

## Chapter I

### INTRODUCTION

#### Background of the Study

"Mathematics" which was created with human needs is going ahead along with human civilization. The term 'mathematics' has been interpreted and explained in various ways. According to oxford advanced learners dictionary. "Mathematics is the science of number and space" Mathematics plays an important role in the organization and maintenance of our social structure society is the result of interrelations of individuals. It consists of big and small groups and there are subgroups within each group. Mathematics enables us to understand the inter relations of individual and the possibilities of various groups.

Mathematics is a logical study of shape, arrangement, quantity and many related concepts. Mathematics helps people under-stand and interpret very important quantities as well as qualitative aspects of mathematics and natural phenomena. It has an important role for the development of science and technology. Pure mathematics is one branch of mathematics and is the study and development of principles of mathematics for their own sake and possible future usefulness, rather than for their immediate usefulness in other fields of science or knowledge. Another branch of mathematics is applied mathematics and it is concerned with the study of physical, biological and sociological worlds. Its basic elements are logic and intuition, analysis and construction and individuality. It is a way of reasoning, it gives is insight into the 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 in deduced logically from previously proved proposition or assumptions and it comprises skills, techniques and arts by which man conveys ideas, concepts and facts. "Mathematics" and life" are related to each other like a relation between nail and muscle in human body.

Our knowledge of mathematics begins with the observation of physical social environment. Mathematics thus, can be considered to have arisen out of the need to understand the environment in tits right perspective as well as the need to solve problems encountered in

every day life. One precedes to buildup the structure of mathematics by a process of deductive reasoning. So, mathematics is also called science of reasoning.

In this world of today, nobody can live without mathematics. Mathematics is intimately involved in every movement of man's life. Long time men first wanted to answer the question as how much? How long? How many? How big? etc. they invented arithmetic and algebra was devised to simplify and generalize arithmetic computations. For measurement geometry was invented. The knowledge of various branches of mathematics has grown with the development of human kind from its earlier civilization up to the present modern civilization. Nowadays one can deny the importance of mathematics is this wider application or utility from day to day activities to space technology. Ragar Bacon Says "Mathematics is the gate and key of all knowledge he/she who is ignorant of it can not know the science or the thing of the world". It is a body of ideas structured by logical reasoning the fact, the principle and methods developed early. Mesopotamia, Greece, Egypt played central role the development of mathematics in the early human civilization.

However, mathematics and mathematics education are two separate disciplines in the field of education. Mathematics primarily focuses on the process and product of what mathematician does. This is the abstraction of thinking and process as mathematician applies in creating mathematics with understanding its basic structure. It does not give much concern on how mathematics should be taught, what mathematics should be taught, who can learn mathematics and why one cannot learn mathematics like issues.

Mathematics education deals with mathematics from perspectives of education. It is concerned with the development and implementation of appropriate mathematics curriculum and with all issues associated with the teaching and learning of mathematics. In keeping with the concept of lifelong learning, mathematics education covers learners of all ages and at all levels from early childhood to adult. Thus, mathematics education is not solely concerned with curricula, classrooms, teachers and learners in schools, nevertheless, issues associated with school mathematics will be a major focus. The areas of mathematics education are curriculum, teaching, learning, and evaluation. Five foundations philosophy, psychology, sociology, mathematics and technology guide these three areas. Improvement of school mathematics education is the primary concern of mathematics education but it does not mean that it is limited to the school education. What mathematics, what teaching methods and what learning strategies

for the students of higher education would be appropriate are also the areas of mathematics education. Hence, mathematics education is an applied discipline that deals with the wider application of mathematics in different sectors and fields (Upadhyay, 2068).

The main objective of mathematics education is to prepare well-qualified teachers in both methods and contents. Mathematics education is the synthesis of what (content) and how (methods). A mathematics educator cannot afford the luxury of being a student of subject matter only, or students of the process for transmitting subject matter only. We cannot concern ourselves with one of these to the exclusion of the other. We must concern ourselves with one of these to the exclusion of the other. We must concern ourselves with both the process and the product.

The teaching learning will be success if there is a co-ordination among teacher, students and guardian. So the teaching learning is a triangular process. In the context of Nepal, I.Ed. or +2 levels should be passed to become a lower secondary level teacher which has mentioned in the Education Act 2028B.S. Teachers are the pillars of nation building, who bring out the potentials hidden in every child, like other countries in the world it is natural for Nepal to aspire for quality education to be imparted to each and every child. Quality education, among other things, depends heavily on trained teachers. Truly speaking, quality education and trained teachers are complement to each other.

There is a great role of teachers in the achievement of student. Those teachers who are trained can only manage a classroom properly to fulfill the needs of students. The preparation of teacher is an indicator of education quality. Preparing teachers for meeting the challenge of the changing world means equipping them with subject specific expertise, effective teaching practices, an understanding of new technology and a technology of teaching and ability to work collectively with other teachers, parents, students and member of community, a large number of teacher lack adequate training for their better performance in the classroom. The School Sector Reform Plan-SSRP2009-2015 has set clear and special plan for teacher's professional development. As 71, 55 and 79 percent of the total teachers working at primary, lower secondary, and secondary level respectively in 2008 were only trained, teachers' training at schools was a prerequisite for both professional development of the teachers and quality improvement of the school education. The plan aims to train all the school teachers by 2015 in which 0, 0, and 0 percent of the total teachers working at primary, lower secondary and

secondary level are trained respectively, now (Teachers management in community schools in Nepal, A Study Report-2012)

Lower Secondary School mathematics teachers are facing various types of Problemseither teaching in Private Schools or in Public Schools, which I had felled from my teaching experience too. The teachers have to update with the contents and methods time to time, which make easy to solve the faced problems. We have found that text books are used as only major tools to achieve the objectives of curriculum. Facilities that are essential for teaching and learning activities are not available in substantial amount and some schools do not have enough classrooms. Educational theory enforces that teacher should make instructional material herself. But the material construction method was not given in teacher training. So we have found that there are different reasons of problems which are faced by mathematics teacher while teaching mathematics at Lower Secondary School.

### **Statement of the Problem**

Mathematics being very important subject observing through the past results of each school level classes. It was observed that the majority of the students failed in mathematics. Thus mathematics teaching and learning situation in Nepal seems to be very alarming. Mathematics subject has become a great wall for candidate of each class of school level education. Hence there must be some problems related to Mathematics Teaching and Learning situation that affect concisely in teaching of mathematics. This posed to mathematics teacher a great challenge in teaching profession. Therefore, I thought to find out the problem of teacher. In this way the problem was coined. Hence my study would really concern with the problem faced by lower secondary school teacher in teaching mathematics. Thus study wouldintend to answer the following questions:

1. What are the current problems faced by teachers in teaching mathematics at lower secondary level?
2. What are the problems faced by public school teachers in teaching mathematics at lower secondary level?

## **Objectives of the Study**

The objectives formulated for this study were

1. To identify the problems faced by teachers in teaching mathematics at lower secondary level.
2. To compare those problems between public and private school mathematics teachers.

## **Significance of the Study**

Mathematics is an essential part of school curriculum. So it is included as compulsory subject at all level of school education. The mathematics teachers are facing many problems in teaching. Problems might have arisen because of confusion about subject matter and about optimal procedures to present them to the students. Problems also arise because of the lack of knowledge about the classroom management. Researcher assumed that the tentative cause of this situation is the problems faced by mathematics teacher. So there is a greater need to identify whether there are real problems or not. Problems may arise because of confusion about subject matter, lack of physical infrastructure, teacher training, various backgrounds of students, classroom management, teaching materials, economically poor condition of school, and inadequate knowledge of curriculum and so on. The study will be contributed a lot in identifying problems what they are facing. Thus the study is significant for the reason that it will help to provide information to the concerned agencies, curriculum designer to reform and improve the curriculum and teaching learning process in lower secondary school level.

In this regard, the following were the significance of this study:-

- This study would help to identify the current problems which are faced by the teacher in teaching mathematics.
- It would provide information to the concerned agencies to reform and improve the mathematics teaching.
- It would make teacher confidence for teaching effectively.
- Students would also learn easy method of learning mathematics.

## **Delimitations of the Study**

Due to the time and financial constraints, delimitations of this study had been mentioned below:

- The study was delimited to private and public schools of Kathmandu district.
- The study concerned only with classroom teaching problems at lower secondary level.
- The study was delimited to the fifty private and public schools' mathematics teachers of

lower secondary level of sampled district.

### **Definition of Related Terms**

Some terminologies used in this thesis have been defined as follows:

#### **Teacher**

The teacher who teaches mathematics at grade VI, VII and VIII in Kirtipur municipality were considered as teacher in this study.

#### **Problems**

A questions that can be answered by logical thought of mathematics operation.

#### **Students**

In this thesis, students are those who are studying at lower secondary level.

#### **Mathematics**

Mathematics refers the lower secondary level mathematics which is compulsory to all students.

#### **Public school**

In this study, those schools, which are established and sponsored by government of Nepal.

#### **Private school**

A school supported by a private organization or private individual rather than by the government school supported wholly by the payment of fees.

