

## Chapter I

### INTRODUCTION

#### **Background of the Study**

The word mathematics is derived from a Greek Word ‘Mathancian’ which means “to learn”. So mathematics is a process of learning and it is an expression of human mind, concerned chiefly with ideas, processes and reasoning. Its basic elements are logic and intuition, analysis and construction, generality and individuality. It is a way of thinking, a way of organizing a logical proof. As a way of reasoning, it gives us insight into the power of the human mind and becomes a challenge to intellectual curiosity. It is a language in which we use diagram and symbols, instead of words. So mathematics is an organized structure of knowledge in which each proposition is deduced logically from previously proved propositions or assumptions and it comprises skill, techniques and arts by which man conveys ideas, concepts and fact.

Mathematics is a powerful instrument that man is crossing many complicated problems easily in his daily life. Hence the quotation “the necessity is the mother of inventions” implies that man could organize the different fact and relation in systematic order and could bring mathematical education to this advance level. So human beings without mathematics education is like as birds without wings. It is realizing the facts of prime necessities of mathematics for human beings its teaching formal education is prevalent throughout the world.

In our country, textbooks are used as only major tools to achieve the objectives of curriculum because of financial problems. Our schools could not procure and afford money to spend in materials and equipments. Facilities that are essential for teaching and learning activities are not available in substantial amount and some schools do not even have enough classrooms. A large number of students are packed in small classroom. Often the roof leaks; the classroom is not well lighted and well ventilated. Many teachers are unknown about the curriculum.

Mathematics is essential for understanding every discipline. Without knowledge of mathematics, it is very difficult for better understanding of the other disciplines like Economics, Physics and Chemistry and so on. Accepting the need and implication of mathematics as human lives, Roger Bacon says;

*“Mathematics is the gate and key of science. Neglect of mathematics works injury to all knowledge, since he who is ignorant of it cannot know the other sciences or things of the world and what is worse men who are thus ignorant and so do not seek a remedy.” (Eves, 1983).*

About the objective of the study of mathematics, Bulter and Wren state (1965 A.D.) *“The objective of study of mathematics is to fold the acquisition of useful knowledge and the cultivation and discipline of mental power”*.

As the strong foundation is very important in the construction of building, in the same way basic education is the most important stage in the education of a child and progressive development of his personality. All the important traits of character such as discipline, co-operative spirit, group feeling and self-dependence are developed during this period. The future citizens of any nation become capable of having quantities of good citizenship only after successful completion of basic education. It is a stage leading to expansion of literacy all over the world. Basic education is highly acclaimed as the most essential pre-requisite for further education as well as human development. So, basic education plays a significant role in socio-economic as well as total development of any society.

Similarly, Thapa (1999) quoted about the importance of primary education from the United Nations' Universal Declaration of Human Rights (1948) as follows *“Everyone has right to education shall be free at least in the elementary and fundamental stage”*.

Again the problem of providing universal free compulsory basic education in the underdeveloped country of the world has taken on decidedly in recent years more of an international perspective. The Geneva conference of 1951, under the joint auspices of the international Bureau of Education and United Nations Educational and Scientific and Cultural Organization (UNESCO), was a landmark in the attainment of this goal.

The seventeen countries of South East Asia, of which Nepal is one, are among those in the world family of nations which need such education programs. Sensitivity to this need has promoted their efforts to set in motion plans for such programs. UNESCO relatively has lunched the educational progress in this area of the world, though small as of great significance.

One of the most significant events in the recent history of the world is the great progress of basic education in south and East Asia during the last decades. With political independence, it is realized that educational development was an essential condition raising the standard of life. This created a great hunger for education and consequently there has been in every country of region counting effort to expand and improve basic education.

The recognition of the role of female teachers in promoting status of girls' education has led to the development and implementation of a number of initiatives and policies in the country since the early 1970s. In 1971, the government launched the Equal Access of Women to Education Project (EAWEP) with the purpose of increasing girls' participation in education through the production and recruitment of female teachers. Though there were not many qualified or qualification to be educated and trained as teachers and is deployed to work in upon completion of their education and training.

Government effort to increase the number female teachers continued through 1980s and 1990s. The Education Regulation 1992 has made it mandatory for every public primary school to have at least one female teacher. This was the recommendation of the high level meeting of the secretary and other dignitaries of education held in Nagarkot, Nepal in August 1997. This high-level meeting decided to place more female teachers in schools, acting on the experiences gained particularly by South Asian countries that the presence of a female teacher in the school makes a positive impact on participation and retention of girls in basic schools. In 1993, the government launched another nationwide drive to recruit the female teachers under the first phase of the Basic and Primary Education Project (BPEPI). By the end of the project in 1998, the government was able to recruit some 4,200 female teachers as targeted in the project document. The addition of

these women certainly increased the presence of female teachers in the teaching force, but it did not change the status of schools (UNESCO-2006).

The main policies of the government are to increase girls' participation in basic schools. For this the government has made district policy to recruit at least a female teacher in a basic school. But in real situation there are no female teachers in all basic schools of these districts. A great majority of basic school does not have any female teacher. So, employing only female teachers and pacing them in the schools where there are no female teachers do not seem to be a realistic strategy in the present context. The main reason for this is that the government has not provided the female teachers' quotas as required in the basic schools. The other problems regarding increase of female teachers are: females are not safe to alone in rural places. Also there is no health service and means of transportation in case of emergency. Besides these, the women have to look after their families after marriage so that they cannot go to distant schools. (CERID, 1999)

In this context Sidhu, (1950) gave the following reason for the inclusion of mathematics at basic level:

- It develops and should develop the knowledge and understanding of fundamental mathematical relationship.
- It develops appreciation and interest to use his knowledge of mathematics in solving problems of daily life.
- It educates the children in the technique of solving problems, which involve basic mathematical processes.
- It develops and should developed the ability in children to solve both oral and written mathematical processes.
- It develops and should enable the children to apply basic mathematical concepts and problems independently.
- It develops habit of reading problems carefully analyzing, critically collecting known evidences ultimately drawing inferences and solving problems.
- It enables and should enable the children to apply basic mathematical concepts and processes to solve problems encountered in daily life.

About the aspects of teaching, Bhatia and Bhatia (1986 A.D) said “Teaching is establishing a harmonious relationship between teacher, pupil and subject. It is giving useful information. It is helping the child to make effective adjustment, it is guiding the pupil activity and it is training of his emotions”.

*“Effective mathematics teaching requires understanding what students know and need to learn and the challenging and supporting them to learn”*  
(Upadhya, 2061 B.S)

Further, speaking about good teaching Remmers (1967 A.D) and other said that it follows following five steps.

- The teacher analyses the individual pupil’s capacity, knowledge, past experience, interest and needs.
- The teacher analyses the pupil’s goals and encourages him to revise his goals in accordance with his capacities.
- The teacher harmonizes the educational process with the pupil’s capacities and goals.
- The teacher evaluates the pupil’s progress in terms of his capacities and goals.
- The teacher and the pupils working together reconsider the revise the goals in light of the progress achieved and strive to correct weakness, which would interfere with the attainment of reasonable goals.

Among the qualities and qualification needed to a teacher to be successful in teaching mathematics, he should have a board knowledge of the subject matter, instructional communication technique and feel confident in handling its many and varied structures and application. In this context, Stinnett (1986 A.D) said:

*“Mental ability certainly is a basic factor in success in teaching. We do not know all the qualities needed by a successful teacher, but apparently personality, social adjustment, linking for children and willingness to work are of fundamental importance along with mental ability”*

Even before the NEC (1991 A.D), the Basic and Primary Education Master Plan 1991-2000 A.D. team was reviewing the existing primary education system of

Nepal. The master plan team found that the primary education defective in several ground the BPE Master Plan states.

Basic education has remained a multiply handicapped for understating. First at the level of goal, what is intended is not clear. Secondary level curriculum is extremely narrow at the level of instruction, what is taught is anchored on the defective textbook. Beyond the textbook there is no teaching learning in most of schools. The term also found the several main defects in the prevailing basic school textbooks. It found a mismatch between textbooks prescribed for successive grades. (Parajuli, 1999 A.D)

About the modern mathematics classroom, Bhatia and Bhatia (1986 A.D) said that the teacher's tools have long consisted of chalk, blackboard, red pencil and text book. However, the emphasis today is to use demonstration model of various shapes and sizes, slide rules, overhead projectors, drawing instruments, graph stencils, measuring instruments and money pictures, pamphlets, books, and mathematical magazines, films, slides, manipulative kits, teaching machines and computers are being used in teaching mathematics in the modern classroom.

