

MATHEMATICS STUDENTS' BELIEF AND
PRACTICE OF TUITION

A
THESIS

BY
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FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF EDUCATION

SUBMITTED
TO
DEPARTMENT OF MATHEMATICS EDUCATION
CENTRAL DEPARTMENT OF EDUCATION
UNIVERSITY CAMPUS, KIRTIPUR
TRIBHUVAN UNIVERSITY
KATHMANDU, NEPAL

2016



त्रिभुवन विश्वविद्यालय
शिक्षा शास्त्र संकाय

शिक्षा शास्त्र केन्द्रीय विभाग

TRIBHUVAN UNIVERSITY
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LETTER OF CERTIFICATE

This is to certify that Mr. Ram Krishna Shrestha, a student of academic year 2067/069 with campus Roll No.: 1190, Exam Roll No.: 281362 (2067), Thesis number 771 and T.U. Registration No.: 9-1-9-641-2002 has completed his thesis under my supervision during the period prescribed by the rules and regulation of Tribhuvan University, Nepal. The thesis entitled "**Mathematics Student's Belief and Practice of Tuition**" has been prepared based on the result of his investigation conducted during the period of January, 2012 to March 2016 under the Department of Mathematics Education, University Central Campus, Tribhuvan University, Kirtipur, Kathmandu. I recommend and forward that his thesis be submitted for the evaluation awarding the degree of Master of Education.

.....

Asso.prof. Laxmi Narayan Yadav

Head & Supervisor

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LETTER OF APPROVAL

Thesis Submitted

By

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Entitled

MATHEMATICS STUDENTS' BELIEF AND PRACTICE TUITION

has been Approved in Partial Fulfillment of the Requirements

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ACKNOWLEDGEMENT

I am heavily indebted to my respected supervisor Asso. Prof. Laxmi Narayan Yadav, Head of Mathematics Education Department, Central Department of Education Kirtipur, Kathmandu. His valuable constructive suggestion, instruction and scholarly guidance have become the greatest property of this dissertation. Without his constant supervision and intellectual guidance this would never have been appeared in this form.

At the same time, I am very grateful to my respected teachers Prof. Dr. Hari Prasad Upadhyay, Prof. Dr. Lekhnath Sharma and Mr. Abatar Subedi for their valuable comments and suggestions.

I am also very much indebted to the samples school family of Dhankuta district for their kind co-operation and providing opportunity for collection of data.

I must extend my heartily thanks to Jit Man Jimee, Amar Chemjong, Ram Chandra Ghimire, Santosh Katuwal, Ram Prasad Rai and other friends who gave me the constant inspiration and suggestions to bring this thesis complete form. I always remember office assistant Mrs. Bimala Bhattarai, and Librarians for their valuable support during my study. Especially thanks go to Prachanda Shrestha for his help in computer setting.

Last but not least, I wish to acknowledge my father Mr. Dambar Bahadur Shrestha, who even under very difficult situation devoted a great span of his times in making me what I am now.

Date:.....

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(Ram Krishna Shrestha)

ABSTRACT

The main aim of this study entitled "Mathematics Students' Belief and Practice of Tuition" was to investigate the beliefs of mathematics students' towards the practice of tuition. The study was also aimed to find the causes of taking tuition at secondary level students. The study was survey and descriptive research design, in fact mixed (quantitative and qualitative). To investigate the beliefs of mathematics students' towards the practice of tuition, the researcher used the questionnaire form. The questionnaire sheet contained 30 statements on the basis of five components: Interest, Effort, Self-confidence, Uselessness and Fear related with tuition. In each component there were 6 statements. Among 30 statements 18 statements were positive and 12 statements were negative to tuition. The questionnaire administered among 250 secondary level students from 14 sampled public secondary schools of Dhankuta district. The Chi-square test was used to investigate the belief of mathematics students' towards the practice of tuition. Entire test is used at 0.05 level of significance.

Also, to find the causes of taking tuition at secondary level students, the researcher administered in-depth interview of 10 mathematics students (6 boys and 4 girls) and 5 mathematics teachers from 14 sample public secondary schools of Dhankuta district with help of interview guidelines. The information from in-depth interview of sample students and teachers obtained in qualitative form and those data analyzed by Cross-match method. The researcher also observed 3 tuition classes with the help of checklist. The population of the present study contained the public secondary schools students of Dhankuta district. The researcher found that the high belief towards the practice of tuition at secondary level students. Also, concluded that there was significant relationship between students' belief and their practice of tuition.

The absent of teachers and students in classroom; reading writing environment is not good at home; reading writing environment is not good at school; low economic status of students; to identify the important questions related to exam; many students feel pleasure to learn mathematics in tuition; to solve the problems immediately; it increases the practice habit of students and group learning; easy to understanding math problems; to finish the course in time; easy to pass exam; and not tension for guide and guess paper are the causes of taking of tuition at secondary level students. At present study the researcher concluded that the majority of the secondary level students were interested to take tuition for learning mathematics.

TABLE OF CONTENTS

	Page No.
<i>Letter of certificate</i>	<i>i</i>
<i>Letter of Approval</i>	<i>ii</i>
<i>Acknowledgement</i>	<i>iii</i>
<i>Abstract</i>	<i>iv-v</i>
<i>Tables of contents</i>	<i>vi-vii</i>
Chapters	
I. INTRODUCTION	1-9
Background of the Study	
Statement of the Problem	
Significance of the Study	
Objective of the Study	
Delimitation of the Study	
Definition of Operational Terms	
II. REVIEW OF RELATED LITERATURE	10-23
Conceptual Framework for Beliefs and Practice	
III. METHODS AND PROCEDURES	24-30
Research Design	
Population of the Study	
Sample of the Study	
Instruments	
Questionnaire	
Observation	
In-Depth Interview	

Reliability of Tools	
Validation of Tools	
Data Collection Procedures	
Scoring Procedures	
Data Analysis Procedures	
IV. ANALYSIS AND INTERPRETATION	31-49
Secondary Level Students Belief towards the Practice of Tuition	
Causes of Taking Tuition at Secondary Level Students	
V. SUMMARY, FINDINGS, CONCLUSIONS AND	
RECOMMENDATION	50-53
Summary of the Study	
Findings of the Study	
Conclusion of the Study	
Recommendation for further Study	
REFERENCES	54-55
APPENDICES (A-I)	56-69

Chapter-I

INTRODUCTION

Background of the Study

Now the time of 21st century and the level of competition is being higher due to the explosion of knowledge. So, everyone should be utilized his/her knowledge, skill, & capacity. The achievement of a person is depends upon the capabilities. In this manner, students also try to use their capabilities for the great achievement.

There are several factors responsible for the achievement in mathematics of secondary school children. In the recent years, it is well documented that parents' beliefs, teachers' beliefs, students' beliefs towards mathematics are powerful influencing factors in students' achievement. Parents' beliefs are motivational factors that highly influence mathematics achievement of their children. Parents' beliefs shape the beliefs of their children. There is a growing body of research that supports these claims and shows how the beliefs influence in mathematics learning and problems solving habit. The beliefs that students and teachers hold about mathematics learning have been well documented in the research literature in recent years (e.g. Cooney 1995; Frank 1988,1990; Garofalo 1989a, 1989b; Schoenfeld 1987; Thompson 1984,1985), epistemological beliefs (Schommer, Crouse and Rhodes 1997), beliefs about mathematics teaching (Boaler 1997) etc. that all strictly support that students beliefs system have direct linkage/ effects in learning mathematics.

Beliefs seem to be situated in the “twilight zone” between cognitive and affective domain and includes components of the both domains (Pehkonen, 2003). Therefore, beliefs are the most influencing factors upon something for its advance success and failure. Human beings in general show tendencies to form and hold beliefs that serve their own needs, desires and goals; these beliefs serve ego-enhancement, self-

protective and personal and social control purposes and cause biases in perception and judgment in social situations, as a result, personal beliefs is highly subjective. There appears a cyclic relationship between beliefs and learning. Students' learning experience is likely to contribute to their beliefs about what it means to learn mathematics. In turn students' beliefs about mathematics are likely to influence how they approach new mathematical experiences. According to the standards, "Students beliefs exert a powerful influence on students' evaluation of their own ability, on their willingness to engage in mathematical tasks, and on their ultimate mathematical disposition."

Belief of students affect on learning mathematics and it plays an important role in mathematics education. Mathematics has been a highly respected discipline in school for centuries and its high status makes students success in mathematics very important. This has implied the situation where effect has become an interest of researcher in mathematics education as it has been pointed out that students attitudes and beliefs about mathematics are strongly related to their learning out-comes and success in mathematics.

Beliefs have been described and defined by different researcher in different ways. Beliefs are the bedrock and corner stone at the heart of our action (Corey, 1973). Beliefs are the best indicators of the decisions individuals make throughout their lives (Dewey, 1933). Beliefs are feelings of a person about something/somebody. It is the process of thinking our self. Beliefs that individuals holds are the best indicators of the decisions that they make during the course of everyday life (Bandura,1986).

According to Pietila (2002), beliefs can be individual's subjective knowledge or both individual's subjective knowledge and his feelings. A belief can merely be subjective knowledge when a pupil thinks that he knows something and acts on his

beliefs. According to Abelson (1979), beliefs are usually held with a different degree of conviction. Beliefs can be understood as non-conscious and conscious. We can define conscious belief as conceptions. According to Sarri (1983), we can understand conceptions as a subset of belief. Here individual's beliefs are understood to be composed of his subjective experience based implicit knowledge of mathematics and its teaching and learning. The beliefs conscious and unconscious can be seen as a beliefs system

According to Hume's theory on beliefs, beliefs can be divided into at least nine different categories. Hume says that a belief is: an idea conceived in a certain manner; that certain manner of conception it-self; an idea that feels a certain way; that certain feelings it-self; an idea that has a great influence on the mind; an act of mind rendering realities influential on the mind; a lively idea related to an impression; a lively manner of conceiving an idea, which manner arises from an impression; and something that makes ideas forceful and vivacious.

According to Telse (1997), a combination of beliefs may be described as beliefs system, which is restricted, as individuals reflect on their beliefs. Individual student possesses particular beliefs of varying degrees of conviction that organized into students' conception of mathematics whose components consists of conscious or subconscious beliefs, concepts, meaning, rules, mental images and preferences concerning the discipline of mathematics (Thompson, 1992).

MC Leeds (1992) definition of beliefs has been considered adequate for this study, since it makes clear the distinction between the cognitive in nature, and are developed over a relatively long period of time. On the other hand, may involve little cognitive appraisal and may appear and disappear rather quickly, as when the trust action of trying to solve a hard problem is followed by the Joy of finding a solution.

Therefore, we can think of beliefs, attitudes and emotions are representing increasing levels of affective involvement, decreasing levels of cognitive involvement, increasing levels intensity of response, and decreasing levels of response stability.

The importance of beliefs in the life of a student is stressed again because these assumptions constitute the goal-oriented activity. Beliefs play a significant role in directing human's perceptions and behavior. Although teachers' awareness of students' mathematical beliefs is important, it may be equally important for students to be aware their own belief towards mathematics.