#### **Attitude**

Attitude towards mathematics is defined as a general emotional disposition toward the school subject of mathematics. This is not to be confused with attitude towards the field of mathematics, toward one's ability to perform in the field of mathematics toward some specific area with in mathematics.

#### **Achievement**

Achievement is the intellectual capacity or gain in certain subject during course of study through formal or informal education. Here, it means the academic scores of the children in mathematics i.e. the scores obtained by the mathematics i.e. the scores obtained by the students of selected schools in the annual examination of the mathematics.

## **Chapter II**

### **REVIEW OF RELATED LITERATURE**

Review of the related literature allows the researcher to acquaint herself with current knowledge in the field or area in which she is going to conduct her research. The review of related literature enables the researcher to define the limits of her field. It helps the researcher to delimit and define her problem. The knowledge of related literature, brings the researcher up-to-date on the work which others have done and thus to state the objectives clearly and concisely. She can select those areas in which positive findings are very likely to result and her endeavors would be likely to add to the knowledge in a meaningful way. It is no use to replicate a study when the stability and validity of its results have been clearly established. The review of related literature gives the researcher an understanding of the research methodology which refers to the way the study is to be conducted. It helps the researcher to know about the tools and instruments which proved to be useful and promising in the previous studies.

The advantage of the related literature is also to provide insight into the statistical methods through which validity of results is to be established. The important specific reason for reviewing the related literature is to know about the recommendations of previous researchers listed in their studies for further research.

The researcher tried to find out the literature on the topic that related to problems faced by the teacher while teaching mathematics at lower secondary level. Number of books, papers, research reports and booklets can be found that concern with curriculum, instructional materials, and methods and so on. The review of the related literature helps to make the concept clear for the study and also direct to analyze and interpret the data. With this assumption some related literatures were reviewed below:

White and Dossey (1981-1982) conducted a research on "The Second International Mathematics Study", which was conducted in United States for grade eight as the sample. The study included students and teachers from 500 classrooms in 250 public and private schools and concluded that curriculum focused to arithmetic and algebra.

The above mentioned reviews are the manifesto of lacks and problems faced by mathematics in secondary level. In national and international level, problems are slight

differently. As in the research of Dossey, who had conducted research in 250 different public and private schools, achievement upon arithmetic is found less satisfactory.

Pathak (1987) conducted a research on "A study on the problems faced by the teacher of Kathmandu district in the implementation of mathematics curriculum for lower secondary level." He took sixty five teachers as the sample of lower secondary schools of Kathmandu district. He administered a set of questionnaire to the lower secondary mathematics teachers who has faced the problems regarding the problems of mathematics curriculum, teaching method and evaluation techniques. In his research, he concluded that the problem regarding evaluation was the most serious problem to the lower secondary level mathematics teachers.

Baral (2001) conducted a research entitled "A study of the problem faced by mathematics teacher in implementation of compulsory mathematics curriculum in grade IX." He concluded that it has been noticed that these problems can be mainly attributed by highly idealistic curriculum, inadequacy of textbook, lack of proper teaching materials, deficit classroom situation, high enrollment of students, lack of supervisory help, untrained mathematics teacher, the dissatisfaction of job facilities and so on.

Lamichhane (2001) did a survey type research in Kaski district entitled "A study of problem faced by secondary level teacher in teaching mathematics" with the aim to identify the problems being faced by secondary level mathematics and to compare those problems in private area and public area. He selected a sample of thirty teachers from eighteen schools. He collected data from questionnaire and classroom observation form. In this study Mann Whitney U-test and Z-test were used to analyze for the several problems faced by teacher. After analyzing the data, he concluded that the problems related to physical facilities, curriculum, teaching methods and evaluation technique were found.

Thapa (2005) conducted a research on "Problem faced by teacher in teaching mathematics at primary level." The objective of her study was to find out problems, cause of problems faced by primary level mathematics teacher. She also compared private and public school teacher's problems. Her study was survey type. She had selected 30 teachers from the total population as sample by lottery method. She concluded that most of the problems are arises because of large class size, irrelevancy of teachers guide, lack of instructional materials, adequacy of teacher training, lack of supervisory help, lack of physical facilities etc. Along with



there were various problems that cause teachers insufficient and unenthusiastic to manage classroom activities.

Paudel (2007) conducted a research entitled "Problem Faced by Primary Level Female Mathematics Teachers for implementation of mathematics curriculum in Nawalparasi district." The objective of his study was to find the related problems about text books, teaching aids, teaching techniques, materials and methods, evaluation problem. This study also aims to compare public and private school teacher's problem while implementing mathematics curriculum. He also compared private and public school teacher's problems. His study was survey design. The population of his study was the entire mathematics teacher who taught at primary level at Nawalparasi district. He took 30 teachers (15 government school teachers and 15 private school teachers) as a sample. After collecting the data, he used simple percentage method to analyze the data and concluded that the problem was arisen due to unknowledgeable idea about the use of teaching method and materials, lack of sufficient teaching programs, and responding the performance of the students at their guardians.

In the national level researches, different kinds of problems are found in different levels. Thapa found that in primary level mathematics of Nepal, classroom management, instructional materials, teacher's trainings and lack of physical facilities are the main obstacles in teaching mathematics.

Acharya (2013) conducted a thesis entitled "A Study on the problem faced by HSEB teacher in teaching mathematics of grade XI". It was descriptive survey and questionnaire was used for data collection. Chosen 15 higher secondary School of Kathmandu district for this study. The main objective of the study was to identify the problem faced by HSEB mathematics teachers and compare the problem faced by trained and untrained teachers. He concluded that prescribed curriculum and existing text books are not well planned, sequential and practical problems are not well managed. On the part of trained and untrained teachers, it was found that both were facing similar kinds of problems in Kathmandu.

Gautam (2014) conducted a thesis entitled "A study on Problems faced by higher secondary school Teachers in mathematics". It was descriptive survey method and questionnaire was used for data collection. For this study 4 public and 4 private higher secondary school of Nawalparasi district were selected. The main objectives of this study were to identify the

problems faced by higher secondary school teachers in mathematics and to compare the problems faced by public and private school teacher. He concluded that teachers are facing many problems related to curriculum and textbook, classroom management, different background characteristics of students and educational administration. And more and less similar problems are facing public and private higher secondary school mathematics teachers.

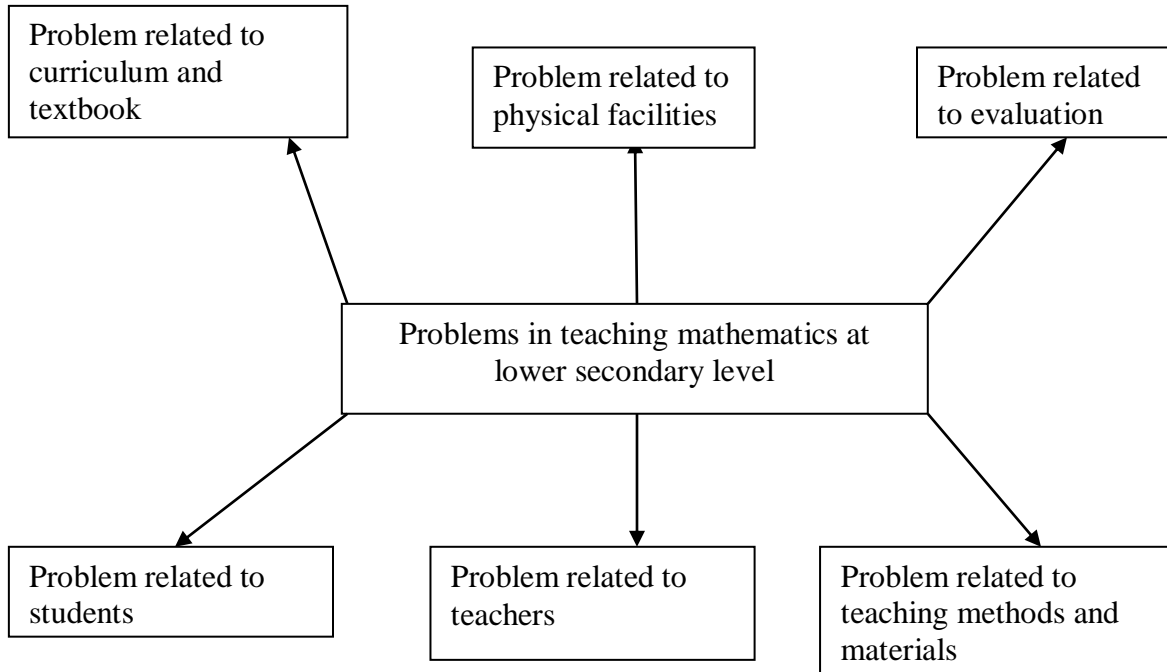
Devkota (2014) conducted a thesis entitled "Problems faced by mathematics teachers in existing curriculum of grade Ten." 15 public and 10 private schools of Dang district were selected for the study. He concluded that students and teachers facing many problems like lack of training, orientation opportunity for the mathematics teachers in existing curriculum, inadequacy of text book, lack of teachers guide and reference books, lack of instructional materials, large class size and defective evaluation system. Poudyal (2015) conducted a thesis entitled "A study on problems faced by mathematics teacher in private school". For this study 15 private school were selected from Parasi area. The main objective of the study was to find out the problems and cause of problems faced by mathematics teacher in private school at secondary level. He concluded that problems that problems on teaching learning methods, evaluation process and professional development of teacher due to causes like various backgrounds of students, teaching materials, school administration and textbook.

