

Chapter I

INTRODUCTION

Background of the Study

Mathematics is a part of human life. It was created to fulfill human needs. It is believed that the development of mathematics and development of human civilization were occurred together. Then later it was introduced into formal education system.

The word "Mathematics" comes from the Greek word "μᾶθημα" (mathema) (www.google.com), which means learning, study of science, and additionally came to have the narrower and more technical meaning "mathematical sciences" even in classical time and its adjective is μαθηματικός (mathematicikos) (www.google.com), related to learning, or studies, which likewise further came to mean mathematic. In particular, μαθηματικὴ τέχνη (mathematike tekhne) (www.google.com), in Latin art mathematica, meant the mathematical art. The appearance plural form in English, like the French pluralles mathematiques, goes back to the Latin plural mathematici (Cicero), based on the Greek plural μαθηματικά (mathematiika) (www.google.com); used by Aristotle, and meaning "all things mathematical".

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: branches of mathematics include Arithmetic, Algebra, Geometric and Trigonometry, "Mathematics is the study of measurement, properties and relationship of the quantities and sets, using numbers and symbols." Mathematics is the deductive study of numbers, geometry and various abstracts constructs or structures. Mathematics is very broadly divided into foundations, algebra, analysis, geometry and applied mathematics, which includes theoretical computer science' (Encyclopedia, Columbia University Press). "Mathematics is the group of science

including Arithmetic, Algebra Geometry, and Calculus etc. deals with quantities, magnitudes, forms and symbols" (Webster's Dictionary, 1985).

Mathematics is a source as well as an effective / beautiful tool for earning the life smoothly and wrathfully in a developed way. If we try to list the definitions of mathematics, the work will be never ending. It is from a way to settle in the mind a habit of reasoning to an organized body of knowledge in which each proposition follows as a logical consequences of proved propositions. Mathematics is a collective, continuous and expansionable subject so it requires previous knowledge and skills that help to further study. Student should understand the new concepts and relations in mathematical form then after they generalize and use in other situations clearly. They have to keep on these concepts by drill, review and regular applications.

About the aspect of teaching, Bhatia and Bhatia (1986-87) said "Teaching is establishing a harmonious relationship between teacher, pupil and subject, it is giving useful information. It is causing the child to learn, it is the stimulation and direction of learning, it is helping the child to make effective adjustment, it is guiding the pupil activity and it is training of his emotions.

Further, on the qualities to be expected in a teacher, Taneja (1997) added that teacher is the leader of society. Instead of himself confirming to the standards of society, he should set up good standards for the society to better citizenship. He must give the ability to the child to evaluate what is good and what is bad, while the child should be encouraged to see a bad picture a communal paper. Similarly, he must help the society to move forward. If he demands expressions of politeness from the children, he must never deny this himself and should be polite and considerate to the children.

About the participation of mathematics teachers in professional activities, Bhatia and Bhatia (1986-87) said "A mathematics teacher should become a number of

local, state and national organization of mathematics teachers. Besides he should read journals and news about the latest developments and trends in the teaching of mathematics. He should be interested in arranging work-shops, seminars and meeting of mathematics teachers' to be able to share and contribute to discussions of the latest trends in mathematics teaching. He should conduct experiments in aspects of mathematics teaching gather ideas and write articles for reading and use by other mathematics teacher."

Besides this, a successful teacher should be able to explain ideas clearly and in simple language to his students. He should have clear speech and a distinct and audible manner of explaining facts, which invites participation of students. Including these, there are several other variables in the absence of which teachers encounter problems in classes factor responsible for effective teaching can be identified as physical facilities, method of instructions, instructional materials, mathematics laboratory, teachers training supervisory help, teachers guide book etc. Psychologist and educationists have agreed upon that there are certain accepted processes of classroom teaching which, if followed, could make classroom teaching effective and stimulating.

About the pedagogical significance of physical setting. Goetting (1941) said "The physical setting of the classroom can be justified also on pedagogical grounds. Physical wellbeing and comfortable and pleasant working conditions are essential to satisfactory achievement of pupils. Maximum mental efficiency requires physical well being of public maladjusted furniture, abnormal conditions with respect to lighting, temperature, and humidity in the classroom make for discomfort, inattention, and lower standards of work classroom atmosphere which had an unconscious, but nonetheless real influence upon school work is partly physical in nature. Neatness and order in the arrangement of the classroom, as well as attractiveness in it's color

scheme and artistic appointments are definitely known to influence morale, discipline and efficiency of pupils achievement.”

Speaking about good teaching - Rammers and others said that it follows these 5 steps:

-) The teacher should analyze the individual pupils capacities, knowledge, past experience, interests and needs.
-) The teacher should analyze the pupil's goals and encourages him to receive his goals in accordance with his capacities.
-) The teacher should harmonize the educational process with the pupil's capacities and goals.
-) The teacher should evaluate the pupil's progress in terms of pupil's capacities and goals.
-) The teacher and the pupils working together reconsider the revised goals in light of the progress achieved and strive to correct weakness which would interfere with the attainment of reasonable goals.

In a study "Secondary Education in Nepal", by (CERID, 1998) it is remarked: "Secondary School in Nepal Suffer from serious constraints of physical facilities. Most school buildings are in need of repair and many of them are unsuitable for instructional purposes. Classroom lack adequate provision for ventilation, furniture and teaching aids. Library and laboratory facilities are either not existent or are in a very poor shape. Textbooks are often the only source of instruction."

About the method of instruction in "Secondary education in Nepal (CERID, 1998)", the study revealed "Most of the teaching in secondary schools consists of lecturing, rote memorization and group reciting. Student interaction and question answer techniques are rarely practiced. Little opportunity is provided for independent study, laboratory experience, community study, working with one's hand and so on.

The causes responsible for this state of affairs are mostly connected with lack of training among the teachers, large class size in urban areas and poor physical facilities in rural schools.

Mathematics is a subject which has to be learnt by doing rather than by reading. The doing of mathematics gives rise to the need of a suitable method and place. Laboratory method and mathematical laboratory are proper answers to it.

In order to improve the present situation, Nepal should try to encourage more teacher involvement in curriculum planning and secondly give more emphasis to teaching practice of the students so that they can be more in touch with classroom reality. More financial resources should be searched to solve the problems of unavailability of books, journals, teaching facilities and aids, opportunity to update their knowledge through training and reorientation program to make them able to teach the mathematics subject at secondary level. Emphasis should be given to constructing teaching materials locally rather than buying expensive teaching aids. Seminar should be conducted from time to time and a new way of teaching and constructing materials should be discussed.

In the above context, many government and non government official research indicate huge amount of time and money have been spent to find the solution of the problem of teaching in mathematics but no satisfactory result was found. Hence no successful solution can be found to address the teacher's problems in teaching mathematics at secondary level. Thus, the purpose of the present study is to explore the kinds and extends of problems faced by teachers in executing instructional activities in mathematics classes of the secondary level in the district of Palpa. So, this study was focused on exploring the problems they faced while teaching mathematics.

Statement of the Problem

A problems of statement is a clear description of the issue which includes a vision or issue of a statement. The problem being addressed in the study is the teaching mathematics used by the math teacher in the classroom. The math teacher faced different problem in the classroom teaching. The grate problems of well management of classroom while teaching mathematics, the large number of students. These are not sufficient mathematics teaching materials, teaching aids, school management and administration are irresponsible to manage and construct necessary teaching materials.

This study mainly attempted to explore and analyze the problems faced by mathematics teacher in teaching mathematics at secondary level of Palpa district. This study sought to answer the following research questions.

-) What are the problems faced by mathematics teachers in teaching mathematics at the secondary level ?
-) How do these problems occurs ?

Significance of the Study

Mathematics is one of the major part of school curriculum of Nepal. It has been taught as compulsory subject at any level of school education program. The mathematics teacher of secondary school used textbook as a major tool to achieve the objectives of the curriculum. Although mathematics has been given an important place in the curriculum of all levels of school education, most of the students are weak in mathematics. However, it is felt that most of the students dislike mathematics and afraid of it. The result of SLC examination shows that most of the failures were in mathematics. (MOE, 2010)

There may be many factors that hinder student's progress in his subject. One of the main factors of this reason may be the problem of teacher in teaching

mathematics. Most of the teachers and students take mathematics as abstract, difficult and boredom subject. Many students have a wrong impression about the need of mathematics and have lose their interest in learning mathematics.