Beliefs play a great role in mathematics learning and teaching. The learning outcomes of students are strongly related to their beliefs and attitudes about mathematics (Furinghetti and Pehkonen, 2000) Pehkonen and Furinghetti (2002) suggest that mathematics education researchers clarify their source on the following components when defining beliefs.

1. Distinguish between objective and subjective knowledge.
2. Distinguish between affective and cognitive beliefs, if necessary.
3. Consider varying degrees of stability.
4. Situate the construct in the setting and goal of research.

Thus assessing or evaluating of students' mathematical knowledge must be made in awareness of their beliefs.

Dhankuta, one of the district of Eastern Development Region and also the headquarter of this region. The educational status of this district regarding school level has not been successful (satisfactory). This may have been because of many reasons such as lack of trained teachers, home environment of the students, poverty etc. Most of the people of this district are involved in Agriculture and their sources of income are limited. Therefore, students are obliged to get enrollment in the school

besides working for their living. The obligation for living, they should labor hard and they are unable to go to schools and learn. The disturbances in the school; banda, hartal (strike) and the absence of teachers inhibit the courses to be finished within the specified time. More practices and understanding is needed in Mathematics than other school subjects. Reference books, other instructional materials are not found sufficiently. Due to these reasons, students fail in the SLC exam. So, for gaining education, they slowly/gradually depend on Tuition. Thus, the tuition system is seen as burning issue in the area of school education. The unavailability of textbooks is a stable problem that affects in the achievement of students learning outcomes. The attraction towards this tuition is good or bad whether this is students' obligation as else will be made clear in my study.

In the manner of tuition, there are different aspects, such as private institutions, class-teacher conduct such class out of school time, home tuition, etc. Institutions manage for such class and provide learning environment as far as possible. More school teachers conduct the tuition class for their students out of school time. Tuition teachers are called tutors. They help the students in learning concerning monetary advantages. The purpose of tuition is to help the students for learning providing student friendly environment. To make the better understanding and to some extent it has been successful as well. But the important question remain unanswered, the question like; Is the tuition really useful for the overall development of the students? Is tuition playing important roles in the making of expert and productive manpower? Can it find the problem is students in learning Mathematic? Can it solve the problems of students in learning Mathematics?

Thus my research study attempts to answer the question mentioned above. Besides these, it also explores the perspectives of beliefs of the students towards the

tuition. In researcher experience, this type of class is only useful to the lazy and wealthy students. "Why students are taking tuition class?", this question hits the researcher and he chooses the topic which is relevant in the present context.

Cobb (1986) defines as an individual's assumptions about the nature of reality. The importance of beliefs in the life of a student is stressed again because these assumptions constitute the goal-oriented activity. In oxford advance learner's Dictionary beliefs is defined as a strong feeling that something/ somebody exists or is true. Belief is the confidence that something/somebody is good or right. Belief is defined as an opinion about something. Something that you think is true.

Mathematical beliefs are regard as filters which modify most of the students' thoughts and activities (Perkon 1993). They consist of a long living subjective knowledge of certain objects and emotion (Perkin 1996). The mathematical beliefs system is formed by all beliefs about mathematics instruction and studying of mathematics.

Beliefs play a significant role in directing human's perceptions and behavior. Almost two decades (Eighties and Nineties) of research revealed how students' beliefs shape their cognitive and affective processes in the classroom. In learning environments, students' beliefs might propagate for achievement and smoothness of learning. In the mathematics learning process, students beliefs about the nature of mathematics and factors related to the learning are two components that always concern mathematics educators.

Mathematics educations have taken up the study of beliefs for a variety of aims, primarily psychological, such as their relations to students' problems solving, learning goals and affects. Beliefs about doing mathematics may influence how students engage in problem solving (Schoenfeld, 1989), as the belief that all

mathematics problems can be solved in a few minutes can lead students to give up quickly on challenging mathematical tasks. Beliefs about mathematics as a domain may be related to students' learning goals; Cobb (1985) found that students who viewed mathematics conceptually were more task-centered and students who viewed mathematics procedurally were more ego-centered. Beliefs about our self may relate to affect, as low self-efficacy beliefs appear to correlate with high mathematics anxiety (Cooper and Robinson, 1991).

Statement of the problem

The problem of this study is mainly concerned with the belief of mathematics students towards the tuition in secondary level. It also involves why and what purpose should students be taking tuition class. Moreover, this study attempts to seek the answer to the following questions.

- What is the belief of mathematics students towards the tuition in secondary level?
- What are the causes of taking tuition in secondary level students?

Significance of the Problem

Mathematics is an essential part of curriculum; NESP (1971) recommended mathematics as a compulsory subject for students at each level of schooling. Therefore every student should read math subject. But most of the students fear and feel that the mathematics is harder and boring than other subjects. So, they always think how we pass the exam and obtain the higher marks. Thus every student is taking tuition for learning mathematics but we are unknown what type of belief shows that the mathematics student towards tuition. So that, present study is concerned with the mathematics student's beliefs towards tuition in secondary level. The significance of this study states in the following points.

- This study provides information about the student's beliefs towards tuition.
- It also helps to teacher & students to produce creativity and teaching learning environment.
- It provides the main causes of taking tuition in secondary level students.
- It provides advantages and disadvantages aspects of taking tuition in learning mathematics.

Objectives of the Study

The following are the objectives of this study:

- To investigate the belief of mathematics students towards tuition at secondary level.
- To find the main causes of taking tuition at secondary level mathematics students.

Delimitations of the Study

Due to the constraints of time's budget and other related factors the researcher did not overcome the entire field; i.e. it has some limitations which are as follows.

- This study has limited at Dhankuta district.
- The population of this study has limited on Grade IX and X students of Public Secondary Schools.
- The Sample of the study has included only Public School.
- The variables, such as age level, environment of the classroom, location of the school area etc. of sample affecting the beliefs have not be controlled.

Definition of Operational Terms

Belief

Belief as an personal assumption of individuals about the nature of reality. These assumptions underlies goal oriented activities beliefs are distinct from attitudes

or emotions in that they have the least affective involvement and are the most stable overtime, MC lead (1992). It is a state or habit of mind in which trust or confidence is placed in some person or thing. It is a feeling of being sure that someone or something exists or that something is true. In other words beliefs are telling of a person about Something/Somebody.

Practice

It is a systematic training by multiple repetitions. A practice includes the relationship, interaction, communication between teachers and students. It may be defined as the activity performed in the classroom by the teacher and students for achieve their purposes.

Class Room Practice

Classroom practice refers to everything that goes in the mathematics classroom. It includes the relationship, interaction, drawing, calculation, communication and understanding between teacher and students and among students, classroom practice may be defined as the activities performed in the classroom by teachers and students for teaching learning purposes.

Tuition

Tuition refers to the process of teaching learning out of school time. It helps the students for better understanding. Students must pay some money and take extra class than School classroom.

Belief Scale

An information form that attempts to measure the belief of an individual is known as a belief scale.

Public School

Public schools are those schools which are conducted andss fully funded by the Government.

Chapter-II

REVIEW OF RELATED LITERATURE

A review of related literature is the source of further study of research task. It helps to give the better idea at surveying in the research hypothesis. It guides to reach hypothetically nearly to conclusion, thus the review of related literature is important and essential for guidance of research planning. The related studies provide the research in making problem more realistic, precise, researchable and meaningful. The researcher in this present studies reviewed the relevant literature in the field of belief toward mathematics and other school subjects.

Many researchers have been done about the belief of teachers and students towards mathematics and its teaching. But the study on "Mathematics students' belief and practice of tuition in secondary school" has not been done yet. So, the researcher interested to undertake this study. In course of reviewing literature the following have been found useful and related to the present study.

Frank (1988), did the study on "Belief about mathematical problem solving of junior high school students in a summer mathematics program for gifted students". Frank observed the two week program and conducted several interviews with four of the participants she asked students about the nature of mathematics and also asked them to think aloud when solving problems. Based on her observation and interview she concluded that even gifted junior high school students believe the mathematics is computation that all problems can be solved in just few steps that the goal of mathematics is to get the right answer, that the role of mathematics student is to receive mathematical knowledge and that the role of the teacher is to transmit the knowledge.

Mason (2003) did a study on "High school students' Belief about Math's, Mathematical problem solving, and Their Achievement in Math: A cross sectional study". The main aim of this study was to identify Italian high school students' beliefs about math's and mathematical problem solving by exploring the use of a 36-item on the basis of six scales (Difficult problems, Steps, Understanding, World problems, Effort and Useful) self-report questionnaire. The study was also aimed at analyzing possible significant differences in beliefs related to grade (first grade ages are 13-14 and fifth grade 18-19) and gender, as well as the relationship between beliefs and achievement in math. Moreover it explored the reasons underlying mature and naive beliefs about the different dimensions measured by the questionnaire. A MANOVA revealed differences for three scales (ability to solve time consuming problems, problems which cannot solved by routine procedure, the usefulness of mathematics) related to grade and a difference for one scale related to gender (importance of understanding math). It also emerged that four scales mentioned predicted achievement in math to different extents. Data regarding the reasons underlying students' beliefs show how their convictions are adaptive.

He used survey type research designed, also used five scale Indiana mathematics belief scale plus the Fennema- sherman usefulness scale (Kloosterman and Stage, 1992) to measure belief about mathematical problem solving was administered to all 599 students. Also he tired to identity the relationship between the belief and achievements in math's was addressed by analysis in which students grade in math's were regressed on the score of the six scale regarding beliefs. The result of this study shows that positive beliefs towards the mathematics, mathematical problem solving, also founded that there is strongly relationship between the students' belief and their math's achievements. Positively correlated, although secondary level

mathematics teachers were facing different problems, they taught according to their beliefs.

Paudel (2005) did a study on "Correlation Study between Beliefs and Mathematics Achievement of Students of Grade-IX". The prime concern of this study was to study the correlation study between beliefs and mathematics achievement of students of grade IX of kaski district. This study attempts to identify student's beliefs about mathematics as well as comparison of students' beliefs of public school and private school. This study also investigates the relationship between students' beliefs and mathematics achievement of grade IX.

The researcher used the survey type research design. The population of this study consists of all students of grade IX of public and private schools of kaski district. One hundred and eighteen students were selected as the sample of the study from Gauri Shankar Higher Secondary School and Shree Step-By-Step Higher Secondary School. Mathematics classes were observed to identify students' beliefs towards mathematics. Questionnaire was used developed on the study "Junior High School Students' Mathematical Related Belief System. Their Internal Structure and External Relations." This consists of thirty statements related to students' belief about mathematics. The scale three points was used to quantify the students' beliefs attributes. Observation was done on theoretical construction. Mathematics achievements scores were taken from district level examination of grade seven. The mean, percentage, standard deviation, correlation coefficient, chi-square test, two tailed t- test and r-test were used as statistical tools for the analysis of data at 0.05 level of significance, based on interpretation and analysis of the data the following results were found:

- Students have positive beliefs about mathematics.

- There is no significance difference between public and private schools students' beliefs.
- There is no significance relationship between student's beliefs and mathematical achievement.
- The role of teacher is to transmit knowledge.
- Student's have less confidence in learning mathematics in practice.
- Student's does not find the proper use of mathematics in social context.