Poudel (2015) conducted thesis entitled "Problems faced by mathematics teacher in teaching mathematics at secondary level of Kailali district." It was survey method and 15 teacher were selected from Kailali district. The main objectives of this study was identifying the problems and suggest some measures for the solution of the problems. He concluded that there are numerous problems faced by teacher due to classroom management, sufficient training programme and it's transfer in classroom teaching, teaching methods and materials, student's evaluation technique and various background characteristics.

So, from these different reviews of the researcher mentioned above, it is found that the different levels of students and teachers are facing various problems in teaching mathematics. In overall, it can be said that classroom management, teaching materials, basic knowledge of mathematics of students. Instructional materials, school management and textbook etc. are the major hindrances in both private and public school for teaching mathematics in all; primary, lower secondary and secondary levels.

## Conceptual Understanding of the Study

From the review of related literature and theories the researcher proposed the following conceptual framework that helps to find the problems faced by mathematics teachers.



By using the above conceptual framework, the researcher constructed the tools of the study and the data were analyzed and interpreted by using it.

## **Chapter III**

### **METHODS AND PROCEDURES**

This study was concerned with the problem faced by the teachers in teaching mathematics at lower secondary level. In this chapter, the researcher described about the methodology to conduct this study. This chapter includes design of the study, population of the study, sample of the study, sampling procedure, instrument, data collection procedure, scoring procedure, data analysis procedure.

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

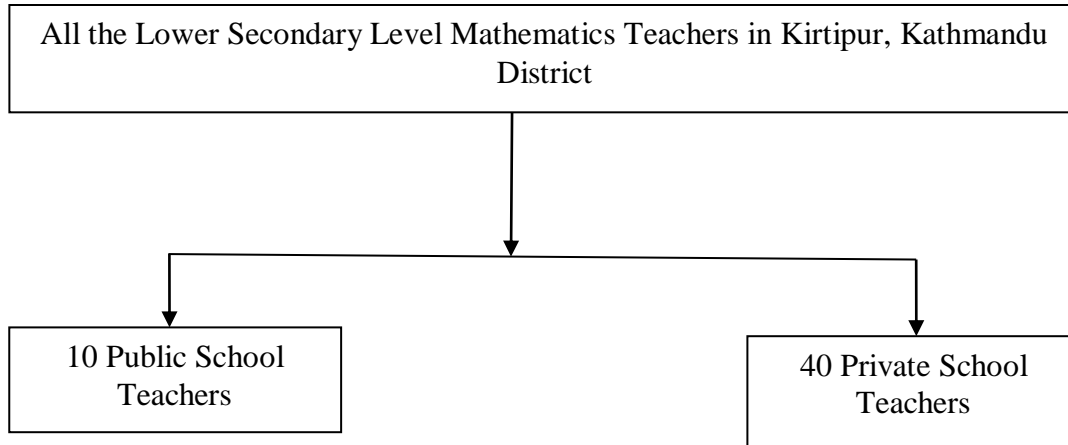
This is a survey research about the problem faced by the teachers in teaching mathematics at lower secondary level. This study is also analytic in nature. According to Kerlinger (1973), the survey research method is more useful in the research to collect the information about educational facts from teachers and students.

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

The total number of teachers is 2016 in Kathmandu district who taught mathematics at lower secondary level are found 2225 (District Education Office, 2073). They are teaching lower secondary level mathematics in Kathmandu. Hence, they were considered as the population of the study.

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

Due to time and resource constraints, all the lower secondary level mathematics teachers from Kathmandu districts could not be studied. The sample of the study is the 50 lower secondary level mathematics teachers of public and private schools who taught mathematics in the year 2073 in Kathmandu district. The mentioned sampled 50 lower secondary level mathematics teachers were taken as sample by using stratified sampling methods. First of all, altogether 50 schools (including 10 public and 40 private schools) were taken from Kirtipur area by using judgement sampling method. Then, 50 mathematics teachers of lower secondary level from intended schools were taken. In the process of selecting sample teachers, one teacher from each school was taken. Hence, out of 50 teachers, 40 teachers were selected from private school and 10 from public school. The detail of sample characteristics can be presented as follows:



For Classroom Observation, the researcher selected 50 Teachers. Among them, 10 teachers were selected from public school and 40 Teachers were from private school.

### **Tools for Data Collection**

For the collection of data, a classroom observation form and Questionnaire were used. The statements related to this study in the questionnaires were developed by the researcher herself with the help of supervisor. The classroom observation form and the questionnaire were constructed after the detailed study of related literature such as articles, documents, thesis, and curriculum of mathematics at lower secondary level.

Before developing the questionnaire, researcher consulted with mathematics experts and experienced teachers. The questionnaire was included the items relating to the various problems which are being faced by lower secondary school mathematics teachers. The areas of problems were curriculum and textbooks, physical facilities, classroom management and various characteristic backgrounds of students. At the end of each section of questionnaire, the respondents were requested to comment on the areas not covered by the items of the given.

### **Data Collection Procedure**

For collecting the data, the researcher visited to each of the sample school along with Questionnaire form and Classroom Observation form, and request letter from T.U. to render any help needed to the researcher from school administration. After explaining the purpose of the visit, the researcher requested each of the sampled teachers to fill the questionnaire for required

information. The researcher was used questionnaire and also observed the class of the teacher and then observations were recorded with the help of observation form to collect the primary and secondary data for the study.

### **Scoring Procedure**

For the analysis of each of the statements, weighted of 5, 4,3,2,1 were assigned to the response ‘strongly agree’, ‘agree’, ‘undecided’, ‘disagree’, and ‘strongly disagree’ respectively. For the statements opposing to the problem, such statements were scored in the opposite order; after then the mean was calculated.

### **Data Analysis Procedure**

The obtained data was analyzed and interpreted with the help of statistical techniques. Mean weighted was used to locate the central position of the responses to the statements of teachers as a whole in the rating scale. The average mean weighted was calculated as follows:

$$\text{Mean Weightage} = \frac{\text{total rank score of statement}}{\text{number of respondents}}$$

Total score of five point Likert scale is 15, thus its average score is three. If the calculated index was greater than three, then it was concluded that the statement contains in strong favour to the problem and if the calculated index was less than or equal to three, then it was concluded that the statement was unfavour to the problem. The quantitative data through questionnaire was analyzed and interpreted descriptively.

Also, the qualitative data obtained through the classroom observation was used to validate the information found through the quantitative technique (see appendix G). Through the calculation of t-test, it was found that the variances of public school teachers' response and private teachers' response were homogenous. Therefore, to compare the response of public&private school teachers, the t-test was used. The t-test was calculated at the 5% level of significance i.e.  $\alpha = 0.05$ .

## Chapter IV

### ANALYSIS AND INTERPRETATION OF DATA

This is a survey research related to find the problems of mathematics teacher of lower secondary level. The objectives of this study were to identify the problems faced by teachers in teaching mathematics at lower secondary level and to analyze the problems faced by public school teachers in teaching mathematics at lower secondary level.

The sample of the study is the 50 lower secondary level mathematics teachers of public and private schools who taught mathematics till the year 2073 in Kathmandu district. First of all, altogether 50 schools (including 10 public and 40 private schools) were taken from Kirtipur area by using judgement sampling method. Then, 50 mathematics teachers of lower secondary level from intended schools were taken. For Classroom Observation, the researcher selected 50 Teachers as a sample. Among them, 10 teachers were selected from public school and 40 Teachers were from private school.

For the collection of data, a classroom observation form and Questionnaire were used. The classroom observation form and the questionnaire were constructed after the detailed study of related literature such as articles, documents, thesis, and curriculum of mathematics at lower secondary level. The researcher was used questionnaire and also observed the class of the teacher and then observations were recorded with the help of observation form to collect the primary and secondary data for the study.

The obtained data was analyzed and interpreted with the help of statistical techniques. Mean weighted was used to locate the central position of the responses to the statements of teachers as a whole in the rating scale. The qualitative data obtained through the classroom observation was used to validate the information found through the quantitative technique. Thus, the obtained data were analyzed and interpreted under the following headings:

- Teachers' Responses on Problems Related to Students
- Teachers' Responses on Problems Related to Teacher
- Teachers' Responses on Problems Related to Physical Facilities
- Teachers' Responses on Problems Related to Teaching Methods and Materials
- Teachers' Responses on Problems Related to Curriculum and Textbooks
- Teachers' Responses on Problems Related to Evaluation
- Analysis of Classroom Observation

## Teachers' Responses on Problems Related to Students

The following table included 11 statements in this section. Out of them 10 are problematic and 1 is non-problematic. The mean Weightage of each statement was also presented in the table.