In the context of Nepal, the basic school programme has put a great emphasis in mathematics in the education of children the list of objectives of the basic level programme, are enumerated as follow:

- Construct geometrical figure and test of simple relational.
- Make sample of geometrical solid figures.
- To solve arithmetic related daily life behavioral problem.
- To solve behavioral problem by using set.
- Develop skill to solve algebra expressions or equation related problem.
- Able to collection of data, presentation and transformation of getting information.

In our country, the teaching of mathematics has been started through the ancient period but there were not rigid curriculum and definite objectives. In that period education was divided into "Sanskrit Siksha" and "Buddha Siksha" were astronomy was included in teaching, which used to be the branch of mathematics. Similarly in this periods mathematics was used for development of "astronomy" as

well as of art. But there were problems of mathematics curriculum, subject teacher, instructional materials and method of teaching at that time. The development of mathematics has been rapidly increased in modern time.

In 1910 B.S Prime Minister Janga Bahadur Rana, after returning from Britain, established English Pathsala, only for his family. English, Nepali, History, civics and Geography were included concerning with Indian school curriculum. In 1934 B.S Prime Minister Ranoddip Singh established Sanskrit Pathsala where Astronomy, Arithmetic and Science were included in curriculum. In 1975 B.S Prime Minister Chandra Shamsher established Tri-Chandra College. Later on, S.L.C board of Nepal was established in 1990 B.S. Schools were divided into three level; Primary, Middle and High school. Lack of qualified and trained mathematics teachers, mathematics curriculum, textbooks, instructional materials and classroom were not easily available at that time and this was the major problem in the teaching of mathematics.

When democracy was established in 2007 B.S., the new concept and vision about education was developed. In 2009 B.S Nepal National Education planning Communication (NESP) was established. The board suggested that government of Nepal should improve the system of education. The NESP was introduced in Nepal 2028 B.S. which gave a new concept to the education of nation. The plan determined level wise, class wise and subjective for the first time in the history of education of Nepal. In order to fulfill the objectives of curriculum textbook, teacher's guidebook and instructional materials were prepared. The NESP gave priority to the mathematics after language.

The NESP mathematics curriculum (2028 B.S.) states the importance mathematics in the following words.

*“Mathematics like language is a basic tool of communication. Daily translation and communication involves the frequent use of mathematical concept. Thus it is quite natural and mathematics must be given a very important place second to language in school education”.*

The NESP emphasized to raise the quality of teaching for the better quality of school education. Furthermore, this plan suggested using instructional materials for effective teaching. National Education Commission (NEC) established in 2049 B.S.

NESP pointed that curriculum was insufficient to fulfill the development and desire of student. It emphasized bookish knowledge. Also NESP marked that most of schools has no instructional materials, sufficient classroom, supervisory system were poor. And textbooks were only source of knowledge and reference books were not used.

The purpose of the study was to explore the kinds and extents of problems faced by female mathematics teachers belonging to ethnic groups based on Gurung, Magars, Shrestha, Nepali, B.C and Bhujel in executing instructional activities in mathematics classes of the basic level in the Pokhara Metropolitan city. Therefore this study is focused on exploring the problems they face while teaching mathematics.

### **Statements of the Problems**

The study attempts to explore and analyze the problems faced by basic level mathematics female teachers belonging to ethnic groups in teaching mathematics of Pokhara Metropolitan city. Specially, the study intends to answer the following questions.

- a. What are the problems faced by the female mathematics teachers belonging to ethnic groups in teaching mathematics at the basic level of Pokhara metropolitan city?
- b. Do the problems faced by the basic level mathematics female teachers belonging to ethnic groups in teaching mathematics at community schools differ from institutional schools?

### **Justification of the Study**

*Research in education psychology has great significant for anyone who pays due concern over educational process (especially for teachers) Cognitive and non-cognitive factors. Such as intelligence, aptitudes, creativity, attitudes, interests motivation personality traits, needs and adjustment of pupils provide promising fields of research in educational psychology. Various influences of home, neighborhood, peer relationships, and other social relationship that affect child development, growth, and learning are worth investigating (Koul. 1970:26)*



Nepal is committed to the education to all its children and to improve the quality of education, since the last five decade. There have been efforts in this direction. In spite of several efforts both the commitments have not been fulfilled. Beside it, mathematics teachers are facing many problems in teaching. Especially female teachers belonging to ethnic groups were facing many problems in teaching. There is much confusion among the teachers who are teaching mathematics at basic level schools. Problems may arise because of the confusion about the subject matter content and about the optimal procedures to present them to the students. Problems also arise because of the lack of knowledge about the classroom management. The study will contribute a lot in identifying problems once they know what they were. It is further, investigation that the study helps the concerned personnel to take decisions which help alleviate the problems faced by the female teachers belonging to ethnic groups. Thus the study was significant for the reason that it will help to provide the information to the concerned agencies to reform and improve the mathematics teaching in basic level.

### **Objectives of the Study**

The present study had the following objectives, which are given below:

1. To identify the problems faced by basic level mathematics female teachers belonging to ethnic groups in teaching mathematics in Pokhara Metropolitan City. The problems are identified on the basis of following factors:
  - To identify the problem related to physical facilities.
  - To identify the problem related to curriculum, text book and teachers guide book.
  - To identify the problem related to teaching learning activities, instructional materials, method and techniques.
  - To identify the problem related to students evaluation techniques.
  - To identify the problem related to female teachers belonging to ethnic groups.
  - To identify the problem related to school administration.
2. To compare the problems faced by the basic level mathematics female teachers belonging to ethnic groups in teaching mathematics at community schools and institutional schools.

### **Statement of the Research Hypothesis**

The study attempted to seek the result of following research hypothesis and statistical hypothesis.

#### **Research Hypothesis**

There is no significance difference between the problem faced by community female teachers and institutional female teachers belonging to ethnic groups.

#### **Statistical Hypothesis**

$H_0$ : There is no significance difference between the problem faced by community female mathematics teachers and institutional female mathematics teachers belonging to ethnic groups.

$H_1$ : There is a significance difference between the problem faced by community female mathematics teachers and institutional female mathematics teachers belonging to ethnic groups.

$$H_0: \mu_1 = \mu_2$$

$$H_1: \mu_1 \neq \mu_2$$

Where  $\mu_1$  and  $\mu_2$  corresponding means weightage score of community schools female mathematics teachers and institutional schools female mathematics teachers belonging to ethnic groups respectively.

#### **Definition of the Terms**

**Community Schools:** The school that are established and sponsored by government.

**Teacher:** The female teacher belonging to ethnic groups who teach mathematics at basic level in Pokhara metropolitan city.

**Institutional Schools:** Institutional schools are those schools which do not receive any financial support of government of Nepal.

**Teaching Problem:** Teaching problem is obstruction of teaching or situation in which female mathematics teachers of ethnic groups feel difficultly.

### **Delimitations of the Study**

The limitations of the study as follows:

- I) The study was limited to Pokhara Metropolitan city.
- II) The study was concerned only with classroom teaching problems of basic level mathematics teachers.
- III) The questionnaires were developed in terms of developed conceptual framework.
- IV) Only ten ethnic female mathematics teachers were selected in this study.
- V) One teacher was taken purposively from one school.
- VI) The data of this study was generated through the questionnaire and class observation form.
- VII) The study concerned only with classroom teaching problems in basic level of Pokhara Metropolitan City.

## Chapter II

### REVIEW OF RELATED LITERATURE

The literature review helps the researcher to know the information in the area of research project. Several studies and researchers have discussed about the problem faced by mathematics teachers in teaching mathematics. The teachers have taken many variables such as achievements of students' mathematics attitudes of students and teachers towards mathematics, effectiveness of studies relevant to the present study are reviewed. In order to get a better understanding of the subjects of one's study, it is essential and helpful to survey the literature and studies relevant and related to it. The related studies provide the researcher in making her problem more realistic, precise, researchable and meaningful. Several types of related literature were reviewed in course of this study. The review of 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 will have been reviewed as follow.

As opined by the various stakeholders like DEOs, MEOs and SMCs members and Head teachers, the presence of female teachers has shown some substantial positive impact in the schools and the communities, as well. The major impact in the schools as stated by them were.

- Increased enrollment of girls in the schools.
- Girl felt secure to participation in curricular and extra-curricular activities increased their participation in curriculum and extra-curricular activities.
- Improved cleanliness of the schools.
- Improved hygiene and health habits of the students (both boys and girls) regarding toileting, washing hands, taking bath or personal cleanliness.
- Changed in the role models/ future expectations of the girls' students.
- Rapport between the students and teachers had been well established (dealing all the students affectionately.)
- Female teacher had made the curricular and co-curricular activities joyful .

