

## Chapter-I

### INTRODUCTION

#### Background of the Study

Mathematics as a subject affects all aspects of human life at different levels. Mathematics is seen by society as the foundation of scientific, technological knowledge that is vital in social economic development of a nation. It is realization of the vast application of mathematics, that mathematics made to post that a disciplined and ordered pattern of life can only be achieved through the culture of mathematics. (Eraikhuenmen, 2003). Mathematics is fundamental to the study of physical science and engineering of all kinds. It is being applied in medicine, biological, science, geometry, economics, business and management studies.

According to Advance Learner Oxford Dictionary (1995), states that "Mathematics is the key science of number and space". A famous mathematician John luck states "Mathematics is away to settle in the mind a habit reasoning". Because mathematics is a way of thinking, organizing, analyzing and synthesizing a body of data. When I was a primary level student, I used to think that mathematics was based on four basic operations (addition, subtraction, multiplication and division). When I became a secondary level, I realized that mathematics was more than numbers with operations. Being university level students, it is very difficult to define mathematics.

The history of mathematics tells us that all civilizations have always been striving towards development of mathematics, whatever its sources, mathematics has come down to present by two main stems of numbers and form. The first developed along with arithmetic and algebra and the second along with geometry (Bell, 1987).

Mathematics is backbone of education and one of the fundamental components of literacy (Pant, 2009 cited in Ghimire, 2006). Mathematics is essential for understanding every discipline. Mathematics plays a vital role in developing human resources.

Mathematics is very useful discipline in comparison to other discipline like economics, physics, chemistry and other formal and informal paradigms. Mathematics is applicable in every steps of human society from starting to the end of the life. Roger Bacon (1984) states: 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 worse men are. Who are they ignorance and so do not seek a remedy.

According to New English dictionary, "Mathematics in a strict sense is the abstract science which investigates deductively the conclusions, implicit in the elementary conception of the numerical relations." So it is a systematized, organized and exact branch of science. Mathematics plays a very important role in building up modern civilization by perfecting all sciences. It can be said that mathematics is the mirror of civilization. "It is believed that mathematics was originated along with the human civilization. So, the history of mathematics is a part of the history of human civilization. This view indicates that mathematic is originated from the river valley civilization like the Tigris, the Nile, the Euphrates, the Hwang Ho and the Yangtze etc supporting this version. (Eves, 1983).

The term "Achievement" means the knowledge of students in a particular area like mathematics achievement of students indicate amount of knowledge, skills understanding in a mathematics subject. It is the process or fact of gaining something.

Achievement needs always been the Center theme in the educational research (Ghimire, 2006). It is the important aspect of education. It doesn't mean that other aspects are ignored but in reality the academic achievement in major responsibility of all education institutions.

In Nepalese context various factors have been introduced to explain mathematics achievement. The interest of students in mathematics has been related to the volume of work completed, Student task orientation and skill acquisition students personality self-concept and feeling of inadequacy, motivation and self-confidence, unavailability of qualified mathematics teachers, shortage of equipment's and instructional materials for effective teaching use of traditional chalk and talk methods. Moreover individual characteristics such as intelligence, communicative styles, and personality play an important role in learning and instruction finding have shown that individual student's characteristics variables such as motivational orientations, self-esteem and learning approaches are important factors influencing academic achievements.

Mathematics achievement test is difficult to measure intelligence and efficiency of a student directly. So we use to indirect measurement. We use test score usually designates knowledge and skill developed during school education. Therefore "The marks obtained by students are considered as the academic achievement" (Good, 1959). Achievement is regarded as a very important indicator to judge the quality of education. Students always expect to gain higher achievement. The achievement of the students is powerful things for any job and other opportunities.

Some studies have shown that the student's achievement of private schools was significantly higher than public school students. For example the study on

students achievements in lower secondary level, which was jointly conducted by CEDP), reveals that the mean score of mathematics achievement was 28.87 (CERID, 1999). Similarly DOE (2009) conducted national achievement of grade seven students. The national mean achievement of grade seven students was 31.7 with standard deviation 19.1. The highest score was 94 in math whereas lowest score was 0. This study also shown that the achievement of students was very low in mathematics.

The international human rights instructions advocate against the gender discrimination in education as: every Boy, girl, youth and child has the human right to education, training and information, and to other fundamental human rights dependent upon realization of the human right to education. Mostly girls are participating in economic, social and household work in their societies. It is great concern of matter that why the achievement of the students in mathematics is very low. The achievement of the students may be affected from various factors, (Bajracharya, 2007), found that the main factor affecting mathematics achievement are the student's related factor, teacher related factors, and parent related factors and personal factors. It varies from person to person. The achievement of the children in mathematics can be affected by ethnicity, gender, location of the school, parent's education and socio-economic statues, socio-culture education background and occupation of the parents (Neupane, 2001). Although there are many students personal differences, the researchers have choose different variables in different studies such as gender, age, hours of watching T.V. At home, regularity and punctuality in attending school, hour spent at home in math study, taking tuition class, language spoken at home, parent education, access to modern technology, availability of reference materials at home mother tongue, language instruction in classroom. Peer interaction in studies,

residence, participation in game/sports, helping to parents in household work and time spent at home in math practice.

The achievement in mathematics at lower secondary level especially with regard to grade seven students is a major concern for the researcher. There could be many factors that may affect the student's achievements in mathematics at lower secondary level, especially in grade seven. Among many factors was based on this study personal factor (Parents education, taking tuition class and time spent at home in math study) affecting the mathematic and comparison of boys and girls achievement mathematics

### **Statement of the Problems**

From past to present time to see that the achievement in mathematics is very low in comparison to other subjects. Although students are taking tuition classes, extra classes, coaching classes and annual home tuition classes but most of the students are getting low marks in math. In my mind, why it is? What's reason behind it? What are the affecting factors in math? So there exists a problem to getting more marks in math. The low achievement in mathematics, especially in lower secondary level (grade seven) is a great issue for all stakeholders: students, teachers, their parents, educators and educational expert and government sectors. This level is foundation of secondary level. The major function of this level is to preparing the secondary education. There are various factors (socio-economic factors, personal factors, religious factors, cultural factors, language factors etc.) that affect achievement. Among them, personal factors of the students were one of them. The problems considered to find out personal factors affected in mathematics achievement

and to compare the boys and girls achievement affected by personal factors with the help of quantitative result. So that the problem of statement of this study was:

- What are the Personal factors that affects in mathematics achievement?
- Which of the personal factors that affect more to boys and girls in mathematics achievement?

### **Objectives of the Study**

The objective of this study was student personal factor affecting achievement in math.

- To find out the students personal factors that affect in mathematics achievement at lower secondary level.
- To compare the boys and girls perception about personal factors affected in mathematics achievement.

### **Hypothesis of the study**

#### **Research hypothesis**

There is a positive perception of mathematics students at grade seven concerning personal factors.

#### **Statistical Hypothesis**

Null Hypothesis ( $H_0$ ): There is no significant difference between boys and girls perception about personal factors. I.e.  $H_0: H_1 = H_2$

Alternative Hypothesis ( $H_1$ ): There is a significant difference between boys and girls perception about personal factors in mathematics achievement. I.e.  $H_1: H_1 \neq H_2$

### **Research questions**

- What are the personal factors of lower secondary level (grade seven) that affects on mathematics achievement?
- To what extent there is significant difference on achievement of mathematics affected by the personal factors of the students?
- Does boys perception is differ from girls perception?

### **Significance of the study**

The focus of this study is to investigate the personal factors that influence student's achievement in mathematics. The knowledge of mathematics is not only, important as a subject of study, but also important in understanding and applying in science and technology, social sciences, education commerce, computer science and so on. A few researchers have been focused an investigating the different variable in students achievements in mathematics of school level. Among them, countless researchers have focused on the personal factors and the achievement in mathematics. In this study the researches focused on particular variable (personal factor of the students).