**Table 1: Mean Weightage from Teachers' Response on Problems Related to Students**

S.N.	Statements	Weighted mean	Remarks
1	Lack of prior knowledge creates problems on students' learning.	4.33	Problematic
2	Lack of study at home creates problems.	4.21	Problematic
3	Various family background of students affect in teaching.	3.86	Problematic
4	Poor economic condition of the students' effect in teaching.	3.68	Problematic
5	Social & cultural background of the student's effect in teaching/learning process.	3.06	Problematic
6	It is difficult to manage in teaching learning due to individual differences.	4.11	Problematic
7	Medium of language affects teacher in teaching.	2.51	Non-Problematic
8	There is an age effect on students learning.	3.41	Problematic
9	The large number of students in a single classroom creates problem in teaching.	3.21	Problematic
10	Mathematics is considered as most difficult, useless and boring subject.	3.46	Problematic
11	Students and their parents give low priority in mathematics education.	3.39	Problematic

The statement one was "Lack of prior knowledge creates problems on students' learning." The mean Weightage of this statement was 4.33, which indicated that it is problematic. The 89% teachers agreed with this statement. The statement two was "Lack of study at home creates problems." The mean score of this statement was calculated to 4.21 that indicate it is problematic, and thus it is sufficient to say that little study at home created problem for teacher in mathematics teaching, because 93% teachers accepted for this statement. The



statements three, four and five were “Various family background of students affect in teaching”, “Poor economic condition of the students’ effect in teaching” and “Social & cultural background of the student’s effect in teaching/learning process”.

The mean weightage of responses for statements three, four and five were calculated to 3.86, 3.68 and 3.06 respectively. The 76%, 71% and 58% teachers agreed for these statements. The statement six was “It is difficult to manage in teaching learning due to individual differences.” It is also another problematic statement because the mean weightage 4.11 was calculated. The 91% teachers agreed with this statement.

The statement nine was “The large number of students in a single classroom creates problem in teaching.” The 73% teachers respond on it. The mean Weightage 3.21 was calculated, which indicates that it is problematic. The statement seven was “Medium of language affects teacher in teaching.” Only 48% teachers agreed with this statement. The mean score was calculated to 2.79 which is less than three. Therefore, it is not problematic. Similarly, the statement eleven was “Students and their parents give low priority in mathematics education”, which is also problematic because the mean weightage value was 3.39. Therefore, it is problematic. The 55% teachers accepted for this statement.

About 66% teachers agreed the statement ten which was “Mathematics is considered as most difficult, useless and boring subject.” The mean Weightage value for this statement was 3.40 and thus it is problematic.

From the above statements we can note that the main problem of teacher and students are mainly the family background, classroom management, less priority on mathematical subjects, teachers and not well qualified and experience, lack of motivation etc.

## Teachers' Responses on Problems Related to Teacher

There are 13 statements in this section. Out of them 11 are problematic and 2 are non-problematic. The mean Weightage of the teachers' response about the teachers themselves on each statement was presented in the following table:

**Table 2: Mean Weightage from Teachers' Response on Problems Related to Teacher**

S.N.	Statements	Weighted Mean	Remarks
12	Low qualification of teacher's creates difficulties in teaching.	3.11	Problematic
13	There are difficulties in teaching because of low teaching experience.	2.65	Non-Problematic
14	Lack of knowledge of child psychology creates problems.	3.89	Problematic
15	There is lack of command to teach mathematics.	3.09	Problematic
16	Lack of knowledge of proper use of blackboard creates problem.	2.7	Non-Problematic
17	Examination oriented teaching creates problem.	3.75	Problematic
18	Lack of motivation in the context of teaching.	3.64	Problematic
19	Lack of checking homework daily.	3.24	Problematic
20	There is interaction gap between teacher and students.	3.28	Problematic
21	Lack of knowledge of appropriate teaching methods creates problem.	3.44	Problematic
22	Lack of proper management of reinforcement and punishment.	3.41	Problematic
23	Minimum information about the instructional materials has also created problem.	3.51	Problematic
24	There is a lack of knowledge using materials.	3.29	Problematic

From the table 2, the statement twelve was “Low qualification of teachers creates difficulties in teaching.” The mean weightage response of this statement was calculated to 3.11, which indicates that it is problematic. 62% teachers agreed with this statement. On the other hand, 56% teachers oppose statement thirteen, which was “There are difficulties in teaching because of low teaching experience.” The mean Weightage value for the statement was 2.89 and thus it is not problematic. Similarly, 59% teachers opposed for statement sixteen which was “Lack of knowledge to use blackboard properly”. The mean Weightage was calculated to 2.7. Therefore, it is not a problem. 58% teachers agreed on the statement which was “Lack of command to teach mathematics.” It is also another problem for teaching. It can be concluded through the calculation of mean score 3.09 for the statement which is a problem. Also, the 80% teachers accepted the statement seventeen which was “Examination oriented teaching creates problem” which can be said problematic by the inspection of calculated mean value 3.75 of the responses.

Without motivation, mathematical contents do not become interesting to the students. Here the statement eighteen was “Lack of motivation in the context of teaching.” The mean Weightage value 3.64 was calculated for this statement. 75% teachers accepted to this statement. Meanwhile, it was found that 86% teachers agreed with the statement which was “Lack of appropriate knowledge of child psychology.” The mean Weightage value 3.89 was calculated for this statement. The statement nineteen was “Lack of checking homework daily”, 57% teachers agreed with this statement and the mean Weightage response was computed 3.24 which implies that it is problematic. The statement twenty was “There is interaction gap between teacher and students.” It also another problem, which can be said through the result of calculated value of mean Weightage 3.28 for this statement. 73% teachers agreed with it.

The statement twenty one was “lack of knowledge of appropriate teaching methods create problem”, which became problematic because the mean Weightage value 3.44 was calculated. 75% teachers agreed with this statement. Similarly, 77% teachers agreed with the statement twenty two which was “Lack of proper management of reinforcement and punishment.” The mean Weightage 3.41 was calculated which is also the problematic. The statement twenty three was “minimum information about the instruction materials has also created problem.” In this statement, the researcher found that 79% teachers did not have sufficient information about the instructional materials even than use of it, which was also found through

cross check. The mean Weightage was calculated 3.51 for the statement which showed that it is problematic.

### Teachers' Responses on Problems Related to Physical Facilities

There are 11 statements in this section. Out of them 7 are problematic and 4 are non-problematic. The mean Weightage of the teachers' response about physical facilities on each statement was presented in the following table:

**Table 3: Mean Weightage from Teachers' Response on Problems Related to Physical Facilities**

S.N.	Statements	Weighted Mean	Remarks
25	The mathematics classroom is not inappropriate size	3.24	Problematic
26	The classroom is neat and clean	3.31	Problematic
27	Seat planning is well managed	3.46	Problematic
28	The furniture are adequate	3.24	Problematic
29	The condition of playground is appropriate	2.3	Non-Problematic
30	The room is well lighted and ventilated	2.43	Non-Problematic
31	There is lack of mathematics laboratory	3.94	Problematic
32	The water supply is sufficient	3.23	Problematic
The classroom is equipped with			
33	Graph board	2.44	Non-Problematic
34	Bulletin board	3.04	Problematic
35	The size of black board is appropriate and adequate for writing and looking.	2.3	Non-Problematic

From the above table 3, the statement twenty five was “The mathematics classroom is not in appropriate size.”61% teachers agreed with it. The mean weightage score 3.24 was calculated which implies that it is problematic. The researcher found that the classroom in average were not neat and clean. Because of the mean weightage 3.31 was calculated for statement twenty seven. The statement twenty seven was “The classroom is neat and clean.” Only39% teachers agreed

withit.54% rejected for the statement twenty eight, which was “Seat planning is well managed.” The mean weightage score was 3.46, which indicates clearly that it is also a problem. The statement twenty eight was “The furniture is adequate.” 62% teachers rejected for the statement. This is also the problematic statement, because the mean score was 3.24. Similarly, the researcher found from the calculation of mean weightage and classroom observation that the classroom was well lighted and ventilated. The mean weightage of response for the statement thirty one was calculated 2.42, which indicates that it is also another problem. 72% teachers agreed for this statement.

Another problem occurred because, the water supply is not sufficient, which was found by the response of 51% teachers and by the calculation of mean weightage 3.225. 74% teachers accepted for the statement thirty which was “The condition of playground is appropriate.” The mean weightage was 2.3 for this statement. Therefore, it is not the problematic. However, the classroom was not equipped with graph board, but the 86% teachers accepted that the classroom was equipped with graph board. The mean weightage for this statement was 2.44. Though, it is also a problem, which was observed by the researcher in the classroom.

The statement thirty four was “The classroom is equipped with graph board.” The mean weightage for this statement was calculated to 3.04. With this statement, 76% teachers agreed. The statement thirty five was “The size of blackboard is appropriate and adequate according to the classroom size and structure.” However, only 33% teachers rejected this statement. The mean weightage for this statement was 2.3, which indicated it is non-problematic. But the researcher concluded through the classroom observation that it is problematic.

From the above statements, we can note that there is not well management of classroom, insufficiency of water supply, scarcity of textbooks, teaching manual have also created confusion to the students. Hesitation of using the instruments and not well set of lesson plans are the problematic factors for students.

