

**MOTIVATIONAL TECHNIQUES USED IN TEACHING MATHEMATICS:
TEACHER'S PERCEPTION AND PRACTICE**

A

THESIS

BY

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**FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF MATHEMATICS EDUCATION**

SUBMITTED TO

DEPARTMENT OF MATHEMATICS EDUCATION

CENTRAL DEPARTMENT OF EDUCATION

UNIVERSITY CAMPUS, KIRTIPUR

TRIBHUVAN UNIVERSITY

KIRTIPUR, KATHMANDU

NEPAL

2021



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Prof. Dr. Bed Raj Acharya

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Date : Sep 20, 2021



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LETTER OF APPROVAL

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RECOMMENDATION FOR ACCEPTANCE

This is to certify that Mr. Bishnu Prasad Neupane has completed his M. Ed. thesis entitled "**Motivational Techniques Used in Teaching Mathematics: Teacher's Perception and Practice**" under my supervision during the period prescribed by the rules and regulations of Tribhuvan University, Kathmandu, Nepal. I recommend and forward his thesis to the Department of Mathematics Education to organize final viva-voice.

.....

Mr. Lok Nath Bhattarai

(Supervisor)

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DEDICATION

Honestly dedicated

To

My parents

Father, Purnachandra Neupane and Mother, Radhika Neupane

DECLARATION

This dissertation contains no material which has been accepted for the award of other degree in any institutions. To the best of knowledge and belief this dissertation contains no materials previously published by any authors except due acknowledgement has been made.

Date: Sep 20, 2021

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Bishnu Prasad Neupane

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to the respected supervisor Mr. Lok Nath Bhattarai, Lecturer of Department of Mathematics Education, Tribhuvan University, Kirtipur for guiding me with regular encouragement, inspiration and insightful suggestions throughout the study. I would like to acknowledge his invaluable instructions, suggestions, guidances and co-operations in completing this research work.

I would like to express my sincere gratitude to Prof. Dr. Bed Raj Acharya, Head, Department of Mathematics Education, T.U., Kirtipur for his valuable suggestion and encouragement to carry out this research work smoothly. I would like to express my deep gratitude to Prof. Dr. Binod Prasad Dhakal, Prof. Dr. Eka Ratna Acharya, Lectures Abatar Subedi, Dr. Bed Prasad Dhakal, Dr. Ganesh Adhikari, Krishna Prasad Adhikari, Krishna Prashad Bhatt, Arjun Neupane, Hom Kumari Adhikari, Sarala Luitel and all my respective teachers under the Department of Mathematics Education at T.U. Kirtipur for their academic inspiration, encouragement, guidance, valuable comments and suggestions.

I would like to thank **Mr. Ganesh Raj Upadhyay** and **Mr. Keshav Raj Badaila** for their kind help in my study. I am profoundly indebted to my father, **Mr. Purnachandra Neupane** and mother, **Ms. Radhika Neupane** and all who supported and encouraged me throughout the entire endeavor. Last but not least, I must thank my family members who were the constant sources of inspiration of my work.

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Bishnu Prasad Neupane

ABSTRACT

There are several motivational techniques according to different psychologist and educationists which help teachers to motivate their learners in teaching mathematics. The objective of the study was to find out the teachers' perception and current practices of motivational techniques used by mathematics' teachers in mathematics classroom at secondary level. The design of this study was mixed method which is parallel research design. Different data collection tools such as open-ended questionnaire, closed ended questionnaire, checklist form and Likert's scale statement were used in this study. Open-ended questionnaire and Likert's scale statement were provided for teachers and closed ended questions were provided for students. Two mathematics classes of every teacher were observed by the researcher with the help of prepared checklist form. The qualitative data was analyzed general inductive and descriptively. Similarly, quantitative data was analyzed via frequency, percentage and Chi-square test. The population of the study was all the mathematics' teachers and students of Devchuli municipality in Nawalpur district of secondary level. From five schools, three mathematics teachers were selected by purposive sampling method and ten students was selected by simple random sampling from each schools. All the mathematics' teachers were found to have positive perception towards motivational techniques. They employed motivational techniques in mathematics classroom while teaching/learning activities such as warm up activities, establishing good rapport and behaving friendly with students, creating threat free environment and fair competition situation by providing lots of relevant examples and linking the daily life activities, students were actively participated in teaching activities, positive reinforcement with the feedback, summarized the session, solve the student's problems, achieve the intended objectives and thanks to students for their

cooperation at the end of class. On the basis of rigorous analysis and interpretation of the data, it can be concluded that all the mathematics' teachers had positive perception towards employing motivational techniques while teaching and other every fields. All teachers agreed that motivation is the necessary component of every field and its most affecting teaching learning process.

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Abbreviations

NASA	National Assessment of Students Achievement
ERO	Education Review Office
SEE	Secondary Education Examination
ICT	Information and Communication Technology
Ph. D	Doctor of Philosophy
M. Phil	Master of Philosophy
M.ED.	Master of Education
TU	Tribhuvan University
KU	Kathmandu University
MI	Multiple Intelligence
Ed.	Edition
SA	Strongly Agree
A	Agree
U	Undecided
D	Disagree
SD	Strongly Disagree
F	Frequency
%	Percent
i.e.	That is

Chapter I

INTRODUCTION

This present study concerns on the motivational techniques used in teaching mathematics: Teachers' perceptions and practices. This introduction part of this thesis includes background of the study, statement of problem, objectives of the study, research questions, justification of the study, delimitations of study and operational definitions of the key terms.