Gotame (2005) did study on "The Impact of Parent's Beliefs on Mathematics Learning and Achievements to Secondary Level Students." A fields survey was carried out in three VDCs Chhopark, Ampipple, and Harmi of Gorkha district during fifth to twentieth June 2005 to findout the impact of parent's beliefs on mathematics learning and achievement of secondary level students and relation between parent and student belief system towards mathematics.

Eighty one students were selected randomly by using multi-stage sampling method from four secondary schools of three VDCs. In addition a teacher made test was applied for the better accuracy of student's achievement in mathematics. Both primary and secondary data were used in statistical analysis to find parent's beliefs system and their impact in mathematics learning. Beliefs system of educated and non-educated, different caste and ethnicity Brahmin-kshettri, Janajati and Dalit were measured and found that parent's beliefs system have great impact in mathematics learning of their children. Brahmin and Kshettri have greater positive beliefs than the other caste and their children have high achievement in mathematics. Janajati parent's beliefs is significantly higher than Dalit parent, Similarly, Janajati students have significantly higher achievement than Dalit students. Also it was found that educated parents have significantly higher beliefs than the non-educated parents and educated

parents' children have high achievement in mathematics. The study with the findings can conclude that children of that parent having good favorable beliefs towards mathematics can get a good grade in mathematics. Parents' beliefs and students beliefs system are found to be significantly correlated but it differed from educated and non-educated, Brahmin and Kshetri, Janajati and Dalit parents believe that school teacher and school study can improve their children in mathematics, mathematical calculation is very useful in day to say life and they simply are unknown about school mathematics contents. They really support the gender equality in mathematics. The place of mathematics in society is remarkable, but the view and idea of thought and attitude towards mathematics differs accordingly by educational status and caste or ethnicity.

Kislenko (2005) did a study on "Structuring Students' Beliefs in Mathematics: A Norwegian Case". The main focused of this study was to find the students beliefs and attitude towards mathematics teaching and learning. In this research the researcher divided the structure of student's beliefs and attitude towards mathematics into five components: interest, effort, self-confidence, uselessness, and fear. In this study, the research took 279 students from the grades 7(34 students), 9(85 students) and 11(first year in upper secondary school; 160 students). This study was not only a quantitative strategy but qualitative as well as.

The questionnaire was used to investigate student's beliefs and attitude towards mathematics and mathematics teaching and learning. In this research the researcher also used the five point Likert type scale, where 5 represented a highly positive statement (totally agree), 4 point represented agree statement, 3 point represented a neutral statement, 2 point represented a disagree statement and 1 point represented a highly negative statement (totally disagree), The data were analyzed by using

descriptive as well as inferential statistics through M-excel and SPSS. The researcher calculated the mean scores for the whole sample (n=279) on each of the components. In first component Interest, 2.87 and 0.41 were mean and S.D.: 3.90 and 0.63 were mean score and S.D. for Effort; 3.26 and 0.74 were mean score and S.D. for Self-confidence ;3.46 and 0.63 were mean and S.D. for Uselessness; and 2.81 and 0.74 were mean and S.D. for last component Fear. Based on the statistical analysis we can claim that students on average were seldom afraid of making mistakes in mathematics and around 80% of respondents were seldom or never afraid to show their teacher that they don't know how to solve a mathematical problem.

Our respondents' self-confidence was slightly above neutral but that cannot be said about their interest towards mathematics. About 50% of respondents claimed in their interest towards mathematics is boring. 79% of students claimed that they have to work hard even if they do not enjoy working with mathematics and 84% agreed that to become good at mathematics is dependent on hard work. Most respondents admitted that mathematics is important (91%) and useful (82%) in their lives.

In all these five principal components; Interest, Effort, Uselessness, Self-confidence, and Fear, the result of this study shows that there is positive view of mathematics decreases when students get older as students from the first year in upper secondary school. The ninth grades had more positive view towards mathematics than eleventh grades.

Palsdottir (2005) did the study on " Girls' Belief about the Learning of Mathematics." His main research question was: How do pupils in lower secondary schools in Iceland think about Mathematics and their Mathematical Learning? He divided this research question into three areas; 1) the beliefs about mathematics 2) the study of mathematics and 3) the pupils themselves as learners of mathematics.

His research was qualitative and he had taken 4 girls of 15 years old in interview of lower secondary school in Iceland, Reykjavik. He used three main perspectives about the nature of mathematics; traditional, formalist and constructivist perspective. He used the main components of the Femnema and Peterson (1985, as cited in Meece, 1996) model are 1) Evaluation of the student's own mathematical abilities 2) Sense of how useful mathematics is 3) Learning abilities 4) Sense that mathematics fits your gender-role.

He focused in his research on getting a description of the girls' beliefs and not so much how they had developed those beliefs or why. He concluded in his research were that these particular Icelandic girls; 1) view mathematics as a process 2) place emphasis on understanding and solving the problems at hand 3) are self confidence, well-organized and study hard 4) do not often use elaboration strategies.

Paudel (2007) did a study on "Mathematics Teacher Beliefs towards Method of Teaching and Their Classroom Practice at Lower Secondary Level." The prime concern of this study was to study the correlation between teacher's belief and classroom practice. In particular, this study attempts to identify teacher's beliefs about method of teaching mathematics at lower secondary level. To observe the classroom practice and also investigate the relationship between teachers' beliefs and practical use, He uses the survey research design and population of the study consists of all lower secondary level mathematics teachers of Syangja district. The 25 lower secondary mathematics teachers were taken from different sixteen sample schools for study.

To investigate the mathematics teachers beliefs towards method of teaching and classroom practice. The researcher used the five point Likert type questionnaire form with thirty two statements on the basis of six components: belief about teachers

preparedness and appearance, belief on discovery method, belief about inductive and deductive method, belief on problems solving methods, belief on discussion method and belief on teacher's role and competency which reflects the teachers' belief about method of teaching and classroom practice. Classroom observation form with four scales: teacher personality and personal traits, classroom behavior, instructional behavior, and closing the lesson was also used to observe the classroom.

The chi-square test, correlation coefficient, and two tailed t-test were used as statistical test tools for the analysis of data at 0.05 level of significance. The data were also analyzed on the basis of theoretical aspect of the study. Based on the interpretation and analysis of the data the following results were found.

- Mathematics teachers have positive beliefs about method of teaching.
- Beliefs of mathematics teachers positively related to their classroom practice.

Though teachers have positive belief about method of teaching but in classroom practice there are no such sufficient activities to support their internalized beliefs, teachers have less self-confidence to used different teaching methods at classroom practice.

Ghimire (2011) did a study on "Mathematics Teachers' Belief and Attitude towards Use of Lesson Plan in Secondary School." The main aim of this study was to investigate the beliefs and attitudes of mathematics teachers' towards the use of lesson plan in private and public school and to compare the belief and attitudes of mathematics teachers towards lesson plan in public and private school. The study was also aimed to find the causes of not using lesson plan in classroom teaching.

To investigate the beliefs of mathematics teachers towards the use of lesson plan in secondary level. The researcher used the opinionnaire form. An opinionnaire

sheet contained twenty five statements (positive and negative). The opinionnaire administered among twenty five teachers included in the sample and questionnaire used for ten teachers from the sample teacher. The Chi-square test used to investigate the belief and attitude of the teachers towards use of lesson plan and t-test used to compare the belief and attitudes of public and private school teachers. Entire test used at 0.05 level of significance.

The information from questionnaire set obtained in qualitative form and the data from questionnaire analyzed by descriptive method. The population of the present study contained the secondary mathematics teachers of Araghakhanchi district. The researcher found that the positive belief and attitude towards the use of lesson plan in mathematics in public secondary school and negative belief and attitudes towards the use of lesson plan in private school. He also concluded that there is significance difference between mean score of public and private school teachers' beliefs and attitudes towards use of lesson plan.

Conceptual Framework for Beliefs and Practice

In this topic, the researcher introduced the conceptual understanding for beliefs. A conceptual framework is a representation, either graphically or in narrative form of the main concepts or variable, and their presumed relationship with each other. A conceptual framework covers the main features (aspects, dimensions, factors, variables) of a case study and their presumed relationship. Some studies about students' and teachers' beliefs have been carried out in Estonia and Norway during the last 10 years (e.g. Lepmann, 2000; Lepmann and Afanasjer, 2005; Pehkonen, 1994; Pehkonen, 1996; Pehkonen and Lepmann, 1994; Kirsti Kislenko, 2005). In those researches the researcher took study one of the international thesis "Structuring Students' Beliefs In Mathematics: A Norwegian Case" prepared by Kirsti Kisleko,

Agder University College, Norway. In this study the researcher tried to identify the structuring students' beliefs and attitudes towards mathematics and mathematics teaching and learning. For this purpose the researcher could divide the structure of students' beliefs and attitudes towards mathematics on the basis of five components: interest, effort, uselessness, self-confidence and fear. In this study questionnaire (from five components) was used to investigate the structuring student's beliefs and attitudes towards mathematics and mathematics teaching and learning. Also used the five point Likert Scale.

Also in this study, the researcher tried to identify the two things of mathematics students towards the practice of tuition. One thing was to measure the beliefs of mathematics students towards the practice of tuition in learning mathematics. For this purpose the researcher developed the questionnaire having 30 statements on the basis of five components: interest, effort, self-confidence, uselessness, and fear related to tuition with the help of mentioned above international thesis. In each component there were six statements. These statements reflected the students' belief about taking tuition. These above mentioned six components were described in the following ways.

Interest: Here interest means how many students are interested towards the practice of tuition for learning mathematics. To identifying the students beliefs towards the solution guide and guess paper, the researcher could divide the students' beliefs towards the tuition, the researcher could divide the students beliefs towards the practice of tuition on the basis of five components. Among them interest is one component. In this component six statements were included which are related to tuition. All these statements reflect the positive meaning towards the tuition.

Effort: Here effort means how much effort spends the students while taking tuition for learning mathematics. To identifying students' beliefs towards practice of tuition, effort is the second component; in this component six statements were included.

Self-confidence: Here self-confidence means how many students feel easy or confidence while taking tuition in learning mathematics. In this area, also six statements were included. All these statements are positive for tuition.

Uselessness: Here uselessness means how many students are thinks tuition are uselessness materials for learning mathematics. To identify the student's belief towards the practice of tuition, uselessness is the fourth component. All these statements reflect the negative meaning towards the tuition.

Fear: Here fear means how many students feel to fear in exam room while they only taking tuition for learning mathematics. In this component 'fear' six statements were included; all these statements reflect negative meaning towards the tuition.

Another thing was to identify the main causes of taking tuition at secondary level students. To identify the causes of using this type of class, the researcher was administered the in- depth interview of the sample students and teacher. And researcher takes such type of factors which forced the students to taking tuition in learning mathematics. Such factors are irregularity of students and teachers in classroom, home environment of students, economic status of students, school environment, different strikes, cheating materials, and advantages aspects of tuition.

The psychological system of belief based on the philosophy of the view of mathematics becomes the main source of theoretical background discussed in this study. Paul Earnest (1994) outlined three philosophies about the view of mathematics. Firstly there is the instrumentalist view that mathematics is an accumulation of facts, rules and skills to be used in the pursuance of some external end. Thus, mathematics

is a set of unrelated but unified body of certain knowledge. Mathematics is discovered but not created. Third view, the dynamic view in which there is the problem solving mathematics which must be dynamic, continually expanding field of human creation and invention, a central product.