### **Teachers’ Responses on Problems Related to Teaching Methods and Materials**

There are 12 statements in this section. Out of them 10 are problematic and 2 are non-problematic. The mean Weightage of the teachers’ response about teaching methods and materials on each statement was presented in the following table:

**Table 4: Mean Weightage from Teachers' Response on Problems Related to Teaching Methods and Materials**

S.N.	Statements	Mean Weightage	Remarks
36	There is a problem due to the scarcity of text books.	2.74	Non-Problematic
37	There is a lack of reference books and materials.	3.81	Problematic
38	Lack of teaching manual has also created confusion and problem in teaching.	3.73	Problematic
39	Lack of library facility creates difficulties in teaching.	3.59	Problematic
40	There is problem due to the hesitation of using the instrument while teaching.	3.34	Problematic
41	Lack of teacher's guide creates problem.	3.34	Problematic
42	There is no any appropriate book related to the course content.	3.29	Problematic
43	There is a lack of proper space to demonstrate instructional materials.	3.28	Problematic
44	There is a problem due to the lack of knowledge of lesson plan.	2.81	Non-Problematic
45	There is lack of sufficient time to sue various suitable methods.	3.36	Problematic
46	Less use of teaching learning materials	3.4	Problematic
47	The subject matters included in the text book is difficult for teacher herself.	2.59	Non-Problematic

From the above table-4, the statement thirty six was “There is a problem due to the scarcity of text books.” But only 44% teachers accepted that there is a problem due to the scarcity of text books. The mean weightage for this statement was calculated 2.74, which implies clearly that it is not a problem. But, there are lack of reference books and materials, lack of

teaching manual and lack of teacher's guide. Because of the mean weightage score was 3.81, 3.72 and 3.58 for the statements thirty seven, thirty eight and thirty nine respectively. The statements thirty seven, thirty eight and thirty nine were "there is a lack of reference books and materials", "Lack of teaching manual has also created confusion and problem in teaching" and "lack of library facility creates difficulties in teaching" respectively. 76%, 73% and 71% teachers accepted for these statements respectively. Hence these statements are the problematic.

The statement forty three was "There is lack of proper space to demonstrate instructional materials." The 72% teachers agreed and the mean weightage of this statement was 3.275. Therefore, it is also another problem for mathematics teaching at lower secondary level. Similarly, the statement forty was "There is problem due to the hesitation of using the instrument while teaching." 71% teachers accepted and the mean 3.34 was calculated for this statement, which indicates that it is problematic. Another statement was "Less use of teaching learning materials." The mean weightage for this statement was 3.4. Thus, it is also problematic.

About 66% teachers refused for the statement forty seven, which was "The subject matters included in the text book is difficult for teacher himself." The mean score of responses 2.59 was calculated, which implies that it is not a problem. The statement forty five was "There is a lack of sufficient time to use various suitable methods." The mean weightage score was 3.36, which indicates that it is another problem faced by teachers. 66% teachers agreed for this statement. But, 55% teachers refused for statement forty four, which was "There is a problem due to the lack of knowledge of lesson plan." The mean score was 2.81 for this statement, which indicates that it is not the problem. However, the researcher found through the class observation in actual teaching, there were found that 95% teachers teach mathematics without using lesson plan. So, it is a problem.

### **Teachers' Responses on Problems Related to Curriculum and Textbooks**

There are included 7 statements in this section. Out of them 6 are problematic and 1 is non-problematic. The mean Weightage of the teachers' response about curriculum and textbook on each statement was presented in the following table:

**Table 5: Mean Weightage from Teachers' Response on Problems Related to Curriculum and Textbooks**

S.N.	Statements	Mean Weightage	Remarks
48	Mathematics curriculum is not practicable	3.2	Problematic
49	Mathematics curriculum does not match with present situation.	3.74	Problematic
50	Mathematics curriculum does not match to the age, ability, interest and needs of students.	3.41	Problematic
51	There are mistake in printing of text books.	3.29	Problematic
52	The subject matter of mathematics curriculum is itself difficult.	2.91	Non-Problematic
53	The verbal problem of text books are not related to student daily life.	3.88	Problematic
54	The examples included in the text book are not sufficient.	3.89	Problematic

The respondents were requested to show their response on the statement forty eight which was “Mathematics curriculum is not practicable.”58% teachers agreed with this statement and the mean weightage score was 3.2 for this statement. Therefore, it is a problem. 70% teachers accepted that mathematics curriculum does not match with present situation, and does not match with the age, ability, interest, needs of students for these statements. The mean weightage values were calculated 3.74 and 3.41 respectively for “Mathematics curriculum does not match with present situation” and “Mathematics curriculum does not match to the age, ability, interest and needs of students”,which imply that these are problematic.

The 45% teachers refused for the statement fifty two which was “The subject matter of mathematics curriculum is itself difficult.” Which can be said non-problematic through the computation of 2.91, the mean weightage and thus it is not a problem. In the same way, 88% teachers agreed for statement fifty three which was “The verbal problem of text books are not related to student daily life.”Similarly, 62% teachers agreed for the statement fifty four which was “The examples included in the text book are not sufficient.” The statements fifty three and



fifty four are both became problematic, because of the mean scores were calculated 3.88 and 3.89 respectively.

From the above statements, we can note that students are not practicable and they do not match with present situation. Age ability and need of students is also found low. There are lack of textbooks, no interaction on child progress from parents are also the major problems of students achievement. School do not care children's achievements regularly. Guardians also could not give sufficient time to their children. Less class test in school, difficult in students evaluation at the end of lesson are the problematic factors for students.

### Teachers' Responses on Problems Related to Evaluation

There are included 6 statements in this section. Out of them 5 are problematic and 1 is non-problematic. The mean Weightage of the teachers' response about evaluation on each statement was presented in the following table:

**Table 6: Mean Weightage from Teachers' Response on Problems Related to Evaluation**

S.N.	Statements	Mean Weightage	Remarks
55	Parents do not interact about their children's progress.	4.23	Problematic
56	The school does not care about the student's achievement in mathematics.	2.85	Non-Problematic
57	The students do not show any interest with the teachers about their achievement in mathematics.	3.6	Problematic
58	It is difficult to check homework due to the lack of sufficient time.	3.85	Problematic
59	There is less use to regular method of testing like unit test, weekly test, monthly test and terminal test.	3.48	Problematic
60	There is difficulty in student's evaluation at the end of lesson.	3.34	Problematic

The statement fifty five was "Parents do not interact about their children's progress." Again the statement fifty six was "The school does not care about the student's achievement in

mathematics.” The statement fifty five and fifty six are problematic and non-problematic respectively. Because, 35% and 87% teachers agreed, and the mean weightage score was calculated 2.85 and 4.23 respectively for these statements. Also, 66% teachers accepted for statement fifty seven which was “The students do not show any interest with the teachers about their achievement in mathematics.” The mean weightage for this statement was calculated to 3.6, which signifies that it is also a problem.

Similarly, in the context of immediate evaluation in classroom teaching, the researcher found that 91% teachers were feeling difficult to check homework due to the lack of sufficient time. The mean weightage score for the statement fifty eight was 3.85, which shows it is problematic. In the same way, 61% teachers agreed with the statement fifty nine which was “There is less use of unit test, weekly test and monthly test.” The mean score was 3.48 for this statement, which became another problematic statement. The statement sixty was “There is difficulty in student’s evaluation at the end of lesson.” The mean weightage of response was 3.34, which is also the problem. 57% teachers agreed with this statement.

### **Classroom Observation**

In this section, the data obtained through the classroom observation were analyzed. For the observation, researcher used the indicators such as classroom management, administration and environment, Teacher’s activities, curriculum and methods of teaching and, social environment & activities. For the observation, the researcher selected twenty lower secondary school teachers. The researcher used classroom observation form to observe the classes (See in Appendix C).

### **Analysis of Classroom Observation**

The analysis of classroom observation was intended to cross check the physical facilities and related problems, problems that were related to teaching methods and materials, learning activities and other related problems. Also, it was intended to identify the problems that arose in the classroom while actual teaching goes on. The researcher observed the classes of twenty teachers out of sampled teachers and noted the necessary information.

From the observation, the researcher found that most of the classrooms were much crowded and were not cleaned. But the observed classrooms were well lighted and ventilated. The

researcher also found that less number of classes had sufficient furniture. Similarly, the researcher found through her observation that student could not see the black board easily due to the unsatisfactory seat planning of students, low quality and small size of black board. It makes difficult for teaching mathematics. On the other hand, most of the mathematics classrooms did not have graph board to solve the graphical problems and there were very little number of classes equipped with bulletin board. Most of the schools did not have a mathematics laboratory.

The teaching learning in the classroom of many schools, there was only used one way communication method. It means only the teachers were speaking and solving problems, but students were listening silently without any response towards the subject matter. Thus, it can be concluded that there is less interaction between teacher and students in teaching learning activities. In some classroom of schools, students were not in discipline. The students were gossiping, side talking. The observer also found that very small numbers of students were doing class work properly. Also it was found that most of the students did not bring books and did not complete the homework. Even though, most of the students were neat and clean, and, have respectful behavior while entering teacher in the class.