Background of the Study

Mathematics is dynamic, living and cultural product. It is a study of number and their operation, interrelation, combinations and of space configurations and their structure, measurement transformation and generalization. Mathematics is the study of numbers, shapes and space using reason and usually a special system of symbols and rules for organizing them (Cambridge, 2017).

Mathematics is a form of reasoning. Thinking mathematically consists of thinking in a logical manner, formulating and testing conjectures making sense of things, forming and justifying judgments, inferences and conclusions. We demonstrate mathematical behaviors when we recognize and describe patterns, construct physical and conceptual models of phenomena, create symbol to help us to represent, manipulate and reflect on ideas and invent procedures to solve problems (Battista, 1999).

Mathematics is an indispensable subject in human life because of its usefulness in each and every human activity. It was developed from the human civilization. The development of mathematics passed its consecutive phase as the time passed. The subject of mathematics was also included in the teaching as a vital need of development of human mind. Mathematics is the numerical and calculation part of

man's life and knowledge. It helps the man to give exact interpretation to his ideas and conclusion. It deals with quantitative facts and relationship as well as with problems involving space and form. Thus, mathematics is as an expression of human mind reflects active will, and desire for perfection (Neupane, 2011).

In the present school level curriculum, mathematics is taken as one of the core subjects as well as an optional subject which is introduced from grade one to ten as a compulsory subject and optional in grade 9 and 10. In school level, Mathematics can be effective only if the math teacher develops scientific attitude towards things in real life situation to motivate students in learning. Mathematics and simple specialized skills in observing the natural phenomena as they occur around them. In mathematics classroom, some students pay attention to the teachers very well and learn better while other appears not paying attention. This is the way students behave because of the presence and absence of motivation in mathematics classroom. The effective teaching learning depends upon the appropriate activities of the teacher and the proper reinforcement techniques adapted in the classroom to motivate the learner through active participation. It is said that practice makes a man perfect. It is sure that the role of practice in learning is important. Practice helps to bring the mastery and accuracy in the subject matters into memory and adds quality (Khadka, 2019).

Teachers are found trying to motivate students in learning mathematics. When students are ready to learn mathematics, they are given motivation through the teacher. We can say that motivation is a kind of driven which leads to the path of success in teaching learning process (Bishowkarma, 2007). It is accepted that motivation is an essential in teaching learning process for effective and attractive learning process. Teachers can utilize successful strategies and tactics to make learning effective because motivation plays a significant role to arouse students'

interest towards learning process. Teacher who focuses students' interest towards studies should actively involve learner in the teaching learning process. Curriculum also advocates that motivation technique should be apply but many teacher teaches only problem, they don't care about the pay of attention of motivation technique. Thus, motivation is regarded as something which initiates, energizes, compels and promote an individual to act or behave in a particular way or manner for attaining some particular goal, target or purpose. So, my study was under taken the motivation techniques in classroom.

Motivation

The famous word "motivation" has been derived from the Latin word "movere" which means "to move" or "to activate". In this sense, the fact which initiates a person to move or to activate towards some need is called motivation (Brown, 2007). Motivation is the internal feeling that arises from desires and needs of an individual. It is the continuous process of needs and satisfaction that stimulate individual to perform. Similarly, it is the process to inspire an individual to utilize his/her best capabilities for the achievement of goals. Motivational techniques could arise interest, enthusiasm and regulate the individual behavior in order to perform different tasks with individual behavior in order to perform different tasks with interest for the attainment of particular goals.

Meanwhile, motivation is a psychology feature that arouses an organism to act towards a desired goal and elicit, control and sustains certain goal directed behaviors. It can be considered as a driving force that is a psychology that compels or reinforces an action towards a desired goal. For example, hunger is a motivation that elicits desire to eat. Motivation is the purpose or psychology cause of an action. Motivation has been shown to the roots in psychological, behavioral, cognitive and social areas.

Motivation may be rooted in a basic impulse to optimize well-being, minimize physical pain and maximize pleasure. It can also originate from specific physical needs such as eating, sleeping and sex. Motivation is an inner drive to behave or act in a certain manner. It is the difference between waking up before dawn to pound the pavement and being lazy around the house all day. These inner conditions such as wishes, desires, goals, activate to move in a particular direction in behavior.

Motivation is defined as the process that initiates, guides and maintains goal oriented, behaviors. Motivation is what causes us to act whether it is getting a glass of water to reduce thirst or reading a book to gain knowledge. Motivation as defined by Richard (2006) is a driving force by which humans achieve their goals. Motivation is the set of forces that causes people to choose certain behaviors from among the many alternatives open them. Motivation is important because of its significance as a determinant of performance and its intangible nature. Motivation can be classified as intrinsic and extrinsic motivation or the students rewards can be in the form of grades and marks in examination. In schools setting, teachers often use positive and negative reinforces for motivations. Positive reinforces includes praise, group activities grades, whereas negative reinforcement in another way to strength students behavior through reinforces through as escape form an unpleasant situation or a way of preventing something unpleasant from occurring (Slavin , 2015).