Mathematics is a process of inquiry and coming to know not a finish product, for its result remain open to revision. These views ground the main platform of the nature of beliefs about mathematics regardless of the categories of strata of human being including the lives of students. Furthermore, the nature and structure of beliefs indicated that students' beliefs depend largely on their social lives. Bounded social historical context of students' lives will determine the direction of beliefs.

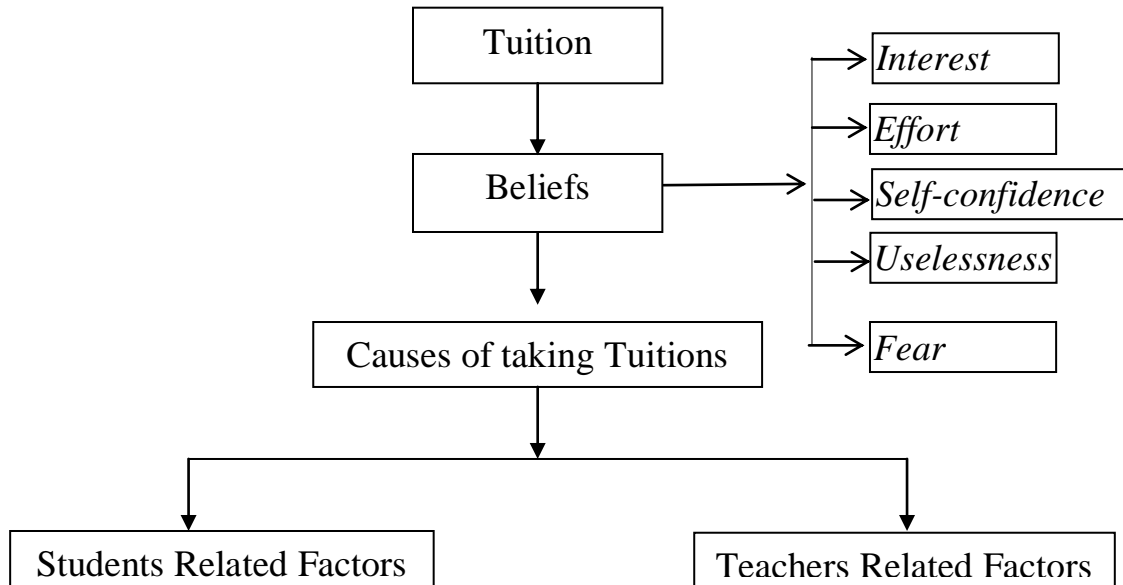
McLeod (1992) has suggested four categories of students' beliefs. The first category, belief about mathematics, includes beliefs such as thinking that mathematics is difficult of that is based on rules. The second category, beliefs about self, includes self confidence in learning mathematics and attributions for success and failure in mathematics. The third category, beliefs about teaching includes beliefs about what a teacher do to help a student learn mathematics. The fourth category is beliefs about social context. This category includes the beliefs that mathematics learning is competitive and that parents and other outside that school have a significance influence on one's mathematics learning.

Students' beliefs about mathematics can be constituted as beliefs about the nature of mathematics. A belief is the way of learning and teaching mathematics. Their Belief to the competency and their respective teachers. The dimension of belief about refers to their performance in mathematics and when their interest of mathematics standard within the students' beliefs about social context restricted to the belief about

the role and the functioning of teachers. The dimension of beliefs about nature of mathematics could be broad to the utility aspect of mathematics.

In this heading, the researcher introduced the conceptual understanding for beliefs and practice. A conceptual framework is a representation, either graphically or in narrative form of the main concepts or variables and their presumed relationship with each other. A conceptual framework covers the main features (aspects, dimensions, factors, variables) of a case study and their presumed relationship. In this study, the researcher will try to identify the beliefs of mathematics students towards the taking of tuition of learning mathematics and the causes of taking it. For this, researcher developed the opinionnaire having 20 statements. These statements reflect the students' belief about tuition. And also, the researcher had taken two variables related to students and teachers which forced the students to take tuition of learning mathematics. Student's related factors are such as absent of students in class due to the engagement in different works, to identify the important questions related to the exam, to solve the hard problem, strike by the students etc. And teacher related factors are such as, absent of teacher in classroom, unable to finish the courses within limited time, lack of trained teacher, teacher's behavior, teacher's strike etc. This conceptual model of this study with respect to the previous done M.Ed. Thesis and review of related literatures to this topic. Then the researcher arrived at the following conceptual understanding for beliefs.

Conceptual Framework for Beliefs and Practice of Tuition :



(Source : A Norwegian Case Study by Kirsti kislanko)

In the manner of practice, it is a customary way of operation or behaviors. It is a systematic training by multiple repetitions; "Practice Makes perfect". A classroom practices refer to everything that goes in mathematics class. A practice includes the relationship, interaction communication between teacher and students. It may be define as the activity performed in the classroom by the teacher and students for achieving their purposes.

Chapter-III

METHODS AND PROCEDURES

This chapter describes the design of the plan and procedure of study. This study focused on "Mathematics Student's Belief and Practice of Tuition in Secondary Level". The present study was of the type qualitative and quantitative in which the researcher used survey and descriptive research design. This chapter contained some sub-heading such as population, sample of the study, instruments/tools, validation of tools, procedure of data collection, Analysis and Interpretation of data.

Research Design

The research design was a survey. Kerlinger states that "Research is the plan, structure and strategies of investigation conceived so as to obtain answers to research questions and to control variances". Simply research design is an overall plan or scheme. So, the researcher applied survey and descriptive research design, in fact mixture (qualitative & quantitative) to find the mathematics students beliefs and practice of tuition in secondary level and causes of taking this type of class in secondary level mathematics students.

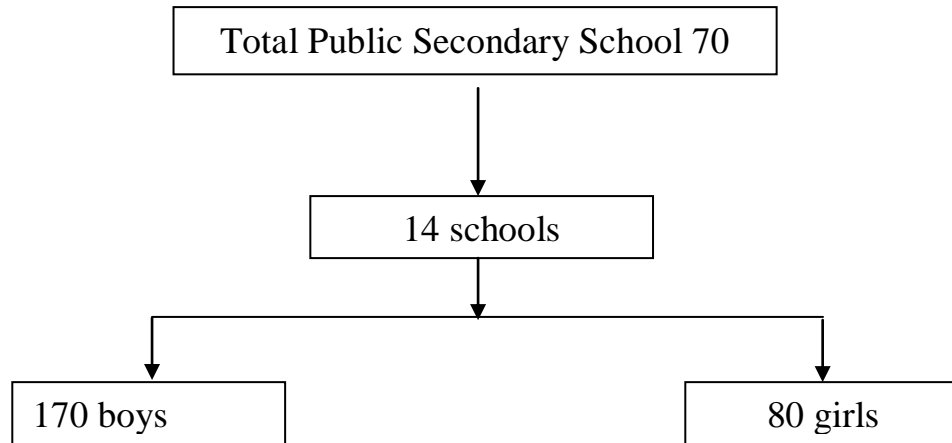
Population of the Study

The population of the present study was defined as the 70 public schools' students who studied in IX and X of Dhankuta district in the academic year 2068/2069.

Sample of the Study

The present study was intended to investigate the mathematics student's belief and practice of tuition in learning mathematics at the secondary level. According to the educational statistics available from the District Education Office of Dhankuta, there were 70 public secondary schools in the year 2068. Out of 70 public secondary

schools 14 schools were taken by simple random sampling. Among them 250 students were taken to achieve the objective to find the belief of mathematics students towards the practice of tuition in secondary level which shown in figure.



(fig: sample structure)

After then, the researcher had taken 6 boys and 4 girls Students with the help of purposive sampling from the group of mathematics students from the specified sample of the study. And also he had taken 5 mathematics teachers from 14 sample school to achieve the objective second to find the main causes of taking tuition in secondary level students.

Instruments

The researcher was used the following instruments to find the mathematics student's belief towards the tuition and causes of taking the tuition at secondary level.

Questionnaire

The collection of data to identify beliefs for the study was done with the help of questionnaire, which included 30 statements on the basis of five components: interest, effort, self confidence, uselessness, and fear related to tuition. There were 6 statements in each component Among 30 statements, 17 statements were positive (i.e.

statements in favor of tuition) and 13 statements were negative (i.e. statements in against of tuition). Each statements contains five columns of options as strongly agree (SA), agree (A), undecided (U), disagree (DA), and strongly agree (SDA). For example when asked to express their opinion whether the tuition helps to learning mathematics; the respondent may respond in any one of the following ways!) Strongly agree (SA) 2) agree (A) 3) undecided (U) 4) disagree (DA) 5) strongly disagree (SDA).

Observation

There are so many techniques to gather information. Observation is one of them, in any kind of research the information and data from observation will a given detail description of activities and full range of interpersonal inter-action and experience. According to P.V. Young observation may be defined as systematic viewing couple with consideration of seen phenomenon. The secret of good observation is to create the unusual form out of the common place. Oxford Advance Learner's Dictionary of current English (6th ed.) defines observation as the act of watching somebody/something carefully for a period of time, especially to learn something.

To find the causes of taking tuition, the researcher had observed tuition class and required data were collected. The researcher also prepared a checklist before the observation (Appendix-H). Therefore it was a focused observation but researcher did not entirely depend upon the checklist. Rather he tired to observe as much emerging things as possible.

In-Depth Interview

In the process of the collecting data, in-depth interview was used to find the main causes of taking tuition and also the relationship between beliefs and practice of tuition at secondary level students.

The in-depth interview is also known as unstructured or not direct interview (Bailey, 1982). Interview is two way interactions between researcher and respondents. Kerlinger (1986) describes interview as a face to face interpersonal role situation in which one person, the interviewer, asks a person being interviewed, the respondent, and questions designed to obtain answers pertinent to the research problem. In-depth interview also known as unstructured interview can be regarded as information interview. It is used to discover the in-depth understanding of people of people in the context under the study (Bailey 1982). In-depth interview, the interviewer was devoted a quite long time to develop friendly atmosphere with respondents. The researcher had taken for in depth interview of all 10 (6 boys and 4 girls) sample students from group of mathematics students who were sample schools in learning mathematics and 5 sample teachers. For this, researcher had made interview guidelines with the help of supervisor and experts related to the research topic (Appendix-I). The researcher had made unstructured questionnaire under the interview guidelines then conducted in-depth interview with the sample teachers and students. The researcher had taken direct personal interview with them and had collected information to find the causes of taking tuition using those unstructured questionnaire under the interview guidelines.

Focus Group Discussion

Also, to find the detail information about the main causes of taking tuition at secondary level mathematics students, the researcher had taken sample students and

teachers administrating the focus group discussion. In focus group discussion, unlike the group interview, the group discussion stimulates a discussion and uses its dynamics of developing conversation in the discussion as the central sources of knowledge. In this discussion, participants tend to provide checks and balance on each other which weeds out false or extreme views. The extent to which there is a relatively consistent shared view can be quickly assessed.