It is a great issue about the quality in the educational system of developing countries. The government policy makers and development groups have emphasized the importance of increasing the quality of education that is buildings, more schools, hiring more teachers and enrolling more children. Every academic program is launched with certain objectives. The teaching learning activities are carried out the fulfill budget in education. The faculty of education, school of education, primary school training center and other related institutions have trained thousands of school

level teachers during the past four decade (Shrestha, 2003, as cited in Khanal 2005). The secondary educational development unit has been established in 25 district of the country to provide training for secondary and lower secondary teacher (CERID, 1999). 27.7% of the lower secondary teachers are trained (MOE, 2003). The learning achievement of the students is not found satisfactory at all levels.

This study has listed a long list of variables related to the factors affecting student's achievement in core subjects. Among them the personal factors of the students are one of the major variables. This study attempted to check the significant level of mathematics achievement affected by personal factors and compare the mathematics achievement to boys and girls.

Finally, it is expected that the finding of the study were helpful for the teachers to know about the effects of personal factors on achievement. So the teachers may treat the students accordingly to increase the achievement. It will also be helpful document to the parents who are worry by the performance of their children in mathematics. All individuals are different. They have different personal behaviors and values which influence on their achievement. So, this document is helpful to school administrators to create the learning environment according to the personal factors of the students. Move over, research finding would be valuable and informative document to head teachers, text book writers, educational planners, and educational researchers as well as to other related person and organizations associated to school education.

### **Delimitation of the Study**

The researcher had selected only personal factors among various factors, which may directly or indirectly related to students, Because of the selection of only



personal factors, the result of that study cannot be generalized as the only major factor related to students perception in mathematics. My study was conducted under following delimitation.

- Parents Education.
- Talking Tuition class.
- Time spent at home in math study.

The study was limited in Kathmandu district; eight public schools from Kathmandu district were selected. This study was based on 200 students at grade seven.

### **Definitions of Key Terms**

**Factor:** In this study "Factor" is the one of several things that cause or influence some things i.e. social economics factors, personal factors, cultural factors, language factors, religious factors and physical factors.

**Achievement:** In this study the achievement is the scores obtained by the students in mathematics achievement test conducted with standardized questions.

**Student personal factors:** In this study student personal factors refer to parent education, taking tuition classes and time spent at home in mathematics study.

**Community Schools:** In this study public school refer to the local community together with the help of government of the nation.

## **Chapter - II**

### **REVIEW OF THE RELATED LITERATURE**

A critical review of the literature helps the researchers to develop the thought, understanding and insight into previous research works that relates to the present study. A review provides the knowledge of what has been established known or studied and what has been attempted get. It is more important to draw a meaningful conclusion particularly comparative research where the result in the similar context can be compare with earlier research. The purpose of literature review is to find out the gap in research for further study. It provides the foundation for developing comprehensive theoretical framework from which hypothesis can be developed for testing. The literature review also minimizes the risk of pursuing the dead ends in research.

There are various research conducted on personal factors of the students and its influence on the perception of mathematics. Although there are many personal factors of the students different researchers have chosen different personal factors in their studies In this study the researcher selected only three personal factors of the students they are: parents education, taking tuition class and time spent at home in mathematics study.

#### **Empirical Literature**

Bhattarai,(2011) has done a search on topic “Mathematics achievement and its causal factors of secondary level Sherpa students "The main concern of study was to compare the achievement level of Sherpa and non-Sherpa students in sankhuwashava district. The design of the study is survey type. Sixty Sherpa students of five

secondary and higher secondary public schools, their head teacher and math teacher, 20 low achiever Sherpa students and their parents were chosen for the study. Achievement test, Questionnaire and interview schedule were the main tools for the data collection process. Social constructivism theory was applied as the theoretical framework. The study found that mean achievement of Sherpa students was 13.70. The main difference of two groups Sherpa and other students was 3.6. It was found that the achievement of other students higher than other students. Prior knowledge, favorite subject, regularity in class, share with friends, environment of the family, experience of the subject teacher, parents education, social belief, and tradition household work, load, lack of motivation were the major factors affecting the mathematics achievement of Sherpa students. The study concluded that the achievement of Sherpa students in mathematics was lower than that of non-Sherpa students.

Neupane, (2011) conducted the study on "Personal Factor Affecting Mathematics Achievement of Students at Lower Secondary Level Grade Eight". The objective of the study was focused to find out the present achievement level of the students in mathematics of Chitwan district using the quantitative research method. In this study the mathematics achievement test was conducted among 250 students of sample students of Chitwan district who studies grade eight in the academic session 2010 A.D. At the same time, Students Questionnaire form was administered to collect the information about the personal factors. The collected data were entered into computer. Analysis of the variance and t-test had been employed to examine the association between different variable through the SPSS version 16.0 programme. The mean, standard deviation- test and ANOVA were used to analyze the data collected through achievement test.

The study found that the mean achievement of the student's chitwan district in mathematics was 57.9 with standard deviation 22.20 and conclude that the achievement level of the students is higher than mean achievement of the national assessment, 2009. The difference between boys and girls, students from public and private schools, students from urban and rural schools were statistically significant. It was concluded that the performance of boys was better than girls. The performance of the students from private schools was better than public schools. It was concluded that there were significant difference between mean achievement in mathematics and the personal factors of the students (gender, language spoken at home, hours on watching TV and the time spent at home in math study). It was founded that the personal factors of the students affected on math achievement.

Kafle, (2012) Study on "Factor Affecting Mathematics Achievement of Adult Woman Students in SLC Examination" was carried out with the objectives to compare the mathematics achievement and other student achievement of adult woman students in SLC examination in Kathmandu valley, the research was based on case study. The researcher selected adult woman schools from Kathmandu valley having a total of 39 students. Among them 22 Adult Woman students were selected. The tools of this research were interview schedule, observation of environment.

The comparison of mean, standard deviation, also carried out the compare mathematics achievement is and other subject achievement of adult women mathematics. The analysis and interpretation of information showed that mathematics achievement of adult woman students is low. Economic status, educational status of family members, absent of guardians occupation, peer group interaction, culture, caste and chronic poorness in mathematics, instruction strategy and materials, encouragement are factor affecting the mathematics achievement. It is concluded that

the achievement among adult woman students in mathematics lower as compared to other subjects.

Pant (2009).A research on "Students Personal Characteristics Affecting in mathematics, at lower secondary level grade eight". A case study of Lalitpur district, the objectives of the study were to find out the present achievement level of the students in mathematics of Lalitpur district, to check the association between the personal characteristics of the students and their achievements of mathematics. The research based on survey research design. The study was founded that mean achievement of the students was 52 with standard deviation 19.32 and concluded that the achievement level of students is higher than the mean achievement of the national assessment 2009.The differences between the achievement of girls and boys ;Public and Private school students ;rural and urban school were statistically significantly. It was found that the performance of boys was better than girls. Similarly, the performance of urban school students was far better than performance of rural school students.

Ghimire, (2006) conducted research "Factor Affecting Students Achievement in Mathematics secondary at lower secondary school of Kathmandu district. It was a survey research design type. The objectives of study were to accesses the existing lower secondary level student's achievements in mathematics to find out the determinants that affect the student achievement in mathematics and to compare on achievement of lower secondary students in the area of Arithmetic, Algebra, Statistics and Geometry of mathematics. He conducted the mathematics achievement test and Students questionnaire for 450 students of sample school. He used one way ANOVA test to examine the significance of the difference between the mean score and variables. The mean score in mathematics is 24.48with standard deviation 7.96.The

study concluded that there is a significant difference between the mean achievement in mathematics belonging to different age groups, the time spent on watching T.V, time spent on household work, time spent in game and sports and the support on math study at home. The study also concluded that language spoken at home and the math study at home had not an effect on increasing student's achievement in mathematics.