Motivation plays a vital role in teaching learning process. According to most psychologists motivation is essential for effective learning. Motivation is a force that modifies the behavior while learning is actually a modification of a behavior which is permanent in nature and is caused by various psychological factors. The changing condition of environment plays a role of stimulus which motivates human to seek adjustment to the environment. Such adjustment to the environment seeking behavior

is called learning behavior (Smith,1955). We can say that motivation can be used as a productivity factor in the learning process.

Kahn (2003) argued that there is a positive relationship between motivation and performance of student's that is high use of motivation causes high performance and low use of motivation causes low performance. Those students are motivated who exert a greater effort to perform than those who are not motivated. It involves the biological, psychological, social and cognitive force that activates behavior.

Types of Motivations

There are different types of motivation in the field of education that play a dominant role in teaching learning process. Generally, there are two types of motivation that is intrinsic and extrinsic motivations which are made on basic distinction and has an important role in educational practices (Legault, 2016).

Intrinsic motivation. Intrinsic motivation comes from within the individual or from inside. It is also called internal motivation. Intrinsic motivation is the pleasure and interest in activities that exist within an individual rather than outside pleasure.

Whereas, individual who are extrinsically motivated need, rewards and the punishments to be engaged in any activity. Intrinsically motivated students actively engage as intrinsically themselves in learning and achieve their own intellectual and personal goals (Khadka, 2019).

A student can be described as intrinsically motivated when he or she is motivated from within: Intrinsically motivated students actively engage themselves in learning out of curiosity, interest or enjoyment or in order to achieve their own intellectual and personal goals. A student who is intrinsically motivated will not need any types of reward or incentive to initiate or complete a task. This type of student is more likely to complete the chosen task and be excited by the challenging nature of an

actively. Intrinsically motivated students are motivated by themselves but no other person (Neupane, 2011).

In my opinion, intrinsic motivation plays a vital role between teaching and learning mathematics. Use of intrinsic motivation helps them to unlock the hidden talent of students and their performance.

Extrinsic motivation. Extrinsic motivation is the result of external factors. It is also called external motivation. Extrinsic motivation is created due to exterior factors such as society, family, relatives, teachers, schools, peers and environment. So, it is called acquired motivation. Extrinsic motivation is a kind of external inducement that drives learner in the learning which is different from willingness to learn for their own curiosity in task. Extrinsic motivation is created due to exterior factors. An extrinsic motivation is dependent up on the consequential reward and punishments resulting from the behavior (Khadka, 2019).

A student can be described as extrinsically motivated when he or she engages in learning "purely for the sake of attaining a reward or for avoiding some punishment". School practices that seek to motivate students extrinsically include publicly recognizing students for academic achievements: giving out stickers, candy, and other rewards and taking away privileges, such as recess, on the basis of students' academic performance (Neupane, 2011).

Motivation has been widely accepted by both teachers and students as one of the key factors that influences the rate and success of learning activities. Motivation provides primary force to initiate learning and later the driving force to sustain long and often tedious learning process (Locke, 1996). Motivation, among other psychological variables plays an effective role on academic achievement among

students in general. Both intrinsic and extrinsic motivation can work as driving force that affect student's overall performance (Lukmani, 1972).

Thus, intrinsic motivation is mental satisfaction which is achieved by others' praise while extrinsic motivation is an incentive activated by external factors such as good marks and getting reward. Moreover, both types of motivation techniques help directly or indirectly in learning mathematics. Intrinsic motivation technique helps the performance and role of student .similarly extrinsic motivation help the personal, psychological and social interaction and cognitive level of students.

Motivational Techniques

Motivation includes both internal and external factors that stimulate desire and energy in people to be continually interested and committed to a job, role or subject or to try to attain a goal. Students in the classroom learning need constant motivation from the teachers so that optimum use of their talents may be made for their development. Since, individual children differ in regard to their specific needs. According to their personality patterns and socio-economic background, the teachers used to vary their motivational techniques and employ them judiciously (Aggarwal, 2009).

Dornyei, & Csizer (1998) offered a set of some commandments for motivating learners (pp. 203-229). They are creating a pleasant, relaxed atmosphere in classroom, developing a good relationship with the learners, increasing learner self-confidence, promoting learner autonomy, personalizing learning process, increasing the learner's goal-oriented activity, setting personal example with your own behavior. These above mentioned commandments focus on what teacher can do to stimulate intrinsic motivation.

In the same way, Elision (2010) states some strategies to create excitement and enhance learning in the process of active learning instruction (pp. 8-16). They are questioning purposefully, using popular video to stimulate critical/creative thinking, Employing classroom demonstration, using familiar material for examples, connecting course content to current events, integrating web-site use or creation into course assignments, using case method teaching and having students do in class role plays using cooperative learning strategies, creating field trips (real, stimulated or virtual) using formative assessment strategies, providing the symbolic model, feedback, reward, reinforcement, having students participation, satisfying student's needs and using positive emotions to enhance learning and motivation.

