 30 percent of teacher have passed Bachelor degree and they are studying on master's. So, the academic qualification of the teacher was satisfactory.

**Table 4: Teaching Experience of the Mathematics Teacher**

Following the question on academic rank, respondents were asked to express their work experience in teaching mathematics at undergraduate level. The following table displays the experience of the selected teacher

Teaching Experience in years	Number of Teacher	Percentage
Below 1 years	4	13.33
1-3 years	7	23.33
3-5 years	10	33.33
5 years above	9	30

From the table, it is seen that 13.33% of the teacher have below one years teaching experience. 23.33% of the teacher have 1-3 years experience, 33.33% of the teacher have 3-5 years teaching experience and 30% teacher have more than 5 years teaching experience. Therefore, the experience of the teacher is satisfactory. Among them most of the teacher were fresh, young, and energetic.

## Analysis and Interpretation of Teachers Response on School Administration

### Problem

Administration is the part of organization, which administrate that organization the classes, insufficient teacher, provide training for rigor and difficult topic, provide curriculum and other necessary thing for teaching.

**Table No. 5 School Administration Problems**

S. N.	Statements	M.W.
1	Compulsion to take more classes because of insufficient mathematics teachers.	2.95
2	Irresponsible administration to manage and construct necessary materials	3.07
3	Lack of refreshment training to teach difficult and rigor topic	3.64
4	Lack of facilities and award for the good performance	3.64
5	Unavailability of curriculum	3.19
6	Lack of mathematics laboratory in college	4.06
7	Unavailability of mathematics journals, dissertation and reference books in library.	3.86
Mean of Total		3.49

School administration plays a vital role to construct necessary material. But if it seems to be passive and irresponsible then teacher may face problem on teaching learning process.

### Analysis and Interpretation of Problem Related to Mathematical Instruction, Method, Materials and Supervisions in Classroom

Teaching materials and method are important part of the successful and meaningful teaching learning process. Teacher is the main agent of the instructional strategies. All the achievement of teaching process depends upon the teacher's. In classroom activities the teacher and students have vital role for using materials and asking question about the subject matter.

For the understanding of the problem in Mathematics, the researcher raised fifteen questions regarding instruction, methods, and materials. The Researcher tried to elaborate the following problems in details related to the mathematical instructions, method and materials.

**Table 6: Problem Related to Mathematical Instructions, Methods and Materials and Supervision in the Classroom**

S. N.	Statements	M.W.
1	There is a lack of proper space to demonstrate instructional materials	4.0
2	There is a separate room for Mathematical instruction	1.7
3	The room is equipped with a graph board and bulletin board	4.0
4	Teaching machine and computer are available in mathematics classroom	2.53
5	There is a mathematics laboratory	3.64
6	Reference books and magazines are available	4.2
7	Raw material are not easily available	4.3
8	Three dimensional materials(Pyramid, prism, cylinder and sphere)	2.4
9	Overhead projector	4.32
10	I don't make plans (yearly as well as unit) because I don't know how to do it	3.0
11	I make daily lesson plans	2.0

12	Some of units are difficult to teach( limit, derivative, antiderivatives)	4.4
13	I make and frequent use of instructional materials (other than textbooks and guide) to motivate students and make mathematics more meaningful.	3.8
14	Often I get frustrated, disillusioned and unmotivated to teach Mathematics	2.3
15	I am a trained mathematics teacher	2.7
Mean of Total		3.10

On the first statement construct to lack of proper space to demonstrate instructional material was not created problem to the teachers, but there was no facility the material to demonstrate, which was the problem of the teacher. The mean weightage of it was 4.0.

In this statement, all sampled teachers responded that is not our problem, because there are a few number of student's participation, and on the other hand we don't use any teaching material. It is clear that, this statement is not problem for the mathematics teacher. I had also found that there is not any problem of space to demonstrate material. How will be it problematic, if they didn't use teaching materials.

The mean weightage of 2<sup>nd</sup> statement is 1.7 .This statement focus on the existence of a separate mathematics classroom, it was found that all teachers agrees, so that the separate mathematics classroom was notthe problem for the teacher. It shows that less number of student's participation indicated that there was not any problem for the separate classroom for mathematics instruction.

In this statement, all sampled teacher responded that, there is a separate room for mathematics instruction. Also I has found that in every college there was a

separate room for mathematics instruction. Thus, I have concluded that it is not a problematic for the teacher in teaching at higher secondary level of Ramechhnap district.