Achievement is something that succeeds in doing in doing usually with effort. It is a process of finishing something successfully. From the point of sociology, achievement is social status gained through personal merit rather than as a result of the circumstances into which somebody was born. Although there are many personal factors of the students, different researchers have chosen different personal factors in their studies. In this study, the research selected only three personal factors of the students. They are parent's education, taking tuition class and time spent at home study. In this section I reviewed relevant literatures related to those three selected personal factors and achievement in mathematics as compare to boys and girls at grade seven.

The above-mentioned researches are related to the student's personal factors affecting the mathematics achievement at lower secondary level students. Although there are many personal factors of the students such as: gender, age, language spoken at home, play game sports, interaction, regularity and punctuality attending in school, mother tongue, residence, parent education, taking tuition class, and time spent at home in mathematics study etc. The mentioned above some factors were related but none of the studies has been carried on the following factors.

- Parents Education
- Taking tuition class

- Time spent at home in math study

Therefore, the present topic is new. It was also find out the personal factors of the students affected in mathematics achievement and compare the perception about personal factors in mathematics achievement with respect to gender.

### **Theoretical Literature**

Researchers and theories are interrelated and inseparable. A theory provides a conceptual framework for research for the development theory. "There are many theories about learning and development of children and the achievement in mathematics. Here I briefly discuss about the constructivism theory.

### **Constructivism Theory**

Constructivism implies that learning should be individually constructed through active and connected learning strategies that are consistent with those of authentic pedagogy. Constructivism is an especially appealing learning theory for teachers who are trying to prepare students with skills that will enable them to succeed in a work place. In constructivism classroom, the students play a key role in directing learning. Learning occurs with teacher and learner both in the role of co-learners.

Constructivism is a theory of knowledge with roots in philosophy, psychology and cybernetics. It asserts two main principles whose application has far reaching consequences for the study of cognitive development and learning as well as for the practice of teaching, psychotherapy interpersonal management in general. The two principles are:

- Knowledge is not passively received but actively built up the cognizing subset.
- The function of cognition is adaptive and serves the organization of the experiment of the word, not the discovery of ontological reality.

Seif, (2008). Believes that constructivism is an approach to learning that puts emphasis on learner's activeness in establishing knowledge and comprehension. In a constructivist class mathematics teacher provides the students with real and meaningful problems and encourage them to present various solutions, seek help from classmates, and introduce the best solution. Such a teacher is not a knowledge transmitter or distributor but as a guide, facilitator, and assistant to the students. A construct teacher learner should be faced with the notice that the learners should be faced with the concept through a variety of methods and situations with different objectives and experiences so that they can perform better in producing and transmitting the constructed knowledge.

Constructivism theory recognized the importance of the mind in making sense of the material with which it is presented constructive particular in a "social " form suggests that the learner is much more actively involved in a joint enterprise with the teacher of creating new meanings. Similarly, Kim, (2001), defined social constructivism as emphasizing the importance of culture and context in understanding the society and constructing knowledge based on this understanding.

### **Student's Role**

Constructivist classes usually have an atmosphere like that of training workshops where students learn from and teach one another. They accept collaboration as a principle in learning. In this collaborative approach, the teacher's



role is to set a framework for students' learning and organize a discovery period in which students have direct relationship with materials and tools, and they learn how to learn. The teacher's role is that of a facilitator who intends to create appropriate atmosphere which is the time when the student says "I understood".

### **Teacher's Role**

In constructivist approach, being familiar the students' previous views and experiences, the teachers design situations in which the learners can reconstruct and expand their knowledge. The most important role that the teacher takes is to facilitate the process of knowledge construction. Those who can conduct the following activities easily can help students with knowledge construction.

- **Presenter**

The teacher is a presenter, not a lecturer. A teacher is someone who explains the issues, presents models, and provides the collaborative groups with different activities.

- **Observer**

The teacher identifies the students' beliefs in formal and informal activities, interacts with them appropriately, and gives them special learning authorities.

- **Questioners and presenter of problems**

The teachers guides the students toward idealization, encourage them to test their ideas, and praises conceptualization.

- **Environment organizer**

Being aware of the students' perspectives, the teacher prepares the environment forth learners to experience things.

- **Coordinator of public relations**

The teacher is someone who encourages collaboration in order to develop and enhance human relations and tolerance of different views.

- **Documentation of learning**

The teacher measures the effect of the provided exercises on students and examines the created expectations.

- **Theoretician**

Beside the activities, the teacher helps the learners to connect between two or more thoughts and ideas and create a meaningful method Constructivism theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experienced when we encounter some things new constructivism stands on its three axioms that are as follows.

- Learners learn knowledge from their active participation.
- Learners given knowledge while reflecting on their own action.
- Learners Give knowledge when they try to convey their solution to others.

From above axioms Upadhyia took three terms actions, reflection and scaffolding to describe three broad aspects of constructivism psychological aspect, philosophical aspects, Piaget stresses the key word "action" through which he advocates that of knowledge is gained. He said that essential way of knowledge is not directly through our sense. Action is considered as the prime source of knowledge.

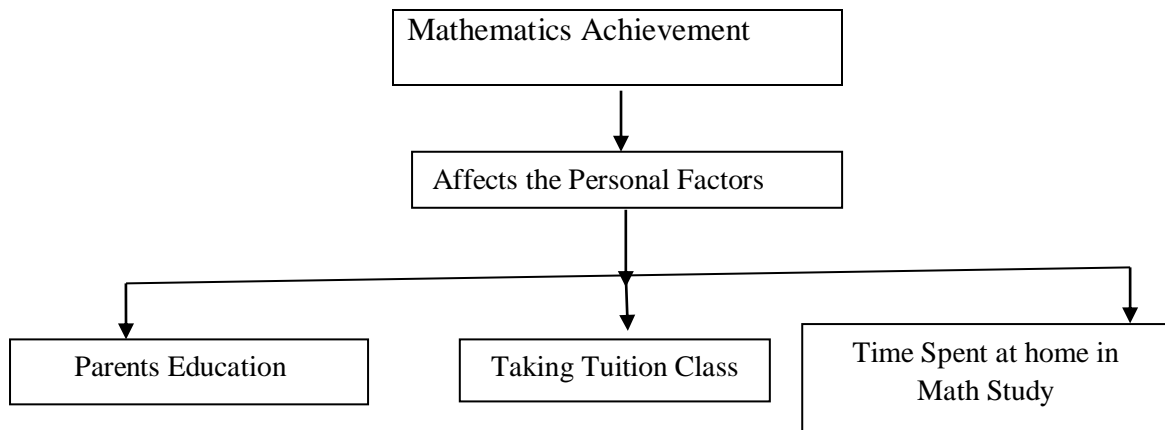
Constructivism theory states that knowledge constructive is both social and cognitive process. Knowledge and meaning are actively and collaboratively

constructed in a social constructivist process of discussion, negotiation and sharing. The theory also focuses on cultural influences on cognitive development. It believes that young children are curious and actively involved in their own learning and the discovery and development of new understanding.

The social constructivist theory is the epistemological backbone of this research. It has immense importance for this specific research, as it guides and informs the manner in which this research is approached as it guided and interpreted. Constructive is an epistemology, learning or meaning making theory that offer an explanation of the nature of knowledge and how human beings learn. The real understanding is only constructed based in learner's previous experience and background knowledge. It maintains that individuals create or construct their own need understanding or knowledge through the interaction of what they already believe and the ideas, events, and activities with which they come into contact. The teacher is a guide facilitator, and co-explorer who encourage learners to question, challenge and formulate their own ideas, opinions and conclusions (Ciot, 2009).

### **Conceptual Framework of the Study**

From the above review of previous literature, the framework recognizes some selected personal factors of the students: Parents education, taking tuition class, and time spent at home in math study. The perception of personal factors in mathematics was also incorporated in the framework, which were be taken as scores from the weight age mean test. Finally; find the comparison between the boys and girls perception affected by personal factors in mathematics achievement. The main objective of the conceptual framework was to provide a more systematic structure for analysis (Gami 2013).