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, teaching materials, economically poor condition of school and inadequate knowledge of curriculum and so on. This study may provide some logical and valuable information about the current problems of teaching mathematics faced by the secondary school mathematics teachers. It will also helpful to provide information to the concern agencies to reform and improve the mathematics teaching at the secondary level.

Objectives of the Study

The main objectives of this study were:

-) To identify the problems faced by mathematics teacher in teaching mathematics at secondary level.
-) To explore the causes of the problems which are faced by mathematics teacher in teaching mathematics at secondary level.

Definition of Related Terms

Different words can give different meaning according to the context in which they are used. Hence the researcher felt it necessary to define or explain the following terms which have been frequently used in this research work.

Secondary school mathematics teacher

The teacher who teaches mathematics at grade IX and X. In public government schools as prescribed by government of Nepal.

Rural Region

In this study the rural region is that out of Tansen municipality.

Urban Region

Urban Region is that of Tansen municipality of government school.

Delimitation of the Study

Following were the delimitations of the study:

-) This study was concerned with the problems faced by secondary school mathematics teachers in teaching mathematics at grade IX and X.
-) This study was limited to Palpa district only.
-) Only fifteen teachers were selected in this study.
-) One teacher from one school ratio was adopted in the study.
-) The data of this study was generated through the questionnaire, interviews schedule and the observation form.

Chapter II

REVIEW OF THE RELATED LITERATURE

It is essential to review the related literature to compare the study which provides strong knowledge about the related topic. It describes learning theories on mathematics. Number of books, research reports, papers and other booklets can be found that concerned with curriculum teaching materials, method and so on. It helps to construct the framework to achieve the objectives of this study. This chapter deals with the review of other related literature about facing problems concerning with teaching instructions, method and materials, classroom management, teacher's and student's characteristics on teaching activities. The researcher has reviewed some related literature as follows:

Pandit (1999) mentioned on an article 'Problem faced by mathematics teacher educator in the implementation of three year B. Ed. level mathematics curriculum in Nepal. He concluded that mathematics teacher education program in Nepal is disturbed by so many factors such as lack of lecturer's involvement in curriculum planning, lack of efficiency to conduct teaching facilities and aids, students weak background in the subject matter, lack of opportunity given to upgrade their knowledge and a huge number of personnel problems of lecturers.

About the problems in teaching mathematics, Pandit (1999) writes in his one article, teaching mathematics as the mathematics teacher may face different kinds of problems while teaching further there may be problems related with mathematics education program, which directly or indirectly affect to mathematics teaching, such problems as a whole can be divided into two parts:

- (i) Problems in mathematics education and
- (ii) Problems faced by them while teaching mathematics in real classroom situation and some remedial suggestions has also been given in his article.

Lamichhane (2001) did a survey type research on "A study of problem faced by the secondary level mathematics teacher in teaching mathematics" in Kaski district. He concluded that several problems proposed up in the eyes of teachers such as inadequacies of textbook and teachers guide, lack of instructional materials, teacher's training, Lack of supervisory help, lack of physical facilities etc. Further he concluded that the lack of motivation to learning mathematics is poor on the part of students.

In this context about "Mathematics laboratory" **Servais and Verga (1999)** stated "Abstract subjects can be taught dogmatically in a bare room furnished only with desk and seats and containing no other teaching aid by blackboard live mathematics teaching flourished best in classroom. Specially, designed to encouraged to the use of the materials now available. Obviously, everything depends on the resources at the school disposal. It is possible to give a new look of teaching, even in unfavourable conditions, if the teacher possess the necessary conviction and ingenuity, conversely, the best equipment is useless unless it is properly used. In planning school today, thought should be given to organizing laboratories for mathematics in the same way as they are organized for physics and other natural science"

About the modern mathematics classroom, **Bhatia and Bhatia (1987)**, said that the teachers tools have long consisted of chalk, blackboard, pencils and textbook. However today is to used demonstration models of various shape and sizes, drawing instruments, graph stencils, measuring instruments and many pictures pamphlets, books and mathematical magazines. Films slides, overhead projectors, manipulative are being used in teaching mathematics in the modern classroom." But the learning system in context of Nepalese school is totally based on textbooks. Since, the textbooks have been written in formal Nepali language. It is more difficult for

those students who have other language speaking background than Nepali. On the other hand, the teachers use the text book as an relating their learning with local context because of financial problems. Nepalese schools could not provided an afford money to spend in materials and equipments. Some schools do not have enough classrooms. A large number of students are packed in a small classroom. Thus, the crowded classroom is one of the major problems of implementing interactive teaching and learning situation. Classroom is not well lighted and well ventilated, physical facility such as teaching materials, mathematics lab computer and collection of low cost and cost free materials that are essential for teaching and learning activities are not organized properly by concerned agencies.

Pandit (2001) wrote in his articles in the “Education and Development”, Mathematics teaching in Nepal is disturbed by so many factors such as lack of teachers involvement in curriculum planning, lack of efficiency to conduct teaching practice of the students, lack of books and journals and teaching facilities and aids, students weak background in the subject matter, lack of opportunity given to upgrade their knowledge and a huge number of personal problems of the teacher. Most of above problems are the products of financial difficulty. However some of them such as little involvement of the teacher in designing, the courses are responsible to some extent to the inefficient academic management as well. It would be logical to say that mathematics education in Nepal is essential suffering from the above problems faced by mathematics teacher.

Baral (2008) in the study, "Problems faced by mathematics teacher in teaching mathematics" indicated that there were number of problems related to curriculum designing, textbook writing, teaching method, classroom situation, student's background, teaching materials, teachers training and so on.

Basnet (2003) concluded a thesis entitled "Teaching problem faced by the mathematics teacher in existing curriculum of grade eight" and concluded that the mathematics teaching and learning is not satisfactory at grade eight in Jhapa district.

Chaulagain (2005) in his study "A study on problems faced by secondary mathematics teachers in teaching geometry". He concluded that the teachers are facing many problems due to various background characteristics of students. Geometry curriculum and textbook evaluation techniques, professional development of teachers, school administration and so on.

Thapa (2005) concluded in his thesis entitled "A problem faced by teacher in teaching mathematics at primary level" of Kaski district that there is a significant difference between the problems felt by urban and rural teacher.

Marasini (2008) conducted a thesis entitled "A study on problem faced by students and teachers in the implementation of mathematics curriculum grade VIII. The conclusion of his study was the subject matter included in the mathematic curriculum of grade eight are not suitable for the levels of the students and it is difficult to implement the objective of the curriculum and also there was vital problems on technique of teaching, teaching method and materials, curriculum and textbook etc.

Poudel (2008) conducted a thesis entitled "A study of problem faced by primary level mathematics teachers for the implementation of mathematics curriculum in Nawalprasi district." The major finding of the study was incompatibility of the mathematics textbooks programs. Program on teaching method and materials etc.

Theoretical Framework for this Study

This study had focused to identify the problem and the causes of problem on teaching mathematics. From the study of related literature above, the researcher made the framework for this study. So, the following framework sketch was drawn.