On the 3<sup>rd</sup> statement most of the teacher was disagreed. the mean weightage it was 4.0. It also indicates the unavailability of graph board and bulletin boards was a real problem. There was not any opportunity to get extra activity in the subject of mathematics.

In this statement, all sampled teacher responded that there is not any graph board and bulletin board. I had also found that there was not any graph board and bulletin board. Thus I have concluded that, it is a problematic for the teachers.

On the 4<sup>th</sup> statement, all of sampled college's teacher were disagreed about the teaching machine and computers. The mean weightage of it was 2.53 indicates that there is a genuine problem in teaching mathematics in the absence of teaching machine such as calculator, computers. In the modern time, mathematics has blind without machine and computers. So that it is also tedious subject for the teachers.

In this statement, all sampled teacher responded that there is not any teaching machine and computers in mathematics classroom. In my observation, in urban area Manthali and Ramechhnap, there was a lot of computers but these computers were in another classes, these didn't use in mathematics class. At that time I was asking to the mathematics teacher about the use of computer, how can I use in mathematics class, he replied. Thus I concluded that the available of computers is not so much problem, but how to use it was main problem for the teacher in teaching mathematics.

On the 5<sup>th</sup> statement, Mathematics laboratory, most of the teacher agreed that there is no facility of library. The teacher felt that difficulty when Mathematics can't be taught effectively and meaningfully, because of the nonexistence of a laboratory.

The mean weightage of it was 3.64 It showed that there was a great problem absence of the Mathematics laboratory.

In this statement, all sampled teacher responded that there is not any facility of Mathematics laboratory. In my observation and interview, I had not found any Mathematics laboratory. Thus it is problematic.

On the 6<sup>th</sup> statement, about the library facility there was a great problem about it. Most of the books and environment of library was satisfactory on the sampled college. The mean weightage is 4.2. It showed that the teachers and student were satisfying on the existence of library.

In this statement, all sampled teacher responded that there is a library facility. But in my observation there was not a library facility of Mathematics. There were some books of Mathematics, which was only prescribed by some writers, there was not any references books. Thus from my observation class, I found is that, the facility of Mathematics library is not sufficient, which they wanted. Thus this statement is also problematic.

On the 7<sup>th</sup> statement, reference books and magazines was not so great problem. If the teachers and students want to study the references book and Mathematical journal, they would get chance to study it by the help of internet. The mean weightage is 4.3.

In the rural area, there was not any facility of references book and magazines, but in urban area, there were some magazines and references book, but they were useless. Students and teachers both were not concentrating on references book and magazines. The teacher were busy in different college and boarding; also the students were not serious or interested towards it. Thus it is problematic for the teacher taught Mathematics by using guidebook in the classroom, which was found by me in the class



observation of derivatives. At that time I was asking with the teacher to use of guidebook, then he replied me, If we took a guide book in the class, we wouldn't have any confusion while teaching in the classroom. In urban area's college, teacher were not using any guide book; they were bringing a note copy, which was prepared by them, in the classroom while teaching. Thus it is not a problematic.

On the 11<sup>th</sup> statement, all teaches respondents that knowing about the lesson plans being the students of education. But in higher level, it is not applicable in real classroom teaching, because the needs, interest, and desire of the students. The mean weightage was 2.0.

On that statement, 75% of the respondents said that they don't make daily lesson plans and 25% respondents said that they make lesson plans sometimes(at first of the class). This showed that, they have known to make lesson plans but they don't make it. They said that it is higher level; there is no need t make it, because it is not a practicable and having teaching loads.

On the 12<sup>th</sup> statement, many teachers agreed that some of the units are difficult to teach. Only 1 teacher said that there was not any difficulty topics. The mean weightage of it was 4.4. It showed that they were agrees in it. Most of the teacher said that derivatives and antiderivatives is so hard topic, don't teach antiderivatives, because of the poor background students and other chapter curve sketching is I don't teach because I don't know how to sketch it. Further most of the teachers expressed that they found difficulty to teach for some units:

Numerical Integration

Curve sketching

Binomial expansion

Projectile

Derivatives and its application

Antiderivatives and its application

In this statement, sampled teacher responded mixed comment. Some teachers told that derivatives, antiderivatives and curve sketching are difficult to teach, because the background of students is poor and they don't want to learn more complex units. So we don't teach those chapters which was so hard. On the otherhand some teacher told that, vectors, binomial expansion, numerical integration and projectile is so hard. we leave this chapter. A teacher told me, there are no any complex units, but I can't finish all these chapters, because student's need, interest, desires and motivation is their choice. So those chapter, which they want to learn. one day teacher was teaching about limits, he doesn't know about the meaning of tends to; he told to the students, it is just like an equal sign. By these causes I have concluded that some chapters are difficult to teach for the teacher of Ramechhap district.