(Source: Gami, 2013)

From the above conceptual framework it can be concluded that mathematics achievement may be affected from the personal factors which are parents education, taking tuition class, and time spent at home in math study. So, I conducted research to find out whether above-mentioned factors were affecting in mathematics achievement or not.

## **Chapter-III**

### **METHODS AND PROCEDURES**

This chapter deals with the methodology, which is used to conduct research and techniques which are applied to connect and analyze to based on the information. Research methods and procedure determine show the research should be completed systematically. Research method doesn't mean only collecting data but also to use appropriate research method and analysis of the collected data. Methods are the roots of the research study. In the first step to find out the personal factors that affect in mathematics achievement, test was administered to the students of sampled selected. At the same time a short questionnaire was administered to collect the information about the personal factor of the students. In the next step, the researcher compared between the boys and girls perception affected by personal factors.

This chapter includes the design of the study, population of study, sample of the study, tools of data collection, data collection procedure, method of data analysis and interpretation reliability and validity of the study.

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

The design of that study was survey research design. The present study on "Students Personal Factors Affecting on Achievement in Mathematics at Lower Secondary Level at Grade Seven" in Kathmandu district. Survey research method is mainly carried out people's attitudes, opinions, beliefs, motivation, and specified behavior. According to Nunnan, (1978), the main purpose of survey research is to obtain a snapshot of conditions, attitude and events at single point of time. "The

survey involves collection of information from groups of students, teacher, parents or other groups associated with educational process.

Survey is most commonly used descriptive method in educational research and may vary in scope from large-scale governmental investigations through to small scale studies carried out by single researcher. The purpose of survey research is generally to obtain the snapshots of conditions, attitudes and events at a single point of time. The purpose of survey research is to explain characteristics of a larger domain of research universe. So, that the aim of the survey method is learning about the performance and behavior of population in general. The characteristics of population is studied from the sample drawn it. The selected sample of each category will be representative of a large mass. Survey research method has provided useful techniques to collect opinion and information about educational fact finding for which interviews, questionnaire etc. So I, used to survey method.

In conclusion we can say that survey research is one of the most important researches used in educational researches. It specially concentrates with attitude and behaviors of the people about certain issues, problems and situations. The finding of survey research is generalizable and applicable to the whole group. Educational survey addresses the educational problems and generalizes its finding based on representative's sample of specified target population. So the researcher used to survey method to conduct this study and to fulfill the determined objectives.

### **Population of the Study**

293 lower secondary schools in Kathmandu district is the population of this study.

### **Sample of the Study**

Eight public schools from Kathmandu district were selected by simple random sampling method. For the study of the achievement in mathematics, the sample size included 200 students. Both boys and girls students were included equally for the sample.

### **Tools of Data Collection**

Data collection tools are very important for collecting information required for any type of research. The data collections which are used in any research largely depend on the declared objectives of the study. This study was intended to focus on perception of grade seven students in mathematics, to find out personal factors the boy's and girl's perception on mathematics affected by the personal factors. The following instruments were developed to collect data for this study.

- **Students Questionnaire Form(SQF)**

#### Questionnaire Form

A list of question entitled "A modified Likert mathematics attitude scale" was used as an instrument for required data. That scale has been recently developed in the slandered form to measure the perception at lower secondary level student of age group 10-14 years which consist 30 item having five opinions strongly agree, agree, undecided, disagree and strongly disagree for each item(See Appendix-A). This scale used for different aspect of mathematics like personal confidence about subject matter.

### **Data Collection Procedure**

The data collection is most important parts of the research. So the data were collected at eight public schools from the Kathmandu district of Nepal. The researcher used the descriptive survey design .In fact; my aim was to be collecting the information from questionnaire. At first, I was took a written permission from school administration to visit each school by consulting the headmaster, by showing he recommendation letter from TU, Kirtipur, Kathmandu. After getting the permission I met to the head teacher and mathematics teacher. Being polite, the researcher was established a good relation with teacher by giving introduction and stated main intention. After that the teacher distributed questionnaire to the students on groups and explained the purpose of the student's questionnaire forms of the participants. Then the questionnaire form is distributed to the participating students, which consist of 30questions.They had to complete within 30 minutes time duration. Similarly, the researcher calculated the student's perceptions by weightage mean.

### **Reliability and Validity**

Reliability and validity of the research instruments are necessary qualities of the instrument. The validity of data collection tools of the study ensures on the basis of five categories of attitude developed by Likert scale, researcher supervisor and unpublished thesis of Pradhan (2009).And the reliability of the study to ensures 10 students of Janasewa secondary school Kirtipur Kathmandu. The mean weightage was 3.54.So it was acceptable by Likert scale, which shows the reliability of the statements. Before finalizing the instrument, the validity of the instrument was established by its approval form, subject expert and supervisor with some questions were rejected, some were modified, and



some were added on the statements of questionnaire. Finally, thesis supervisor also provided feedback to ensure the validity of the tools.

### **Method of Data Analysis and Interpretation**

This was quantitative research, so it was based on quantitative nature. The research focused on questionnaire. The data were analyzed by using t- test and weightage mean. The collected data were analyzed and interpreted by statistical techniques as, weightage mean, standard deviation, percentage and t- test method. Confidence that interval is necessary for the t-test was used to compare the perception of boys and girls in mathematics. The following computational formula for t-test was used for calculation.

$$t = \frac{X_1 - X_2}{Sp \sqrt{\frac{1}{N_1} + \frac{1}{N_2}}} \quad \text{Where } Sp = \sqrt{\frac{S_1^2(N_1 - 1) + S_2^2(N_2 - 1)}{N_1 + N_2 - 2}}$$

Where  $x_1$  = mean score of boys students       $x_2$  = mean score of girls students

$N_1$  = number of boys.

$N_2$  = number of girls

$S_1^2$  = variance of boys students

$S_2^2$  = variance of girls students

95% confidence interval were be used.

- The responses of students of mathematics perception occurred by were taken questionnaire form.

## Chapter-IV

### ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the analysis and interpretation of collected information of the study. The collected information was tabulated and analyzed according to the objectives of the study. The researcher used a set of questionnaire form with five alternatives strongly agree, agree, undecided, disagree and strongly dis-agree, to find out the personal factors of students affected in mathematics achievement.

The data were statistically analyzed and interpreted by using statistical tools, weightage mean and standard deviation and t- value. The whole data were categorized into three groups: parent's education, taking tuition class and time spent a home in mathematics study.

This chapter presents the results of analysis with their interpretation. The analysis of the study was carried out under the following major heading corresponding to objectives of the study.

- To find out the students personal factors that affect in mathematics achievement at lower secondary level.
- Compare the boys and girls perception about personal factors affected in mathematics achievement.

#### **Personal Factors of the Students Affected in Mathematics Achievement.**

The sample of 30 questions were asked students with a questionnaire set (Appendix-A) in order to assess their personal factors of the students in mathematics at lower secondary level. To find out the personal factors affected in mathematics

achievement weightage mean was calculated in statements of the questionnaire. The affecting factors were also analyzed under the following subheadings.

### Problems related to parents education

Parents education play important role to create knowledge in mathematics, understanding subject matter and studying habits of the students. This part consist ten items to help the students achievements in mathematics. The item was analyzed by student's response and by calculated weighted mean

**Table-1**

#### Number of Responses, Weightage Mean and Remarks of Parents Education

S.N.	Statements	SA	A	U	DA	SDA	Mean Weightage	Remarkable it is a problem
1	Parents help to students to solve mathematical problem at home.	110	65	8	17	0	4.34	Yes
2	Parents help to the children to take tuition class.	130	40	8	22	0	4.39	Yes
3	Students doing homework with the help of parents.	78	80	20	16	6	4.04	Yes
4	Parents care the child to learn math.	65	100	12	20	3	4.02	Yes
5	Parents motivate the child to learn math.	70	66	38	10	16	3.82	Yes
6	Parents take regular information of their child from their teacher	88	70	40	2	0	4.22	Yes

<b>7</b>	Clear and sound full environment managed by the parents.	64	62	40	28	6	3.75	Yes
<b>8</b>	There is a positive relation between parents and child.	120	52	28	0	0	4.46	Yes
<b>9</b>	Parents buy required materials for child.	128	60	10	2	0	4.57	Yes
<b>10</b>	Child do their homework freely.	7	8	10	70	105	1.71	No

From above table we see that the respondents were given a statement 1 was "parents help to students to solve mathematical problems at home". The responses of informants were: 55 present strongly agree, 32.5 percent agree, 4 present undecided, 8.5 present dis-agree and none of them were strongly dis-agree in this statements. The mean weightage of was 4.34, which was acceptable by likert scale, so it indicates that it was a problem. Parents solve problems of the students was affecting factor in mathematics achievements.