Reliability of Tools

The researcher was conducted the pilot study whether the questionnaire (Appendix-B) and guidelines (Appendix-I) for the interview were reliable or not. For this the researcher selected the 10% mathematics students of Shree Nageshwor Higher Secondary School. From that, the researcher analyzed the reliability of instrument (questionnaire) by using split half method and found the reliability coefficient is 0.88 (appendix-F). It showed that the questionnaire sheet (Appendix-A) was reliable.

Validation of Tools

A re-validation study of students' tuition related beliefs questionnaire developed by using International thesis "Structuring Students' Beliefs In Mathematics: A Norwegian Case" prepared by Kirsti kislenko, Agder University College, Norway (2005), was made by this researcher by consulting with experts about the appropriateness of the statement in the questionnaire. Further the researcher implemented the questionnaire by taking 10 students from a school of Dhankuta district. The questionnaire was administered on them. It was then improved in language and its appropriateness through the suggestions provided by the students and experts then the questionnaire (Appendix-A) got ready for final administration.

Data Collection Procedures

At first, the researcher was visited the sample schools to collect the data. The data were collected by administrating the questionnaire among the sample students. The respondents were requested to provide their valuable responses. The researcher was made the statements clear when they found any difficulty. Their views were collected by asking to put a tick mark (√) in any column of the options strongly agree (SA), agree (A), undecided (U), disagree (DA) and strongly disagree (SDA) for each statements according to their willing.

To identify the cause of talking tuition, the researcher observed 3 tuition classes and collected required data based on the checklist. The researcher did not entirely depend upon the checklist; rather he tired to observe as much emerging things as possible.

After then the researcher had taken the small number 10 of sample students (6 boys and 4 girls) who were taking tuition in learning mathematics and 5 mathematics teachers and administrating the in-depth interview and to find the causes of taking tuition in learning mathematics and also find the relationship between beliefs and practices on tuition at secondary level students and the researcher noted the qualitative data.

Scoring Procedure

Each positive statement received the score based on the basis of 5 points for strongly agree, 4 points for agree, 3 points for undecided, 2 points for disagree and 1 points for strongly disagree. And each negative statements will be received the score based on the basis of 1 points for strongly agree, 2 points for agree 3 points for undecided, 4 points for disagree and 5 points for strongly disagree.

Data Analysis Procedure

The researcher analyzed the obtained data by using the following statistical techniques.

The statistical device chi-square (χ^2) test was applied to all statements of questionnaire scale at $\alpha=0.05$ level of significance. This indicated that if χ^2 value for every statements more than obtained value then the students has positive belief towards theses statements otherwise negative belief towards these statements.

In qualitative research, data analysis involves reducing and organizing the data, synthesizing, searching for significant patterns and discovering what is important. So the researcher used the cross match method to analyze qualitative data given from in depth interview of students and teachers. Also, the researcher analyzed the qualitative data obtained from observation based on checklist by analytical method.

Chapter- IV

ANALYSIS AND INTERPRETATION

This chapter deals with the statistical and qualitative analysis and interpretation of the data with the help of three sets of instrument. The information was collected from secondary level students in Dhankuta district. The first was questionnaire of students consisting 30 statements (18 positive and 12 negative). The statements were included on the basis of five components; interest, effort, self confidence, uselessness and fear related to tuition. In order to analyze and interpret the collected data, chi-square test was used at 0.05 level of significance with $(r-1)(c-1)$ degree of freedom. The second and third sets (in-depth interview and observation) were used to find the main causes of taking tuition at secondary level students. It was analyzed by cross-match method among data taken from students and teachers. The analysis of the study was carried out under the following major headings corresponding to objective of the study:

- Secondary level students' beliefs towards the practice of tuition.
- Causes of taking tuition at secondary level students.

Secondary Level Students Beliefs towards the Practice of Tuition

The researcher included thirty statements (18 positive and 12 negative) in the questionnaire sheet on the basis of five component; interest, effort, self-confidence, uselessness and fear related with beliefs of tuition, which is given in Appendix-A. To find the belief of mathematics student towards the practice of tuition, the researcher had taken 250 students from 14 sample public secondary schools of Dhankuta district. Chi-square values were calculated on each statements of the questionnaire sheet. The chi-square value on each statement with their statistical significance at 0.05 level has given in Appendix-B.

To identify the beliefs of students towards the practice of tuition. The researcher divided the students' beliefs toward the practice of tuition on the basis of five components; interest, effort, self confidence, uselessness and fear related with belief of tuition. The above mentioned five components were analyzed in the following ways.

Interest

Among these, interest was the first component, in this component six statements were asked to the students to identify the belief of students interest towards the practice of tuition. The opinion given by the students is classified by using five point Likert Scale and chi-square value was calculated for different statement which is given in Appendix-C.

The statements were tested by using chi-square test at 0.05 level of significance. All the statements in this component were significant at 0.05 level, i.e. all statements were capable to measure student's belief with different opinions. The statement number 6, "Tuition helps to solve the problem immediately" was significant statement with different with chi-square value 174.28. It showed that there were highly significant different opinions of students towards in this statement. Also above 75 % of students were agreed on this statement. That was a positive statement for this study. It means, majority of sample students were believed that tuition helps them to solve the mathematical problem easily in time. Statements no 1& 5, "I feel pleasure to learn mathematics in tuition and Tuition helps to practice the collaborative learning to the students" were significant statements with chi-square value 147.64 and 148.76 respectively. It showed that there were highly significant different opinions of students towards in these both statements. Also, above 72% of students were agreed on these statements. Those were positive statements for the study. It means that the

majority of the sample students were interested to take the tuition in learning mathematics. Statement no 3, "Students are interested to solve the difficult problems in tuition than home" was significant statement with chi-square value 101.48. It showed that there were highly significant different opinions of students towards in this statement. Also above 56% of students were agreed on this statement. That was a positive statement for this study. It means that the majority of sample students were felt pleasure to learn mathematics by taking tuition. Statements no 2, and 4, " I am interested to take tuition class than classroom teaching and I am interested to take tuition class for note keeping" were significant statements with chi-square value and 57.08 and 39.28 respectively. It showed that there were highly significant different opinions of students towards in this both statements. Also above 50% of students were agreed on these statements. Those were positive statements for this study. It means that many students had felt different to pass math in exam without taking tuition.

From Appendix-D, the chi-square value of interest component (involving six (1-6) statements) was 205.96 which were significant at 0.05 levels with 20 degree of freedom. It showed that students' opinions with respect to interest were significantly differences. Also above 63% of sample students were agreed on these statements but 32% of sample students were disagreed on these statements. It means that the majoring of the sample students was interested to take tuition. Also, secondary level students were interested to take tuition for learning mathematics.

Also from interview, the researcher asked the question to the sample students, " How much do you interested to take tuition? Does really, this type of class promote the learning habit of the students? For this question, one respondent student said that, "*I am always interested to take tuition for learning mathematics and also it provides me comfortable environmental for learning mathematics*". Again the researcher

intended to ask the same question to another sample students, then he said that "*I am always interested to take tuition for learning mathematics. But, nowadays the cost of tuition being high*".

For this above question, the majority of the sample students were said that they were interested to take tuition in learning in mathematics and tuition is the confidence resource for the solving the difficulties of the students.

Effort

Again, effort was the second component. In here effort means how much effort spends by students taking tuition in learning mathematics. To identify the students' beliefs towards the practice of tuition, six statements were included and they were all positive statements. These six statements with their respective chi-square values and statistical analysis are given in Appendix-C.

From Appendix-C, all statements included in effort area were also significant at 0.05 levels. It means all statements were suitable to measure students' belief with different opinions of students with respect to effort on tuition. Statement number 9, "Tuition increases the studying habit of students" was significant statements with chi-square value 310.96. It showed that there were highly significant different opinions of students towards this statements. Also above 91% of students were agreed on this statement. It means majority of the sample students increased their studying hour gradually. Statement no.7, "Student should labor hard to pass the exam without taking tuition" was significant statement with chi-square value 210.44. It showed that there were highly significant different opinions of students towards this statement. Also above 80% of students were agreed on this statements. It means majority of the sample students should be labor hard without taking tuition. Statement no 11, "We should take the tuition to be good at mathematics" was highly significant statement

with chi-square value 166.88. It showed that there were highly significant different opinions of students towards this statement. Also above 50% of sample students' were agreed on this statement. They accepted that tuition makes the students good at mathematics. Statements no. 8 & 10," Students keep their attention towards the understanding of problem not in rote learning and Tuition makes the students very lazy" were significant statements with chi-square values 97.44 and 68.84 respectively. It showed that there were significant different opinions of students towards these statements. Also above 62% of sample students were agreed on these statements. It means the majority of the sample students give the attention to the problem solving and students depend upon the solving problems very much. Statement no.12," Student cannot obtain the higher makes by taking tuition" was significant with chi-square value 50.92. It showed that there were low significant different opinions of students towards this statement. In this statement above 45% of students were agreed and above 36% of students were disagreed. It showed that tuition helps the students very much but it indicated that class teaching is also necessary.

From Appendix-D, the whole chi-square value of effort area (including six statements) was 252.18 which was significant at 0.05 levels with 20 degree of freedom. It showed that students had highly significant different opinions towards the statements including in this area. Above 65% of sample students were agreed and 25% sample students were disagreed on this area. In this area, the 7, 8, 9 & 11 were positive and 10 & 12 were negative statements. Above 71% of sample students were agreed on the positive statements and 54% of sample students were agreed on the negative statements. It means that the majority of the sample students believed that, while they were taking tuition for learning mathematics they were not spending a lot of time for learning and solving mathematical problems confidently.

Also, from interview, the researcher asked the question to the sample students "Does really tuition increase the practice habit of students? For this question one respondent student said that *"Yes, tuition increases the practice habit of students. Tuition creates the learning environment to avoid my difficulties and I can ask the question to the teacher confidently"*.

Again the researcher intended to ask the same question to another student, then he said that. *"Yes tuition increases the practice habit of students because tuition minimizes the difficulties & I can learn mathematics continuously but tuition is not all things. We should labor and tuition helps us"*. Also, researcher asked the second question to the student "Why are all most students are taking tuition?" For these above questions, the majority of the students were taking tuition and they believed in tuition for passing the exam, for obtaining higher marks etc.

Self confidence

Again, self confidence was the third component. In this component six statements were asked to the students to identify the belief of student's self confidence towards the practice of tuition. These six statements with their respective chi-square value and statistical analysis were given in the Appendix-C. All those statements were positive for this study.

From Appendix-C, all the statements included in this area self-confidence were significance at 0.05 levels. It means all statements were capable to measure belief of students with different opinions. Statements no. 13& 15, "Tuition encourages to the students in group learning and I can solve the problems of textbook by taking tuition" were significant statements with chi-square value 228.24 and 239.56 respectively. It showed that there were highly significant different opinions on these statements. The above 80% and 64% students were agreed on these statements

respectively. It means that tuition encourages to the team learning and they can solved the almost problems. Statements no 17 and 18,” Students become weak without taking tuition and I can keep my difficulties in learning only in tuition” were significant with chi-square values 117.24 and 167.84. It showed that, there were highly significant different opinions of students towards these statements. Also, above 50% and 74% students were agreed on these statements respectively. It showed that, tuition is only the comfortable way of students to push their difficulties. They have no other proper place to address their problems than tuition. Statements no 14 & 16 “I can solve the problem of textbook by taking tuition and I always learn mathematics until the tuition is available” were significant with chi-square value 66.4 and 46 respectively. It showed that there were low significant different opinions of students towards these statements. Also, above 55% of sample students were agreed on these statements. It means the majority of the students believe in tuition; tuition helps them sufficiently. From Appendix-D, the whole chi-square of Self-confidence area (including six statements) was 380.99 which were significant at 0.05 levels with 20 degree of freedom. It showed that there were highly significant different opinions of students towards the statement including in this area. Also, above 63% students were agreed but only 29.6% of students were disagreed on these statements. It means the majority of the students had positive opinion towards the statement including the area Self-confidence and they were confident to take the tuition for learning mathematics.