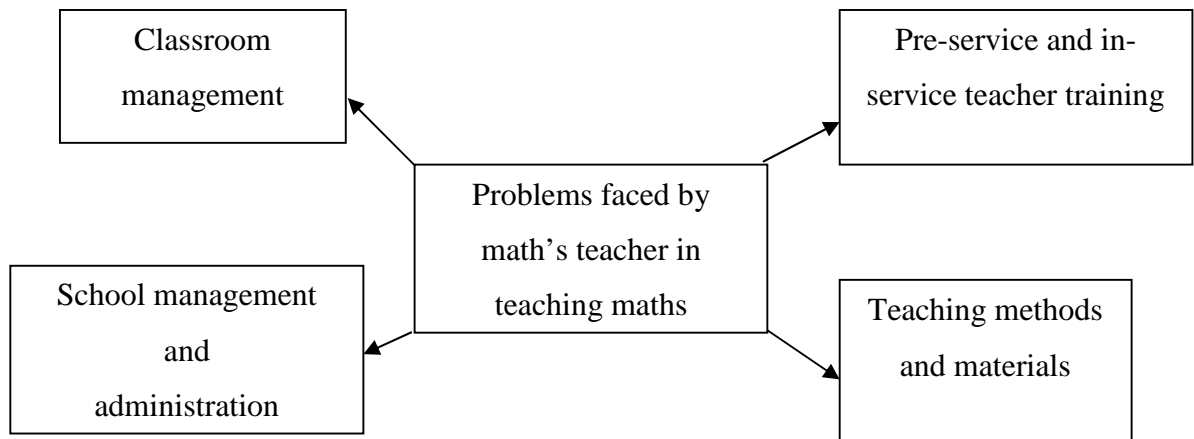


Figure 2.1 A Framework of Problem on Mathematics Teacher

There are mainly four problems such as classroom management, pre service and in-service teacher training, teaching methods and materials and school management and administrations. Classroom management is the main problem of the mathematics teaching at secondary level. There were no mathematics lab, high number of students. There is no implementation of method and materials of teaching mathematics. Materials to teach mathematics teacher should not available. The mostly use of lecture method to teach mathematics. The experience teachers who have training were not apply, there skill, knowledge and gain in training in mathematic teaching. Teacher should not development local materials. School management and administration play the vital role of in school but management person were lower educated, passive and irresponsible then teacher may face mainly of teaching learning process.

The factors shown in the framework are inter related to each other there is the sense of teaching learning activities. These factors are consider as the main factors of the problems. (Nepal, M.R., 2010)

Chapter III

METHODS AND PROCEDURES

This chapter deals with procedure of study. It determines how the research becomes complete and systematic. The method applied in this study is discussed in the following sections: Research design, Population of the study, Sample of the study, Source of data, Tools/Instrument, Data Collection Procedure, Scoring Procedure and Data Analysis Procedure.

Research Design

To find out the problems faced by mathematics teacher. I have adopted the survey research, In this types of research I had visited the determined field to find out the existing area. Specifically, it is carried out in large number of population in order to find out the causes. Survey research study was selected because such studies in carried out the address the large number of population by selecting sample population which is the representative of the study of population as whole.

According to Nunan (1992, P. 140), "The main purpose of a survey research is to obtain a snapshot of condition, attitudes and events at a single point of time." The findings of survey research are generalizable and applicable to the whole groups.

According to Cohen and Manion (1995), "Surveys are most commonly used descriptive method in educational research and many vary in scope from large scale of government investigation through scale studies carried out by a single researchers".

A survey usually address the large group of population sampling in necessary to carryout investigation. Research is a stepwise activity. So survey research in education passes through a series of steps. Different researchers have suggested the survey research procedure differently in their own way.

Nunan (1992, P. 144), "Suggests the following eight steps procedure of survey research in a more comprehensive way.

Sample of the Study

For this study, fifteen secondary level mathematics teachers from Palpa district were selected with one teacher from each school by the method of purposive sampling techniques. Out of fifteen teachers, eight teachers were selected from the rural area and seven teachers from the urban area because in this study the researcher goes to day to day in the selective school nearby to the Tansen.

Sources of Data

Both primary and secondary data were used in this study. Secondary data were used for the understanding of past research study related to this study in literature section that were mentioned in the literature review but primary data were the main sources of the analytical section of the study which were carried out through different tools and techniques.

Tools/Instruments

For the collection of primary source of data, questionnaire, class observation form and interview schedule were used. The questionnaire was developed by the researcher himself on the basis of problems face by research. It included the items relating to various problems which are being faced by secondary school mathematics teachers. The areas of problems were related to classroom management, physical facilities, teaching learning activities, teaching materials, method and evaluation, students mathematical background, and teacher training program. At the end of each section of questionnaire the respondents request to comment on the areas that were not covered in the questionnaire.

For the class observation form, researcher had used the form which was prepared by Tribhuvan University to observe the classroom practice in mathematics teaching which is used for the qualitative information.

The interview schedule was used for the qualitative information, four teachers were interviewed for this purpose. The open ended questions were asked to them with the help of interview guidelines that was developed by the researcher himself with the help of supervisor. Interview guidelines was constructed in such a manner that they could find the problems and its causes related with mathematics teacher while teaching mathematics at secondary level.

Data Collection Procedure

For data collection, the researcher visited each of the sample school along with the questionnaire, observation form, interview schedule and request letter from T. U. to render any help needed to the researcher from the school administrative. After explaining the purpose of the visit, the researcher, in his presence, request each of the teacher of the school, included in the sample to fill questionnaire freely. The researcher explained and clarify any confusion that arose in understanding the statements. The researcher also observed the class of the sampled teacher. The interview schedule asked to select sample teacher by using open ended questions.

Scoring Procedure

For the analysis of items, weightage of 5, 4, 3, 2 and 1 assigned to statement and state "strongly agree, agree, undecided, disagree, strongly disagree" respectively. For the negative statement marking/scoring is in the opposite order. Weighted Mean was calculated, total score of five point Likert scale is 15, thus its average score is 3. If the calculated index is greater than three then it concluded that the statement were in strong favor to the problems. If the index measure is less than or equal to three, then it is weak favor to the problems.

Data Analysis Procedure

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

Weighted Mean is used to locate the central position of the responses to the statements of teacher as a whole in the rating scale. The average Weighted Mean had calculated as follows:

$$\text{Weighted Mean} = \frac{\text{Total rank score of a statement}}{\text{No. of teacher's responses}}$$

Each statement was studied in terms of whether the teachers problems are up to the index or not. If the calculated weightage mean is greater than three then it concludes that the statement indicates the problems and it is strongly favorable to it. If the Weighted Mean is less than or equal to three then it is less favorable to the problems.

The collected data through class observation and interview schedule was analyzed and interpreted on the basis of the framework that the researcher had already developed in the review of the related literature section. The researcher tried to interconnect with previous findings and the way of analysis in the similar content. The researcher and data triangulation was the way of interpreting information collected from tools. The validity and reliability of this study were maintained through cross matching or triangulation.

Chapter IV

ANALYSIS AND INTERPRSTATION OF DATA

The data were collected for the study from fifteen Secondary School in Palpa district. The collected data were tabulated and analyzed according to the objectives of the study. The tabulated data (Appendix E) were statistically analyzed and interpreted by using statistical tool mean weight age. These data were calculated and categorized.

The researcher used class observation form (Appendix D) to observe the classes regularity for 3 days in each sample school. Direct observation was done every day in the classroom and the classroom behavior was carefully observed by different outlook of setting and noted. With the help of semi - structured interview schedule the interview were taken with teacher. The interaction with the respondents was categorized according to their category and then different themes were given in the text of interview or the observation note. These themes were considered as a code and the similar code version of respondents were collected together and were explained in their perspective.

The whole data were categorized into four groups. These are, classroom management, teacher training and its effect in classroom teaching, teaching method and materials, school management administration, thus, the collected information were analyzed and discussed under the following topics.

-) Problem related to classroom management.
-) Problem related to teacher training (pre-service and in-service)
-) Problem related to teaching method and materials.
-) Problem related to school management and administration.

Problem Related to Classroom Management

The classroom is the major sources of knowledge in formal education system in our country. Both teachers and students depend upon bookish knowledge which is

used to exercise in the classroom. Not only mathematics, all teaching / learning process are carried out from indoor / closed environment, this is the characteristics of Nepalese education system. For the understanding of the problems in classroom, the researcher raised the five questions like availability of mathematics lab in school, adequacy of physical facilities in school, difficulties in completion of whole course if taught by using teaching materials, teacher's difficulties due to large number of students, boredom feeling in mathematics teaching. These are the area of problem of classroom management. For the effective mathematics teaching, the classroom environment should be appropriate and proper environment should be maintained as the size of classroom according to number of students, physical facilities etc. Now, the researcher tried to elaborate the following problem in detail related to classroom management.

Table: 4.1 Problem Related to classroom Management.