The statement 2 was "parents help to the children to take tuition class". The responses of informants were: 65 percent strongly agree, 20 percent agree, 4 percent undecided 11 percent dis-agree and none of them were strongly agree in that statement. The mean weightage was 4.39, which was acceptable by likert scale, so it indicates that it was a problem. So it concluded that taking tuition class was affecting factor in mathematics achievement. The statement 3 was "students doing homework with the help of parents". The responses of students were, 39 percent strongly agree

40 percent agree, 10 percent undecided 8 percent dis-agree and 3 percent students strongly dis-agree in that students. The mean weightage was 4.04, which was acceptable by likert scale, so it indicates that it was a problem. So it concluded that doing homework with help of parents was a affecting factors of mathematics.

The statement 4 was "parents care the child to learn math". The responses of information were 32.5 percent strongly agree, 50 percent agree, 6 percent undecided, 10 percent dis-agree and 1.5 percent strongly dis-agree. The mean weightage was 4.02, which was acceptable by likert scale, so it indicates that it was a problem. It concluded that parents care the child to learn math was affecting personal factors to achieve the math achievement. The statement 5 was "parents motivate the child to learn math". The responses of students were 35 percent strongly agree, 33 percent agree, 19 percent undecided, 5 percent dis-agree and 8 percent strongly dis-agree. The mean weight age was 3.82, which was acceptable by likert scale, so it indicates that it was a problem. So it included that parents motivated the child was affecting factor of students achievement.

The students 6 were "parents take regular information of their child from their teacher." The responses of students were 44 percent strongly agree, 35 percent agree, 20 percent undecided, 1 percent dis-agree and none of them were strongly dis-agree. The mean weightage was 4.22, which was acceptable by likert scale, so it indicates that it was a problem. So it concluded that regular information of their child from their teacher was affecting factor for achievement of math.

The statement 7 was "clear and sound full environment management by the parents ". The responses of informants were 32 percent strongly-agree 31 percent-agree, 20 percent undecided, 1.4 percent dis-agrees and 3 percent strongly dis-agree.

The mean weightage was 3.75, which was acceptable by likert scale, so it indicates that it was a problem. So it is can be concluded that necessary and sound full environment was necessary for good achievement in mathematics. The statements 8 was " there is positive relation between parents and child ".The response of students were 60 percent students strongly agree, 26 percent agree, 14 percent undecided and none of them were dis-agree and strongly dis-agree in that statement . The mean weightage was 4.46, which was acceptable by likert scale, so it indicates that it was a problem. So it concluded that position relation between parents and child was most affecting personal factor to student's achievements.

The statements 9 were " Parents buy required materials for child." The responses of students were 64 percent strongly agree, 30 percent agree, 5 percent undecided, 1 percent dis-agree and none of them were dis-agree in that statement. The mean weightage was 4.57, which was acceptable by likert scale, so it indicates that it was a problem. So it concluded that buy required material for the student is mostly affecting factors o the students achievements.

The statements 10 were "children do their homework freely." The response of information were, 3.5 percent strongly agree, 4 percent agree, 5 percent undecided, 35 percent disagree and 52.5 percent strongly dis-agree in that statement. The mean weight age 1.71 which indicates it was less acceptable, so it is concluded that child do their homework freely was not affecting factors for the mathematics achievement.

So, from the above table it can be concluded that the most of statements were leads to the parent's education was more affecting factor of student's achievement. The mean weightage of overall responses to factors to parent's education is 3.93

percent. So, it promotes the achievements in math. It can be concluded that parent education was affecting factor in mathematics.

### **Problem Related to Taking Tuition Class**

Taking tuition class was one of the most affecting factor to math achievement. Tuition makes the study habits of a student's, increasing knowledge, competitive ability and success in examination. Tuition leads good achievements for most of the students. So, it was affecting factor of mathematics achievements the overall student's responses. The overall student responses were described below.

**Table-2**

#### **Number responses, weightage mean and remarks of taking tuition class**

<b>S.N.</b>	<b>Statements</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>DA</b>	<b>SDA</b>	<b>Mean Weightage</b>	<b>Remarkable it is a problem</b>
<b>11</b>	Students are eager to learn in tuition class.	120	70	10	0	0	4.55	Yes
<b>12</b>	Tuition makes success in an examination.	140	30	15	10	5	4.45	Yes
<b>13</b>	Achievement of students will be only increased by taking tuition class.	32	19	14	45	90	2.29	No

<b>14</b>	Tuition leads negative impact.	0	8	12	60	120	1.54	No
<b>15</b>	If the students hardly work, tuition class is not required.	60	54	18	32	36	3.35	Yes
<b>16</b>	Tuition class promotes the achievements of students.	40	86	32	26	16	3.54	Yes
<b>17</b>	Teacher teaches efficiently in tuition class other than regular class.	148	40	8	4	0	4.66	Yes
<b>18</b>	Tuition leads economic barrier in students.	46	86	22	38	8	3.62	Yes
<b>19</b>	Tuition makes competitive ability for the students.	124	56	20	0	0	4.52	Yes
<b>20</b>	Tuition helps to increase the study habit of students.	114	46	14	26	0	4.24	Yes

From the table 2 shows that the responses were given statement 11 was "students are eager to learn in tuition class." The responses of students were 60



percent strongly agree, 35 percent agree, 5 percent undecided and none of them were dis-agree of strongly dis- agree. The mean weight was 4.45, which was acceptable, so it indicate that it was problematic. So I was concluded that it was factor affecting the mathematics achievement. The statements 12 were "Tuition makes success in examination." The responses were 70 percent strongly agree, 15 percent agree, 7.5 percent undecided 1.5 percent dis- agrees and 2.5 percent strongly dis- agrees in that statement. The weightage mean was 4.45, which was acceptable, so it was a problem. It is concluded that tuition make success in exam was great problem to the students.

The statement 13 was " Achievement of students will be only increased by taking tuition class." The responses of the information were 16 percent strongly agree, 9.5 percent agree, 7 percent undecided, 22.5 percent dis-agree and 45 percent strongly dis- agree in that statement. The mean weightage 2.29 which was less acceptable, it indicates it was not a problem. So it concluded that it was not a factor to increase the achievements of students. The statement 14 was "Tuition leads negatives impact." The responses of the students were, none of them strongly agree, 4 percent agree, 6 percent undecided, 30 percent dis-agree and 60 percent strongly dis-agree in that statement. The mean weightage was 1.54 which was less acceptable; it indicates it was not a problem. The statements 15 were "If the students hardly work tuition class is not required." The responses of students were 30 percent strongly agree 27 percent agree and 13 percent dis-agree and 18 percent strongly dis-agree in that statement. The mean weight age was 3.35, which was acceptable, so it was a problem. so it concludes that tuition class is necessary for every student to gain good achievement.

The statements 16 was "Tuition class problems the achievement of students". The responses of informants were, 20 percent strongly agree, 43 percent agree, 16 percent undecided, 13 percent dis-agree, and 8 percent stringy dis- agree in that

statements. The mean weight age was 3.54, which was acceptable, so it was a problem. So, it is concluded that tuition class promotes the achievements of students. It was more affecting factor for the students a achievements.