On the second last statement about disillusioned and unmotivated to teach mathematics, the sample teacher respondents to mix comment. Among them six teacher agreed that we got frustrated, unmotivated to teach Mathematics, because students are not motivated to learn it, students have little knowledge of Mathematics, students are not laborious and disciplined and they are not interested and awareness in Mathematics class. But two teacher said that, *we are motivated to teach mathematics even students are not so laborious, interested, motivated to study on Mathematics.*

On the last statement, all the teacher claimed that we are trained teacher. But we can't able to show our trained experience in the classroom, because of the little number of students participation in the classroom. they are not active, they don't want to learn new concepts, and they are only concentrating to how to make pass. On this view of students how we teach ?Teacher tolds. The mean weightage was 3.7.

But in observed class, the teaching style of both of the group of teacher was almost similar. Most of the observed class of the teachers had no formal planning for the teaching lesson. Almost all of them entered with marker and textbooks .Generally their teaching style were not used by problem solving approach they focus on lecture method. Here one episode on the Chandeshwari Higher Secondary School.

### **Episode 1**

"One day the teacher entered in the classroom with daily using material and chart of the limit. All students stood up and said good morning sir, he told good morning all of you and sit down please. He wrote a topic limits in the white board, and wrote some formula related to the topic and told to student to copy it. After finishing that, he explained about some rules of limits, he said to him/ her about indeterminate forms  $0/0, \infty/\infty$  and  $\infty-\infty$ , you remember that these form can't be used in the limit, if such case happened in the problem, we factorized the given problem. After its rule he started to solve the problem in the exercise and wrote problem on the board

$\lim_{x \rightarrow 1} 3x^2 - 2x + 1$  then he solved it by using  $x=1$ . At that time a student stoop up and asked about the  $x$  tends to 1, but the teacher told to him it is like a equal sign. Again he asked to the sir, can we write  $x=1$  in the place of  $x$  tends to 1? But teacher told to him again it is not exactly equal mean near to 1, all of my student you only remember that it is equal to 1. Now, in this problem you can put  $x=1$  then you get the result 2.

Again teacher wrote another problem in the board

$$\lim_{x \rightarrow 4} \frac{x^2 - 16}{x - 4} \left( \frac{0}{0} \text{ form} \right)$$

Teacher solved this problem by using  $x=4$  then result came  $0/0$  form. At that time a student asked sir,  $0/0 = 0$ ? Teacher told him thank you, it is important question, we already discussed about some intermediate forms  $0/0, \infty/\infty$  and  $\infty - \infty$ . Thus we factorize of  $x^2 - 16 = (x-4)(x+4)$  then by cancellation law we get a result 8 by putting  $x=4$ .

After five minute he wrote another problem and told them solve it. But only 15% students can solve it. At that time bell rang and he said to them solve to other remaining problem at your home.

From the above episode, it was found that there is lack of using teaching materials. He just wrote some formula and rule of limit without definition and example of limit. He had not clear concept about the limit. Student's were confused about this sign and some intermediate forms  $0/0, \infty/\infty$  and  $\infty - \infty$ . Only theoretically, he expresses his class.

*In this regard, teacher responds as;*

*"We have only 8 students in the Mathematics class, they want with me to solve the important and easy questions ,we should pass only easy question and important question then teacher asked researcher (what can I do?) sir questioned me. (Teacher)*

The above view indicates that, there are not any mathematical teaching materials not by using any Technology. It is seen that there is a lack of Mathematical materials, lack of student's interest, and lack of student's awareness. Due to the economic crisis of the college and low participation of students in Mathematics, administration get problem to purchase Mathematical materials and lab. In addition, there is a lack of reference books and textbook. In this case teacher and students only depends on guide.

### **Problem Related to Teacher Training and its Transfer in Classroom Teaching**

In the sampled college, all the teachers are related with mathematical background. Out of 30 Mathematics teacher 70 percent passed master degree. It showed that they are trained and experienced. Especially the experienced teacher are not applying their skills, knowledge gained in training in classroom teaching and for developing local materials.