Statement of the Problem

Most of the students are not interested to learn mathematics and they believe that mathematics subject as a difficult subject and the school result shows that most of students are failed in Mathematics even today. Some students get afraid to learn math. There are many factors which impact in learning Mathematics. Among them, motivation is one of the most influencing factors towards achieving to learn Mathematics. Some students are motivated to learn from respective teachers. Those teachers who have lots of ideas to teach students in the classroom with effective way. But other more teacher. They don't have ideas to teach easily. In this case, the various motivational techniques play as a vital role to increase quality of teaching learning activities.

According to NASA report 2012 (ERO), the average students learning achievement in grade 10 were only 45.3% in mathematics subjects. The 2015, NASA reported 48.7% in mathematics. The NASA (2011) and (2012) reports found that Achham, Bardiya, Jumla, Khotang, Mahatori, Rolpa, Sapatari and Udayapur district

and the Eastern and Mid-western development regions had low level of achievements in mathematics subjects. Status of SEE results (2072-2076) report published by office of the controller of examination shows that most of the school level students fail in mathematics. The report also shows the achievement level of mathematics is very low in relation to other subjects though mathematics has been given a significant place at all level of school education. This might be the cause of poor condition of motivational techniques promoted by mathematics teachers in teaching mathematics at secondary level. Is mathematics really difficult? Why is mathematics too easy for some students and at the same time too difficult for some other students? Since, I realized it is necessary to explore the teachers' perception and practices towards motivational techniques applied in mathematics classroom.

Objective of the Study

The objective of this study was to explore teacher's perception and practices towards motivational techniques in mathematics classroom and the species objectives of this study are:

- To find out teacher's perception towards motivational techniques in mathematics classroom at secondary level.
- To explore current practices of motivational techniques used by mathematics teachers in mathematics classroom at secondary level.

Research Questions

The research questions of this study were as follows:

- What is perception of mathematics teachers towards the motivational techniques used in mathematics classroom?
- How do mathematics teacher practice motivational techniques in mathematics classroom?

- What is the gap between teacher's perception and classroom practices of motivational techniques?

Justification of the Study

Mathematics is an important and core subject for school level. The objectives of any mathematics curriculum include promoting favorable feeling towards mathematics as well as importing cognitive knowledge. Mathematics is used to solve daily life problems as well as in the field of advance science and technology. But most of the students are not interested to learn mathematics. Do they use instructional materials in actual classroom practice? Do they are aware about motivation on their instruction? Can they use reinforcement in real classroom practice? Thus, this study would have following significance:

- This study would provide some information about perception of mathematics teachers towards motivation.
- This study would explore the teachers' practices on motivational techniques towards teaching mathematics.
- This study would help to understand role of motivation on teaching and learning mathematics.
- This study would help mathematics curriculum designer and educational planner by providing knowledge about motivation in the mathematics classroom.
- The result of the study would be helpful for further research about motivational techniques.

Delimitation of the Study

Any study cannot cover all the fields. Each of them has some limitations. This study has some limitations which are as follows:

- This study was delimited to five public schools of Devchuli Municipality in Nawalpur District.
- This study was delimited to only mathematics teachers who are teaching mathematics at grade X.
- Purposive and simple random sampling methods were adopted while selecting the schools, teachers and students.
- Data were collected through open ended questionnaires, closed type questionnaires, checklist form and Likert's Scale Statement.

Definition of the Key Terms

Motivation: Motivation is the "process of need drive satisfaction". It is a force acting either on or within a person to initiate behavior.

Opinionnaire: An information form that attempts to measure attitude or beliefs of an individual.

Technique: A practical method or an art applied to some particular tasks or basic method for making or doing something.

Perception: In this study, views or opinions held by an individual resulting from experience and external factors acting on the individual.

Teacher: Those persons who teach mathematics in classroom.

Students: Those who are present in the classroom to learn mathematics.

Chapter II

REVIEW OF RELATED LITERATURE

A literature review is a written summary of journals, articles, books and others documents, that describes the past and current state of information on the topic of research study. With so much information available, searching and locating good literature on the topic of research study can be challenging (Creswell, 2012). The previous studies cannot be ignored because they provide the information to the present study. So, this chapter presents the empirical review of the literature, theoretical review of the literature as well as conceptual framework of the teachers' perception and practices towards motivational techniques.

Empirical Literature

Empirical review means reviewing of previous studies on related topic. It helps the researcher to find out the gap and possible research techniques and tools to use in this study. The researcher reviewed some national and international thesis, journals and an article. The empirical literature related to study area has been reviewed as below:

Subedi (2006) did a research on the topic "Behavior of trained teacher in classroom practice in mathematics" with the objectives to identify entering behavior of the trained mathematics teacher in the classroom practice. He selected 30 trained secondary level mathematics teacher of Kaski district by purposive sampling method and classroom observation form and questionnaire for teachers were used as tools for collecting data of the study. The study was quantitative and descriptive but only table and percentage was used to analyze the data. He concluded that a limited number of trained teacher used their skills in planning and also to manage materials, to use grouping techniques and creating environment to interact among students. Similarly,

an optimum number of the trained teachers were using their skills to discuss about subject matter, to make students participate in teaching learning process, to use feedback mechanism, to evaluate students and to provide assignment. Also, he found about the motivation techniques promoted by trained mathematics teachers that they motivated their students by telling history and development of subject matter, by telling utility of subject matter in daily life, by linking the subject matter with previous one and rest of them by making a joke and short stories related to the lesson.