The statement 17 was "Teacher teaches efficiently in tuition class other than regular class". The responses obtained from the respondents were, 74 percent of total respondents strongly agree, 20 percent agree, 4 percent undecided and 2 percent strongly disagree in this statement. The mean weightage were 4.66, which was acceptable, so it was a problem. So it concluded that the teacher teach efficiently in tuition class Other than regular class was a problematic. So it was affecting personal factor of the students.

The students 18 were "Tuition leads economic barrier in students." The respondents were, 23 percent strongly agree, 43 percent agree, 11 percent undecided, 19 percent disagree and 4 percent strongly disagree in this statement. The mean weight age of that statement was 3.62 which was acceptable, so it was a problem. So it was included that this statements affected personal factors to the students in mathematics achievement.

The statement 19 was "Tuition makes competitive ability for the students". The responses obtained from the informants were, 62 percent strongly-agree, 26 percent agree, 10 percent undecided and none of them were dis-agree strongly disagree in this statement. The mean weightage was 4.52, which was acceptable, so it was a problem. So it concluded that tuition makes competitive ability was affecting factors of mathematics achievement. The statement 20 was "Tuition helps to increase the study habit of students." The response obtained from the informants were 57 percent strongly agree, 23 percent agree, 7 percent undecided, 25 percent disagree and

indicted 26 percent disagree and none of their strongly dis-agree in that statement.

The mean weightage was 4.24, which was acceptable, so it was a problem. So, it was concluded that tuition class is mostly affecting factor of students to increase ability.

So, from the above table is concluded that most of statements were leads to the taking tuition class was more affecting factor of student's achievement. The mean weightage of overall responses to factors to taking tuition class is 3.67 percent. So, it promotes the achievements in math. It concluded that taking tuition class was affecting factor in math achievement.

### **Problems Related to Time Spent at Home in Math Study.**

**Table-3**

**Number of responses weightage mean and remarkable of time spent at home in mathematics study**

<b>S.N.</b>	<b>Statements</b>	<b>SA</b>	<b>A</b>	<b>U</b>	<b>DA</b>	<b>SDA</b>	<b>Mean Weightage</b>	<b>Remarks</b>
<b>21</b>	Student spent more time to learn mathematics.	48	52	16	84	0	3.32	Yes
<b>22</b>	Students do not spent more time to learn mathematics.	3	35	24	42	96	2.035	No
<b>23</b>	More time to learn math create enjoying the child.	126	48	12	14	0	4.43	Yes

<b>24</b>	Mathematics is difficult than other subject so it is required more time.	74	82	24	6	14	3.98	Yes
<b>25</b>	Student's ability increases by T.V. programme at home.	16	18	6	46	114	1.88	No
<b>26</b>	Students study more time with the help of T.V. programme at home.	20	44	36	22	78	2.53	No
<b>27</b>	Mathematics achievement depends on home study.	36	56	34	28	46	3.04	Yes
<b>28</b>	Students Prepare daily routine for learning math.	48	58	22	66	4	3.37	Yes
<b>29</b>	Mathematics always takes more time to understand deeply.	134	38	10	12	6	4.41	Yes
<b>30</b>	Mathematics achievement does not depend on home study.	6	34	26	58	76	2.18	No

Time spent at home in mathematics study was also a great problem to the students which affects the mathematics achievements. If the students do not spent

more time to study mathematics at home, then the student's not to success in examination. So, it was most affecting personal factors to the students.

From the table 3 shows that the respondents were given to the statements 21 was "Students spent more time to learn mathematics". The responses obtained from the informants, were 24 percent strongly agree, 26 percent agree, 8 percent undecided, 42 percent dis-agree and none of them were strongly dis-agree. The mean Weightage was 3.32, which was acceptable, so it was a problem. So it was concluded that students spent more time to learn math was affecting factor the mathematics achievement. The statements 22 were " Students do not spent more time to learn mathematics." The responses obtained from the respondents were, 1.5 percent strongly agree, 17.5 percent agree, 12 percent undecided, 21 percent disagree and 4.8 percent strongly dis-agree. The mean weight age was 2.035 which indicate it was less acceptable; it concluded that students do not spent time to learn math was not affecting factors.

The statement 23 was more time to learn math create enjoying the child " The responses of respondents were, 63 percent strongly agree, 24 percent agree, 6 percent undecided, 7 percent disagree and none of them were strongly disagree. The mean weightage was 4.43, which was acceptable, so it was a problem. So it concluded that many students at home to spend more time in math study was affecting factor to the students. The statements 24 was " Mathematics is difficult than other subject so it required more time" The responses of respondents were 37 percent strongly agree, 42 percent agree, 12 percent undecided, 3 percent dis-agree and 7 percent strongly disagree. The mean weightage was 3.98, which was acceptable, so it was a problem. So it concluded that math subject is took more tome comparison to other subject was affecting personal factors to mathematics achievement.

The statement 25 was "Students ability increases by T.V. programme at home." The responses of students were, 8 percent strongly agree, 9 percent agree, 3 percent undecided, 23 percent dis-agree, and 52 percent strongly dis-agree. The mean weightage was 1.88, which indicate it was less acceptable, So it was concluded that students ability increased by T.V. programme at home, was not affecting factors to the students achievements in mathematics. The statement 26 was " Students study more time with the help of T.V. programme at home". The responses of respondents were 10 percent strongly agree, 22 percent agree, 18 percent undecided, 11 percent disagree and 39 percent were strongly disagree. The mean weightage was 2.53, which indicate it was less acceptable, So, it concluded that it was not factor affecting mathematics achievements.

The students 27 were " Mathematics achievements depend on home study." The response of students was, 18 percent strongly agree, 28 percent agree, 17 percent undecided and 14 percent disagree and 23 percent was strongly dis-agreed. The mean weightage was 3.04, which was acceptable, so it was a problem. So it concluded that achievement depend upon home study was affecting factors to the students. The statement 28 was "students prepare daily routine for learning math." The responses of respondent were, 24 percent strongly agree, 28 percent agree, 11 percent undecided, 33 percent agree and 2 percent strongly disagree. The mean weightage was 3.37, which was acceptable, so it was a problem. So, the students were preparing daily routine for study math was affecting factors in learning math.

The statement 29 was " Mathematics always takes more time to understand deeply". The responses obtained from the information were 67 percent strongly agree, 19 percent agree, 5 percent undecided 6 percent disagree and 3 percent strongly disagree. The mean weight age was 4.41, which was acceptable, so it was a problem.

so it concluded that mathematics always takes more time to understand deeply was affecting personal factor to the students achievements in mathematics. The student 30 was " Mathematics achievements do not spend on home study". The response obtained from the informants were, 3 percent strongly- agree, 17 percent agree, 13 percent undecided, 29 percent disagree and 38 percent strongly disagree. The mean weightage was 2.18 which indicate it was less acceptable, so it was not problem for the students. So we conclude that the mathematics achievement do not spent on home in mathematics study was less affect factor to mathematics achievements.

### **Comparison of Problem Factor among Boys and Girls in Mathematics at Lower Secondary Level**

The boys and girls students were asked 30 questionnaire (Appendix -A) in order to assess their personal factors of the students mathematics achievements. The second objective of that study was to compare the problem factors among boys and girls students.(Appendix-B, Appendix-C)

The mean, standard deviation and t-value of the score of boys and girls students of lower secondary level were presented in the table below.

**Table-4**  
**Comparison Table**

Compariso n	Sample Size	Mea n	Standard Deviatio n	d.f.	Calculate d t-value	Table t- value	conclusio n
Boys	100	3.59	1.76	19	0.77	1.96	Accept

Girls	100	3.57	1.74	8			
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The data presented in the above table shows that there were 100 boys and 100 girls students. The mean weightage of factor affecting score of each statement regarding the boys and girls were 3.59 and 3.574 and standard deviations were 1.76 and 1.74 respectively. It indicates that there was a little bit difference in the score of boys and girls students and mean value of boys students was smaller difference than girls students implying that the boy had a little bit different than girl students in personal factors. Since it was tested whether there was no significant difference between the personal factors affected of boys and girls at lower secondary level.