Application of the training skills in real classroom situation in real classroom situation is most important aspects of study. If there was not transfer of the training skills then the investment of time, money, and labor would be useless and there would be questions mark towards the whole package. In this study, it shows that the transfer of teacher training was not satisfactory. The main problems of transfer of teacher training in the classroom teaching were as follows;

- Limitation of the administrative support to buy teaching material
- passiveness of the teacher
- lack of supervision
- passiveness of students

#### **Episode 2**

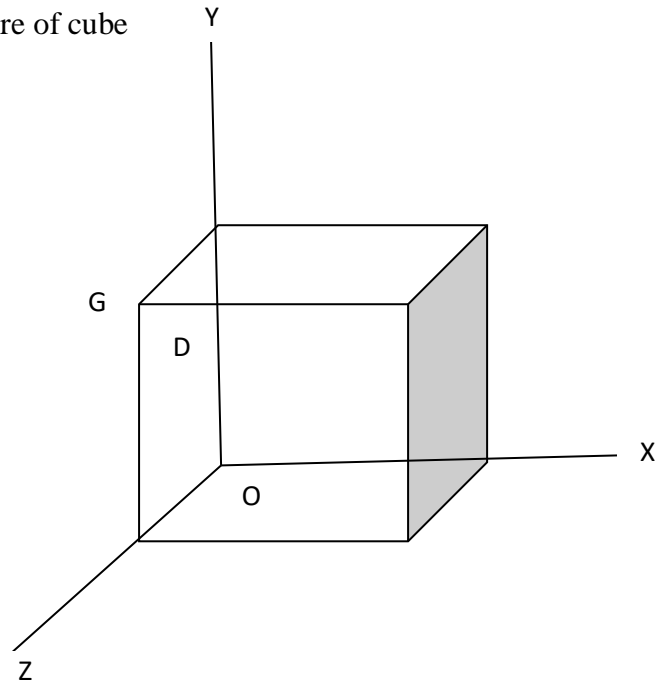
"One day mathematics teacher entered in the classroom with daily teaching materials. All students stood up and said good morning sir, he told good morning and sit down. Teacher asked to the asked to the students, did you complete the homework? Yes sir, they replied. Ok now we discussed about another important problem, then teacher wrote a problem.

If a line makes an angles,  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$  with the four diagonal of cube,

**Show that:  $\cos^2\alpha + \cos^2\beta + \cos^2\delta = 4/3$**

Teacher asked to the student, do you know about this problem? Not sir, they replied. At that teacher asked to the student, what do you know about cube? One students stopped on and said sir, in a cube length, breadth and height is equal, also in cube there are six faces. I think a dice is an example of cube.

Teacher made a figure of cube



Teacher solved this problem in the white board and told them to copy it.

After finishing the solution, he asked one student asked about the formula of cosines of the angle between pair of vectors. However, he replied that I was absent sir yesterday. At that time next student told the formula the teacher wrote the board.

Then he explained on the problem in detail, at that time one student asked about the coordinate of D (a. a. a). Teacher told you only remember three sides of cube. Now all of you practice at home, if any confusion, tomorrow we will asked.

Supervision is an essential part of the classroom teaching that also aware and gives feedback to the teachers for transfer of training in the classroom teaching.

Principle, Resource person and supervisor are responsible for supervising the class.

All teachers were found to have in favor of supervision in the classroom teaching.

However, their supervision was limited to know, whether the teachers were in the classroom or not and course would be completed is time or not. It was found that the college supervisors used to come in their college for sometimes and talked with principal and Mathematics teachers but they did not observe the class.

*"Nobody come to observe our class." (Teacher)*

*"Principle sometimes observed our classes for just whether teachers are in classroom or not, he didn't give any feedback." (Teacher)*

*"Sometimes school supervisor come to our college, but they spend time but office with principal, they didn't come to our class observation." (Teacher)*

From this observation, it is seen that trained teacher were not implementing the skills in the real teaching. In the observed college, I found that the teacher were and skillful, but felt limitation of his transfer on learning. If he knew about teaching materials, he would apply it in a real classroom teaching, but he did not want to use of teaching material. If he used teaching material, student would not confused about the coordinates D (a. a. a), if he used those materials then it would be easier to make students clear about the coordinates of cube. In addition, I found that students were not active participation in the mathematics classroom, because some students were wanted to learn as more as possible. There was not any supervision from principle and resource person. On this college some students were taking smoking In the cafeteria and I asked to the students, who didn't take Mathematics class? Then they replied we feel bore sir, how long have we study? They replied. So, I was found that there is a lack of supervision and moral education of the class.

## **Analysis and interpretation of Teachers Response on Problem Related to Textbook**

Textbook is the mean that helps to achieve the objective guided by curriculum. Textbooks provides the opportunity for discussing about subject matter, and different types of conceptual meaning and formulas.