Similarly, the impact of female teachers in the communities as opined by the key information of the sample schools has been as cited below:

- Actively participating in the Door-to-Door program for raising awareness on enrolling girls in the schools.
- Convincing /motivating the parents of out of school children to enroll them in the schools and also retain them to complete the whole basic education cycle.
- Playing the active role in awareness rising in avoidance of discriminatory practices within the families of the society as well.
- Motivating the females of the communities to come out from the traditional cocoons to take part in the various programs run by the local levels NGOs/INGOs in the various kinds of development activities.
- Encouraging and also helping the qualified girls married women to work as teachers either in the formal or non-formal programs.

Upadhyya (1985) conducted his thesis entitled “A comparative study on the classroom questioning behavior of primary school teachers”. He concluded that percentage of total time offered to question in mathematics was significant different in comparison to other subject (Social studies and Nepali) and there were not any significant differences existing between student talk generated by male and female trained and untrained teachers while teaching mathematics.

Dhital (1985) conducted his thesis entitled “A study of the problems facing the teaching of English at Lower Secondary level of Dhankuta district. He concluded that there were number of problems in activities, teachers training instructional materials classroom situation and physical facilities etc.

Pathak (1986) concluded a thesis entitled “The problem faced by the teacher in Kathmandu District in the implementation of mathematics curriculum for lower secondary school”. He concluded that the most of teachers of Kathmandu district have been facing problems in the selection and use of instructional materials but they are facing problems in selecting proper evaluation devices.

Pandit (1999) mentioned on an article problem faced by mathematics teacher educator in the implementation of three years 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 personal 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 problem while teaching .And their problems may be related with mathematics education program, which directly or indirectly affect to mathematics teaching such problems as a whole can be divided into two parts.

- a. Problem in mathematics education and
- b. Problem faced by them while teaching mathematics in real classroom situation and some remedial suggestions has also been given in his article.

Baral (2000) concluded his thesis entitled "A study of the problem faced by mathematics teachers in implementation of compulsory mathematics curriculum in grade IX". He concluded that the objectives of curriculum seem to be highly idealistic, hence they cannot be fulfilled in present context of mathematics teaching learning situations. He found that textbook is inadequate for this level. He came up to conclusion that only paper pencil test was in use. He also wrote that he had difficulty to evaluate student achievement fairly.

Pokhral (2000) conducted his thesis entitled "A study of present states and current problems in new curriculum of grade VII mathematics in Gorkha district". He concluded that some lessons were difficult to understand and some lessons being longer than necessary, no proper use of teaching materials for new topics course could not be finished within assigned time. Teacher guide was not found available in sampled school.

Lamichhane H.N (2001), studied “Problems of the secondary mathematics teachers in teaching mathematics.” He found that major problem that causes teachers in inefficient to execute their duty properly inside and outside the classroom.

Lamichhane (2001) conducted his thesis entitled “A study of problems faced by the secondary level mathematics teachers in teaching mathematics.” He concluded that several problems propped up in the eyes of teachers and problems faced to be significantly differently from those of rural teachers.

Mitra (2001) on the topic “A study of teaching materials and subject wise classroom observation took the research in public primary school. This study found that, trained and experienced teacher have inadequate in the classroom environment.

Basnet (2003) conducted his thesis entitled teaching problems faced by the mathematics teachers in existing curriculum of grade eight. He concluded that mathematics teaching and learning is not satisfactory at grade eight in Jhapa district. The teachers and students are facing many problems due to the lake of training, orientation opportunity for mathematics teachers in existing curriculum, inadequacy of text book, lack of teachers guide an reference book, lack of instructional materials, lack of physical facilities in the classroom, large class size, defective evaluation system and so on.

Chulagain (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 text, evaluation technique, professional development of teachers, school administration and so on.

Thapa (2005) concluded her thesis entitled “Problem faced by teacher in teaching mathematics at primary level”. She concluded that most of problem are arise because of large class size, irrelevancy of teachers guide book in the sense of teachers’ needs, lack of instructional materials, adequacy of teacher training, lack of supervisory help, lack of physical facilities etc. preparedness and the level of motivation to learn mathematics are poor on the part of student.

Subedi Tribikram Chui (2008) concluded that there is no significance difference between the problems felt by urban and rural female teachers but the pattern of the problems were different.

K.C (2009) conducted a research study entitled “Problem faced by student in compulsory mathematics at secondary level. Researcher conclude that learning compulsory mathematics in secondary level is effected by so many teacher such as illiterate parents, low economical status poverty of the parents and lack of encouragement for study the gap between low achiever and high achiever students unavailability of teaching and learning materials lack of mathematics lap, lack of sufficient furniture and physical facilities, lack of trained teacher are problems faced by students in learning mathematics in secondary level. Also lack of good administration sufficient budged for school often arriving late to class is problem for students.

Hari P.P (2011) studied “A study on problems faced by lower secondary mathematics teacher in teaching mathematics of Kaski district.” The main theme of the study was to determine the problems faced by mathematics teacher in Kaski district.

Therefore this study was focused on the teaching problems faced by female mathematics teacher belonging to ethnic groups in teaching mathematics at basic level in Pokhara metropolitan city.

### **Research Gap**

The gap considered the missing piece or pieces in the research literature is the area that has not been explored or is under explored. This could be a population or sample (size, type, location etc.). Research method, data collection and or analysis or other research variables or conditions. In another words, it indicates a finding from a research in which a key question has not answered. It shows you have a deep understanding of the status of the body of knowledge in your chosen field and finally it shows that you have conducted a research which fulfills that gap in the literature.

Upadhya (1985) had researched on the A comparative study on the classroom questioning behavior of primary school teachers. Pathak (1986) had studied on The



problem faced by the teacher in Kathmandu District in the implication of mathematics curriculum for lower secondary school. Pandit (1999) had researched on an article problem faced by mathematics teacher educator in the implementation of three years B.ED. level mathematics curriculum in Nepal. Pokhrel (2000) had studied on a study of present states and current problems in new curriculum of grade VII mathematics in Gorkha District. Baral (2000) had researched on a study of the problem faced by mathematics teachers in implementation of compulsory mathematics curriculum in grade IX. Lamichhane (2001) had studied on a study of problems faced by the secondary level mathematics teachers in teaching mathematics. Basnet (2003) had studied on teaching problems faced by the mathematics teachers in existing curriculum of grade eight. Chulagain (2005) researched on a study on problems faced by secondary mathematics teachers in teaching geometry. Thapa (2005) researched on problem faced by teacher in teaching mathematics at primary level. Subedi Sthir (2008) studied on a study on problems faced by female mathematics teachers belonging to ethnic groups in teaching mathematics at primary level in Kaski District. K.C (2009) studied on problem faced by student in compulsory mathematics at secondary level. Hari P.P (2011) researched on a study on problems faced by lower secondary mathematics teacher in teaching mathematics of Kaski District.

No research yet have been carried out the problems faced by female mathematics teachers belonging to ethnic groups. The present study have been different from all above mentioned works. It well attempt to find out the ethnic female mathematics teachers problems of basic level in Pokhara Metropolitan city.

## **Chapter III**

### **METHODOLOGY**

Research methodology presents the logistics of study because it determines how the researcher becomes complete and systematic. The research design is survey, analytic, descriptive and comparative in nature. This study is concerned with the study of problems faced by female teacher belonging to ethnic groups in teaching mathematics at Basic level in Pokhara Metropolitan City. The major procedures followed in this study were as follows:

- Research Design
- Population of the study
- Sample of the study
- Instruments
- Validation of the study.
- Data collection procedure
- Scoring procedure
- Data analysis procedure.

#### **Research Design**

Survey type, analytic, descriptive and comparative method was adopted to conduct the study for convenience. Using this method more items was asked and more flexible but factual information were gathered.

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

The entire female mathematics teachers belonging to ethnic groups who taught mathematics in basic level of Pokhara metropolitan city were the population of the study.

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

The researcher adopted purposive random sampling for the collection of sample of the study. In this thesis Ten schools were selected from each of the strata

(i.e. community and institutional) in which ethnics female mathematics teacher were taught. 5 community and 5 institutional schools' female mathematics teachers belonging to ethnic groups were selected as sample who are teaching at Pokhara metropolitan city. One ethnic female mathematics teacher was choosing through simple sampling. Table-I, in a nutshell, describe the school, the academic and experience profile of the teachers.

**Table 1: Detailed Sample Characteristics**

S.N	Sample Characteristics	Number
1	Location of the school	
	a) Community	5
	b) Institutional	5
2	Location wise teachers	
	a) Community teachers	5
	b) Institutional teachers	5
3	Teachers Training	
	a) Trained teachers	8
	b) Untrained teachers	2
4	Academic Qualification	
	a) Intermediate	2
	b) Bachelor	8
5	Years of experiences	
	a) 1 to 5 years	3
	b) 6 to 10 years	3
	c) 11 to 15 years	1
	d) 16 to 20 years	3

For the details description of the school's and the teachers see Appendix D and E.