Researcher found that most of the teachers have neatness, clear speaking voice and have good knowledge on subject matter. However, the level of motivation was not well on the teachers, which was found through the observation that some students were asked difficult questions to the teacher but remaining students were not asked any questions and would not like to discuss about the problems. The researcher also found that most of the teachers teach mathematics without lesson plan. Therefore, there is not any thinking about the use of the lesson plan.

Moreover, it was found from the classroom observation that most of the teachers were teaching mathematics without the use of instructional materials. Some teachers had the materials but they did not present these materials sequentially which was directly observed by researcher. In the context of teaching methods, there was adopted only teacher centered method. Therefore, the interaction between students to students and students to teacher were very limited. Students did not show any enthusiasm to answer the question of teachers. When the researcher entered in the classroom of teaching learning activities conducted by sampled teachers, there was found that all most teachers do not check the assigned homework which was the main problem. Therefore, the students did not care on completing their homework

## Chapter V

### SUMMARY, FINDINGS, CONCLUSION ANDRECOMMENDATION

This chapter is the concluding part of the whole research which deals with summary of the study, major findings, conclusion and recommendations for further improvements.

#### Summary of the Study

The purpose of the study was to identify the levels and extents of problems faced by the mathematics teachers in teaching mathematics at lower secondary level. The specific objectives of this study were to identify the problems faced by teachers in teaching mathematics at lower secondary level and to analyze the problems faced by public school teachers in teaching mathematics at lower secondary level. For the convenience of the study, the problems were categorized into different six areas. This study was entirely survey type. The population for the study was considered to be all the mathematics teachers who have been teaching mathematics at lower secondary level in Kathmandu district. Among them, 50 lower secondary school teachers were selected by random sampling method as a sample. The data were collected through questionnaire consisting of 60 questions.

The researcher herself developed the questionnaire including the same statements related to this study under the guidance of supervisor and used classroom observation form used by effective classroom observation and researcher added some problems herself. The classroom observation was done for the cross checking with answers to the questions in the questionnaire. The collected data were quantified based on five points Likert scale. Thus, the data were organized statistically, analyzed and interpreted descriptively. For analysis of the data, statistical indicators were mean Weightage, paired sample t-test and percentage was used.

#### Major Findings

The major findings of this study are presented as below:

- From the field survey and statistical analysis of collected data, it was found that teachers had been facing numerous problems in teaching mathematics at lower secondary level. On the basis of analysis and interpretation of data, the findings of this study are presented in hierarchical order as follows:

- The problem created due to the lack of prior knowledge on subject matter and less study at home of students. Various family background, poor economic condition, Social & cultural background of the students affect in teaching. It is difficult to manage in teaching learning due to individual differences. The large number of students in a single room creates problem in teaching. Mathematics is considered as most difficult, useless and boring subject.
- Problem created due to the lack of knowledge of child psychology, exam oriented teaching, lack of motivation technique of the teachers. The problems created due to the lack of checking homework daily, lack of proper management of reinforcement and punishment, less information about the instructional materials, lack of knowledge of using the instructional materials.
- The mathematics classroom is small in size, and not neat and clean. The condition of playground is not appropriate. There is lack of, library facility, lack of mathematics laboratory. In the classroom, there is less use of bulletin board for teaching. The size of black board is not appropriate and adequate according to the classroom size and structure.
- Lack of reference books and materials, teaching manual, lack of proper space to demonstrate instructional materials. Problem created due to the less information about the instructional materials, lack of knowledge of using teaching learning materials and hesitation of using the instrument while teaching. Most of the teachers do not prepare the lesson plan for teaching. There is less use of teaching learning materials, lack of knowledge of appropriate teaching methods.
- Mathematics curriculum is not practicable. Mathematics curriculum does not match with present situation. The verbal problems of textbook were not related to student's daily life. The examples included in the text book are not sufficient.
- Parents do not interact about their children's progress. The students do not show any interest with the teachers about their achievement in mathematics. There was difficult to check homework due to the lack of sufficient time. There was less use of unit test, weekly test, and monthly test. There were difficulties in student's evaluation at the end of lesson.

## **Conclusion**

Because of lack of physical facilities, almost all the students are in huge problem. Teachers are also the victim of this lack besides students. Lack of teaching materials has also paused the well-development of educational development in the district. Teachers are obliged to run the class (both theoretical and practical) with limited resources which has also caused the problem in teaching-learning process. Lack of proper classrooms and abundant playground also hindered the learning activities of the students. Attention of both parents and students have been seen insufficient regarding mathematics. not only this, the curriculum is itself not practicable. The mathematical problems and knowledge are not in line with the daily problems of students so they have shown blind eye to the subject as a whole. In nutshell, in order to solve the present problems of students, teachers and mathematics, the interaction between teacher and parents is must at the same time government and educational board and experts also should taken initiative to solve the problem.

## **Recommendations for Educational Implication**

Recommendation have been made to improve the teaching learning situation on the basis of findings:

- The classroom seating should be arranged so that the entire students could equally and easily participate in the classroom activities.
- The instructional materials should use more.
- Learning oriented teaching should be conducted rather that the exam oriented.
- The government should manage the well-qualified teachers.
- The school should create an environment of parent-teacher interaction.
- There should minimize some mistakes in typing and printing of mathematics text book.
- The teacher should make clear on the basic concept before starting new content.
- The school should manage the extra class for those students who are weak in mathematics.

- The teacher training should be extended for developing new teaching skills rather than limited only on training named.
- The government and the school should manage the mathematics laboratory and library.
- Evaluation should not be limited only on paper-pencil test. There should provide students to observe and do activities related to daily life.

### **Recommendations for the Further Study**

The researcher has been found the following recommendation for further study:

1. The reliability and validity of the findings of the study will be more effective if it is conducted in the wide range.
2. Similar study can be done by taking other influencing factors of Problems faced by the teachers.

**Appendix – A****List of Sampled Schools**

S.N.	Name of School	Located Place
1.	TaudahaRastriya H.S. School	Taudaha
2.	Jnaasewa Secondary School	Panga
3.	Vaishnabi Secondary School	Bhajungle
4.	Gorakhnath Secondary School	Nayabazar
5.	BishwaRastriya Secondary School	Dhalpa
6.	Kirtipur Secondary School	Nagaun
7.	BaghBhairab Secondary School	PangaDobato
8.	Mangal Secondary School	Nayabazar
9.	Bal Kumar Secondary School	Bhakyapati
10.	Jalpa Devi Secondary School	Boson
11.	Adhinath Secondary School	Chobhar
12.	Pharping Secondary School	Pharping
13.	Adarsha Secondary School	Pharping
14.	Arunodaya H.S. School	Pharping
15.	Khokana Secondary School	Chlanakhel
16.	MahendraAdarsha Secondary School	Pharping
17.	Mangalodaya H.S. School	Thankot
18.	Kamal Secondary School	Balkhu
19.	Sikharapur H.S. Secondary School	Shikharapur
20.	Subhakamana Secondary School	Taudaha
21.	BaghbhairabH.S. School	Machhegaun
22.	Rarahil H. Secondary School	Nagaun
23.	Hill Town H.S. School	Baghbhairab
24.	Panga Secondary School	Panga
25.	UjjawalSishu Secondary School	Panga
26.	Salvania Secondary School	Panga
27.	Pushpasadan H.S. School	Dhalpa
28.	Green Village Secondary School	Bhaktyapati
29.	Green Village Academy	Phaktyapati



30.	Golden Rays Academic Foundation	Tyanglaphant
31.	Kirti Secondary School	Tyanglaphant
32.	Green Land Academy	Balkhu
33.	Laboratory H.S. School	Balkhu
34.	Bern Hardt H.S. School	Balkhu
35.	Creative Academy	Nagaun
37.	Future Star	Satungal
38.	Bright Future	Naikap
39.	East-West Academy	Thankot
40.	Arya Academy	Thankot
41.	Kakling Higher Secondary School	Pharping
42.	Krishna Barneshwor Higher Secondary School	Seti Devi
43.	KalikaBhagwati Lower Secondary School	Seti Devi
44.	Satlingeshwor Higher Secondary School	Chalnakhel
45.	Janjagriti Lower Secondary School	Chalnakhel
46.	Shree Dhoigaun	Dhoigaun, Pharping
47.	Kantheshwor Secondary School	Thankot
48.	Shivalingeshwor Secondary School	Thankot
49.	Kharpani Lower Secondary School	Thankot
50.	Shree Setidevi Secondary School	Satungal