**Table No. 8: Problem Related to Textbook**

<b>S. N.</b>	<b>Statements</b>	<b>M.W.</b>
1	Difficult to teach through the books written in English	2.0
2	Problem arose books referred by college	3.12
3	Problem to teach due to changing books of different publication and writers books every year.	2.93
4	Textbook do not provide the opportunity for discussion	3.53
5	Difficulty to treat the students having different ability through books	3.33
Mean of Total		2.98

Textbook should focus on the conceptual understanding rather than treating students, as a machine to solve the problems it should incorporated many activities to enhance students learning. The text should be context dependents so that students will fell the problem are the real problem of their life. Curriculum should give the position for the student's desire interest and experienced. It should not focused only the dry and core knowledge of experts. Curriculum should develop to make the students to be ready to tell the real problem of their life.

The recent concept or trend is that the education in mother tongue, the problem may arise to the elaborate the problems in other language. But the mean weightage of respondent is to which shows there isno problem using English language



in mathematics teaching. Some school founder are the unknown about the arrangement of teaching material and book too. According to the respondents there is vital role to select the book for new year which invites the problems. The mean weightage is 3.12 .The replacement of book certainly affects to the students and teacher because the scope and sequence arrangement of books uniformly. The mean weightage is 2.93 it shows no problem in total.

Most of the teachers are agreed that the problem to create the environment for discussion through the books the mean weightage is 3.53 indicates the problem. The teacher's mean weightage response on the statement difficult to create the students having different ability through the book is 3.33 which is favorable the problem.

### **Analysis and Interpretation of Teachers Response on Problem Related to Students Evaluation**

Evaluation is the measure of degree of achievement of student in learning.Its provides the continue feedback of the students and teacher both. Without evaluation we can't understood students can learn or not. It upgrade the class and find the students level and scores.

**Table No. 7: Problem Related to Student's Evaluation**

<b>S. N.</b>	<b>Statement</b>	<b>M.W.</b>
1	Lack of interaction between guardians and subjects teacher about the educational improvement of students	3.93
2	Lack of personal interest on student about the achievement of mathematics	3.13
3	Lack of approach about the difficulty level of questions asked in exam	3.93
4	School has considered to upgrade those students who are failed in mathematics as promoted pass due to pressure of guardians.	3.53
5	Teacher's compulsion to emphasis to the rote learning to show good	3.07

	result	
6	Lack of time to use non testing devices in evaluation	2.67
	Mean of Total	3.38

The primary responsibility of a teacher is to bring about the maximum degree of achievement in learning. Evaluation devices such as examination, oral quizzes, standardized test, individual conferences or interviews with pupils should go in standard way. Rating scales and other forms in integral parts of the process of education should go differently. The main purpose of the evaluation program may be provided more intelligent guidance in teaching and learning to develop more effective experiences, to secure student in reflective level.

From the field survey, researcher found that most of the teacher facing problems on students evaluation. Lack of willingness on students to discuss about the poor result has found as a problem during research. Researcher was to intended to know the teachers response on less access of teacher to interact with guardians and students about the mathematical achievement most of teachers were agreed on it. A good teacher should manage time and search opportunity to interact with guardian's and student.

## Chapter V

### SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter is basically concentrated in deriving some findings from the discussion of previous chapter. Besides findings and conclusion, it has some recommendations, which will be useful for further studies and educational implications.

#### Summary

This study was descriptive in nature. In addition to conduct the quantitative nature by "Problem faced by Mathematics teacher in teaching at higher secondary level of Ramechhap district " Not only focusing the problem, the researcher also tries to find the cause of problems. So the study attempts to accomplish the following objectives:

- To identify the problem by higher secondary level in teaching Mathematics related to the knowledge of mathematics and teaching learning activities in the classroom.
- To find the cause of problem that was faced by Mathematics teacher in teaching at higher secondary level of Ramechhap District.

This study was divided into five chapters. In the first chapter includes, background, objectives, significance, statement of the problem. In the second chapter, researcher mentioned some literature that was related to the topic. The previous study of research reports were critically described and linked to the study, and it provide the way of the study. The international studies were also reviewed for the strength of the study. So secondary data was also one of the source of the study. In the third chapter mentioned the basis of information from previous study, the researcher adopted some ideas to accomplish the objectives. Descriptive survey was adopted for the analysis of the study. The nature of the study was qualitative as well as quantitative, but this

study focus on qualitative nature. The problems responded by the teacher were analyzed in descriptive way. So, in this methodological section, different component such as, design of the study, population of the study, areas of the study, source of data, tools, data collection procedure, scoring procedure, analysis procedure were clearly explained.