#### **Instruments:**

For the collection of data the researcher herself developed a questionnaire with the help of supervisor. The questionnaire was constructed after the detail study of related literature such as articles, documents, thesis and consulted with mathematics

experts and experience teachers. The questionnaire contained the items relating to various problems, which are being faced by basic levels female mathematics teachers of ethnic groups. The area of problems was curriculum, teachers guide book and textbook, physical facilities, teaching learning activities, materials and method also school administration. At the end of each section of questionnaire respondents were requested to comment on the areas not covered by items. For the classroom observation, researcher used the form, which was used by effective school observation.

### **Validation of the Study**

Before finalizing the instrument, the items were piloted on five basic level female mathematics teachers of ethnic groups to check the appropriateness of items. After piloting some questions were modified, some were rejected and some were corrected. Finally, the researcher showed them to her supervisor, expertise for validation and then the questionnaire was prepared for final administration.

### **Data Collection Procedure**

For the data collection, the researcher visited each of the sample school along with the questionnaire, observation form and request letter from P.N campus to render any help needed to the researcher from the school administration. After explaining purpose of visiting the researcher requested each of the teachers of the school included in the sample to fill the questionnaire honestly, the researcher explained and clarified any confusion that arose in understanding the statements. The researcher also observed the class of the sampled teacher and observations were record with the help of observation form.

### **Scoring Procedure**

For the analysis of the items, weightage of 5, 4, 3, 2, 1 were assigned to statement 'Strongly agree', 'Agree', 'Undecided', 'Disagree', 'Strongly Disagree', respectively. For the statement opposing to this point of view, the items were scored in the opposite order. Mean weightage was calculated. Total score of five point Likert scale was 15 thus its average score was 3. If the calculated index was greater than three then it was concluded that the statements contains in strong favor to the

problems. If the index measure was less than or equal to three; then it was weak favor to the problems.

### **Data Analysis Procedure**

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

I) Mean score was used to locate the central position of the responses to the statements of ethnic female teachers as a score in the rating scale. The average rank score is calculated as follow.

$$\text{Average Rank} = \frac{\text{Total Rank Score of Statement}}{\text{Number of Ethnic Female Teachers}}$$

Each statement was studied in terms of whether the ethnic female teacher perceived it as a problem or not by analyzing the position of the average response index in the rating scale. If the calculated index was greater than 3, then it was concluded that the statement was problematic. If the index measure was less than or equal to 3, then it was not a problem.

II) The t-test was used to investigate the significant difference if it exists, between mean rank scores of community ethnic female teachers and institutional ethnic female teachers towards the responses to the statements.

The mean response of community ethnic female teacher were denoted by  $\bar{x}_1$  and the mean response of institutional ethnic female teacher were denoted by  $\bar{x}_2$ . Similarly  $s_1^2$  is the variance of community ethnic female teachers of size  $n_1$  and  $s_2^2$  was the variance of institutional female teachers of size  $n_2$ . The procedures for testing the hypothesis are given in the Appendix F.

## Chapter-IV

### ANALYSIS AND INTERPRETATION

The data were collected for the study from the ten schools in Pokhara Metropolitan city. The collected data were tabulated and analyzed according to the objectives of the study and verified the hypothesis of the study. The obtained data were statistically analyzed and interpreted by using t-test, mean weightage and standard deviation. These data were calculated item wise and then area wise in the various problems faced by ethnic groups female teachers related to physical facilities, curriculum, textbook and teacher's guide book, instructional materials, students evaluation technique, ethnics problems and school administration related problems.

The collected data were analyzed under the following headings, which correspond to the objectives of the study.

- Problems related to physical facilities.
- Problems related to curriculum, textbook and teacher's guide.
- Problems related to teaching learning activities, instructional materials, methods and techniques.
- Problems related to students evaluation technique.
- Problems related to female teacher belonging to Ethnic groups.
- Problem related to school administration.

#### **Respondents Attitudes Towards Physical Facility**

**Table: 2**

Problems Related to Physical Facility

S.N	Statements	Mean weightage	Remarks It is problem
1	The mathematics classroom is neat and clean.	1.2	No
2	The classroom is well lighted and ventilated.	2	No
3	The mathematics classroom is crowded.	1.6	No
4	The furniture is adequate.	2.2	No
5	There is separate room for mathematics instruction.	4.2	Yes

6	The classroom is equipped with graph board and bulletin board.	3.1	Yes
7	There is mathematics laboratory.	3.8	Yes
8	Library facilities is available.	1.8	No

For more detail description of the distribution of the response see appendix, A

From the table-2 while studying the 1<sup>st</sup> statement it is concluded that the mathematics classroom is neat and clean. About 100% of teachers were agreed. Besides, the mean weightage of the order of 1.2 in the rating scale proves that it is not a significant problem rather it remains neat and clean everyday.

About the 2<sup>nd</sup> statement, whether the classroom is well lighted and ventilated, nearly 80% of the teachers agreed, only 10% teachers were undecided and remaining 10% of them opined that the maintenance of classroom was not satisfactory enough. A mean weightage of 2 in the rating scale indicated that teachers didn't perceive that this is a real problem.

In response of the 3<sup>rd</sup> statement, 40% of teachers frankly agreed that the mathematics classroom is crowded. About 50% of teachers disagreed that the classroom is crowded. They viewed that they faced problems in that teaching instructional activities mainly because of proper communication between the students and teachers. Only 10% teachers were undecided. As a whole, an average measure of the order of 2.8 in the rating scale of the response indicated that the crowded classroom is not indeed a significant problem.

Talking about the 4<sup>th</sup> statement, 70% of them agreed that the furniture is adequate. Only 30% of them opine that the furniture is inadequate. As a result, it is declared that there is no lack well furniture in the classroom. The mean weightage of 2.2 in the rating scale of the teachers indeed proves that it is not a major problem.

Moving a head on the 5<sup>th</sup> statements which is about there is separate room for mathematics instructions, it is found that 90% of them disagreed whereas only 10%

teachers were undecided. The mean weightage of 4.2 in the rating scale exposed that it's a major problem facing practically by female teachers in the basic levels.

Coming at the 6<sup>th</sup> statements, 50% of teachers disagreed and only four out of the Total sample agreed and 10% teacher were undecided so that there are a graph boards and bulletin boards are not available in the classroom. The mean weightage of 3.1 also indicates that an availability of graph board and bulletin boards is a real problem.

On the 7<sup>th</sup> statement, majority of the teachers frankly agreed that there is no facility of mathematics laboratory in the schools. Only two out of the total sample undecided. That's why mathematics cannot be taught effectively and meaningfully because of the lack of laboratory. The mean weightage of 3.8 in the rating scale proves that this is a real crisis in teaching.

At the end of the table in 8<sup>th</sup> statement about the library facility, 70% of them stated that there is library facility in the schools where as 20% undecided and the remain in 10% completely disagreed. The mean weightage of 1.8 in the rating scale reveals that it is not a problem.

### **Respondents Attitudes Towards Curriculum, Textbook and Teacher's Guide Book**

**Table: 3**

Problems Related to Curriculum, Textbook and Teacher's Guide Book

S.N	Statements	Mean Weightage	Remarks It is problem
9	Curriculum do not match according to student's level.	2.6	No
10	The textbook are not practicable.	2.8	No
11	The textbook are not available on time.	3.4	Yes
12	There are mistakes in printing.	3.4	Yes
13	The examples included in the textbook are not sufficient.	2.9	No
14	The verbal problems of textbook are not related to students daily life .	2.9	No
15	The teacher's guidebook is available in need.	3.2	Yes



In the table -3, from the statement 9<sup>th</sup> about the curriculum do not match according to student's level, 20% of female teachers frankly agreed . About 20% of them were undecided and only 60% of teachers disagreed .The mean weightage of 2.6 in the rating scale shows that it is not a problem.

Similarly, on the 10<sup>th</sup> statement, 30% of them have said that the textbooks are not practicable and 70% of teachers were disagreed with this statements. The mean weightage of 2.8 in the rating scale proves the textbooks are not practicable is not a problem.

In response of 11<sup>th</sup> statement about the unavailability of textbook on time, about 50% of teachers agreed and 40% of teachers disagreed. Only one teacher were undecided with the view. The mean weightage of 3.4 in the rating scale shows that the unavailability of textbook on time is a problem, which means it not reaches on time.

In the 12<sup>th</sup> statement about the printing mistakes on textbook, 50% of them have agreed, 30% are undecided and remaining 20% disagreed with the statements. The mean weightage of 3.4 in the rating scale shows that the printing mistakes in the textbook is really creates problem.

Likewise, while discussing about the 13<sup>th</sup> statement on the matter of examples available in the textbook are not sufficient, 40% of teachers agreed. Remaining 60% of them opine that example included in the textbook are sufficient. The mean weightage of 2.9 revealed that it is not a problem.