The above table shows that the obtained t-value 0.77 is less than the tabulated value 1.96 at 0.05 level of significance with 198 degree of freedom. Thus, the researcher concluded that there was no significant difference between boys and girls students in terms of their by personal factors of the students at lower secondary level.



## **CHAPTER -V**

### **Summary Conclusion Major Finding and Recommendation**

#### **Summary**

The purpose of the Study was to identify the personal factor affecting mathematics achievement of lower secondary level in Kathmandu District. The researcher also compares the perception of boy's and girl's students in personal factors. The specific factors were parent's education, taking tuition class and time spent at home in mathematics study, which as a personal factors in mathematics achievement. For this study the researcher prepared oppinaire based on three personal factors as indicate above. In each factor researcher constructed 10 items. Altogether there were 30 items, this oppinaire was constructed by Pradhan (2009), pilot test, and finalize by guidance of supervisor.

The response was collected from schools from Kathmandu district. The respondents were selected through simple random sampling method. Among these schools boys and girls are equally selected. The data were collected by distributing the constructed oppinnare. This oppinnare constructed based on five point liker's scale, questionnaire were also included in each category of problems and descriptive analysis of collected response were carried out using statistical indicators such as mean weightage, paired sample t-test were used for analysis of the problems.

#### **Major Finding**

Major finding of this study were based on responses of eight schools of 200 students. From the field survey and statistical analysis of collected data, it was found that student had been facing great problems in studying mathematics at grade seven

on the basis and interpretation of data, the finding of that study have been presented as follows:

- Parents helped to students to solve mathematics problems at home to support the student's achievement.
- Parent's regular information of their child from their teacher.
- Clear and sound full environment managed by the parents.
- There is a positive relation between parents and child helped to increasing the student's achievement.
- Parents buy required material for child promotes the students achievements.
- Students are eager to learn in tuition class supported the student's achievements in math.
- If the students hardly work, tuition class are not required promote the students achievements in math.
- Teacher teaches efficiently in tuition class other than regular class helped to increasing mathematics achievements.
- Tuition makes competitive ability for the students helped to increasing mathematics achievements.
- Mathematics is difficult than other subject so it is required more time helped to increasing mathematics achievements.
- Mathematics achievements depend upon home study promote the math achievement.

- Students prepare daily routine for learning math helped to increasing math achievement.
- Mathematics always takes more time to understand deeply supporting the math achievement.

The second objective was to compare the boy's and girl's perception about personal factors in mathematics achievement. From above comparison table shows that there is no significant difference between boys and girls perception about personal factors. This result suggests that parent's education, taking tuition class and time spent at home in mathematics study were most affecting factors achievement in mathematics.

### **Conclusion**

For the above findings of this study, it can be concluded that parents education, taking tuition class and time spent at home in mathematics study were affecting their personal factors in student's mathematics achievements. The three factors has contributed which rising and decreasing the student's achievement which is drawn from student's perception.

Similarly, it is found that there was no significant difference between boys and girls perception in personal factors. This result suggests that the personal factors are most important factors which affect mathematics learning. So all stakeholders are responsible to address these personal factors for increasing student's parents and students him/her self is responsible for that concern.

## Recommendation

Recommendation have made to pedagogical, personal and policy concern.

- The teacher teaching strategy was helpful to address the personal barriers.
- Students interest is main concern in teaching mathematics
- Parents are suggested maximized their help to Childs.
- The student is needed to increase in large scale.
- His provision of extra class in mathematics should be included in policy and practice.
- Other personal factors need to identify so, researcher recommend identifying the other personal factors.
- This study should be extending up in secondary level also.
- Government of Nepal should supply the essential teaching materials (textbook) in time.
- The teacher needs to know child psychology.
- The subject supervisor should be the supervision of mathematics class.
- Trained and skillful teacher could be selected without any bias by the political.
- The school administration should interact to the teacher's students, parents and other related person to discuss the problems. It helps to identify the affecting personal factors in mathematics teaching.

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## Appendix A

### Likert Mathematics Scale

Dear Students,

I am from the central department of the mathematics educations, TU, Kirtipur to conduct a research on the student personal factors affect on mathematics achievement which is for the partial fulfillment of the requirements for the degree of master of education. There are thirty statements that you have to response. For each statement there are five choices. There is neither rights not wrong statement they only depend on your view. So tick the choice which you think appropriate.

Name of student: - .....

School's name: - .....

S.N.	Statement	SA	A	U	DA	SDA
	<b><u>Parents Education</u></b>					
1	Parents help to students to solve mathematical problem at home.					
2	Parents help to the children to take tuition class.					
3	Students doing homework with the help of parents.					
4	Parents care the child to learn math.					
5	Parents motivate the child to learn math.					
6	Parents take regular information of their child from their teacher					



7	Clear and sound full environment managed by the parents.					
8	There is a positive relation between parents and child.					
9	Parents buy required materials for child.					
10	Child do their homework freely.					
	<b><u>Taking Tuition class</u></b>					
11	Students are eager to learn in tuition class.					
12	Tuition makes success in an examination.					
13	Achievement of students will be only increased by taking tuition class					
14	Tuition leads negative impact.					
15	If the students hardly work, tuition class is not required.					
16	Tuition class promotes the achievements of students.					
17	Teacher teaches efficiently in tuition class other than regular class.					
18	Tuition leads economic barrier in students.					
19	Tuition makes competitive ability for the students.					
20	Tuition helps to increase the study habit of students.					

	<b><u>Time spent at home in math study</u></b>					
21	Student spent more time to learn mathematics.					
22	Students do not spent more time to learn mathematics.					
23	More time to learn math create enjoying the child.					
24	Mathematics is difficult then other subject so it is required more time.					
25	Student's ability increases by T.V. programme at home.					
26	Students study more time with the help of T.V. programme at home.					
27	Mathematics achievement depends on home study.					
28	Students Prepare daily routine for learning math.					
29	Mathematics always takes more time to understand deeply.					
30	Mathematics achievements do not depend on home study.					

## Appendix-B

### Response of Boy's students

S.N.	Statement	SA	A	U	DA	SDA	Average score
	<b><u>Parents Education</u></b>	70	30	0	0	0	4.7
1	Parents help to students to solve mathematical problem at home.						
2	Parents help to the children to take tuition class.	70	22	3	5	0	4.57
3	Students doing homework with the help of parents.	40	40	8	9	3	4.05
4	Parents care the child to learn math.	35	45	8	9	3	4
5	Parents motivate the child to learn math.	30	42	15	14	9	4
6	Parents take regular information of their child from their teacher	50	28	22	0	0	4.28
7	Clear and sound full environment managed by the parents.	35	40	12	11	2	3.95
8	There is a positive relation between parents and child.	70	22	8	0	0	4.62
9	Parents buy required materials for child.	68	28	4	0	0	4.64
10	Child do their homework freely.	2	5	6	42	45	1.77

	<b><u>Taking Tuition class</u></b>	0	0	0	0	0	
11	Students are eager to learn in tuition class.	42	50	8	0	0	4.34
12	Tuition makes success in an examination.	70	14	6	7	3	4.41
13	Achievement of students will be only increased by taking tuition class	20	7	3	15	55	2.34
14	Tuition leads negative impact.	0	5	10	25	60	1.6
15	If the students hardly work, tuition class is not required.	27	30	8	15	20	3.29
16	Tuition class promotes the achievements of students.	22	50	8	10	10	3.64
17	Teacher teach efficiently in tuition class other than regular class.	80	17	2	1	0	4.75
18	Tuition leads economic barrier in students.	15	50	8	22	5	3.48
19	Tuition makes competitive ability for the students.	51	36	13	0	0	4.38
20	Tuition helps to increase the study habit of students.	62	22	8	3	0	4.28
	<b><u>Time spent at home in math study</u></b>	0	0	0	0	0	
21	Student spent more time to learn mathematics.	16	32	3	49	0	3.15
22	Students do not spent more time to learn mathematics.	2	15	18	17	49	2.07