The study was based on 30 higher secondary level of mathematics teacher of Ramechhap district. Both primary and secondary data were adopted this study. For the collection of data, three tools are used, they are questionnaire, class observation, and interview. The questionnaire is distributed to the 30 colleges. Teachers were selected randomly in the interview and observation.

In the presence of the researcher, they filled up. Then the data received from the questionnaire were analyzed in mean weightage. Class observation were done by the researcher for 6 days ( two times of three college). Classroom behavior was carefully observed different outlook of setting noted in six days. With the help of open- ended in interview schedule, the interviews were analyzed and categorized into subheading like, teacher's backgrounds, related to the classroom management, problem related to Mathematical instruction, methods and material, problem related to teacher and students characteristics, problem related to teacher training and its transfer in classroom teaching. The problems were identified from mean weightage and classroom observation. Also the causes of low achievement were identified by interviewing with teachers.

### **Findings of the study**

On the basis of data analysis and interpretation of the result, the summarizes of major findings were as follows:

- Teacher's qualification, training, and teaching experience were strong in the averages.
- There was a lack of few number of student's participation in the Mathematics classroom, lack of motivation to the students; students were utilized by political program, difficulties to the teacher in the sense of result oriented system and physical and economic crisis of the college.
- There was not sufficient mathematical teaching materials. Teachers were not available instructional materials, there was a lack of prepared and confidence of the teacher, lack of appropriate teaching method but teacher does not focus on students centered method. Most of the teacher expressed that they found difficulty to teach some units like; derivatives, antiderivatives curve sketching, binomial expansion, projectile, numerical integration etc.
- Trained and skillful teacher were not implementing their skills in the real classroom appropriately. The place of placing presentation and summarization skills of instructional materials gained in training session were not found to be transferred in the real classrooms.
- There was a lack of supervision and if somewhere there was supervision, it was not meaningful, effective and remedial. Teacher never receive fruitful feedbacks from the resource persons and supervisor. Moreover, they stated that provided feedbacks, they would try to make their teaching effectively through the teacher training.
- There was a lack of teacher's participation in the Mathematical conferences, seminar and other any Mathematical program.

The cause of above problem's are: few numbers of students participation in the Mathematics classroom, lack of moral education, lack of parent's teacher association,

lack of administrative support for the development of mathematical materials, students are utilized in a political program, not well participatory approach of students and teacher in the teaching classroom, lack of friendly relation with teacher and students, lack of pre planned and confidence of the teacher, lack of appropriate teaching methods, lack of frequent text and oral exam, lack of supervision, lack of opportunity to join Mathematical conference, seminar and other any program of Mathematics, lack of awareness of the teachers and students, lack of political support for the education sector, lack of parent's responsible towards child were the causes to find the problem.

### **Conclusion**

From the above findings, it is concluded that the future plan and successful of the college is linkage with the result. Most of the teacher showed lack of moral education, economic crisis of administration, lack of supervision, lack of proper teaching environment, lack of student's awareness towards the Mathematics class, lack of appropriate teaching plans, and materials, lack of student's participation and poor background of the students, trained and skillfully teachers were not implementing their knowledge. There was a lack of Mathematical program like as seminar, conferences, lab etc.

### **Recommendation For The Better Learning**

More research is needed to the Intermediate level teacher problem of teaching Mathematics. However, this research spelled out the current situation of the undergraduate level teacher's teaching problem by using problem solving method at classroom. Based on the finding and the conclusion from this study, the following recommendation were developed.

- Administration should manage the meaningful Mathematical environment.
- The college should manage mathematical lab, materials and computer.
- Trained and skillful teacher could be selected without any bias by the political.
- Mathematics teacher should be responsible for the future of students.
- Focus on curriculum based teaching not for only exam oriented.
- Class work and home assignment should be checked day by day.
- Teacher should not be entered in the mathematics classroom without materials and pre-plans.
- Teacher should be used child centered, demonstrate and participatory method the traditional lecture method.
- Mathematics class should be fulfill by graph board and bulletin board.
- Training and seminar should be conducted for the Mathematics teacher.
- Supervisions and guidance program should be provided to upgrade teachers.
- Parents, teachers and administrator should be responsible towards the quality of education the economic sector.
- Focus on the multimedia techniques.
- Study on using different teaching learning modules should be carried out so that these modules can be effective, used in classroom teaching and easiest way to introduce reforms in mathematics teaching.