And also from the interview, the researcher asked the question to the sample students “How much you practiced the tuition and does really you feel Self-confidence while taking tuition for learning mathematics? For this question, the respondent student said that *“I always take the tuition and I always have positive belief towards the tuition. The tuition helps us to solve the problems in different ways.*

Tuition helps us to understand the problems. So, I like tuition". Again, the researcher asked the same question to the another sample student, then the respondent said that *"I always taking tuition. Tuition is my way of learning. Especially, to prepare the SLC exam, tuition is necessary, otherwise I can't get higher marks and my future will be very week. So, I am taking tuition"*. It showed that, more or less, all the students were taking tuition before SLC for passing the exam with obtaining higher marks.

Uselessness

Again, Uselessness was the fourth component. In this component six statements were asked to the students to identify the belief of students towards the uselessness aspects of tuition. All these statements were negative. These six statements with their respective chi-square value and statistical analysis are given in the Appendix-c.

From Appendix-C, all the statements included in this 'Uselessness' were significant at 0.05 levels. This means all statements were capable to measure student's beliefs towards tuition with respect to uselessness were significantly difference. Statement no 21 "Tuition is only repetition of classroom teaching" was significant with chi-square value 224.68. It showed that were highly significant different opinions of student towards this statement. Also, 80% students were agreed on this statement. It means, tuition was not only the repetition of classroom teaching. It also provided the lessons which they were missing. Statements no. 19 & 23 " Students should be labor hard so, tuition is not necessary and Tuition is only fashion nowadays, not the actual learning" were significant with chi-square values 122.56 and 145.64 respectively. It showed that there were highly significant different opinions of students towards in these both statements. Above 73% of sample students were disagreed on these statements. It means, tuition helps the students to remove their

confusions and provides a lot of information's. Statements no 20 and 22 "Tuition is only for the lazy and wealthy students and tuition destroys the creativity of the students" were significant with χ^2 -values 99.68 and 84.32 respectively. It showed that there were different significant opinions of students towards in these both statements. Above 64% of students were disagreed to the statement no 20. It means, tuition was necessary for the students. Similarly, above 56% of students were agreed to the statement no 22. It means, students did not want give the time for unnecessary practices. Statement no 24 "Tuition is only waste of time and money" is significant with χ^2 -value 48.6. It showed that there were low different significant opinions of students towards in this statement. Above 55% students were disagreed on this statement. It means, the majority of the sample students were interested to pay money for taking tuition.

From Appendix-D, the whole χ^2 -value of uselessness area (including six statements) was 483.84 which were significant at 0.05 levels with 20 degree of freedom. It showed that there were highly significant different opinions of students towards the statements including in this area. Only 36.6% of sample students were agreed on these statements but 53.73% of sample students were disagreed on these statements. It means that the majority of the sample students was feeling that tuition is useful for learning mathematics.

Also from interview, the researcher asked a question to the sample students "Are really, the tuition class is useful for learning mathematics?" For this question one respondent student said that *"Mathematics is hard subject, so tuition is necessary. Tuition helps us to practice the different problems. So, tuition is useful"*. Again, the researcher intended to ask the same question to another sample student, then he said that *"yes, tuition is useful. When we take tuition then our confusion will be finished"*

and our understanding will be stable". From this, the majority of the sample students were interested to take tuition and then they can success to increase their understanding power.

Fear

At last, fear was the fifth component. In this component six statements were asked to the students to find the belief of student's fear while they were taking tuition for learning mathematics. All statements included in this area 'Fear' were negative. These six statements with their respective χ^2 -value and statistical analysis are given in the Appendix-C.

From Appendix-C, all statements were significant at 0.05 levels. It means all statements were capable to measure the belief of students with different opinions. The statements no 25 and 27 "students are unable to fulfill the curricular objectives and students practice only solving problems of tuition" were significant with χ^2 -values 227.68 and 275.6 respectively. It showed that, there were highly significant different opinions of students toward on these statements. Above 84.8% sample students were disagreed but only 8.8% students were agreed the statement no 25 and 88% of students were agreed but only 8% students were disagreed. It showed that tuition provides a lot of information according to curriculum and tuition solves a lot of students' problems. Statement no 30, "students should be increased their percentage than before" was significant with χ^2 -value 99. It showed that there were different opinions of sample students towards on this statement. 70% sample students were agreed but only 18% students were disagreed on this statement. It means, tuition helps the students for increasing their performance with percentages. Statements no 26 and 28 "students become absent in classroom while taking tuition and tuition does not take risk for passing the exam" were significant with χ^2 -value 78.08 and 53.44. It showed

that students had different opinions on these statements. The statement no 26 was agreed by 48% of sample students and statement no 28 was agreed by 55.2% of sample students but more than 35% of students were disagreed on these statements. It means that majority of the sample students were agreed on tuition and tuition helps the student for passing the exam. Statement no 29, "I fail in the exam depend upon the tuition" was significant with χ^2 -value 34.08. It showed that there were low significant different opinions towards on this statement. In this statement 44.8% of students were agreed and 46.4% of students were disagreed. It means that majority of the sample students were dependent of tuition to pass exam. More or less, the majority of the students were taking the tuition before SLC exam.

From Appendix-D, the whole χ^2 -value of fear area (including six statements) was 566.97 which were significant at 0.05 levels with 20 degree of freedom. It showed that there were highly significant different opinions of students towards the statement including in this area. In this area, 52.46% of samples students were agreed and 38.13% of sample students were disagreed on these statements. It showed that students were taking tuition due to the fear of exam.

Also, from the interview, the researcher asked the question to the sample students "How much you solve your problems without tuition?" For this question, one respondent student said that "*There is no confident another way to solve our problems except tuition. I have no enough reference books and other materials. I hardly received the support and suggestion from other person. So, tuition is the best way for learning*". Again, the researcher asked the same question to another student. Then the response was "*Tuition is my best way to solve my difficulties. When I take tuition, then maximum problem will be solved*". It means majority of the students were not taking fear in the exam while they were taking tuition.

Also for the observation, the researcher was observed the 3 tuition classes. From the observation, researcher collected and noted the information depend upon the checklist (Appendix-H). He found that, in tuition both student and teacher were regularly came and maximum number of students were taking tuition. In tuition, student friendly environment was created and participation of students was active. It showed that students had belief on tuition.

Causes of Taking Tuition at secondary level students

The last objective of the study was to find the causes of taking tuition at secondary level students. To achieve such an objective, the researcher administered the in-depth interview and observation for the selected students and teachers with the help of checklist (Appendix-H) and interview guidelines (Appendix-I) respectively.

The class was not homogeneous in terms of gender, class, language, minority, knowledge etc. So most of the teacher had been used traditional teaching technique neither they used appropriate method nor materials in public secondary schools. Some teacher wants to provide the good and appropriate teaching method in classroom but they were also failed because in each public secondary school has large class size and other physical facilities were not in there. So, many students felt teacher has not taught us appropriately and most of the students felt difficulty to understand subject matter. Therefore, almost every student wants and searches alternative way of learning mathematics. So, most of the students were taking tuition classes. There are so many reasons which forced the students for taking tuition in learning mathematics. To find the causes of taking tuition class at secondary level students, 10 mathematics students (6 boys and 4 girls) and 5 mathematics teachers were selected for in-depth interview and 3 tuition class for observation from the 14 sample schools.

Irregularity of students and teachers in classroom

Students' and teachers' irregularity in school is one of the most affected factors in learning mathematics. Occasionally, the students and teachers become unable to go to the classroom, so most of the schools were not finishing the course in time. In this manner, how did students solve the problems in such type of classroom teaching while they are absent in the classroom? And what type of strategies they use while course is not finished at a proper time? So, the researcher took these aspects and tried to identify, real absent of students and teachers in classroom is caused by taking tuition in learning mathematics at secondary levels mathematics? For this purpose, the researcher had taken interview to the sample students and teachers.

For the first question, "How do you solve the problems when you are absent in classroom?". For this question, the respondent student said that, "*I take tuition for solving the problem*". Again the researcher intended to ask the same question to another sample student then he said that, "*To solve my subject problem when I am absent in the classroom, I ask the teacher to repeat the course in next class*". For this above question, the majority of the sample students were said that they take tuition to solve the problem when they are absent in classroom. Also, the researcher concluded that, those students who don't have any elders to help them at home, they take tuition for learning mathematics and solving mathematical problems.

For the second question, "Are really absent of students and teachers in classroom also the causes of taking tuition at secondary level students?" For this question, one respondent said that "*yes, absent of students and the teacher in classroom is also the causes of taking tuition because when teachers are absent in classroom, the course cannot be finished at a paper time. So, I also take tuition when our course is not finished in time*". Again, the researcher intended to ask the same

question to another sample student then she said that *"yes absent of students and teacher in classroom is also the causes of taking tuition by the secondary level students because when they are not regular in school, course is not finished at a proper time. So, students want and search for alternative way of learning mathematics, then after they take tuition for solving problems and learning mathematics"*.

The researcher also asked the questions to the sample teacher as the following:

For the first question, "Teachers are not regular in classroom and course is not finished in time, so every students said that they are forced to take tuition, what do you say?" For this question, one respondent teacher said that *"Oh no, I am always regular in my class and every year I had finished the course at a time"*. Again, the researcher intended to ask the same question to another sample teacher then he said that, *"Absent of teacher in classroom is not causes of taking tuition at secondary level students. But I think the tuition helps the students to understand the mathematical problems. So, students are taking tuition for learning mathematics"*. For the above question, the majority of the sample teachers were disagreed on this statement but they agreed that tuition helps the students in learning mathematics effectively. From the responses of all sample students and teachers, the researcher concluded that irregularity of students and teachers in classroom is also the causes of taking tuition at secondary level students for learning mathematics.

Home Environments of Students

Home environment of the students is also one of the most affected factors of students learning. In many students' home environment for learning mathematics is not suitable. Many students are obliged to get enrollment in the school besides working for their living. The obligation for living makes they work hard and they are

unable to go to schools and learn. So, for gaining education and learning for mathematics, they searched for other alternative ways. So, the researcher took this aspects and tried to identify, are really not good home environment of students also the causes of taking tuition at secondary level students' in learning mathematics? For this purpose, the researcher asked the following questions to the sample students.

For the first question, "Are you interested to take tuition in learning mathematics?" For this question one respondent student said that "*yes, really I am interested to take tuition in learning mathematics because it provides me such favorable condition, the confusion and his understanding easily solved and such interaction produces clear concept on the subject matter or problems. Also it increases the practice habit of students and collaborative learning*". Again, the researcher intended to ask the same question to another sample student then she replied that, "*Yes, really I am interested to take tuition in learning mathematics because I have no any elders to help me*". For this above question, the majority of sample students were interested to take tuition in learning mathematics because tuition creates good environment for solving their difficulties.