Similarly, Acharya (2007) has studied mathematics learning strategies in community-based school by selecting one community-based school and ten students of that school from Kathmandu valley by using purposive sampling method to identify method used in teaching environment for mathematics learning in community-based school. An interview schedule and a classroom observation form were used to collect the required data. It was a case study and descriptive method was used to analyze the collected data. He concluded that mathematics teacher was qualified and high experienced. But lecture practice method was used by teacher mostly. Sometimes, the discussion method was also used. The student's number was little bit more but they were actively participated in mathematics learning. The physical condition of the school was satisfactory but there wasn't mathematics lab. There was sound relationship between students and teachers.

Likewise, Neupane, (2011) carried out research entitled, "Teachers' Attitude towards Motivation in Teaching Mathematics at Secondary Level." The objectives are to find out public and private school mathematics teachers' attitudes towards motivation and to compare their attitudes towards motivation in teaching mathematics at secondary level. The population of the study consists all public and private secondary schools mathematics teachers of Chitwan district. 40 teachers were selected

on the basis of random sampling, 20 from private and 20 from public school. Researcher collected data were tabulated by using five points Likert's scaling technique. The data were analyzed and interpreted by using chi-square test, T- test at 5 % level of significance. Researcher found that most of the mathematics teachers teaching at public and private secondary school had a positive attitude towards motivation. It showed that motivation plays vital role in teaching mathematics at secondary level. There was positive attitude of secondary school mathematics teachers towards motivation in teaching mathematics and the type of school is not a factor that influences the attitude of teachers towards motivation.

Likewise, Bishowkarma, (2012) carried out research entitled, "Motivation Techniques Used by English Teachers at Secondary Level." Research had been taken on the students and teachers at secondary level. Both students and teachers were provided questionnaire and observation check list. The main findings of the study are all forty teachers greeted to the class, out of forty teachers, only ten teachers warmed-up the class, ten teachers scolded their students to motivate them, most of the teachers (36 out of 40) made their voice commanding to motivate the students. Motivation techniques differed according to the situation of the class. Mostly used motivation techniques were making the voice commanding, using body language, showing interest in his/her students, using gesture, asking students if they got the point or not, paying attention to the whole class, review of the previous lesson, telling jokes and short stories and solving students' problems. All the teachers were agreed that students must be motivated before starting the class. All the teachers replied that motivation techniques differ according to the nature and situation of the class.

Likewise, Abbas & Khurshid, (2013) wrote an article on, "Motivational Techniques and Learners' Academic Achievement at Primary Level", published in

Global Journal of Human Social Science Linguistics and Education. They found that the primary level teachers are using various techniques to motivate young learners. These include negative reinforcement, positive reinforcement and knowledge of grades. Primary teacher used motivational words like well done, keep it up, good student, excellent, good, very good, and fair and use the statements of praise to motivate the students. Teachers with higher income used positive reinforcement as a motivational strategy than teacher with low income group. Teachers suggested that the 37% more than one motivational techniques were used in the classroom environment. In teachers' opinion, models, charts and boards and audio visual are essential in teaching learning process to create interest of learning in studies.

In this regard, Pandey (2013) did a research on the topic "Motivational techniques used by Head Teacher of Secondary Schools" with the objectives to examine the view of mathematics teachers about the motivation techniques used by their head teacher and to identify the students' opinion about the performance of teacher requesting from motivational techniques used by the head teachers. The descriptive survey research design was adopted to conduct the study. To achieve objectives, the researcher maintained some literatures that were related to the study. The related theories and some previous study of research were taken as a guide to the study. The population of the study was all the mathematics teachers and students of secondary schools in Kanchanpur district. Among them, fifty schools were selected by stratified random sampling method. Questionnaires and interview schedule were developed by the researcher. Data were collected by visiting sample secondary schools then collected data were organized, analyzed and interpreted. For the analysis of data, the statistical tools like mean, standard deviation and t- test was also used. In this study, the result revealed that no respondents were highly agreed about the

motivation techniques used by head teachers. Majority of the respondents showed that motivation techniques were not used sufficiently and frequently by the head teachers.

In this regarding, Neupane (2013) carried out a research on "Motivation of secondary level teachers towards teaching English". The main objectives of the study were to find out whether teachers are motivated towards teachings English or not, and to find out the causes of motivation or demotivation for teaching English. He used survey research design to conduct his research. Population of the study was selected through purposive non-random sampling. Forty teachers were selected from community and private higher secondary schools of Kathmandu valley. As the tool for data collection, he used close ended and open-ended question. The finding was that most of the teachers seem to have positive attitude towards teaching English language, English language learner, English language classes, scope of English language and teaching learning environment.