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## **Appendix:A**

### **Questionnaire form for the Teacher**

Respected sir,

I am a master degree student of mathematics education, central department of mathematics education, central department of Education, Kirtipur Kathmandu. I am writing thesis entitled on "A study on the problem Faced by Mathematics Teacher in Teaching Mathematics at Higher secondary Level of Ramechhap District" as the partial fulfillment of my degree of master of education. Teaching learning activities could not be effective without finding the actual problem of the teacher in teaching. So, complete my thesis, I have prepared some questionnaire, which are prepared some questionnaire for you. Researcher is providing very much thankful for your valuable help and I would like to express gratitude to you and your institution.

Researcher

Muna Poudel

Department of Mathematics Education

Kirtipur, Kathmandu

I requested to fill this questionnaire were as follows:

- Please read this questionnaire carefully and provide response as you feel.
- For open questionnaire, please write your opinion.
- You are requested do not leave blank for any question.

### Questionnaire

Name of the Teacher/respondents: .....

Academic Qualification:.....

Teaching Experiences: .....

Age: .....

Please give the tick marks (✓) which you feel the best options, where,

S.A.= 'Strongly Agree', A= 'Agree', U= 'Undecided',

D= 'Disagree' and S.A.= 'Strongly Disagree'

S.N.	Statements	S.A.	A.	U.	D.	S. A.	Mean
1	Mathematics lab is sufficient and mathematics class is separate	0	60	15	20	0	3.16
2	Physical facility of school is good	20	80	18	0	0	3.93
3	By using teaching material difficult to completion of whole course	0	50	15	16	0	2.6
4	Being number of students	25	20	12	16	0	2.6
5	Boring feel on mathematics teaching	6	5	0	2	0	3.26
6	lack of proper space to demonstrate classby instructional materials and not good situation of board.	45	24	12	18	1	3.33
7	Difficulty in completion whole course if taught by using teaching materials.	45	24	12	18	1	3.33
8	Computer and teaching material are available in mathematics classroom	0	36	11	16	2	2.9

9	There is a mathematics laboratory	0	60	15	2	0	3.16
10	Reference book and daily newspaper available	50	32	21	10	0	3.76
11	Teacher's guide book is available <ul style="list-style-type: none"> <li>• easy to use</li> <li>• Relevant to the subject matter useful and illustrative</li> </ul>	35	32	36	20	1	4.13
12	I do not make plans (yearly as well as unit) because I do not know how to do it.	25	40	18	14	2	3.3
13	<ul style="list-style-type: none"> <li>• I don't make daily lesson plan, because</li> <li>• it is not practicable</li> <li>• I don't have the required knowledge so vast.</li> </ul>	35	0	42	0	8	2.83
14	Some of the units are difficult to teach , which units and why? ..... .....	6	5	10	2	0	3.26
15	I do not practice individual teaching. Why? ..... .....	6	5	10	2	0	3.26
16	<ul style="list-style-type: none"> <li>• I make and frequent use of</li> </ul>	15	20	36	16	1	2.93

	<p>instructional materials to motivate the students and make mathematics meaningful ?If not correct, why? because</p> <ul style="list-style-type: none"> <li>• I don't believe in teaching material</li> <li>• I don't get encouragement and suggestion to make and use of teaching materials</li> <li>• The materials are not available and very expensive</li> <li>• Using Instructional materials consumes a lot of time and courses so the course couldn't be finished.</li> </ul>						
17	<ul style="list-style-type: none"> <li>• Often I get frustrated, delusion, and unmotivated to teach mathematics if you feel yes, why?</li> <li>• Students are not motivated to learn mathematics.</li> <li>• Student's haven't required knowledge of subject matter.</li> </ul>	10	28	57	4	0	3.3

	<ul style="list-style-type: none"> <li>• Students are not laborious, interested, and disciplined.</li> </ul>						
18	Students are not laborious, interested, and disciplined.	125	20	0	0	0	4.83
19	<ul style="list-style-type: none"> <li>• I am trained mathematics teacher.</li> <li>• Training program is most useful.</li> <li>• It improved our performance and confidence.</li> <li>• Need of refresher training.</li> </ul>	100	20	15	0	0	4.5
20	<p>Mathematics is very good subject. If yes, If no how and why?</p> <p>.....</p> <p>.....</p>	100	20	15	0	0	4.5

Any other problems

.....

.....