S.N.	Statements	Weighted Mean	Remarks
1	Mathematics lab is available.	4.6	Strong Favour
2	Physical facility is adequate.	3.6	Strong Favour
3	Difficulties in completion of whole course if taught using teaching materials.	3.6	Strong Favour
4	There is a problem of being number of students in a single class while teaching.	3.46	Strong Favour
5	Boredom feeling in mathematics teaching.	3.53	Strong Favour

The above Weighted Mean show that there was a problem in using mathematics lab because there was not separate mathematics lab in selected schools. The Weighted Mean of the use of mathematics lab was 4.6 which indicates the strong

favour of the statement. The teachers did not have an experience about mathematics lab. The better result was assumed by the use of mathematics lab in school but not practically yet. So, it is concluded that teachers were blind in using teaching materials in classroom teaching.

The second statement was focused on the problem of physical facility of school. The sampled school was not facilitated as the requirement of the educational environment. There was only single room for each class means no other facilities found in the school. They had to squeeze in a single room like buffalos in cupboard. There were no other facilities which help them to learn more in proper environment. Although students were interested in learning new mathematics problem solving, there must be sufficient physical facilities that support them learning effectively in school. The Weighted Mean of physical problem of school was 3.6 and it indicates strong favour of the problems. This showed the major problem in physical development. The congested room, lack of sufficient furniture, extra room, play ground and audio/ video room were the physical problems in school. In this regards, the teachers responded as:

All the facilities of school depend on the economic status. We have crisis of economic. Now we are going to fulfill the crisis by collecting worth through Ghar-Dailo and Deusi- Bhailo Karyakram. In future, we hope to manage required physical problem. (Teacher)

The above views of teacher indicate that there is a lack of financial resource. The aim of school administration is to manage required facilities of school in future.

There was other problem related to classroom management, which was a difficulty in completion of whole course by using teaching materials. The mean weight age of this statement was 3.6. In the sampled schools, the course was hardly completed at the end of the session. In this regards the teachers responded as:

Due to different strikes, classes cannot be regularized. You know frequently Nepal Band schools are disturbed. The students are used by political parties. It is being a problem to complete the working days of academic session. On the other hands, books are not available in time. The school starts in the month of Baisakh but the books are available after two- months. If there is a problem to complete the course in time, how can we use teaching materials in class? (Teacher voice)

From the above view it is concluded that teachers should be careful towards the teaching environment. They did not want to make school as the platform of political parties. The government should also be aware for the provision of books in each and every school in time. Teacher should take frequent teaching materials, different methods of teaching which helps the students to be aware of examination as well as understanding the mathematics problem.

The Weighted Mean of the problem of being number of students in a single class while teaching was 3.46 which means the problem was found in the classroom and it was difficult to expect high performance in the examination in mathematics subjects.

In this regard, teachers have problem to control the classroom. Their maximum efforts was to control the class. It was being difficult to promote individual student who needs teacher's supports. The teachers responded as:

Because of large number of students it is difficult to handle the class and many unusual activities held in the class. Many boys and girls talk each-other; boys tease the girls from back side which disturb in the classroom. Such activities were also found in the classroom and caused unnecessary tension in the classroom. Teacher

The above view of teachers show that the administration should also re-think seriously about the problem of teachers and students in school. The school management should manage the proper classroom environment. They should make

different columns for boys and girls students. Not only that they have to give the feeling that they all are their friends, and they are not here to tease each-other. Moral education is also needed to some extent. Teacher should have to create such environment that erases the fear from girls mind. Then after they can complain to their teachers.

Similarly, the Weighted Mean of boredom feeling in mathematics teaching was 3.53 which were favorable to the problem of boredom feeling in mathematics teaching.

At any cost students should get pass in the examination otherwise we should have to defense to the administration and the parents. So, we have more tension than students in the case of exam result. The job security depends upon the percentage of the students passed in examination. (Teacher).

The above view of the teacher suggested that mathematics teaching was found difficulties to the teachers in the sense of result oriented system. In some extent the lack of consciousness was playing vital role in the above view of the teachers. This was not only problems of the mathematics teachers but found problem in the school education system.

Administrative co-operation in mathematics teaching is being crucial aspects for the achievements of the students. As response of the teacher, no friendly relation was found in the school. The teaching materials, mathematics lab, and other facilities were not managed by the school administrators that caused the problem to the teacher as well as students. If students failed in the examination the administration and parents use to blame the teachers. This was the bitter truth of the school mathematics teacher.

The causes of above problems are economic crisis of administration to add materials for mathematics teaching, lack of moral education, lack of proper teaching /

learning environment, lack of physical resources and not available separate place to store materials. Hence there is a lack of classroom management for mathematics teaching due to physical and economic crisis of schools. The community participation should be encouraged to build up good educational environment in school:

Problem Related to Pre-service and In-service Teacher Training

A short description of teacher training from sampled school for this study is given below:

Table : 4.2 Training of the Mathematics Teachers

Training	Number of teacher	Percentage
Trained	11	73.43
Untrained	4	26.57
Total	15	100

As shown in the table 4.2, responses of the 73.43 percent teacher were trained but 26.67 were untrained. Comparatively the number of trained teacher is higher than the number of untrained teacher but for the effective teaching / learning all the teachers must be trained. Therefore, the status of trained teacher in research area is unsatisfactory.

In the sampled schools, out of four untrained teachers, two currently joined teachers who had joined in teaching from that session had not taken teacher training and remaining two untrained teachers have been taking ten months training. Especially the experienced teachers who have training were not applying their skill, knowledge gained in training in classroom teaching and for developing local materials.

Construction and use of instructional material is the focused skill in teacher training session, its construction and use is one of the major components of the

teacher training package conducted by NCED. Pictorial, Printed and solid instructional materials are also provided. In the ten months training package teacher guide materials are suggested to be used while covering special lesson / actively.

Application of training skill in real classroom situation is most important aspect of the study. If there is not transfer of the training skills then the investment of time, money and labor will be useless and there would be question mark towards the whole package. Researcher observed the trained mathematics teachers classroom and found as follows.

Episode one

"One day, the mathematics teacher entered into the classroom with the daily using and other limited teaching materials which were related to the topics. Teacher left the teaching materials in fronts of the student's desk and reviewed the previous lesson. He wrote the topic of that day "surface area of cube and cuboids." He described about cube and cuboids with solid figures. He just wrote the formulas of surface area of both geometrical figures and students to solve the related problem by using given formulas. Students were asking about how the formulas can be developed but the teacher replied " formula is formula you have to recite" . Then he checked student's copies and guided to their mistakes. Finally he summarized the topic and gave home work."

From this observation, it is seen that trained / skilled teachers were not also implementing their skill in the real classroom appropriately. In the observed school, there were some paper made materials related to topic but the teacher did not use. If he used those materials then it would be easier to make students clear about surface area of cube and cuboids. The place of placing presentation and summarization skill of instructional materials gained in training session were not also found to be transferred in the real classrooms.

Supervision is an essential part of classroom teaching that also aware and gives feedback to the teachers for transfer of training in classroom teaching. Head teacher, resource person and school supervisor are especially responsible for supervising the class. All the teachers were found to have in favor of supervision of the classroom teaching, However their supervision was limited to know whether the teachers were in classroom or not and course would be completed in time or not. It was found that the school supervisors used to come in their schools for sometimes and talked with head teacher and teacher but they did not observe the classes regularly.

According to the teachers, they never receive fruitful feedbacks from the resource person and supervisor. Moreover, they stated that provided feedbacks they would try to make their teaching effective through the teacher training.

The causes becoming the above problems are teacher's carelessness, work load, large class size, lack of encouragement, lack of supervision. The main reason was seemed as teacher's carelessness. Most of the teachers were not consciousness and responsible about educational training. If there is a regular supervision, reward/punishment system and providing refreshing training for trained teachers then the transfer of teacher training would be fruitful.

Problem Related to Teaching Methods and Materials

Teaching methods and instructional strategies are the main ways for meaningful teaching and learning of particular topic. Teacher is the main agent of the instructional strategies. In classroom activities teacher and students has vital role for the use of materials. The method of teaching should be based on knowledge, understanding, skill and application.