In the 14<sup>th</sup> statement about the verbal problems of textbook are not related to students' daily life, 5 out of 10 teachers have disagreed and 1 person was undecided were as 4 teachers were agreed. The mean weightage of 2.9 in the rating scale indicates that it doesn't create problems.

Likewise, while discussing about the 15<sup>th</sup> statement on the matter of availability of teacher guide book, 50% of teachers have agreed, one of them undecided. Only 40% disagreed with the statement and the mean weightage calculation is 3.2 that prove that it is a problem on the availability of teachers guide book.

## Respondent Attitudes Towards Teaching Learning Activities, Instructional Materials, Methods and Techniques

**Table: 4**

Problems Related to Teaching Learning Activities, Instructional Materials, Methods and Techniques

S.N	Statements	Mean Weightage	Remarks It is Problem
16	I don't make plans (yearly as well as unit) because I don't know how to do it.	1.1	No
17	I make and frequent use of instructional materials (other than textbook and guide) to motivate my students and make mathematics more meaningful.	1.3	No
18	Often (sometimes) I get frustrated and unmotivated to teach mathematics.	3.5	Yes
19	Supervisor visit frequently.	3.2	Yes
20	I am trained mathematics teacher.	1.7	No
21	I don't like to be a mathematics teacher.	1.2	No

In table -4 on the 16<sup>th</sup> statement, 90% said that they have ideas about how to prepare yearly as well as unit plans but only one out of them have said that she has no idea because she is untrained. In the mean weightage of 1.1 proves that preparing plans (yearly as well as unit) do not pose problems.

Similarly, in the 17<sup>th</sup> statement about making and using of instructional materials to motivate their students and making mathematics more meaningful, 100% of teachers were agreed so this stated that instructional materials is more useful. The mean weightage of 1.3 indicates that it is not a problem.

Arriving at the 18<sup>th</sup> statement which deals with frustration and unmotivated to teach mathematics 60% of them agreed, remaining 40% were disagreed. The mean weightage calculation on 3.5 reveals that it create problem. The teachers who show this statement have following reasons:

- Some of teachers reveal that the students are not motivated to learn mathematics.
- Some of them reveal that the students are not laborious and quite lazy.

- Some of them exposed that the students are not disciplined.
- Some of them expressed that students are not interested to learn mathematics.

Talking about 19<sup>th</sup> statement on the matter of supervisor's visit, 30% agreed, 30% disagreed and 40% undecided. The mean weightage 3.2 indicates that it is a significant problem. Some of teachers said that supervisors help them.

- 40% claimed that the supervisor help them to solve their professional problem.
- All of them claimed that they need of subject supervisors.

In the same respect on 20<sup>th</sup> statement, about the trained mathematics teacher, 80% of the teachers were agreed, 20% of them disagreed. The mean weightage 1.7 shows that it is not significant problem. The researcher found that almost female teachers are well trained and the following answer is derived from the trained teachers which asking questions.

- 70% supposed that the training programmed was very useful.
- 80% supposed that the training programmed improved their teaching performance.
- 80% also felt confidence to teach after the training.
- 90% of them have found need of refresher training.
- Two teachers disagreed and they demand for training.

On the 21<sup>st</sup> statement which talks about I don't like to be a mathematics teachers 100% disagreed and mean weightage 1.2 indicate that it is not a problem which signifies that most of them have keen interest in teaching mathematics.

### **Respondents Attitude Towards Student's Evaluation Technique**

**Table: 5**

#### Problems Related to Student's Evaluation Technique

S.N	Statements	Mean Weightage	Remarks It is Problem
22	It is difficult to check homework due to lack of sufficient time.	4.6	Yes
23	There is difficulty in student's evaluation at the	2.7	No

	end of the lesson.		
24	There is less use of regular method of testing like unit test, weekly test, monthly test and terminal etc.	3.7	Yes
25	The parents of the students do not interact with teacher about their children in mathematics.	3.5	Yes
26	The school does not care about the students achievement in mathematics.	1.9	No
27	The students do not interact with the teachers about their achievement in mathematics.	3.1	Yes

In the table -5 on the 22<sup>nd</sup> statements, 90% agreed with the given statement that it is difficult to check homework due to the lack of sufficient time. On the other hand 10% of them showed disagreement and the mean weightage 4.6 indicates that it has become a problem to them.

In the 23<sup>rd</sup> statement, 70% of teachers showed disagreement on the view that there is difficulty in student's evaluation at the end of the lesson, where as 20% agreed with the given statement and one teacher was undecided. The mean weightage 2.7 in the rating scale signifies that it is not a problem.

In the response to 24<sup>th</sup> statement, 40% agreed, one teacher disagreed and 50% of them were undecided with the view that there is less use of regular method of testing like unit test, weekly test, monthly test and terminal test etc. the mean weightage 3.7 indicates that it is a major problem.

Coming at the 25<sup>th</sup> statement, 60% of teachers agreed that the parents of the students do not interact with teacher about their children in mathematics. 40% of them disagreed. The mean weightage 3.5 indicates it is a significant problem. Most of the parents don't interact with the teachers because they were less educated and they don't care about the education of their children.

In the same way, on 26<sup>th</sup> statement which deals with the statements that the school doesn't care about the students achievement in mathematics. 80% of them disagreed with the given statement which means most of the schools take care of their student's achievements in mathematics. The mean weightage 1.9 also exposes it's not a problem.

On the 27<sup>th</sup> statement, 40% disagreed with the view that the student's don't show any interest with the female mathematics teacher about their achievement in mathematics. It means 40% of them interact with the female teacher about the achievement in mathematics. Similarly 50% agreed with the given view but in basic level the students don't appear to interact with the teacher mainly because of lack of confidence strength in them. The mean weightage 3.1 reveals that it is a little problem.

### **Respondents Attitudes Towards to Female Teacher Belonging to Ethnic Groups**

**Table: 6**

Problems Related to Female Teacher Belonging to Ethnic Groups

S.N	Statements	Mean Weightage	Remark It is Problem
28	There is language problem.	2.5	No
29	There is sexual biasness and domination for female.	2	No
30	There is fear of insecurity and sexual harassment.	2.3	No
31	There is less confidence in female teacher.	1.9	No
32	Bias view of school management committee.	3.3	Yes
33	There are problems related to female physical nature and dressing.	2.8	No
34	Inferior view to ethnics and dalits castes in teaching learning activities.	2.9	No

In table -6 on the 28<sup>th</sup> statement, which deals with language problem to teach mathematics, 70% of the teachers openly showed disagreement with the view and one female teacher were undecided. Remaining 20% of them, agreed. The mean weightage result 2.5 declare that language problem for ethnic groups are not major problems. The conclusion is, though they speak their own ethnic language outside the classroom, they are more conscious about the language inside the class while teaching.

About 29<sup>th</sup> statement, 90% of the teachers disagreed, only one teacher was agreed the view that there is sexual biasness and domination for female. The mean weightage calculation 2 shows that sexual biasness and domination for female is not a problem. Besides, the female teachers who teach in government school reveals such type of discrimination with female related to private school. In earlier, government school too, female teachers had also

related such type of biasness and domination but now a days it is removing from the private school.

Coming at the 30<sup>th</sup> statement, 70% of the female teachers disagreed, two teachers were undecided and only one teacher was agreed on the view about the fear of insecurity and sexual harassment in female teachers of ethnic groups. The mean weightage 2.3 also shows that it's not a problem for them.

About 31<sup>st</sup> statement, 90% disagreed with the view of less confidence in female teacher belonging to ethnic group. Only one teacher agreed with this view. The mean weightage results 1.9 indicates, that less confidence in female teachers is not a significant problems more than this they don't want to show their lack confidence while teaching. To the same extent it is found that due to their ethnic confidence they are expanding their confidence in teaching in comparison to other upper caste females.

The 32<sup>nd</sup> statement about bias view of school management committee, 50% of female teachers were agreed and remaining 50% disagreed. The mean weightage 3.3 indicates that it creates problem. It means that some schools management committee doesn't show any kind of biasness to female teachers, some show biasness to female teachers. Furthermore it has been found that the some school management committee is giving more opportunities in teaching to their relations due to their dear and near.

In response to 33<sup>rd</sup> statement which deals with problems related to female physical nature and dressing. 40% of them were disagreed, 40% agreed and remaining 20% were undecided with the above statement. The mean weightage 2.8 indicates it doesn't create problem.

Moving ahead in 34<sup>th</sup> statement 30% agreed, 50% disagreed and remaining 20% were undecided with the inferior view to ethnics. The mean weightage 2.9 in the rating scale also proves that they don't feel any type of inferiority while at the teaching learning activities.