### Appendix-B

#### Class Observation Form

S.N.	Statements	VG	G	S	P	W	M.W.
1	Greeting to the teacher while entering the classroom	0	15	10	5	0	1.33
2	Follow up the direction of teacher	3	10	7	10	0	3.2
3	Completion of assigned homework	0	12	10	5	3	3.03
4	Interaction of teacher and students	0	10	8	4	8	2.66
5	Peer cooperation	6	10	8	6	0	2.53
6	level of self evaluation	0	0	5	10	15	1.66
7	Participation in classroom discussion	0	8	10	9	3	2.76
8	Need of refresher training	0	12	10	5	3	3.03
9	Activeness of student	0	6	15	5	4	2.76
10	Teaching with lesson plan	0		5	10	15	1.66
11	Using instrumental material related to subject matter	3	4	3	10	10	2.33
12	Conceptual teaching	0	0	7	20	3	2.13

13	knowledge of teacher to subject matter	4	8	0	20	7	2.93
14	Level of motivation	5	4	18	3	0	3.36
15	Using problem solving method	4	8	10	7	1	3.23
16	Focus on realistic approach	0	0	0	2	28	1.00
17	Use of Reinforcement	0	0	3	4	23	1.33
18	Leading power of teacher	0	4	14	2	10	2.4
19	Assigning class work and homework	4	0	17	5	4	2.83
20	Mathematics lab	0	0	0	3	27	1.1
21	Library	0	0	6	4	20	1.53
22	Flatten Board	4	4	3	9	10	2.43
23	Geo Board	6	0	0	0	24	1.8
24	Mechanoo strip	0	0	0	0	30	1.00
25	Over head projector	0	0	5	5	25	1.66
26	Three dimensional material	0	0	0	0	0	0
27	Graph, chart, paper folding, graphboard.	0	6	4	19	1	2.5
28	Others	14	2	4	0	10	3.33

Where,

$$\text{Mean Weightage} = \frac{\text{Total rank scores statements}}{\text{Number of teachers}}$$



## Appendix - C

### Criteria for the Interview with Mathematics Teacher

Name:.....

Qualification:.....

Age:.....

Sex:.....

Teaching Experiences:.....

Training:.....

College's Name:.....

The interview with Mathematics teacher would be take on the following main topics:

1. Classroom management:

Number of students, Physical facility, college's environment, Classroom space,  
Whiteboard situation.

2. Mathematical Instruction, Material and Methods:

Methods, Encouragement, Relative questions, Materials, Lesson Plans,  
effectiveness of teacher's guide.

3. Teacher's training and its transfer of classroom teaching

4. Mathematical conferences, seminar, and other mathematical program

5. Teacher and students behavior in classroom

6. Other special techniques, strategies, activities of the teacher, while teaching  
Mathematics.

7. Cause of other problem and way to solution.

**Name of the Participating School in the Study of Ramechhap District**

<b>S. N.</b>	<b>Name of the School</b>	<b>Location of the Schools</b>
1	Mahalangur Higher Secondary School	Gumdel-4
2	Chandeshwari Higher Secondary School	Saipu-7
3	Kamala Higher Secondary School	Namadi-4
4	Krishnapuri Higher Secondary School	Kaniyapani-6
5	Pashupati Higher Secondary School	Hiledevi-6
6	Gokul Higher Secondary School	Rasnal-4
7	Chandeshwari Higher Secondary School	Gothgaun-2
8	Gaurishankar Higher Secondary School	Ramechhap
9	Manthali Higher Secondary School	Manthali
10	Siddheshwar Higher Secondary School	BamtiBhandar
11	Tamakoshijanajagrati Higher Secondary School	Khimti
12	Paryageshwar Higher Secondary School	Pakarbass
13	Himganga Higher Secondary School	Sanghutar
14	Sarada Higher Secondary School	Gelu
15	Kuseshwar Higher Secondary School	Bethan
16	Kakani Higher Secondary School	Kakani
17	Janjagrati Higher Secondary School	Betali
18	Setidevi Higher Secondary School	Salu
19	Shatlingeshwar Higher Secondary School	Gunshibhadure
20	Krishna Barneshwar Higher Secondary School	Manpur
21	Shree Tripureshwar Higher Secondary School	Duragaun
22	SarkeDhaurali Higher Secondary School	Deurali
23	Kakling Higher Sec. School	Doramba
24	Nilkantheshwar Higher Sec. School	Kathajor
25.	Rudrakshewar Higher Secondary School	Bhatauli
26.	Kalidevi Higher Sec. School	Phulasi
27.	Kalika Higher Secondary School	lakhanpur
28.	Bal Higher Secondary School	Kaniyapani
29.	Bharati Higher Secondary School	Bhadaure
30.	Chandeshwari Higher Secondary School	Pirti