For the understanding of the problems in teaching methods and materials, the researcher raised 15 questions .The researcher tried to elaborate the following problems in detail related to mathematical instruction method and materials .

Table:4.3 Problem Related to Mathematical Instruction, Methods and Materials

S.N.	Statement	Weighted Mean	Remarks
6	There is a lack of proper space to demonstrate instructional materials.	3.4	Strong Favour
7	There is a separate room for mathematics instruction	3.8	Strong Favour
8	The room is equipped with a graph board and bulletin board.	4.4	Strong Favour
9	Teaching machine and computer are available in mathematics classroom	4.6	Strong Favour
10	There is mathematics laboratory	3.93	Strong Favour
11	Library facility is available	3.6	Strong Favour
12	Reference books and magazines are available	3.46	Strong Favour
13	The teacher's guide book is available	2.6	Weak Favour
14	I don't make plans (yearly as well as unit) because I don't know how to do it.	2.7	Weak Favour
15	I make daily lesson plans	3.53	Strong Favour
16	Some of the units are difficult to teach	3.4	Strong Favour
17	I don't practice individual teaching	3.33	Strong Favour
18	I make and frequent use of instructional materials (Other than text book and guide) to motivate my students and make mathematics more meaningful	3.13	Strong Favour
19	Often (Some times) I get frosted, disillusioned and unmotivated to teach mathematics.	3.2	Strong Favour
20	I am trained mathematics teacher	1.93	Weak Favour

On the 6th statement lack of proper space to demonstrate instructional materials created problems to the teachers. Their Weighted Mean score is 3.4.

About the 7th statement the existence of a separate mathematics classroom, it is found that all teachers disagreed. The Weighted Mean of the order of 3.8 in the rating scale revealed that only two of the schools included in the sample had a separate mathematics classroom.

About the 8th statement most of the teachers (60%) disagreed. The Weighted Mean of 4.4 also indicates that unavailability of graph board and bulletin board is a real problem.

About the 9th statement, all of the sampled teachers disagreed about the 9th statement and its Weighted Mean of 4.6 indicates that there is a genuine problem in teaching mathematics in the absence of teaching machine such as calculators, computers etc.

The 10th statement is about the mathematics laboratory. Majority of the teachers agreed that there is no facility of mathematics laboratory. The teacher felt that occasions arose when mathematics can't be taught effectively and meaningfully because of the non- existence of a laboratory.

On the 11th statement about the laboratory facility, 70 percent of the teachers stated that the provision of library facility was not satisfactory at all whereas, only 15 percent opined that the facility is agreeable in their respective schools. A response position corresponding to 3.6 in the rating scale, indeed, indicated that the library facility is not adequate at all.

On the 12th statement about the availability of reference materials such as books and magazines on the education of mathematics 60 percent of the respondents indicated that their availability is not enough satisfactory on the problem rating scale,

the average response stood at the joint 3.46 showing that the unavailability of the said materials was really a problem felt by teachers.

On the 13th statement about the availability of teachers guide book majority of the respondents said that it was available on the rating scale of the extent of problem measurement. The mean response stood at the point 2.6 indicating that concerned about the availability of teachers guide book. It was not a problem. But the teachers had following comments to make:

-) 70 percent of the teachers commented that the guide book is not appropriate and relevant to their needs.
-) 62 percent said that the guide book is easy to use.
-) 65 percent said that it was useful and illustrative even though not every relevant to their immediate needs.
-) 40 percent pointed to the fact that many mistakes have kept into the printing.
-) All of the respondents said that they could not find a guide book written in optional mathematics.

In answer to the 14th statement, 3 teachers out of 15 answered that they are not used to making yearly and unit plans because they are not cognizant about how to do it . But 7 teachers out of 15 claimed that they do prepare yearly and unit plans before the commencement of the academic year. The Weighted Mean of magnitude 2.7 indicates that preparing plans (yearly and unit) do not pose a great problem.

But in the 15th statement, about the lesson plan, 60 percent of the respondents said that they do not make daily lesson plans and 26.66 percent of the teachers claimed that they make daily lesson plan. The Weighted Mean 3.53 indicates that it is a problem.

The teachers who do not make daily lesson plans gave the following reasons.

-) 81 percent of respondents said that they have heavy teaching load to spare time to make daily lesson plan.
-) 40 percent of respondents said that it is cumbersome and it is not practical.
-) 4 percent of respondents said that they have no idea.

About the 16th statement, 53.3 percent of respondents agreed that some of the units are difficult to teach. Only 26.66 percent of respondents disagreed and the Weighted Mean 3.4 indicates that it is a significant problem. Further most of the teachers expressed that they found difficulty to teach for some unit like:

-) Home arithmetic, mensuration, probability, circle, compound interest, vectors, and transformation as cited the following reasons for difficulty.
-) In some topic, there are length problems.
-) Figures are inadequate.
-) Some questions are wrong and unclear.

About the 17th statement, 60 percent of the respondents agreed that they do not practice individual teaching whereas 20 percent of the respondents disagreed and the Weighted Mean 3.33 indicates that there is a problem to practice individual teaching. Most of the teachers gave reason for not doing so as large class size and lengthy course.

In the 18th statement, 33.33 percent of the respondents agreed that they make frequent use of instructional materials. But 40 percent of respondents disagreed and the Weighted Mean 3.13 indicates that there is a problem in the use of instructional materials. The teacher gave following reasons for not using materials:

-) 72 percent of respondents said that they do not get encouragement and suggestion to make and use of instructional materials.
-) 75 percent of respondents said that the materials are not available and found required is not easy to get.

-) 80 percent of respondents said that instruction by using materials consumes a lot of time and oral course could not be finished in time.

About the 19th statement, 53.33 percent of respondents agreed that they are frustrated, disillusioned and unmotivated to continue teach mathematics. Only 33.33 percent respondents disagreed. The Weighted Mean 3.2 indicates that there is a problem among the mathematics teacher to continue the career as a mathematics teacher. The reasons for such as state of frustration and apathy are as follows:

-) 95 percent of respondents indicated that students do not have required background and enthusiasm.
-) 70 percent of the respondents said that students are not interested to learn mathematics.
-) 25 percent of the respondents said that students are not disciplined.

About the 20th statement, 73.33 percent of respondents agreed that they are trained mathematic teacher. Only 26.66 percent of respondents were not. The Weighted Mean 1.93 indicates that there is no problem so far as the training of teachers is concerned, further the following state of affairs are uncovered by reasons from the trained teachers:

-) 90 percent of respondents said that they felt confident on their ability to teach after the training.
-) 77 percent of the respondents said that the training was very useful and relevant.
-) 70 percent of the respondents said that the training program improved their teaching performance.
-) 100 percent of the respondents said that they need further refresher short time training.
-) All the untrained teachers expressed that they aspire for training.

The questionnaire includes an open ended question towards the end in which teachers were requested to express any other problem other than explained in the statement. A list of the statement deemed as problem or otherwise, hindrances to the profession voted by more than 50 percent of the respondents are as follows:

-) Teaching loads are huge.
-) Class size are large.
-) Lesson plans are difficult to construct and follow accordingly.
-) Because of much course contents and less class periods available than require, a teacher is left with less options other than finishing the course at any cost.
-) Provision or opportunities should be provided where mathematics teachers could sit, contemplate and interact about the problems and recommend optional solutions and alternatives to the problems.
-) Workshops or short time training and refresher course should be provided to deal with the newly added topics such as trigonometry, vectors, probability, transformation geometry, compound interests etc.

Most of the teachers who were found to be not using instructional materials even claimed that they were using materials. The reality was found by observing their classes. Some episodes of their observed class are as follows:

Episode two

"One day the teacher entered into the classroom with daily using materials chalk, duster. All the students stood up and said good morning sir, teacher told good morning and sit down. He wrote the topic probability on the blackboard then the teacher discussed with students about general ideas and terms of probability. He taught by just giving different examples like tossing coin, rolling dice and playing cards orally but he did not use concrete materials even if there were such materials

in school. He solved some problems and allowed students to do the remaining problems of textbook. Teacher helped the students on solving problems for some time then he went out. After five minutes he came to class. Students were asking questions like how many red cards, face cards etc. At the same time bell rang. Teacher informed them to do remaining questions, gave homework and summarized the class."