## Respondents Attitudes towards School Administration

**Table: 7**

### Problem Related to School Administration

S.N	Statement	Mean Weightage	Remarks It is Problems
35	Irresponsible administration to manage and construct necessary teaching materials.	2.7	No
36	Lack of refreshment training to teach difficult and rigor topics.	3.5	Yes
37	Compulsion to take more classes because of low number of mathematics teachers.	2.8	No
38	Lack of facilities and award for the good performance.	3.6	Yes
39	Unavailability of mathematics journals dissertation and new books.	4.1	Yes
40	Unavailability of curriculum and teachers guide on time.	3.6	Yes

In the table-7 about 35<sup>th</sup> statement 50% of the teachers disagreed, 20% agreed and remaining 30% of them were undecided on the irresponsible administration to manage and construct necessary teaching materials. The mean weightage 2.7 signifies that it is not a problem which means the administrator shows their responsibility when the female teachers ask him/her to construct and manage necessary teaching materials. They also provide them essential teaching materials where they are in need.

In 36<sup>th</sup> statement about lack of refreshment training to teach different and rigor topic, 60% of them fully supported where as 30% of them not agreed and only one teacher was undecided at the above statements. The mean weightage 3.5 declares that lack of refreshment training to teach difficult and rigor topic is major problem. For that, the administration should attempt to manage the essential number of mathematics teachers. The required teachers need refreshment training time to time for difficult and rigor topics to give good education. That's why it has been found that refreshment training for the teachers is the most essential thing to enhance their teaching carrier and skill.

Coming at the 37<sup>th</sup> statement 70% of the teachers disagreed and remaining 30% of them were agreed with the views of compulsion to take more classes because of low number of mathematics teachers. The mean weightage 2.8 in the rating scale proves that it is not compulsion for female teacher to take more classes. From field study it was observed that female teachers were not forced to take more classes in the lack of low number of mathematics teachers.

In 38<sup>th</sup> statement, They need good facilities and awards for good performance according to their subject however they were not getting such facilities as they respond. 60% of them agreed, 20% disagreed and 20% of them were undecided on the above statement. The mean weightage 3.6 indicates that the good performance is the most requirement in order to expose their innate talent and capability.

Reading at the 39<sup>th</sup> statement on the issue of unavailability of mathematics journals dissertation and new books, the researcher has found that 80% agreed with the given above statement and 20% disagreed. The mean weightage of 4.1 concludes that it really creates problem. Though such unavailability make problem, some of them have responded that they have some materials given by UNICEF related to mathematics which are extremely useful and fruitful for them.

In 40<sup>th</sup> statement above unavailability of curriculum and teachers guide in time, they have come on the point that 60% of them fully agreed and 40% of them shared disagreement. The mean weightage 3.6 in the rating scale indicates that the administrator doesn't pay any attention in bringing curriculum and teachers guide book in time. It was so because of their carelessness and disinterest upon such things.

### **Analysis of Classroom Observation**

The analysis of class room observation was intended to identify the problem that arose in the classroom while the actual teaching goes on. The researcher was able to observe ten mathematics classes. The detailed distribution of classroom observation result is given in table-8.

For analysis of classroom observation, weightage of 1, 2, 3 and 4 is assigned to a statement if it is stated excellent, good, fair and poor respectively. Then the mean weightage were calculated. If the calculated indeed is greater than 2.5 then



it is corrected that the statement implies a problem. If the index measure is less than or equal to 2.5 then it is not a problem.

**Table: 8**

**Ethnic Female Classroom Observation Form**

S.N	Observed Items	Excellent	Good	Fair	Poor	Mean Weightage	Remarks It is Problems
1	<u>Physical Facility</u>	1	9	0	0	1.9	No
	1.1 Classroom size						
	1.2 The light and ventilation.	7	1	2	0	1.5	No
	1.3 Cleanliness	2	5	3	0	2.1	No
	1.4 The availability of furniture.	2	8	0	0	1.8	No
	1.5 The temperature and humidity of classroom.	0	2	6	2	3	Yes
	1.6 Arrangement of board.	1	4	5	0	2.4	No
	1.7 The quality of board.	1	9	0	0	1.9	No
	1.8 Seat planning of students.	5	3	1	1	1.8	No
	1.9 Mathematics laboratory.	0	0	7	3	3.3	Yes
2	<u>Instruction</u>	2	6	2	0	2	
	2.1 Teacher's lesson plan.						
	2.2 Use of instructional materials.	5	2	3	0	1.8	
	2.3 Use of other practice chart.	1	3	5	1	2.6	Yes
	2.4 level of motivation.	3	7	0	0	1.7	No
	2.5 level of discipline.	1	4	5	0	2.4	No
	2.6 Preparation for task.	2	5	1	2	2.3	No
	2.7 Mastery of subject matter.	3	3	2	2	2.3	No
	2.8 Interaction with all students.	2	2	4	2	2.6	Yes
	2.9 Leadership	2	5	2	1	2.2	No
	2.10 Speaking voice.	2	5	3	0	2.1	No
	2.11 Neatness of teacher.	1	3	5	1	2.6	Yes
3	<u>Conclusion of the lesson</u>						
	3.1 Summarization of lesson.	1	6	2	1	2.3	No
	3.2 Checking the achievement of objective.	0	4	5	1	2.7	Yes
	3.3 The quality of homework.	0	4	5	1	2.7	Yes
	3.4 Indicate about the next lesson.	1	2	5	2	2.8	Yes

From the table-8, it is found that the mathematics classroom is not crowded. Similarly most of the boards are shining and it is kept in the middle. The boards of all sample schools were white in color. The entire board, in the sample school were

wallboard of wood. Most of the classes are clear. The light and ventilation and availability of furniture are good. The temperature and humidity of classroom is different in community schools and institutional schools. Most of the school's roofs were of cement. None of the school has a math laboratory so it created the great problem for the teachers.

Researcher saw that all of the teachers were prepared for class but they directly started their lesson and did not review the previous lesson. Most of the teachers' had written lesson plans and they were punctual and motivated the students while teaching. However they weren't able to provide the clear objectives to the students. While asking the questions to the students they did not use the name of the students, which was the poor aspect of teachers. Most of teachers had clear voice, neatness and leadership capacity. Similarly most of the teachers did not use of extra practice chart.

The teachers used same method at the end of class. Finally teacher did not review their content and objectives for that period. Most of teachers did not evaluate the students at the end of the lesson. Most of the teachers gave homework for the students. They finished the class on time but the indication to the next lesson was not satisfactory. In community schools' female teachers did not do as students' interest. There were the problems for teacher in her classroom teaching.

### **Comparison of Problems of Ethnic Female Teachers of Community and Institutional School**

The second objective of the study was to compare the problems of ethnic female teachers of community school and institutional school. In order to achieve this objective the following hypothesis was formulated. There is not a significance difference between the community ethnic female teachers' problem and institutional ethnic female teachers' problem.

The mean response scores in the rating scale of community ethnic female teachers and institutional ethnic female teachers are given in table -9

**Table: 9**  
**Item-wise Distribution of Mean Response of the Community and Institutional**  
**Schools Female Teachers of Ethnic Groups**

Statement No.	Community Female Teachers		Institutional Female Teachers	
	Mean Response	Problem	Mean Response	Problem
1	1.2	No	1.2	No
2	2	No	2	No
3	2.2	No	4.2	Yes
4	2	No	2.4	No
5	4	Yes	4.4	Yes
6	4	Yes	3.8	Yes
7	3	Yes	4.8	Yes
8	2	No	2	No
9	2.6	No	2.6	No
10	3	Yes	2	No
11	3.4	Yes	3	Yes
12	3.8	Yes	2.4	No
13	3.4	Yes	2.2	No
14	3.6	Yes	2.6	No
15	2.4	No	4	Yes
16	1.6	No	1.2	No
17	1.4	No	1.2	No
18	3.6	Yes	4.2	Yes
19	3.4	Yes	3	Yes
20	1.4	No	2.6	No
21	1.2	No	4.8	Yes
22	5	Yes	1.8	No
23	2.8	No	2.6	No
24	2.8	No	3	Yes
25	3.8	Yes	2.8	No
26	2	No	1.8	No
27	3.2	Yes	3.2	Yes
28	2.4	No	2.6	No
29	2.2	No	1.8	No
30	2.8	No	1.8	No
31	2	No	1.8	No
32	4.2	Yes	2.6	No
33	2.8	No	3.6	Yes
34	3.6	Yes	1.8	No
35	2.8	No	2.6	No
36	3.6	Yes	3.4	Yes
37	2.8	No	2.4	No
38	3	Yes	3.2	Yes
39	4	Yes	4	Yes
40	3.6	Yes	3.6	Yes
Grand mean	$\bar{X}_1 = 2.865$		$\bar{X}_2 = 2.795$	
S.D	$S_1 = 0.915$		$S_2 = 1.0004$	

Table-9 clearly shows that there exists a wide difference between community female teachers' mean response and institutional female teachers' mean response in statements 3, 10, 12, 13, 14, 15, 21, 22, 24, 25, 32, 33, 34. It is concluded that the mathematics classroom is crowded in institutional because of the high number of students but is not crowded in community due to the lack of students. Likewise the classroom is better equipped with furniture in institutional schools than in community schools. Similarly, teacher guide book and textbook were available in most of the institutional schools than in community schools. The female teachers from community school feel textbooks are not practicable, mistakes in printing and examples included are not sufficient. The community female teachers were interested to teach by making lesson plan. Community female teachers feel verbal problems of textbooks which are not related to student's daily life than institutional female teachers. They feel some of the units are difficult to teach than in institutional and they do not practice individual teaching. The students and parents do not show any interaction with the teacher about students mathematics achievement in community schools than in institutional but the community female teachers don't able to check the homework due to the lack of sufficient time and feel difficult to take evaluation at the end of the lesson than in institutional schools.