## Appendix – B

### Name of Selected Teachers

S.N.	Name of Teachers	Name of institution	PR/PU	Exp.
1.	PadamKeshariPradhananga	TaudahaRastriya H.S. School	PU	11
2.	NabarajDulal	Jnaasewa Secondary School	PR	10
3.	RajendraKhatri	Vaishnabi Secondary School	PR	5
4.	Ramji Kumar Shrestha	Gorakhnath Secondary School	PR	15
5.	RamkrishnaNeupane	BishwaRastriya Secondary School	PR	4
6.	KhagendraNiraula	Kirtipur Secondary School	PR	22
7.	Krishna Prasad Kafle	BaghBhairab Secondary School	PU	28
8.	RavichandraNasnani	Mangal Secondary School	PU	30
9.	Tank BahadurThapa	Bal Kumar Secondary School	PU	13
10.	Govinda Prasad Neupane	Jalpa Devi Secondary School	PU	15
11.	Krishna Prasad Manadhar	Adhinath Secondary School	PU	13
12.	MayadeviShrestha	Pharping Secondary School	PU	21
13.	RajkumarShaha	Adarsha Secondary School	PR	10
14.	BhimSenSapkota	Arunodaya H.S. School	PR	22
15.	ShyamsundarParajuli	Khokana Secondary School	PR	7
16.	KhudanandaNeupane	MahendraAdarsha Secondary School	PR	14
17.	RajkishwarShaha	Mangalodaya H.S. School	PR	7
18.	ManpratapShaha	Kamal Secondary School	PR	5
19.	Shyam Krishna Manandhar	Sikharapur H.S. Secondary School	PR	4
20.	Amllesh Kumar Sedhain	Subhakamana Secondary School	PR	13
21.	SurendraDahal	Baghbhairab H.S. School	PR	2
22.	Punya Prasad Dahal	Rarahil H. Secondary School	PU	10
23.	SubadraSrestha	Hill Town H.S. School	PU	4
24.	BirendraKishorLalKarna	Panga Secondary School	PR	1
25.	Siya Saran Bhandari	UjjawalSishu Secondary School	PR	9
26.	Krishna Prasad Sapkota	Salvania Secondary School	PR	3
27.	KarnaBahadurBasnet	Pushpasadan H.S. School	PR	10
28.	UttamTimalsina	Green Village Secondary School	PR	4
29.	Prem Kumar Adhikari	Green Village Academy	PR	2
30.	GunaratnaDhakal	Golden Rays Academic Foundation	PR	6
31.	SudarshnPaudel	Kirti Secondary School	PR	7
32.	BholanathKhatiwada	Green Land Academy	PR	10

33.	SubashShrestha	Laboratory H.S. School	PR	3
34.	Rajesh Lama	Bern Hardt H.S. School	PR	2
35.	BilendraSah	Creative Academy	PR	5
37.	SrikrishnaShrestha	Future Star	PR	13
38.	Dilipkumarmandal	Bright Future	PR	21
39.	RamchandraThapa	East-West Academy	PR	7
40.	PremkrishnaPathak	Arya Academy	PR	5
41.	KeshavBahadurMagar	Kakling Higher Secondary School	PR	5
42.	Him Raj Gautam	Krishna Barneshwor Higher Secondary School	PR	5
43.	ChhabiramanGautam	KalikaBhagwati Lower Secondary School	PR	10
44.	PurnaBahadurRai	Satlingeshwor Higher Secondary School	PR	17
45	DipakThapa	Janjagriti Lower Secondary School	PR	4
46	Bishnu Prasad Sapkota	Shree Dhoigaun	PR	6
47	Sarban Kumar Sah	Kantheshwor Secondary School	PR	3
48	JayaramShrestha	Shivalingeshwor Secondary School	PU	31
49	DipakBastakoti	Kharpani Lower Secondary School	PR	7
50	KameshwarMandal	Shree Setidevi Secondary School	PR	15

PR= Private PU =Public Exp.=Experience in years

## Appendix- C

### Classroom Observation Record Form

Name and address of the school: .....

Session: Start at ..... End at ..... Topic: .....

Name of the teacher: ..... Gender: Male ..... Female: .....

Class size: Number of students ..... Male ..... Female.....

Date: 2073- .....

Period: .....

Subjects	S.N.	Observed Items	Yes	No	Remarks
<b>Classroom management, administration &amp; environment</b>	1	Appropriateness of classroom size	4	16	
	2	Neat and clean of classroom	4	16	
	3	The light and ventilation	19	1	
	4	Availability of furniture	3	17	
	5	Seat planning of students	5	15	
	6	Arrangement of Blackboard	6	14	
	7	Arrangement of Graph board	1	19	
	8	Arrangement of Bulletin board	3	17	
	9	Mathematics Laboratory	0	20	
	10	School environment	7	13	
<b>Students activities in classroom</b>	11	Greeting to the teacher while entering the class	20	0	
	12	Follow up of direction of teacher	17	3	
	13	Neatness of students	15	5	
	14	Completion of assigned homework	8	12	
	15	Interaction of teacher and students	3	17	
	16	Student to student cooperation	5	12	
	17	Participation in classroom discussion	4	16	
	18	Completion of assigned class work	2	18	
	19	Availability of text book, copy and materials	18	2	
<b>Teacher's activities, curriculum and methods of teaching</b>	20	Neatness of teacher	20	0	
	21	Speaking voice	18	2	
	22	Level of motivation	5	15	
	23	Lesson plan prepared by teachers	1	19	
	24	Leadership of teachers	3	17	
	25	Knowledge on subject matter	20	0	

	26	Classroom discussion method	1	19	
	27	Interaction with students	2	18	
	28	Follow up of lesson plan	1	19	
	29	Use of teaching learning materials	2	18	
	30	Assigning class work	2	18	
	31	Class work checking	1	19	
	32	Assigning Home work	3	17	
	33	Home work checking	1	19	
<b>Social Environment and activities</b>	34	Social environment around the school	15	5	
	35	Co-curricular activities	2	18	

**Appendix D**  
**Questionnaire**

Respected Teachers,

I am a master degree student of Mathematics Education, Central Department of Education, Kirtipur, Kathmandu. I am writing a thesis entitled on "*Problem Faced by Mathematics Teachers in Teaching Mathematics at Lower Secondary School*" for partial fulfillment of master degree in Education. Teaching learning activities couldn't be effective without identifying the actual problems of teachers in teaching. So, to complete this thesis, I have prepared some questionnaires for you. Researcher is very much thankful for your valuable help and would like to express gratitude to you and your intuition. The information obtained from you will be used for this study.

Researcher

AnjuBaniya

Department of Mathematics Education

**“Teacher’s Bio-Data Form”**

Name of the teacher: .....Sex: Male ( ) Female ( )

Name of School: .....

Located place: .....

Phone No. of respondent: .....

E-mail address of respondent: .....

Academic qualification: .....

Teaching experience: .....years

**Please tick (√) to response for the problems you faced which are given below:**

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

D.=Disagree                      S.D.= Strongly Disagree

### Problems Related to Students

S.N.	Statements	S.A.	A.	U.	D.	S.D.
1	Lack of prior knowledge creates problems on students' learning.					
2	Lack of study at home creates problems.					
3	Various family background of students affect in teaching.					
4	Poor economic condition of the students' effect in teaching.					
5	Social & cultural background of the student's effect in teaching/learning process.					
6	It is difficult to manage in teaching learning due to individual differences.					
7	Medium of language affects teacher in teaching.					
8	There is an age effect on students learning.					
9	The crowded number of students in a single room creates problem in teaching.					
10	Mathematics is considered as most difficult, useless and boring subject.					
11	Students and their parents give low priority in mathematics education.					

### Problems Related to Teachers

S.N.	Statements	S.A.	A.	U.	D.	S.D.
12	Low qualification of teacher's creates difficulties in teaching.					
13	There are difficulties in teaching because of low teaching experience.					
14	Lack of knowledge of child psychology creates problems.					
15	There is lack of command to teach mathematics.					
16	Lack of knowledge of proper use of blackboard creates problem.					
17	Examination oriented teaching creates problem.					
18	Lack of motivation in the context of teaching is essential.					
19	Lack of checking homework daily.					

20	There is interaction gap between teacher and students.					
21	Lack of knowledge of appropriate teaching methods creates problem.					
22	Lack of proper management of reinforcement and punishment.					
23	Minimum information about the instructional materials has also created problem.					
24	There is a lack of knowledge using materials.					

### Problems Related to Physical Facilities

S.N.	Statements	S.A.	A.	U.	D.	S.D.
25	The mathematics classroom is not appropriate in size					
26	The classroom is neat and clean					
27	Seat planning is well managed					
28	The furniture are adequate					
29	The condition of playground is appropriate					
30	The room is well lighted and ventilated					
31	There is lack of mathematics laboratory					
32	The water supply is sufficient					
	The classroom is equipped with					
33	Graph board					
34	Bulletin board					
35	The size of black board is appropriate and adequate for writing and looking.					

### Problems Related to Materials

S.N.	Statements	S.A.	A.	U.	D.	S.D.
36	There is a problem due to the scarcity of text books.					
37	There is a lack of reference books and materials.					
38	Lack of teaching manual has also created confusion and problem in teaching.					
39	Lack of library facility creates difficulties in teaching.					



40	There is problem due to the hesitation of using the instrument while teaching.					
41	Lack of teacher's guide creates problem.					
42	There is no any appropriate book related to the course content.					
43	There is a lack of proper space to demonstrate instructional materials.					
44	There is a problem due to the lack of knowledge of lesson plan.					
45	There is lack of sufficient time to use various suitable methods.					
46	Less use of teaching learning materials					
47	The subject matters included in the text book is difficult for teacher himself.					