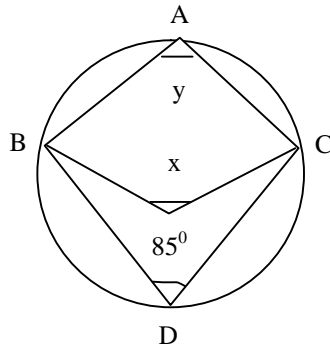
From the above observed class, it is found that the teachers were not using available instructional materials. He just gave the concept about concrete material orally. So, the students were confused about the number and types of cards, number of dice etc. Teachers were teaching their class without any plan that's why they did not summarize and complete class in time.

In this regards, teachers responded as: *"We have only geometry box, graph board as teaching materials for mathematics. Some mathematical charts are available in the school for primary level. We are not using audio-visual materials. Also, there is the lack of protection for materials" (Teacher)*

The above mathematics teacher's view show that, there are not sufficient mathematical teaching aids. It is seen that, there is a lack of mathematical materials. Due to economic crisis of school, school administration cannot add mathematical materials. Also there is a lack of protection for available materials for further use because materials are kept in office room haphazardly and not repairing the damage materials.

Episode three

In the observation of class, the observer found that, *"One day mathematics teacher of one school entered into the classroom with daily uses materials. Then he cleaned the blackboard and wrote the topic "circle" and focused on this exercise with making the figure given below:*



Then after that he told the students to find the angles x and y with the help of theorem which was already proven in previous class. Then students were busy to solving the problem given, the teacher just stood in front of class and observed only the students of first bench. When students stopped their pen to write the solution because of confusion, at that time teacher just gave some hints to all students in blackboard. Only one student showed the solution to the teacher. And other students were discussed with friends about the solution of that question. Teacher again repeated the above hints on the blackboard and connected with that theorem. Again teacher told the students to solve the next question by giving hints. At the end of this class teacher gave homework from textbook."

The above observation shows that there is lack of participatory approach of both students and teacher in classroom because teacher solved the solution himself without involvement of student. Teacher taught about the theorem at that time students are not involved with teacher. So, there is lack of teaching/learning management also. Teacher ordered the student for looking answer, it means there is also lack of preparation and confidence of teacher. There is lack of diagnostic test and oral test.

But, teacher told that, *"I am not using any fixed teaching methods for mathematics teaching but my aim is to how children receive the knowledge, in that way I go, I initialize circle by discussion method with students. Our teaching is child centered."* (Teacher .

There is contradiction on teacher's view and class observation. Teacher mostly use lecture-cum practice method in mathematics teaching. Evaluate students by giving class work and homework.

According to policy statements of the NBPTS accomplished teachers display a "readiness to work collaboratively", participate in "Collaborative efforts to improve the effectiveness of the school" and "cultivate a critical spirit in appraising the schooling." In modern senses teacher should use the child centered method, cooperative and more collaborative learning in the classroom teaching that makes more effectiveness of learning.

The CDT theory specifies that instruction is more effective to the extent that it contains all necessary primary and secondary forms. Thus, a complete lesson would consist of objectives followed by some combination of rules, examples, recall, practice, feedback, helps and mnemonics appropriate to the subject matter and learning task. In deed, the theory suggests that for a given objective and learner, there is a unique combination of presentation forms that results in the most effective learning experience.

In the modern sense, teacher should have good presentation in the classroom practice that are:

-) Planning the presentation in the view of two way communication between facilitator and learner.
-) Planning of a facilitating each and every topic in the hierarchy of knowledge, understanding of knowledge, understanding, skill and higher ability application based objectives.
-) Awareness of not overlapping the fundamental concepts of complexity.

) Planning of illustrations simple to complex for the coverage of objectives appropriately.

) Providing maximum opportunity to learner in developing knowledge, understanding, skill and higher ability of problem solving by themselves.

The above analysis shows that the problems on mathematics teaching learning are lack of teaching materials such as teacher's guide, books and instructional materials, lack of learning management in classroom, lack of explanation of terms, not giving feedback and suggestion to improve in mathematics learning.

The cause of becoming above problems are not well participatory approach of both students and teacher in teaching in classroom, lack of preparation and confidence of teacher, lack of diagnostic test and oral test, lack of uses of concrete materials, lack of friendly relation with teacher and student, lack of teaching/learning management, lack of appropriate teaching method but teacher mostly used lecture method.

Problems Related to School Management and Administration

School management and administration plays a vital role to construct necessary instructional materials. But if it seems to be passive and irresponsible then teacher may face problems mainly on teaching -learning process.

For the understanding of the problems related to school management and administration, the researcher raised four question. These four questions and their Weighted Mean are tabulated as below:

Table 4.4 Problems Related to School Management and Administration

S.N.	Statement	Weighted Mean	Remarks
21.	Compulsion to take more classes because of low number of mathematics teacher.	2.93	Weak Favour
22.	Irresponsible administration to manage and construct necessary teaching materials.	3.2	Strong Favour
23.	Lack of refreshment training to teach difficult and rigor topic.	3.67	Strong Favour
24.	Lack of facilities and ward for the good performance	3.6	Strong Favour

Obtaining the above table from the research it had been found that the Weighted Mean of 21st statement is 2.93. That means they have no class load because of low number of mathematics teachers. The Weighted Mean 3.2 of 22nd statement specify that there is a great problem. It means school administration is irresponsible to manage and construct necessary teaching materials. The mean weightage 3.67 of the 23rd statement shows that there is problems on refreshment training to the mathematics teachers. Teachers need refreshment training time to time for difficult and rigor topics to foster a good education. However, during the research it had been found that most of the teachers were not getting such types of training.

To attract teachers toward teaching, they need good facilities and rewards for good performance according to their subject. But they were not getting such facilities as they respond. The Weighted Mean on the statement 24th is 3.6. It means this statement is favorable on the problem.

From above analysis of school administration it had found that there are many problem related to school administration that hinders teacher's attraction on teaching

and then directly affects the students achievement on mathematics. So school administration should be good and responsible to address teachers problems etc.

Problems related to Teaching Method and Materials

To make teaching learning process effective and fruitful use of instructional materials are indispensable. There are so many instructional materials use in teaching mathematics which is mainly categorized into three different kinds. Literature, audiovisual aids models and manipulative materials. These materials could be used in classroom to facilitate teaching learning situation. Instructional materials are weapon to motivate the class. Thus, to improve the mathematics teaching all sorts of instructional materials should be adopted. Different teaching tools and materials can be used to make the teaching effective. Similarly, to improve the teaching different methods of instruction have been proposed by different educational thinkers. The Hiele's theory indicates that effective learning takes place when engage in discussion and deflection. According to the theory using lecture and memorization as main methods of instruction will not lead to effective learning. He suggest teachers should provide their students with appropriate experiences and opportunity to discuss them in classroom while teaching mathematics.

Table No 4.5 Problems Related to Methods and Materials

S.N	Statement	Weighted Mean	Remarks
25	Flatten Board	3.93	Strong Favour
26	Bill materials	3.8	Strong Favour
27	Wood materials	3.67	Strong Favour
28	Flash card	2.8	Weak Favour
29	Mechano strip (model made from wood,	4.0	Strong Favour

	bamboo, which can rotate, fold, or separate according to need)		
30	Lack of opportunity for training	3.6	Strong Favour
31	Lack of time	3.47	Strong Favour
32	Confusion on method to be used due to different knowledge	3.2	Strong Favour
33	Lack of help from help administration	2.33	Weak Favour

From the study it has been found that there is not enough use flatten board. Mean Obtaining the above table from the research it had been found that the Weighted Mean of 25th statement is 3.93 which indicates there is not enough use of flatten board while teaching mathematics. The Weighted Mean 3.8 of 26th statement specify that there more problems in use of bill materials. The 27th statement was asked about the use of wood materials and it has Weighted Mean 3.67 which indicates strong favour of the problem. The 28th statement focused on use of flash card and it has Weighted Mean 2.8 that indicates less problem. Similarly, the 29th statement was asked about the use of mechano strip materials which has Weighted Mean 4.0 and indicates more problematic.