Similarly, Pradhan, (2014) did a research entitled, "Teacher Motivation: A study on Teachers of Institutional Schools of Lalitpur Sub-Metropolitan Area." The main objective of this study was to examine the intrinsic and extrinsic motivation of secondary level teachers of institutional schools. Researcher used the quantitative research design. Survey questionnaire was used as the main tool to collect the data. The sample of the study was randomly selected 360 secondary level teachers. Researcher found that the secondary level teachers of institutional schools of Lalitpur area were intrinsically motivated in all the three factors (Autonomy, competence, relatedness) of intrinsic motivation. Similarly, researcher also found the extrinsically motivated in all five different factors (Management, relationship with colleagues, presence of core values, satisfaction with salary and benefits), of extrinsic motivation.

Likewise, Woli, (2015) carried out research entitled, "Motivational Techniques Promoted by Mathematics Teachers at Secondary Level". The objective of this study is to find out the current status of motivational techniques promoted by mathematics teachers, and to find out the significant difference between the status of motivational techniques promoted by mathematics teachers in teaching mathematics at secondary level from public and private schools. The design of this study was descriptive which is of quantitative nature. Among them 20 mathematics teachers were selected by stratified random sampling method at Kathmandu district. Classroom observation form was used as the tools for the study. The data obtained in classroom observation form were tabulated then calculated via mean score of each motivational technique and then found out the significance different between public and private mathematics teachers used mean, variance, two tailed t-test at 0.05 level of significance. Researcher found that current status of motivational techniques promoted by mathematics teachers in teaching mathematics is satisfactory. Among them the position of motivational techniques in classroom environment and closing the lesson was satisfactory following the position of the motivational techniques. Teaching learning activities was good and the position of the motivational techniques' evaluation was poor. There was significant difference promoted by public and private school's mathematics teachers in teaching mathematics at secondary level.

In this regard, Rajbhandari, (2017) did a research on the topic, "Teachers' Motivational Practices and Students' Performance: A case Study of Public-School Teacher in Lalitpur." The main objective of this research was to find out current practices of teachers' motivation and student's performance in community school. Researcher told that teachers' motivation practices thematized under internal and external motivation process whereas performances of the students thematized under

physical appearance, class monitoring skills, inter personal communication, judging and experiencing school knowledge, written skill and performances. Researcher used the tool of this research participant observation, in-depth interviews and focus group discussion. Researcher found that teachers were applying various motivational strategies to the school that increased students' performances. Students were becoming sensitive on moral value of education.

Likewise, Khadka, (2019) did a research on topic " Motivation techniques used in Science teacher: Teacher perception and practice at secondary level. The main propose of the study was to find out the teacher's perception and practice of motivational techniques used in science classroom. The design of this study was mixed method parallel design. Five science teachers were selected by purposive sampling and seventy five students selected by random sampling method. Open ended questionnaire, close ended questionnaire Likert scale statement was used as the tools for the study Researcher found that current status of motivational techniques promoted by mathematics teachers in teaching mathematics is satisfactory. Among them the position of motivational techniques in classroom environment and closing the lesson was satisfactory following the position of the motivational techniques.

After reviewing the different articles, journals, unpublished thesis different theories related to this thesis, the following gap I found as reinforcement and practice is the foremost things for effective mathematics learning. Especially, the impact of positive reinforcement remains perpetual but this is not seeing in our schools mathematics classroom. For effective mathematics teaching and learning, hygiene and motivational factors also play crucial role but these factors are not cared by our school.

Motivational techniques are the most powerful tools to increase the achievement in mathematics. If we see the score of mathematics in our schools, highest scores are in mathematics as well as very least scores are also in mathematics. Why these variation do occurs in mathematics? Researcher thought that this variation occurred due to motivational techniques used in teaching mathematics in their classroom at secondary level.

Theoretical Literature

A theoretical literature of study is the structure that can hold or support a theory of a research study. The theoretical literature of the study introduces and describes the theory that explains why the research problem under study exists.

Multiple intelligence theory for motivation in classroom.

For the purpose of this thesis and to provide a context for discussing motivational techniques used (as multiple intelligences) in teaching mathematics. I review "Theory of Multiple Intelligence" by psychologist Howard Gardner who provided a definite, Yet broad framework for developing curricula which could be used to better service varied abilities of students (Radin and Dannenhoffer). Here, I describe the theory of multiple intelligence and show how it can be practiced as motivational techniques while teaching mathematics. Similarly, how MI theory evolved as an educational philosophy will be described. Each of eight types of intelligence are explained.

Howard Gardner with his book frames of mind in 1983 proposed the theory of multiple intelligence to critics' educational system which always focuses on Logical-Mathematical and linguistic capabilities (Kumalasari, 2017). He proposed every human has their intelligence, ability as their strength and also their weakness. It means that multiple intelligence (MI) never work alone which means every person has

not only one intelligence but some dominant intelligence will work together. MI theory claims that each person has a different personality and emotional level and so do they have different profiles of intelligence. We can find all intelligence in one person but some potential in particular intelligence. Intelligence, an influential one to person's performance and products along by the culture around them (Gardner, 1983). Gardner notes that traditional IQ tests measure only logic and language. Yet the brain has other equally important types of intelligence. Gardner argues that all humans have these intelligences, but people differ in the strengths and combinations of intelligence. He believes that all of them can be enhanced through training and practice. MI thus belongs to a group of instructional perspectives that focus on differences between learners and the need to recognize learner difference in teaching. Learners are viewed as possessing individual learning styles, preferences or intelligences.