For the second question, "Is really not suitable learning environment of student in home also the cause of taking tuition at secondary level students?" For this question, the majority of the sample students were strongly agreed and also they were said that, while learning environment at home is not suitable then they cannot spent the sufficient time for practice on mathematics. So, they were not able to understand the math problems. At last, they were forced to take tuition for learning mathematics.

School Environment

School environment is the main affected factor of students learning. In many schools where there are not suitable environment of learning mathematics, there are

so many factors such as large class size, teaching learning environment in classroom, teacher's teaching method and physical facilities etc. affect the students learning mathematics. So, the researcher had taken this aspects and identifying above factors are also the causes of taking tuition in learning mathematics at secondary level students. For this purpose, the researcher asked the following questions to the sample students.

For the first question, "How large is your math class? Does really your teacher helps one by one student in your classroom activities?" For this question one respondent student said that "*our class is very large. In our class there are 63 students, so there is not suitable environment in classroom for learning mathematics. Also, teacher is unable to help us one by one in our classroom activities*". Again, the researcher intended to ask the same question to another sample student, then he said that, "*In our classroom, there are 50 students. Our teacher wants to help us one by one in classroom but he cannot be successes because class is very large and period is short*". For the above questions, the majority of the sample students were said that our class is very large and teacher cannot help the students one by one in classroom activities.

For the second question, "How much did your teacher solved the exercises problems? How do you prepare the exam to obtain higher marks?" For these questions one respondent student said that, "*Our teacher solved only 3 or 4 problems. To solve the remaining problems, I have no any supports by others. So, I have to take tuition*". Again the researcher intended to ask the same question to another sample student then she said that, "*Our teacher solved 5 or 6 problems in every exercise. To solve the remaining other problems, I have to take tuition*". For these above questions the majority of the sample students were said that our teacher solved only 5 or 6

problems. Also they were said that we were taking tuition for solving the other exercise problems.

Also, for identifying the causes of taking tuition at secondary level students, the researcher asked the following questions to the sample teachers.

"How large is in your math class? Can you finish the course I a limited time? Then, what do you do and what kind of suggestion do you give to your students?"

For these questions, one respondent teacher said that "*our class is very large, there are 50 students. The physical facilities were not sufficient. So, most of the students were felt difficulties and boring in classroom. They were always thinking other things and they cannot be concentrated in lesson. Therefore, they felt math is very hard and boring subject*". He also said that, "*I always want to finish the course in time but sometimes course is not finished due to different factors. At that situation, students want to take tuition and tuition class was held*". Again the researcher intended to ask the above questions to another respondent sample teacher, then he said that, "*our class is very large, there are 63 students in our class. Teacher cannot success to control the class effectively and students also feel boring*".

He also said that, "*When I am unable to finish the course in time, that time I provide the extra class for students. I suggest them to learn very hard*". Also from the responses of all above students and teachers, the researcher concludes that school environment is also the cause of taking tuition at secondary level students.

Different Strikes

In present context, different kinds of strikes (teacher's strike, student's strike, political strike, and other strikes) are one of the most affected factors of school and other sector. So, it has also affected on learning mathematics of students. Therefore, the researcher had taken these aspects tried to identify does really different kinds of

strikes also force students to take tuition in learning mathematics? For this purpose, the researcher asked the following questions to the sample students.

"How much affected in your schools by different strikes?" For this question, one respondent student answered that *"Our school has been highly affected by different kinds of strikes, such as students' strikes, teachers' strikes, political strikes and other different strikes. Due to these strikes, our course is not finished in time. So, we had to face problems in learning. Different strikes directly hamper in our studies. At last, we have to take tuition"*. Again, the researcher intended to ask the same question to another sample student then he said that, *"our school has been highly affected by different strikes; students' strikes, teachers' strikes, political strikes and other strikes etc. Due to these strikes, our school was not opened in every school day. So, most of the course is not finished in time. Therefore, I had to take tuition"*. For the above question, the majority of the sample students were said that our school has been highly affected by different strikes. Due to these strikes, students were taking tuition.

Also, identifying the causes of taking tuition at secondary level students; the researcher asked the following questions to the sample teacher.

For the first question, "How much affected in your school by different strikes?" For this question respondent teacher replied that, *"Yes, really different kinds of strikes are the most affected factor of students learning mathematics because many of days, school were not opened due to the different kinds of strikes, therefore course is not finished in the proper time. So, most of the students were forced to take tuition for learning mathematics"*. Again the researcher intended to ask the same question to another sample teacher then he said that *"There are so many factors affected the students learning mathematics in classroom. Among them different kinds of strikes are the most affected on schools reading-writing environment"*. For this above question,

the majority of the sample teachers were said that strike is the most affected factor on our school due to the different strikes. They were not finishing the course in limited time. So, most of the students were taking tuition for learning mathematics.

For the second question, "Are really different kinds of strike also force the students to take tuition in learning mathematics?" For this question, one respondent teacher said that "*Yes really, due to different kinds of strikes course is not finished in time. So, most of the students were forced to take tuition for learning mathematics*". Again, the researcher intended to ask the same question to another sample teacher then he said that, "*Yes, to some extent I agreed that different kinds of strikes are also the cause of taking tuition for learning mathematics at secondary level students*". For this above question the majority of the sample teachers were agreed on this statement. From above students and teachers response, the researcher concluded that due to different kinds of strike, course is not finished in time. So, most of the students were taking tuition for learning mathematics. Therefore, different kinds of strikes were also the causes of taking tuition at secondary level students for learning mathematics.

Also, from the observation, the researcher found that the causes of taking tuition at secondary level students were irregularity of the teacher and students in classroom, Home environment of students, school environment, Economic status of students, different strikes etc.

Chapter-V

SUMMARY, FINDINGS, CONCLUSIONS AND

RECOMMENDATIONS

The purpose of this chapter is to present as overall summary of the study. The findings of the study are summarized, conclusions are drawn, and some recommendations have been made.

Summary of the study

The main purpose of this study was to find out the secondary mathematics student's beliefs towards the practice of tuition and to find the causes of taking tuition at secondary level students' one questionnaire form, guideline for the interview and checklist for the observations were used as tools of the study. The questionnaire was developed on the base of different literature and mainly a "Norwegian Case" prepared by Kirsti Kislénko (2005). The questionnaire form included 30 statements on the basis of five components: Interest, Effort, Self-confidence, Uselessness, & Fear related with tuition. In each component there are six statements. Among 30 statements, 17 statements are positive and 13 statements are negative. The 250 students were taken from 14 sampled public secondary school of Dhankuta district. Likert five point scale was adopted in questionnaire form. The researcher had taken 10 students (6 boys and 4 girls) and 5 mathematics teachers from sampled schools for in-depth interviews. The researcher also had observed 3 tuition classes of the sampled schools for observation to achieve the objective second, to find the causes of taking tuition at secondary level students. For this purpose the researcher also made the guidelines for the interview and checklist for the observation.

The collected data from questionnaire, in-depth interview and observation were analyzed under the following headings.

1. Secondary Level Students' Beliefs towards the practice of tuition.
2. Causes of taking tuition at secondary level students.

To obtain the objectives of the study Chi-square test was applied to determine the beliefs of students towards the practice of tuition. Entire test was used at 0.05 level of significance. And also cross-match method was used to analysis the date given from students' and teachers' interviews. The descriptive method was used to analyze the data obtained by the checklist in observation.

Findings of the study

The statistical analysis of the collected data, cross match method to analysis the data obtained from students & teachers and descriptive method to analysis the data obtained from checklist yielded the following results as findings of the study.

1. The secondary level mathematics students were highly interested to take tuition for learning mathematics; also they feel funny while taking tuition for solving math problems.
2. Students think that taking of mathematics is hard and boring subject without taking tuition but they want to bring higher marks in mathematics.
3. Tuition helps to remove students' confusion and negative concepts towards mathematics and also increase the studying habit of the students.
4. Secondary level students built their self confidence to pass the exam after taking the class.
5. The secondary level mathematics students had reflected the high level of belief towards the practice of tuition.

6. There was significant relationship between student's beliefs and their practices on tuition.

Also, analysis of the qualitative data given from students and teachers interview and observation yielded the following causes of taking tuition at secondary level students. Some of them were; absent of teachers and students in classroom, learning environment is not good at home, school, low economic status of students, many students feel pleasure to learn in tuition, to solve the problems immediately without any confusion, to increase the habit of exercise, to understand math problems easily, to ask the solving idea of hard problems, to pass the exam easily and not tension for collecting other materials etc.

Conclusion of the study

On the basis of research findings, the researcher concluded that the secondary level mathematics had reflected the high beliefs towards the practice of tuition. There was significant relation between students' belief and their practice of tuition. Similarly, there were so many causes of taking tuition at secondary level students. Some of them were as follows; absent of teachers and students in classroom, reading-writing environment is not good at home & school, low economic status of students, to make note books, to share their problems to one-another, to pass the exam easily, to increase the habit of exercise, and not tension for collecting other materials etc.

Recommendations for further study

On the basis of the study the following recommendations have been given:

1. This study was conducted in Dhankuta district. To get more valid and generalized conclusions it is recommended that the study should be carried on an extensive scale.
2. A similar study can be done for different level.

3. Further research can be carried out the validity; effectiveness and wash back effect of taking tuition in learning mathematics.
4. Similar study can be extended in other subject as well.
5. This study examined only the students' belief about tuition in mathematics learning. It should be done over parents as well as other concerned persons.

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Appendix-A

QUESTIONNAIRE FORM

Dear Students,

I am a student of M.Ed. majoring mathematics. I have tried to prepare a thesis about "Mathematics Students Belief and practice of Tuition at secondary level" for my Master's Degree of Education.

There are 30 statements concerned with Tuition. There is no right or wrong answer. The options vary in degree only the right answer is your opinion about own feeling. Please, read the statement carefully and give your judgment about the intensity of statement by putting tick mark (√) on any one of the five choices of each statement. Your opinion will be used for research purpose and will be kept confidential.

Here,

S.A. = Strongly Agree,

A = Agree,

U = Undecided,

D.A. = Disagree,

S.D. = Strongly Disagree

Students Name:

Date:

School Name:

Class:

- Do you take the tuition? Yes () No ()

S.N.	Statement	SA	A	U	DA	SD
A	Interest					
1.	I feel pleasure to learn mathematics in tuition class.					
2.	I am interested to take tuition class than classroom teaching					
3.	Students are interested to solve the difficult problems in tuition than home.					
4.	I am interested to take tuition class for note					

	keeping.					
5.	Tuition helps to practice the collaborative learning to the students					
6.	Tuition helps to solve the problems face to face interaction					
B	Effort					
7.	Students should labor hard to pass the exam without taking tuition					
8.	Students keep their attention towards the understanding of problem, not in rote learning					
9.	Tuition increases the studying habit of students					
10.	Tuition increases the positive attitude in mathematics to the students.					
11.	We should take the tuition to be good at mathematics					
12.	Student cannot obtain the higher marks by taking tuition only.					
C	Self confidence					
13.	Tuition encourages to the students in group learning.					
14.	I can easily pass the exam when I take tuition					
15.	I can solve3 the problems of text book by taking tuition					
16.	I always learn mathematics until the tuition available					
17.	Students become weak without taking tuition					
18.	I can keep my difficulties in					
D	Uselessness					
19.	Students should be labor hard, so tuition is not necessary.					
20.	Tuition is only for the lazy and wealthy students					
21.	Tuition is only repetition of classroom teaching.					
22.	Tuition destroys the creativity of the students					

23.	Tuition is only fashion nowadays, not the actual learning					
24.	Tuition is only waste of time and money.					
E	Fear					
25.	Students are unable to fulfill the curricular objectives					
26.	Students become absent in classroom while taking tuition					
27.	Students practice only solving problems of tuition					
28.	Tuition does not take risk for passing the exam.					
29.	I fail in the exam depend upon the tuition.					
30.	Students should be increased their percentage than before					

Appendix-B

χ^2 - Value with its statistical significance on each statement of the questionnaire administered to secondary level students.