23	More time to learn math create enjoying the child.	62	26	7	5	0	4.45
24	Mathematics is difficult then other subject so it is required more time.	23	52	13	2	10	3.76
25	Students ability increases by T.V. programme at home.	12	7	2	26	53	1.99
26	Students study more time with the help of T.V. programme at home.	11	23	14	16	36	2.57
27	Mathematics achievement depends on home study.	14	21	25	15	25	2.84
28	Students Prepare daily routine for learning math.	28	21	15	35	1	3.4
29	Mathematics always takes more time to understand deeply.	64	22	7	5	2	4.41
30	Mathematics achievement does not depend on home study.	1	18	11	32	38	2.12

SA- Strongly Agree

DA- Dis-Agree

A- Agree

SDA- Strongly Dis-Agree

U- Undecided

## Appendix-C

### Response of girl's students

S.N.	Statement	SA	A	U	DA	SDA	Average score
	<b><u>Parents Education</u></b>	40	35	8	17	0	3.98
1	Parents help to students to solve mathematical problem at home.						
2	Parents help to the children to take tuition class.	60	18	5	17	0	4.21
3	Students doing homework with the help of parents.	38	40	12	7	3	4.43
4	Parents care the child to learn math.	30	55	4	11	0	4.04
5	Parents motivate the child to learn math.	40	24	18	11	7	4.03
6	Parents take regular information of their child from their teacher	38	42	18	2	0	4.48
7	Clear and sound full environment managed by the parents.	29	22	28	17	4	3.55
8	There is a positive relation between parents and child.	50	30	20	0	0	4.30
9	Parents buy required materials for child.	60	32	6	2	0	4.50
10	Child do their homework freely.	5	3	4	28	60	1.65

	<b><u>Taking Tuition class</u></b>	0	0	0	0	0	
11	Students are eager to learn in tuition class.	78	20	2	0	0	4.76
12	Tuition makes success in an examination.	70	16	9	3	2	4.49
13	Achievement of students will be only increased by taking tuition class	12	12	11	30	35	2.36
14	Tuition leads negative impact.	0	3	2	35	60	1.48
15	If the students hardly work, tuition class is not required.	33	24	10	17	16	3.41
16	Tuition class promotes the achievements of students.	18	36	24	16	6	3.44
17	Teacher teach efficiently in tuition class other than regular class.	68	23	6	3	0	4.56
18	Tuition leads economic barrier in students.	31	36	14	16	3	3.76
19	Tuition makes competitive ability for the students.	73	20	7	0	0	4.66
20	Tuition helps to increase the study habit of students.	52	24	6	18	0	4.10
	<b><u>Time spent at home in math study</u></b>	0	0	0	0	0	0
21	Student spent more time to learn mathematics.	32	20	13	35	0	3.49
22	Students do not spent more time to learn mathematics.	2	20	6	25	53	2.11

23	More time to learn math create enjoying the child.	64	22	3	9	0	4.35
24	Mathematics is difficult then other subject so it is required more time.	51	30	11	4	4	4.20
25	Students ability increases by T.V. programme at home.	4	11	4	20	61	1.77
26	Students study more time with the help of T.V. programme at home.	9	21	22	6	42	2.55
27	Mathematics achievement depends on home study.	22	35	9	13	21	3.24
28	Students Prepare daily routine for learning math.	18	37	7	31	3	3.24
29	Mathematics always takes more time to understand deeply.	70	16	3	7	4	4.44
30	Mathematics achievement does not depend on home study.	5	16	15	26	38	2.24



## Appendix-D

### Distribution of Students responses on the Questionnaire

S.N	Responses										Mean Weighted	Remark is it is a problem
	SA	%	A	%	U	%	D	%	SD	%		
1	110	55	65	32.5	8	4	17	8.5	0	0	4.34	Yes
2	130	65	40	20	8	4	22	11	0	0	4.39	Yes
3	78	38	80	40	20	10	16	8	6	3	4.04	Yes
4	65	32.5	100	50	12	6	20	10	3	1.5	4.02	Yes
5	70	35	66	33	38	19	10	5	16	8	3.82	Yes
6	88	44	70	35	40	20	2	1	0	0	3.12	Yes
7	64	32	62	31	40	20	28	14	6	3	3.02	Yes
8	120	60	52	26	28	14	0	0	0	0	4.46	Yes
9	128	64	60	30	10	5	2	1	0	0	4.57	Yes

10	7	3.5	8	4	1 0	5	70	35	105	52. 5	1.71	No
11	12 0	60	70	35	1 0	5	0	0	0	0	4.55	Yes
12	14 0	70	30	15	1 5	7. 5	10	5	5	2.5	4.45	Yes
13	32	16	19	9.5	1 4	7	45	22. 5	90	45	2.29	No
14	0	0	8	4	1 2	6	60	30	120	60	1.54	No
15	60	30	54	27	1 8	19	32	16	36	19	3.35	Yes
16	40	20	86	43	3 2	16	26	13	16	8	3.54	Yes
17	14 8	54	40	20	8	4	4	2	0	0	4.66	Yes
18	46	74	86	43	2 2	11	38	19	8	4	3.62	Yes
19	12 4	62	56	28	2 0	10	0	0	0	0	4.52	Yes
20	11 4	57	46	23	1 4	7	26	13	0	0	4.24	Yes
21	48	24	52	26	1 6	8	84	42	0	0	3.32	Yes
22	3	1.5	35	17.	2	12	42	21	96	48	2.035	No

				5	4							
23	12 6	63	48	24	1 2	6	14	7	0	0	4.43	Yes
24	74	37	82	41	2 4	12	6	3	14	7	3.98	Yes
25	16	8	18	9	6	3	46	23	114	57	1.88	No
26	20	10	44	22	3 6	18	22	11	78	39	2.33	No
27	36	18	56	28	3 4	17	28	14	46	23	3.04	Yes
28	48	24	58	29	2 2	11	66	33	4	2	3.37	Yes
29	13 4	57	38	19	1 0	5	12	6	6	3	4.41	Yes
30	6	3	34	17	2 6	13	58	29	76	38	2.18	No



## Appendix-E

### Statistical Techniques used for the study

The researcher had applied the following statistical techniques to verify the hypothesis and then analyze attitude of students towards mathematics

1. The statistical device mean weightage was applied to find the opinion of all students towards mathematics at lower secondary level.
2. The statistical device t-test was applied to find the comparisons of boys and girls students affected by personal factor in mathematics at lower secondary level. The formula was used for calculation t-test is.

$$t = \frac{X_1 - X_2}{S_p \left( \frac{1}{N_1} + \frac{1}{N_2} \right)}, \quad S_p^2 = \frac{(N_1 - 1) S_1^2 + (N_2 - 1) S_2^2}{N_1 + N_2 - 2}$$

Where,

$$\text{Degree of freedom} = N_1 + N_2 - 2$$

$\bar{X}_1$  = Mean score of boy's students

$\bar{X}_2$  = Mean score of girl's students

$N_1$  = Number of boys students

$N_2$  = Number of girls students

$S_1$  = Variance of boy's students

$S_2$  = Variance of girl's students

## Appendix-F

### Sample schools and sample students

S.N	Name of school	Students of clsss-7	Boys	Girls
1	Janasewa H.S. School Kirtipur ktm	30	15	15
2	Janpath secondary school kalanki	20	10	10
3	tarun H.S. School Nepaltar	30	15	15
4	Bagmati H.S.School Baneshower	20	10	10
5	Ratna Rajya H.S.School Dillibazar	25	15	10
6	Bishwaniketan H.S.School Tripureshor	25	10	15
7	Mahakal Janjagrit school maharajjung	25	15	10
8	Gyankunj H.S.School Bafal Kathmandu	25	10	15
	Total	200	100	100