According to the MI theory from Gardner (1993), individual possess a set of eight intellectual competencies by which they learn as opposed to one general intelligence. The eight intelligences are logical-mathematics, linguistic, musical, visual/spatial, bodily/ kinesthetic, interpersonal, intrapersonal and naturalist (Kumalasari, 2017). Any given individual some of the intelligence may be stronger than others. Similarly, in a classroom, areas of strengths are different for each heterogeneous group of students because of their diverse background and natural abilities. Therefore, the goal of helping a diverse group of student identifies a challenge as well as motivation for the mathematics teachers in this classroom. It is critical either to adopt diverse group of students to identify one's own dominant intelligence or using variety of techniques compatible with the student's individual intellectual competencies.

Today, the educational system is generally found emphasizing on verbal and mathematical intelligence. Tests, assignments and teaching approaches all seem supporting these two intelligences in one hand while student's unique capabilities and talents in other areas are often neglected and overlooked.

Implication of MI theory in this research.

MI theory has great implication for the practice of effective teaching and learning mathematics at secondary level. In my thesis, the implication of MI theory is mentioned as follows:

- Without convincing or motivating the different schools' teachers and students, it is not possible to collect the data accurately. Here, motivation plays vital role.
- MI theory can also be used to find out the condition of basic needs of different students.
- It encourages teachers and parents to provide learning activities that build children's inherent abilities.
- It suggests that teachers should adhere the following points as the part of classroom activities.

Conceptual Framework of the Study

This sections deals about the conceptual framework for the research.

Conceptual framework is an analytical tool with several variations and contexts. It has established on the basis of research topic, possible areas to fulfill the objectives of the study. It is used to make conceptual distinctions and organize ideas. It is help to make roadmap about our research strong and conceptual frameworks capture something real and do this in a way that is easy to remember and apply.

I also have presented information generations approaches like participant open-ended questionnaire, closed-ended questionnaire, check-list and Likert's Scale statement. I also have presented Multiple Intelligence Theory. Finally, the main finding and conclusion can be drawn from analysis of the data. The conceptual framework of my study " Motivational Techniques Used in Teaching Mathematics: Teachers' Perception and Practices" which is presented diagrammatically as following.