Similarly, the above table shows there were numerous problems of methods in teaching mathematics. The 30th statement was focused on opportunity for training and it has Weighted Mean 3.6 which indicates strong favour of the statement. The 31st statement was asked about lack of time and it has Weighted Mean 3.47 which indicates strong favour of the problems. The 32nd statement focused on confusion of method to be used due to different knowledge and it has Weighted Mean 3.2 which indicates strong favour of the problem. The 33rd statement was asked about lack of

help from school administration and it has Weighted Mean 2.33 that indicates less problems while teaching mathematics.

“There is lack of time to construct require materials. If we use materials while teaching then it is very difficult to complete course in time. Due individual difference it is very difficult to teach mathematics in a single class. School administration always compels us to complete course fast and revision of frequent for SLC examination. There is not possible to used modern type of learning materials such as projector, multimedia etc while teaching mathematics. Therefore, it is very difficult to implement materials approach learning and use of particular methods due to large number of students. There is no time in between each two periods due to handled five periods per day. So, there is no leisure time. There is no sufficient of teaching materials to teach mathematics in secondary level.” (Teachers' View)

Chapter - V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of the study was to identify the levels and extents of problems faced by mathematics teachers. The main objective of this study was to identify the problems faced by the secondary school mathematics teachers.

The specific objectives of this study were, to identify the problems faced by teachers due to classroom management, to identify the problems related to teaching method and materials, to identify the problems related to school management and administration and to identify the problems related to pre-service and in-service teacher training program and its transfer in classroom teaching and to suggest some measures for the solution of the problems.

For the convenience of this study, the problems were categorized into four different areas, viz. classroom management, pre-service and in-service teacher training program, teaching method and materials, school management and administration.

This study was entirely survey type. The researcher himself developed the questionnaire under the guidance of supervisor. The questionnaire and classroom observation form were the main tool of the study. The responses were collected from different teachers selected from purposive sampling method. The collected data were quantified based on Likert five point scales. Open questionnaire were included in each category of problems, and descriptive analysis of collected responses were carried out. Statistical indicator, Weighted Mean was used for the analysis of the problems.

Major Findings

From the field survey and statistical analysis of the collected data, it was found that teachers have been facing numerous problems during the course of teaching

mathematics in secondary level. On the basis of analysis and interpretation of data, the findings of this study are presented below in hierarchical order as follows:

-) Teachers qualification, training and teaching experience were strong in average but they were not applying their skill and knowledge gained from training in classroom teaching.
-) There are not sufficient mathematical teaching materials and teaching aids and teachers were not using available instructional materials, there is lack of protection for available materials for future uses. Also there is lack of participatory approach of both students and teacher in the classroom, there is lack of preparation and confidence of teachers lack of appropriate teaching method but teacher mostly used only lecture method in teaching mathematics.
-) From the study, it was found that school management and administration are irresponsible to manage and construct necessary teaching materials. There is lack of facilities and award for the good performance of the teacher and school doesn't manage refreshment training at beginning of the academic session and it is been difficult to teach rigor topic of mathematics and also the teachers guide and curriculum are not available in time.
-) There is lack of interaction between guardians and subject teacher about the mathematical achievement of students. Student does not show any interest on the result of mathematics. So there is lack of feedback that could be given to the students by both teacher and guardians.
-) Lack of proper teaching/learning environment. Teaching/learning management, books are not available in time, difficulties to the teachers in the sense of result oriented system, not well participatory approaches both students and teacher in teaching at classroom, lack of friendly relation with teacher and student.

-) Lack of preparation and confidence of teacher, lack of diagnostic test and oral test, appropriate teaching method and lack of uses of appropriate teaching materials, lack of motivation, lack of practical knowledge.
-) Lack of uses of appropriate teaching materials, motivation, practical knowledge, teacher training specially for the new concept of mathematics, awareness of teachers and students in classroom and parents duties to his/her child at home, teachers carelessness, lack of encouragement, lack of supervision, most of the teachers were not conscious and responsible about educational training. Lack of meaningful training for mathematics teacher etc.

Conclusions

From the above stated findings of this study, it can be concluded that mathematics teaching and learning is not satisfactory in Palpa district. Among the four different categories described above it is found that there are numerous problems faced by teachers due to classroom management, sufficient training program, teaching methods and methods and materials and school management and administration.

It was found that both trained and untrained teachers have been facing more, or less similar problems. Teachers are facing many problems due to lack of training, crowded number of students. Lack of proper teaching materials, lack of math lab facility, poor evaluation process, time factor, urban oriented curriculum are the burning problems of the teachers in teaching mathematics in secondary level of Palpa district. Similarly, negative attitude towards mathematics is a major psychological problems.

Recommendations

On the basis of above findings and conclusion. The following recommendations are presented:

-) Government of Nepal should supply the essential teaching materials and should encourage the school administration to purchase such teaching materials.
-) Teacher should create the meaningful mathematics environment in the class.

-) Mathematics teachers should become resource person for the students. It means they have competent in mathematics and should be good performers.
-) Mathematics teacher should search the suitable methodology which motivate and arises the interest in mathematics of the students.
-) School need to make separate mathematics laboratory.
-) Frequent short time training facilities should be provided to upgrade the teachers.
-) Use of lesson plans should be encouraged.
-) A district level orientation program should be conducted for mathematics teacher to make them familiar with the new curriculum and its other aspects.
-) School should provide the information about the achievement of students to their parents and should create the environment for coordination with teachers, parents and students.
-) School administration should not be weak. .

Recommendation for Further Study

The researcher makes the following recommendations for the further study.

-) Similar study should be carried out with large sample and various schools of different parts of Nepal.
-) Same study related to the problems faced by students for the achievement of mathematics learning should be conducted.
-) The problems related to mathematics curriculum, textbook and its relevancy to the context of multicultural classroom should be one of the areas of the further study.
-) On the basis of class wise and other level wise, similar study should be conducted etc.

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Appendix - A

Sample Schools

Rural Area

S.N.	Name of School	Location
1	Saubhagya H.S. School	Chidipani-9, Palpa
2	Amrit Public H.S. School	Pipaldanda-5, Palpa
3	Rambha H.S. School	Tahun-9, Palpa
4	Bishnu H.S. School	Pokharathok-7, Palpa
5	Siddhi H. S. School	Nayar Namtalesh – 7, Palpa
6	Veda H.S. School	Barangdi-5, Palpa
7	Sharada H.S. School	Madan Pokhara-4, Palpa
8	Divya Jyoti H.S. School	Kaseni-1, Palpa

Urban Area

S.N.	Name of School	Location
9	Sen H.S. School	Tansen-3, Amargunj, Palpa
10	Padma Public Namuna H.S.S.	Tansen-2, Bhagawati Tole, Palpa
11	Janata H.S. School	Tansen- 7, Basantapur, Palpa
12	Mohan Kanya H. S. School	Tansen-4, Silkhan Tole, Palpa
13	Jana Priya Secondary School	Tansen-9, Bartung, Palpa
14	Mahendra Bodhi H. S. School	Tansen-5, Narayansthan, Palpa
15	Saraswati H.S. School	Tansen-14, Sundargaun, Palpa

Appendix-B

Questionnaire Form for Teacher

Dear teachers,

I am going to conduct a research entitled on "**Problem Faced by Mathematics Teachers at Secondary Level of Palpa District**" for the partial fulfillment of Master's Degree of education in mathematics. Teaching learning activity couldn't be effective without addressing the real and factual problems of teachers related to teaching, so to complete this thesis. I have prepared some questionnaires which are presented to you. Researcher is very much thankful your valuable help, and would like to express gratitude to you all.

Thank You !

Researcher

Narayan Acharya

M.Ed.

Department of Mathematics Education.

I request to fill this questionnaire as follows:

- Please read carefully and respond as you feel.
- For open questionnaire, Please write your opinion.
- Please don't leave blank for any question.
- In this study, the teachers who have bachelor's degree in mathematics education or have a ten months special training provided by MOE or NCED or authorized institution, are defined as training teachers.