Furthermore, there is sexual biasness, domination, insecurity and sexual harassment in community female teachers than in institutional schools. From the survey the researcher found that female teachers from community schools want refreshment training about the rigor topic than institutional schools. Similarly, the female teachers from institutional want to be awarded from school according to their performance. Also found that the female teacher from community schools feel inferior view to ethnics and dalits castes in teaching learning activities than institutional schools.

**Table: 10**

Mean and Standard Deviation of Community and Institutional Female Teachers.

Type	Mean	S.D	No. of female teachers	Calculate Value	Tabulated Value	Remarks
Community Ethnic Female Teachers	$\bar{X}_1 = 2.865$	$S_1 = 0.915$	$N_1 = 5$	0.118	1.860	Null hypothesis cannot be rejected
Institutional Ethnic Female Teachers	$\bar{X}_2 = 2.795$	$S_2 = 1.0004$	$N_2 = 5$			

$\bar{X}_1$  = Mean weightage of community female teachers of ethnic groups.

$\bar{X}_2$  = Mean weightage of institutional female teachers of ethnic groups.

$S_1$  = Sample standard deviation of community female teachers of ethnic groups.

$S_2$  = Sample standard deviation of institutional female teachers of ethnic groups.

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \text{ Where } S_p = \sqrt{\frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}}$$

$$\bar{x}_1 - \bar{x}_2 = 2.865 - 2.795 = 0.07, \mu_1 - \mu_2 = 0, \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} = \sqrt{\frac{1}{5} + \frac{1}{5}} = 0.632$$

$$S_p = \sqrt{\frac{(5-1)(0.915)^2 + (5-1)(1.0004)^2}{5+5-2}} = \sqrt{\frac{3.3489 + 4.0032}{8}} = 0.95$$

$$t_{\alpha/2, n_1+n_2-2} = t_{0.05, 16} = 1.860$$

The calculated t value i.e. 0.118 is less than t-tabulated value 1.860 for a two-tailed test at 0.1 level of significance and 8 degree of freedom. Therefore the null hypothesis is accepted. It is concluded that the extent of problems felt by community female teacher is the same as the institutional female teacher.

At the end of the questionnaire of Appendix B some ethnic female teachers also mention the following problems.

- The new curriculum and teacher's guide book are not available in time.
- Due to the lack of the education of the parents the students are not motivated to read as well as write the homework in time that's why the mathematics course doesn't finish in time.
- Teacher guide book is not sufficient and complete.
- The male teachers talk dominantly to female teachers and their attitudes are indigestive.

## Chapter V

### FINDINGS, CONCLUSIONS AND IMPLICATIONS

This chapter deals with the major findings, conclusions, and implications.

#### Major Findings

From the field survey and statistical analysis of the collected data, it was found that ethnic female teachers have been facing numerous problems during the course of teaching mathematics in basic level. On the basis of analysis and interpretation of data, the findings of this study are presented below in hierarchical order.

- Lack of separate room for mathematics instruction.
- Lack of mathematics laboratory in school.
- Lack of graph board and bulletin board in classroom.
- Unavailability of textbook and teacher's guide book on time.
- Problems of printing mistakes in the textbooks.
- Insufficient and incomplete teacher guide book
- Difficulty in teaching for both talent and weak students in the same class.
- Difficult in understanding new mathematics concepts, skills and relations.
- Problems on subject supervisor.
- Lack of guidance and supervision to the teachers from their supervisor.
- Lack of education of the parents.
- Difficult in checking homework due to the lack of sufficient time.
- Lack of interaction between guardians and subject teacher about the mathematics achievement.
- Biasness of school management committee.
- Expectation of refreshment training by trained ethnic female teachers.

#### Conclusions

The researcher claims that there are myriad of problems that cause teacher inefficient and unenthusiastic to execute their duty properly inside and outside the

classrooms. Most of the problems are created because absence of teacher's guide book. Lack of instructional materials, inadequacy of teacher training, lack of supervisory help, lack of physical facilities, low motivation of the students to learn mathematics and domination by male teachers. Most of the teachers feel difficult to teach new concepts. Lack of counseling and feedback class especially for ethnic female mathematics teachers. The problem faced by community and institutional ethnic female teachers are same. Female teachers do not receive opportunities to undertake training due to their familial obligations.

### **Implications:**

Every research has implication in different sectors. The study entitled "Problem Faced by Female Mathematics Teachers Belonging to Ethnic Groups" also has educational implication, which as follows:

- To improve the performance and participation of female teachers.
- It is helpful for teachers, students, researchers, institutions, educational and policy makers.
- To enhance cooperative learning in teaching mathematics at school.
- For the development of inclusive mathematics teachers.
- It supports for understand difficulties in teaching mathematics like as; pupil's weak perception on mathematics, lack of curricular materials, mathematics anxiety, family's socioeconomic status, discrimination in school and home school mismatch.
- It also throws lights on the existing challenges for promoting female in schools and wider society. The study has outlined processes that enable transformation of classroom practices to other situations.
- It helps teachers to make cooperative, helpful, facilitator and friendly behave with their students.
- It encourages female to be a mathematics teacher.



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### **Websites**

[www.esciencecentral.org/ebooks](http://www.esciencecentral.org/ebooks)

[www.questia.com](http://www.questia.com)

<https://enn.wikipedia.org/wiki>

### Appendix –A

S.N	Statements	SA	A	U	DA	SDA	Mean Weightage
1	The mathematics classroom is neat and clean	8	2	0	0	0	1.2
2	The classroom is well lighted and ventilated.	3	5	1	1	0	2
3	The mathematics classroom is crowded.	4	0	1	0	5	2.8
4	The furniture is adequate.	4	3	0	3	0	2.2
5	There is separate room for mathematics instruction.	0	0	1	6	3	4.2
6	The classroom is equipped with graph board and bulletin board.	4	0	1	3	2	3.1
7	There is mathematics laboratory.	0	0	2	3	5	3.8
8	Library facilities is available.	4	3	2	1	0	1.8
9	Curriculum do not match according to student's level.	2	0	2	4	2	2.6
10	The textbook are not practicable.	2	1	0	7	0	2.8
11	The textbook are not available on time.	5	0	1	2	2	3.4
12	There are mistakes in printing.	5	0	3	1	1	3.4
13	The examples included in the textbook are not sufficient.	2	2	0	5	1	2.9
14	The verbal problems of textbook are not related to students' daily life.	3	1	1	4	1	2.9
15	The teachers guide book is available in need.	2	3	1	3	1	3.2
16	I don't make plans (yearly as well as unit) because I don't know how to do it.	0	0	1	2	7	1.1
17	I make and frequent use of instructional materials (other than textbook and guides) to motivate my students and make mathematics more meaningful.	7	3	0	0	0	1.3
18	Often (sometimes) I get frustrated and unmotivated to teach mathematics.	6	0	0	1	3	3.5
19	Supervisor visit frequently.	2	1	4	3	0	3.2
20	I am trained mathematics teacher.	7	1	0	2	0	1.7
21	I don't like to be a mathematics teacher.	0	0	0	2	8	1.2
22	It is difficult to check homework due to lack of sufficient time.	8	1	0	1	0	4.6
23	There is difficulty in student's evaluation at the end of the lesson.	2	0	1	7	0	2.7

24	There is less use of regular method of testing like unit test, weekly test, monthly test and terminal etc.	4	0	5	1	0	3.7
25	The parents of the students do not interact with teacher about their children in mathematics.	3	3	0	4	0	3.5
26	The school does not care about the students' achievement in mathematics.	0	0	2	5	3	1.9
27	The students do not interact with the teacher's about their achievement in mathematics.	3	2	1	1	3	3.1
28	There is language problem.	2	0	1	5	2	2.5
29	There is sexual biasness and domination for female.	1	0	0	6	3	2
30	There is fear of insecurity and sexual harassment.	1	0	2	5	2	2.3
31	There is less confidence in female teacher.	1	0	0	5	4	1.9
32	Bias view of school management committee.	5	0	0	3	2	3.3
33	There are problems related to female physical nature and dressing.	4	0	2	2	2	2.8
34	Inferior view to ethnics and dalits castes in teaching learning activities.	3	0	2	1	2	2.9
35	Irresponsible administration to manage and construct necessary teaching materials.	2	0	3	3	2	2.7
36	Lack of refreshment training to teach difficult and rigor topic.	3	3	1	2	1	3.5
37	Compulsion to take more classes because of low number of mathematics teachers.	3	0	0	6	1	2.8
38	Lack of facilities and award for the good performance.	2	4	2	2	0	3.6
39	Unavailability of mathematics journals dissertation and new books.	6	2	0	1	1	4.1
40	Unavailability of curriculum and teachers guide book on time.	5	1	0	3	1	3.6

## Appendix -B

### Questionnaire

Dear teachers to conduct a research entitled on “Problem Faced by Female Mathematics Teacher Belonging to Ethnic Groups in Teaching Mathematics at Basic Level” 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 questionnaire to you. Researcher is very much thankful for your valuable help, and would like to express gratitude to you and your institution.