#### Problems Related to Curriculum and Textbook

S.N.	Statements	S.A.	A.	U.	D.	S.D.
48	Mathematics curriculum is not practicable					
49	Mathematics curriculum does not match with present situation.					
50	Mathematics curriculum does not match to the age, ability, interest and needs of students.					
51	There are mistake in printing of text books.					
52	The subject matter of mathematics curriculum is itself difficult.					
53	The verbal problem of text books are not related to student daily life.					
54	The example include in the text books are not sufficient.					

#### Problems Related to Evaluation

S.N.	Statements	S.A.	A.	U.	D.	S.D.
55	Parents do not interact about their children progress.					
56	The school does not care about the student's achievement in mathematics.					
57	The students do not show any interest with the teachers about					

	their achievement in mathematics.					
58	It is difficult to check homework due to the lack of sufficient time.					
59	There is less use to regular method of testing like unit test, weekly test, monthly test and terminal test.					
60	There is difficulty in student's evaluation at the end of lesson.					

**Appendix E**

<b>Detailed distribution of sample teachers on each of the responses with total score and mean score in each statements</b>															
<b>statements</b>	<b>Public School</b>							<b>Private School</b>							<b>Grand Mean</b>
	<b>Responses of teachers</b>					<b>T</b>	<b>M</b>	<b>Responses of teachers</b>					<b>T</b>	<b>M</b>	
	<b>S.A.</b>	<b>A.</b>	<b>U.</b>	<b>D.</b>	<b>S.D.</b>			<b>S.A.</b>	<b>A.</b>	<b>U.</b>	<b>D.</b>	<b>S.D.</b>			
1	5	5	0	0	0	45	4.5	17	17	1	5	0	166	4.15	4.325
2	3	7	0	0	0	43	4.3	12	23	3	2	0	165	4.125	4.2125
3	3	7	0	0	0	43	4.3	5	20	6	5	4	137	3.425	3.8625
4	2	5	2	0	1	37	3.7	11	14	5	10	0	146	3.65	3.675
5	1	2	3	3	1	29	2.9	0	21	7	12	0	129	3.225	3.0625
6	3	7	0	0	0	43	4.3	6	27	5	2	0	157	3.925	4.1125
7	0	0	2	7	1	21	2.1	0	22	2	7	9	117	2.925	2.5125
8	1	3	3	3	0	32	3.2	3	27	2	8	0	145	3.625	3.4125
9	1	2	1	5	1	27	2.7	12	19	1	2	6	149	3.725	3.2125
10	0	8	0	1	1	35	3.5	11	12	4	9	4	137	3.425	3.4625
11	2	5	1	1	1	36	3.6	10	7	6	14	3	127	3.175	3.3875
12	3	1	0	2	4	27	2.7	9	17	2	10	2	141	3.525	3.1125
13	1	2	0	5	1	24	2.4	5	7	14	7	7	116	2.9	2.65
14	1	7	2	0	0	39	3.9	9	23	4	2	2	155	3.875	3.8875

15	2	1	1	5	1	28	2.8	5	15	11	8	1	135	3.375	3.0875
16	1	1	2	4	2	25	2.5	3	10	9	16	2	116	2.9	2.7
17	3	4	1	1	1	37	3.7	7	24	3	6	0	152	3.8	3.75
18	1	5	2	2	0	35	3.5	10	16	9	5	0	151	3.775	3.6375
19	1	3	1	5	0	30	3	11	9	8	12	0	139	3.475	3.2375
20	0	4	3	1	2	29	2.9	7	22	4	4	3	146	3.65	3.275

21	1	4	1	3	1	31	3.1	7	20	10	3	0	151	3.775	3.4375
22	1	4	1	3	1	31	3.1	3	27	6	4	0	149	3.725	3.4125
23	1	5	0	3	1	32	3.2	6	25	5	4	0	153	3.825	3.5125
24	2	2	1	5	0	31	3.1	6	22	1	7	4	139	3.475	3.2875
25	1	5	0	3	1	32	3.2	9	11	9	4	7	131	3.275	3.2375
26	0	4	2	3	1	31	3.1	1	9	9	10	11	141	3.525	3.3125
27	0	1	1	6	2	39	3.9	3	13	11	6	7	121	3.025	3.4625
28	3	1	0	5	1	30	3	0	13	4	14	9	139	3.475	3.2375
29	4	3	1	2	0	21	2.1	5	23	3	5	4	100	2.5	2.3
30	1	5	2	2	0	25	2.5	13	13	6	3	5	94	2.35	2.425
31	6	1	1	1	1	40	4	6	25	7	2	0	155	3.875	3.9375
32	0	2	1	6	1	36	3.6	6	12	8	10	4	114	2.85	3.225
33	1	4	0	3	2	31	3.1	14	23	2	0	1	71	1.775	2.4375
34	0	1	2	1	6	42	4.2	13	22	2	3	0	75	1.875	3.0375
35	6	2	0	0	2	20	2	7	15	7	9	2	104	2.6	2.3
36	2	2	1	1	4	27	2.7	3	10	9	11	7	111	2.775	2.7375
37	3	6	0	1	0	41	4.1	3	22	8	7	0	141	3.525	3.8125
38	4	4	0	1	1	39	3.9	5	21	5	9	0	142	3.55	3.725
39	1	7	1	0	1	37	3.7	5	16	12	7	0	139	3.475	3.5875
40	2	2	1	4	1	30	3	17	6	5	11	1	147	3.675	3.3375
41	2	2	2	2	2	30	3	7	22	3	7	1	147	3.675	3.3375
42	0	7	2	1	0	36	3.6	5	11	6	14	4	119	2.975	3.2875
43	1	3	2	3	1	30	3	0	26	10	4	0	142	3.55	3.275
44	2	2	0	4	2	28	2.8	1	15	5	14	5	113	2.825	2.8125

45	2	3	2	2	1	33	3.3	5	19	6	8	2	137	3.425	3.3625
46	0	3	4	2	1	29	2.9	9	22	5	4	0	156	3.9	3.4

47	3	0	2	0	5	26	2.6	3	9	2	20	6	103	2.575	2.5875
48	2	2	2	4	0	32	3.2	5	13	12	5	5	128	3.2	3.2
49	1	7	1	1	0	38	3.8	7	21	4	8	0	147	3.675	3.7375
50	1	4	1	4	0	32	3.2	5	20	10	5	0	145	3.625	3.4125
51	0	4	3	3	0	31	3.1	9	13	6	12	0	139	3.475	3.2875
52	1	2	1	6	0	28	2.8	3	11	10	16	0	121	3.025	2.9125
53	1	4	1	4	0	32	3.2	1	21	7	9	2	130	3.25	3.225
54	0	10	0	0	0	40	4	5	27	4	2	2	151	3.775	3.8875
55	6	4	0	0	0	46	4.6	9	22	5	2	2	154	3.85	4.225
56	1	5	1	2	1	33	3.3	0	7	8	19	6	96	2.4	2.85
57	3	5	0	2	0	39	3.9	5	17	6	9	3	132	3.3	3.6
58	0	8	1	0	1	36	3.6	10	25	4	1	0	164	4.1	3.85
59	1	7	0	2	0	37	3.7	5	14	7	14	0	130	3.25	3.475
60	1	6	2	1	0	37	3.7	0	17	7	14	2	119	2.975	3.3375

## Appendix F

### Mean and Standard Deviation and t-value of Public and Private School Teachers Responses

	Mean	S.D.	No. of teachers	Calculated t-value	Tabulated t-value	Remarks
Public school Teachers	$\bar{X}_1 = 3.3164$	$S_1 = 0.6086$	$n_1 = 10$	-0.1087	- 1.96 < t < 1.96	Null hypothesis is accepted.
Private school teachers	$\bar{X}_2 = 3.3369$	$S_2 = 0.5149$	$n_2 = 40$			

$\bar{X}_1$  = Mean weighted of publicschool teachers' response

$\bar{X}_2$  = Mean weighted of private school teachers' response

$S_1$  = Sample standard deviation of public school teachers' response

$S_2$  = Sample standard deviation of privateschool teachers' response

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{S_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$\text{Where, } S_p = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

$$\bar{X}_1 - \bar{X}_2 = 3.3164 - 3.3369 = -0.0205$$

$$\mu_1 - \mu_2 = 0$$

$$\sqrt{\frac{1}{n_1} + \frac{1}{n_2}} = \sqrt{\frac{1}{10} + \frac{1}{40}} = 0.3535$$

$$S_p = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}} = \sqrt{\frac{(6 - 1)(0.46)^2 + (14 - 1)(0.203)^2}{6 + 14 - 2}} = \sqrt{\frac{5 \times 0.2116 + 13 \times 0.04121}{18}}$$

$$= \sqrt{\frac{1.593717}{18}} = 0.5337$$

Now,

$$t = \frac{-0.0205}{0.5337 \times 0.3535} = \frac{0.15}{0.145424} = -0.1087$$

Since the tabulated value of t at 5% level of significance and 48 degree of freedom if,

$$t_{0.025,48} = 1.96$$

Thus, the null hypothesis would be rejected if  $t \geq 1.96$  and  $t \leq -1.96$

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