Section-A

Teacher's Bio- Data Form :

Name:-

Sex: Male Female Age:

Name of School:

Academic qualification:

Length of teaching experience:

Status of training: Trained Untrained

Phone No:

Section-B

Please give tick marks(✓) which you fell the best option where,

S.A= Strongly agree, A= Agree , U=Undecided, D= Disagree, S.D.= Strongly

Disagree.

S,N.	Statement	S.A	A	U	D	S.D.
Classroom Management						
1	Mathematics lab is available.					
2	Physical facility is adequate.					
3	Difficulty in completion of whole course if taught using teaching materials.					
4	There is a problem of being a number of students in a single class while teaching .					
5	Boredom feeling in mathematics teaching					

Methods Methodology					
6	There is a lack of proper space to demonstrate instructional materials.				
7	There is a separate room for mathematics instruction.				
8	The room is equipped with a graph board and bulletin board.				
9	Teaching machine and computers are available in mathematics classroom.				
10	There is a mathematics laboratory.				
11	Library facility is available.				
12	Reference books and magazine are available.				
13	The teacher's guide book is available if yes				
	Easy to use				
	Relevant to your needs.				
	Useful and illustrative.				
	No printing mistake.				
14	I don't make plans (yearly as well as unit) because I don't know how to do it.				
15	I make daily lesson plans, if not why ? because				
	It is not practicable.				
	I don't have the required knowledge how to do it.				
	I don't make lesson plans because it is cumbersome and impractical.				
	Heavy teaching load.				
16	Some of the units are difficult to teach, if you agree which units and why?				

17	I don't practice individual teaching. If you agree, Why?					
18	I make and frequent use of instructional materials (other than text book and guides) to motivate my students and make mathematics more meaningful.					
	I disagree, why? because :					
	I don't believe in using materials.					
	I don't get encouragement and suggestion to make and use materials.					
	The materials are not available and funds required are not easy to get.					
	Instruction by using materials consumes a lot of time and courses could not be finished in time.					
19	Often (Sometimes), I get frustrated, disillusioned and unmotivated to teach mathematics. If you agree, Why? because					
	Students are not motivated to learn mathematics.					
	Students do not have required background.					
	Students are not disciplined.					
	Students are not laborious.					
	Students are not interested.					
20	I am a trained mathematics teacher. If you agree					
	The training program was very useful.					
	The training program improved my teaching performance.					
	I felt confidence to teach after training.					
	Need of refresher training.					

	If disagree, (1) need of training.					
School Management and Administration						
21	Compulsion to take more classes because of low number of mathematics teachers.					
22	Irresponsible administration to manage and construct necessary teaching materials.					
23	Lack of refreshment training to teach difficult and rigor topic.					
24	Lack of facilities and award for the good performance.					
Methods and Materials						
25	Flatten Board					
26	Bill materials					
27	Wood materials					
28	Flash card					
29	Mechano strip (model made from wood, bamboo, which can rotate, fold, or separate according to need)					
30	Lack of opportunity for training					
31	Lack of time					
32	Confusion on method to be used due to different knowledge					
33	Lack of help from help administration					

If you have faced any other problems then mention below :

- a)
- b)
- c)

Appendix-C

Guidelines for Interview with Mathematics Teacher.

Name: Qualification :
Age: Sex:
Teaching experience: Training:
School's name:
Location: Rural/ Urban:

The Interview with mathematics teacher will take on the basis of following main topics:

- Classroom management:- Number of students, Physical facilities, School environment space, blackboard etc.
- Mathematical instruction, Methods and materials. Methods, encouragement, relative question, materials, lesson plan, effectiveness, use, time, etc.
- Teacher's training and it's transfer in classroom teaching.
- Teacher's and student's characteristics.
- School administration.
- Seminar, conference and training.
- Other special technique, strategies, activities of teacher while teaching mathematics.
- Causes of problem and way to solution etc.

Appendix-D

CLASS OBSERVATION FORM

Name of teacher:

Gender : a. Male b. Female

Teaching experience: Duration: None: School's
name & Location:

Class..... Topic..... Period:..... Time..... Teacher
spend time in classroom:.....

Total number of students: Male Female

a) Mention the striking points of the lesson

.....
.....
.....

b) Mention the observed problems on learning

.....
.....
.....

c) Suggestion to improve the teaching of the lesson

.....
.....
.....

Observer's Name:

Date:-

Appendix-E

Distribution of Mean Responses and Percentage within Questionnaire

Statement No.	Responses					Weighted Mean	Remarks it is a problem
	S.A.	A.	U.	D.	S.D.		
1	0	0	0	6(40)	9(60)	4.6	Yes
2	1(6.6)	2(13.3)	3(20)	4(26.)	5(33.3)	3.6	Yes
3	5(33.)	4(26.6)	3 (20)	2(13.3)	1 (6.6)	3.6	Yes
4	5[33.3]	3[20]	3[20]	2[13.3]	2[13.3]	3.46	Yes
5	4[26.6]	5[33.3]	2[13.3]	3[20]	1[6.6]	3.53	Yes
6	4[26.6]	4[26.6]	3[20]	2[13.3]	2[13.3]	3.4	Yes
7	0	2[13.3]	3[20]	6[40]	4[26.6]	3.8	Yes
8	0	0	2[13.3]	5[33.3]	8[53.3]	4.4	Yes
9	0	0	0	6[40]	9[60]	4.6	Yes
10	0	2[13.3]	1[6.6]	8[53.3]	4[26.6]	3.93	Yes
11	1[6.6]	2[13.3]	3[20]	4[26.6]	5[33.3]	3.6	Yes
12	2[13.3]	3[20]	1[6.6]	4[26.6]	5[33.3]	3.46	Yes
13	5[33.3]	3[20]	2[13.3]	3[20]	2[13.3]	2.6	No
14	3 20	2 13.3	3 20	2[13.3]	5[33.3]	2.7	No
15	1[6.6]	3[20]	2[13.3]	5[33.3]	4[26.6]	3.53	Yes
16	4[26.6]	4[26.6]	3[20]	2[13.3]	2[13.3]	3.4	Yes
17	5[33.3]	4[26.6]	3[20]	2[13.3]	1[6.6]	3.33	Yes
18	2[13.3]	3[20]	4[26.6]	3[20]	3[20]	3.13	Yes
19	5[33.3]	3[20]	2[13.3]	5[33.3]	0	3.2	Yes
20	11[73.3]	0	0	2[13.3]	2[13.3]	1.93	No

21	2[13.3]	4[26.6]	1[6.6]	7[46.6]	1[6.6]	2.93	No
22	2[13.3]	5[33.3]	1[6.6]	7[46.6]	0	3.2	Yes
23	1[6.6]	11[73.3]	0	3[20]	0	3.67	Yes
24	3[20]	7[46.6]	1[6.6]	4[26.6]	0	3.6	Yes
25	8[53.3]	3[20]	0	3[20]	1[6.6]	3.93	Yes
26	1[6.6]	3[20]	1[6.6]	3[20]	7[46.6]	3.8	Yes
27	4[26.6]	6[40]	2[13.3]	2[13.3]	1[6.6]	3.67	Yes
28	2[13.3]	4[26.6]	2[13.3]	3[20]	4[26.6]	2.8	No
29	5[33.3]	6[40]	3[20]	1[6.6]	0	4.0	Yes
30	5[33.3]	4[26.6]	3[20]	2[13.3]	1[6.6]	3.6	Yes
31	2[13.3]	4[26.6]	8[53.3]	1[6.6]	0	3.47	Yes
32	1[6.6]	6[40]	5[33.3]	1[6.6]	2[13.3]	3.2	Yes
33	0	1[6.6]	5[33.3]	7[46.6]	2[13.3]	2.33	No

Where, S.A.=Strongly Agree, A.=Agree U.=Undecided, D.=Disagree and

S.D.=Strongly Disagree.

$$\text{Weighted Mean} = \frac{\text{Total rank score of a statement}}{\text{No. of teacher's responses}}$$