S.N.	Statement	χ^2 Value	Con.
A	Interest		
1.	I feel pleasure to learn mathematics in tuition class.	147.64	S
2.	I am interested to take tuition class than classroom teaching	57.08	S
3.	Students are interested to solve the difficult problems in tuition than home.	101.48	S
4.	I am interested to take tuition class for note keeping.	39.28	S
5.	Tuition helps to practice the collaborative learning to the students	148.76	S
6.	Tuition helps to solve the problems face to face interaction	174.28	S
B	Effort		
7.	Students should labor hard to pass the exam without taking tuition	210.44	S
8.	Students keep their attention towards the understanding of problem, not in rote learning	97.44	S
9.	Tuition increases the studying habit of students	310.96	S
10.	Tuition increases the positive attitude in mathematics to the students.	68.84	S
11.	We should take the tuition to be good at mathematics	166.88	S
12.	Student cannot obtain the higher marks by taking tuition only.	50.92	S
C	Self confidence		
13.	Tuition encourages to the students in group learning.	228.24	S
14.	I can easily pass the exam when I take tuition	66.4	S
15.	I can solve3 the problems of text book by taking tuition	239.56	S
16.	I always learn mathematics until the tuition available	46	S

17.	Students become weak without taking tuition	117.24	S
18.	I can keep my difficulties in	167.84	S
D	Uselessness		
19.	Students should be labor hard, so tuition is not necessary.	122.56	S
20.	Tuition is only for the lazy and wealthy students	99.68	S
21.	Tuition is only repetition of classroom teaching.	229.68	S
22.	Tuition destroys the creativity of the students	84.32	S
23.	Tuition is only fashion nowadays, not the actual learning	145.64	S
24.	Tuition is only waste of time and money.	48.6	S
E	Fear		
25.	Students are unable to fulfill the curricular objectives	227.68	S
26.	Students become absent in classroom while taking tuition	78.08	S
27.	Students practice only solving problems of tuition	275.6	S
28.	Tuition does not take risk for passing the exam.	53.44	S
29.	I fail in the exam depend upon the tuition.	34.08	S
30.	Students should be increased their percentage than before	99	S

$$[\chi^2_{0.05,(r-1)(c-1)} = \chi^2_{0.05,4} = 9.488]$$

Where, $r = \text{no. of rows}$, $c = \text{no. of columns}$ and $s = \text{significance}$

Appendix-C

No. of responses of students in each item and χ^2 - value with its statistical significance

S.N.	Statement	χ^2 Value	SA	A	U	DA	SD
A	Interest						
1.	I feel pleasure to learn mathematics in tuition class.	147.64	86	94	5	60	5
2.	I am interested to take tuition class than classroom teaching	57.08	43	83	12	66	46
3.	Students are interested to solve the difficult problems in tuition than home.	101.48	42	99	4	68	37
4.	I am interested to take tuition class for note keeping.	39.28	45	93	0	59	53
5.	Tuition helps to practice the collaborative learning to the students	148.76	69	116	34	22	9
6.	Tuition helps to solve the problems face to face interaction	174.28	64	124	7	37	18
B	Effort						
7.	Students should labor hard to pass the exam without taking tuition	210.44	76	126	7	36	5
8.	Students keep their attention towards the understanding of problem, not in rote learning	97.44	86	76	16	62	10
9.	Tuition increases the studying habit of students	310.96	86	143	13	5	3
10.	Tuition increases the positive attitude in mathematics to the students.	68.84	76	81	26	52	15
11.	We should take the tuition to be good at mathematics	166.88	36	90	14	106	4
12.	Student cannot obtain the higher marks by taking tuition only.	50.92	53	60	46	80	11
C	Self confidence						
13.	Tuition encourages to the students in group learning.	228.24	135	66	5	35	9

14.	I can easily pass the exam when I take tuition	66.4	83	56	7	65	39
15.	I can solve3 the problems of text book by taking tuition	239.56	16	146	21	44	23
16.	I always learn mathematics until the tuition available	46	55	85	55	30	25
17.	Students become weak without taking tuition	117.24	30	96	11	86	27
18.	I can keep my difficulties in	167.84	73	113	3	52	9
D	Uselessness						
19.	Students should be labor hard, so tuition is not necessary.	122.56	17	21	29	79	104
20.	Tuition is only for the lazy and wealthy students	99.68	17	57	15	100	61
21.	Tuition is only repetition of classroom teaching.	229.68	63	137	6	33	11
22.	Tuition destroys the creativity of the students	84.32	66	76	20	78	10
23.	Tuition is only fashion nowadays, not the actual learning	145.64	10	17	31	96	96
24.	Tuition is only waste of time and money.	48.6	16	52	44	85	53
E	Fear						
25.	Students are unable to fulfill the curricular objectives	227.68	7	15	16	85	127
26.	Students become absent in classroom while taking tuition	78.08	43	77	39	84	7
27.	Students practice only solving problems of tuition	275.6	81	139	10	17	3
28.	Tuition does not take risk for passing the exam.	53.44	54	84	24	60	28
29.	I fail in the exam depend upon the tuition.	34.08	38	74	22	64	52
30.	Students should be increased their percentage than before	99	95	80	30	30	15

$$[\chi^2_{0.05,(r-1)(c-1)} = \chi^2_{0.05,4} = 9.488]$$

Where, $r = \text{no. of rows}$, $c = \text{no. of columns}$ and $s = \text{significance}$

Appendix-D

Whole χ^2 -value of in each component and its statistical significant.

S.N.	Component	χ^2 Value	Conclusion	Agree%	Disagree%
1.	Interest	205.96	S	63.87	32
2.	Effort	252.18	S	65.93	25.93
3.	Self-confidence	380.99	S	63.6	29.6
4.	Uselessness	483.84	S	36.6	53.73
5.	Fear	566.97	S	52.46	38.13

$$[\chi^2_{0.05,(r-1)(c-1)} = \chi^2_{0.05,4} = 9.488]$$

Where, $r = no. of rows, c = no = of columns and s = significance$

Appendix-E

COMPUTATIONAL FORMULA

The computational formula used for calculating of χ^2 - test was

$$\chi^2 = \sum \left[\frac{(f_0 - f_e)^2}{f_e} \right] \text{ with } (r - 1)(c - 1) \text{ degree of freedom.}$$

Where,

f_0 = observed frequency

f_e = expected frequency

The computational formula for Karl Pearson's correlation Coefficient

$$\text{Correlation } (r) = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

Where,

X = score obtain from odd questions

Y = scores obtain from even question

N = number of paired scores

Appendix-F

RELIABILITY OF INSTRUMENT BY USING SPLIT HALF METHOD

	Odd questions (X)	Even questions (Y)	XY	X ²	Y ²
	39	31	1209	1521	961
	37	34	1258	1369	1156
	32	27	864	1024	729
	41	42	1722	1681	1764
	33	37	1221	1089	1369
	30	26	780	900	676
	23	24	552	529	576
	26	28	728	676	784
	23	25	575	529	625
	33	34	1122	1089	1156
	30	34	1020	900	1156
	25	23	575	652	529
	28	21	588	784	441
	36	37	1332	1296	1369
	24	25	600	576	625
Total	460	448	14146	14588	13916

$$r_{12} = \frac{N \sum XY - \sum X \sum Y}{\sqrt{N \sum X^2 - (\sum X)^2} \sqrt{N \sum Y^2 - (\sum Y)^2}}$$

$$r_{12} = 0.80$$

$$r_{tt} = \frac{2 \cdot r_{12}}{1 + r_{12}} = 0.88$$

Where,

r_{12} = Reliability of half questions

r_{tt} = Reliability of Total questions

Appendix- G

PERCENTAGE OF RESPONSES ON EACH ITEM

S.N.	Agree	Disagree	Undecided	Agree	Disagree	Undecided
1.	180	65	5	72	26	2
2.	126	112	12	50.4	44.8	1.8
3.	141	105	4	56.4	42	1.6
4.	138	112	0	55.2	44.8	-
5.	185	31	34	74	12.4	3.6
6.	188	55	7	75.2	22	2.8
7.	202	41	7	80.8	16.4	2.8
8.	162	72	16	64.8	28.8	6.4
9.	229	8	13	91.6	3.2	5.2
10.	157	67	26	62.8	26.8	10.4
11.	126	110	14	50.4	44	5.6
12.	113	91	46	45.2	36.4	18.4
13.	201	44	5	80.4	17.6	2
14.	139	104	7	55.6	41.6	2.8
15.	162	67	21	64.8	26.8	8.4
16.	140	55	55	56	22	22
17.	126	113	11	50.4	45.2	4.4
18.	186	61	3	74.4	24.4	1.2
19.	38	183	29	15.2	73.2	11.6
20.	74	161	15	29.6	64.4	6

21.	200	44	6	80	17.6	2.4
22.	142	88	20	56.8	35.2	8
23.	27	192	31	10.8	76.8	12.4
24.	68	138	44	27.2	55.2	17.6
25.	22	212	16	8.8	84.8	6.4
26.	120	91	39	48	36.4	15.6
27.	220	20	10	88	8	4
28.	138	88	24	55.2	35.2	9.6
29.	112	116	22	44.8	46.4	8.8
30.	175	45	30	70	18	12

Where,

Agree = Strongly agree+Agree

Disagree = Strongly disagree+Disagree

Appendix-H

Observation techniques

CHECKLIST FOR OBSERVING THE TUITION CLASS

Direction: Give \surd or \times to indicate whether skill or activity has been demonstrated.

1. Regular presents of the students.
2. Participation of all students.
3. Emphasis on rote learning.
4. Use of different methods.
5. Give the priority to the individual differences.
6. Provide motivation, inspiration and suggestions.
7. Establish the close teacher-students relation.
8. Test and feedback system.
9. Emphasis on teacher's choice questions.
10. Regulatory of the teacher.
11. Use of lesson plan and sufficient instructional materials.
12. Monopoly of the teacher.
13. Saving of time from the schooling.
14. Note keeping and use for cheating.
15. Develop the habit of writing.

Appendix-I

GUIDELINES FOR INDEPETH INTERVIEW WITH STUDENTS AND TEACHERS

- Irregularity of students in classroom
- Home environment of students
- Economic status of students
- School environment
- Different strikes