Researcher

Yuba Kumari Bashyal

M.Ed

Roll No: 223/2071

Department of Mathematics

Faculty of Education

Prithvi Narayan Campus, Pokhara

You are humbly requested to fill this questionnaire under these instructions:

- Read each of the statement carefully.
- Express your opinion seriously and honestly.
- Do not leave blank for any question.
- Put tick (✓) mark at the appropriate space where,

SA (Strongly Agree)

A (Agree)

U (Undecided)

DA (Disagree)

SDA (Strongly disagree)

You can use Nepali language, if necessary

**Teacher's Bio-data**

Name: .....

Experience: .....Years

Qualification: .....

Training: Trained/Untrained

School's Name: .....

Address: .....

**Problems Related to Physical Facility**

S.N	Statement	SA	A	U	DA	SDA
1	The mathematics classroom is neat and clean.					
2	The classroom is well lighted and ventilated.					
3	The mathematics classroom is crowded.					
4	The furniture is adequate.					
5	There is separate room for mathematics instruction.					
6	The classroom is equipped with graph board and bulletin board.					
7	There is mathematics laboratory.					
8	Library facility is available.					

**Problems Related to Curriculum, Textbook and Teacher's Guide Book**

S.N	Statement	SA	A	U	DA	SDA
9	Curriculum do not match according to student's level.					
10	The textbook are not practicable.					
11	The textbook are not available on time.					
12	There are mistakes in printing.					
13	The examples included in the textbook are not sufficient.					
14	The verbal problems of textbook are not related to student's daily life.					
15	The teacher's guidebook is available in need.					

**Problems Related to Teaching Learning Activities, Instructional Materials,  
Methods and Techniques**

S.N	Statements	SA	A	U	DA	SDA
16	I don't make plans (yearly as well as unit) because I don't know how to do it.					
17	I make and frequent use of instructional materials (other than textbook and guides) to motivate my students and make mathematics more meaningful.					
18	Often (Sometimes) I get frustrated and unmotivated to teach mathematics.					
19	Supervisor visit frequently.					
20	I am trained mathematics teacher.					
21	I don't like to be a mathematics teacher.					

**Problems Related to Students Evaluation Technique**

S.N	Statements	SA	A	U	DA	SDA
22	It is difficult to check homework due to the lack of sufficient time.					
3 23	There is difficulty in student's evaluation at the end of the lesson.					
24	There is less use of regular method of testing like unit test, weekly test, monthly test and terminal test etc.					
25	The parents of the students do not interact with teacher about their children in mathematics.					
26	The school does not care about the students achievement in mathematics.					
27	The students do not interact with the teachers about their achievement in mathematics.					

### Problems Related to Female Teacher Belonging to Ethnic Groups

S.N	Statements	SA	A	U	DA	SDA
28	There is language problem.					
29	There is sexual biasness and domination for female.					
29	There is fear of insecurity and sexual harassment.					
31	There is less confidence in female teacher.					
32	Bias view of school management committee.					
33	There are problems related to female physical nature and dressing.					
34	Inferior view to ethnics and dalits castes in teaching learning activities.					

### Problems Related to School Administration

S.N	Statements	S.A	A	U	DA	SDA
35	Irresponsible administration to manage and construct necessary teaching materials.					
36	Lack of refreshment training to teach difficult and rigor topic.					
37	Compulsion to take more classes because of low number of mathematics teachers.					
38	Lack of facilities and award for the good performance.					
39	Unavailability of mathematics journals dissertation and new books.					
40	Unavailability of curriculum and teachers guide on time.					



**Appendix –C**  
**Female Classroom Observation Form**

Teacher's Name:.....

School's Name: .....

School's Address : .....Class :.....

Time :.....Date :.....

S.N	Observed Items	Excellent	Good	Fair	Poor
1	<u>Physical Facilities</u>				
	1.1 Classroom size				
	1.2 The light and ventilation.				
	1.3 Cleanliness				
	1.4 The availability of furniture.				
	1.5 The temperature and humidity of classroom.				
	1.6 Arrangement of board.				
	1.7 The quality of board.				
	1.8 Seat planning of students.				
	1.9 Mathematics laboratory.				
2	<u>Instruction</u>				
	2.1 Teacher's lesson plan.				
	2.2 Use of instructional materials.				
	2.3 Use of other practice chart.				
	2.4 Level of motivation.				
	2.5 Level of discipline.				
	2.6 Preparation for task.				
	2.7 Mastery of subject matter.				
	2.8 Interaction with all students.				
	2.9 Leadership				
	2.10 Speaking voice.				
	2.11 Neatness of teacher.				
3	<u>Conclusion of the lesson</u>				
	3.1 Summarization of lesson.				
	3.2 Checking the achievement of objective.				
	3.3 The quality of homework.				
	3.4 Indicate about the next lesson.				

**Appendix -D****Sample Schools****Community Schools:**

1. Shree Laxmi Secondary School, Arghaun, Pokhara-10
2. Shree Sanskrit Secondary School, Bagar, Pokhara -1
3. Shree Bal Mandir Secondary School, Nadipur, Pokhara-3
4. Shree Jana Prakash Secondary School, Pokhara-29
5. Shree Dharmasthali Secondary School, Parsyang, Pokhara -5

**Institutional Schools:**

1. Gyanubaba Secondary school, Pokhara-2
2. Kurunanidhi Education Foundation, Pokhara -1
3. Diamond Secondary School, Pokhara -27
4. Pascal Secondary School, Pokhara-1
5. Bhanubkakta Secondary School, Pokhara -1

## Appendix –E

### Sample Teachers Profiles:

#### Community School

S.N	Teacher's Name	Qualification	Year of experience	Trained /Untrained
1	Hira Gurung	B.ed	7	Trained
2	Om Kumarai Gurung	Bachelor	7	Trained
3	Dhan Kumari Thapa	B.A	20	Trained
4	Jamuna Gurung	10+2	20	Trained
5	Nirmala Shrestha	B.ed	14	Trained

#### Institutional school

S.N	Teacher's Name	Qualification	Year of experience	Trained /Untrained
1	Sirjana G.T	Bachelor	1	Untrained
2	Kalpana Shrestha	I.ed	18	Trained
3	Bishnu Nepali	Bachelor	5	Trained
4	Sudha Thapa	Bsc	1	Untrained
5	Nanda Rai	B.com	20	Trained

## Appendix F

### Statistical Formulae Used for Data Analysis

1. Average Rank =  $\frac{\text{Total Rank Score of Statement}}{\text{Number of Ethnic Female Teacher}}$
2. Mean Response of Community Ethnic Female Teacher is  $\bar{x}_1$  and  

$$\bar{x}_1 = \frac{\text{Summation of M.R.C.E.F.T.}}{\text{Total Number of C.E.F.T.}}$$
3. Mean Response of Institutional Ethnic Female Teachers is  $\bar{x}_2$  and  

$$\bar{x}_2 = \frac{\text{Summation of M.R.I.E.F.T.}}{\text{Total Number of I.E.F.T.}}$$
4. Variance of Community Ethnic Female Teachers is  $s_1^2$  and  $s_1^2 = \sum \frac{(X-\bar{X}_1)^2}{n_1-1}$
5. Variance of Institutional Ethnic Female Teachers is  $s_2^2$  and  $s_2^2 = \sum \frac{(X-\bar{X}_2)^2}{n_2-1}$
6. 
$$s_p^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2}$$
7. 
$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$
  
 $\mu_1, \mu_2$  being some specified values.
8. The level of significance  $\alpha$  is  $t_{0.05}$