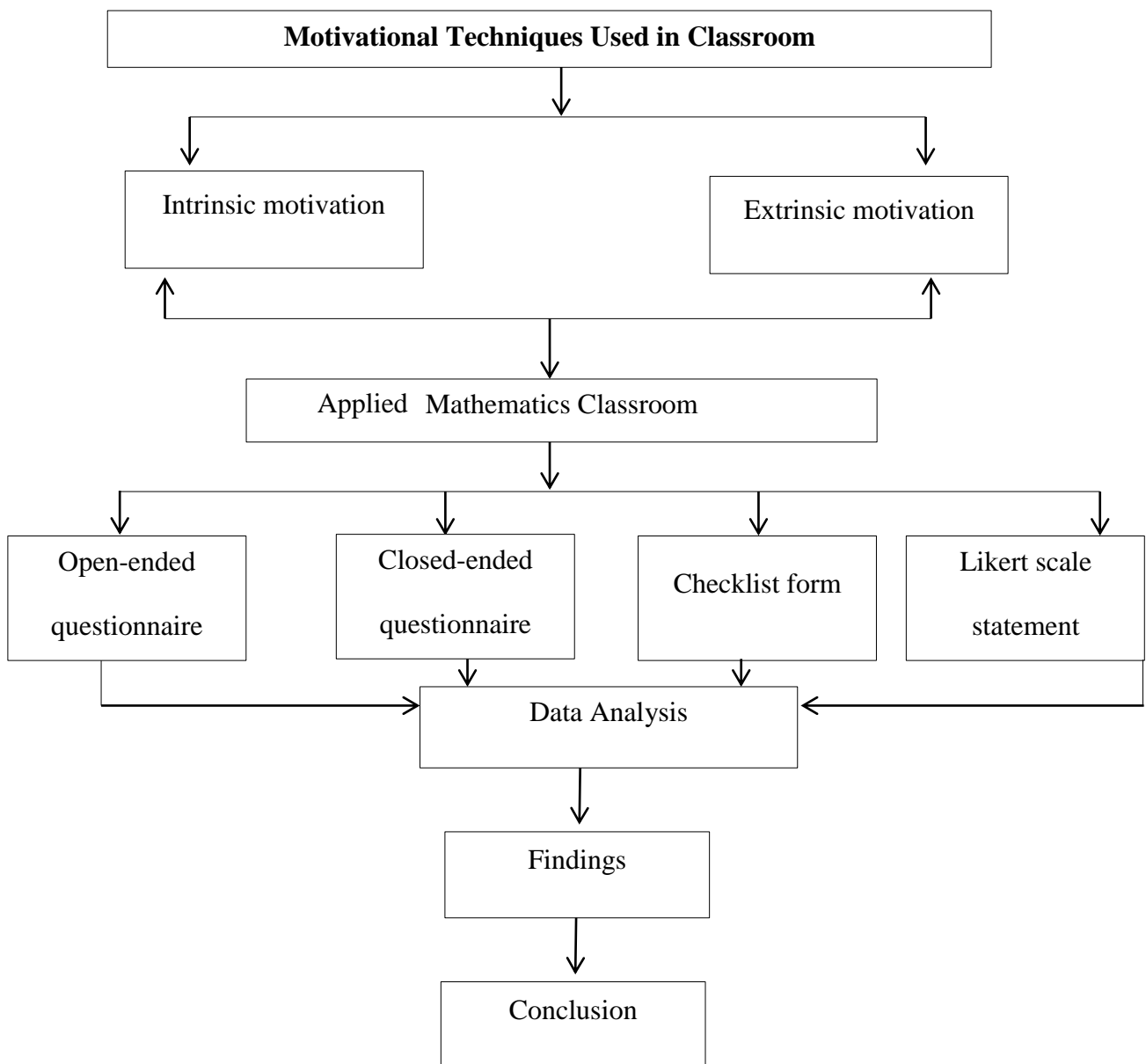


Figure 1: Conceptual Framework of the Study

From the above conceptual framework, the motivation techniques such as warm up activities, revised and question for previous class create pleasant and supportive classroom, use instructional materials, connecting the course to daily life and so on was used in the classroom. Based on the above conceptual framework, the tools were constructed such as opinionnaire form and checklist form. The researcher used open- ended questionnaire for the teachers, closed- ended questionnaire for the students. Data were analyzed on the conceptual framework. After that researcher will find the conclusion.

Chapter III

METHODS AND PROCEDURE

This chapter deal with the plan and process related to the study under the different headings which was used to achieve the objective of the study. The major producers was described in this chapter are: Design of the study, population of the study, simple the study, research tools of the data collection, data collection procedure, data analysis procedure and ethical consideration. The present research focused on "Motivational Techniques Used in Teaching Mathematics: Teachers' Perception and Practices". The major plans and procedure followed in this study are as follows:

Research Design

Research design is the heart of any research. This is the most important part of the research. Research design is the design of path about how does the research will conduct. It is the detail path of the investigation. Thus research design comprises the overall strategy followed in collecting and analyzing data (Gay et al., 2012).

Researcher used both qualitative and quantitative research method and also use qualitative and quantitative research tools for this study. So, researcher applied the QUAL-QUAN research design which is mixed method which is parallel research design. According to Creswell (2012), "A mixed methods research design is a procedure for collecting, analyzing and mixed both quantitative and qualitative methods in a single study or a series of studies to understand a research problem (p. 535)".

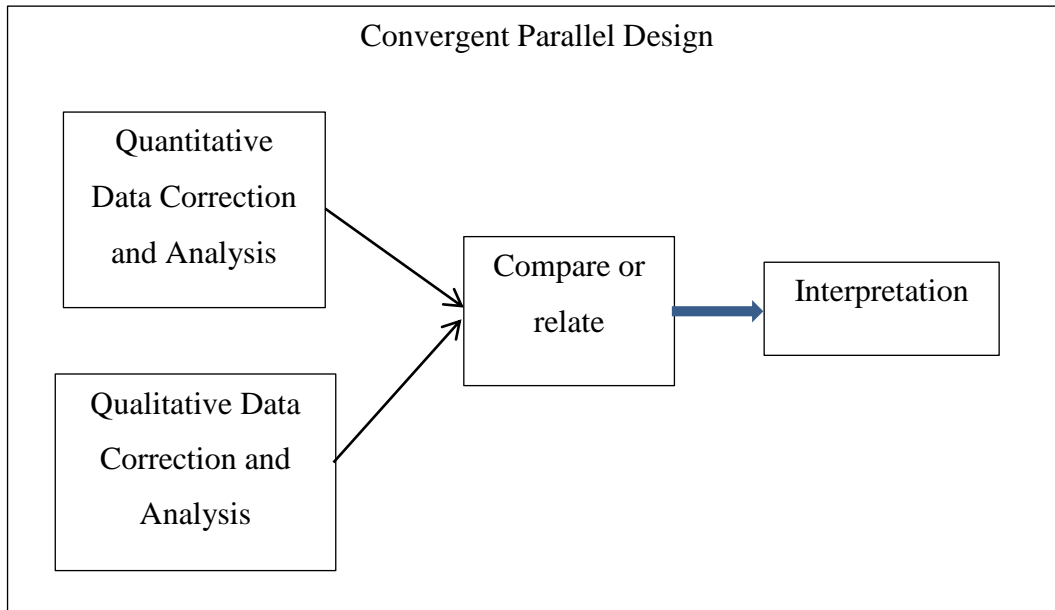


Figure 2: Research Design

Population and Sampling of the Study

The population of this study was all the mathematics teachers of Devchuli Municipality in Nawalpur district of secondary schools. The sample of this study consists of five public schools and three teachers which were selected from each school who had been engaging in teaching mathematics in corresponding schools. 10 students were selected from each school who were studying in grade X. The sample of schools and mathematics teachers were selected by purposive sampling method for this study. Similarly, students were selected by simple random sampling method for this study.

Data Collection Tools

Every study needs tools to collect required data. In this study researcher generated data through open ended- questionnaire, closed ended- questionnaire, Checklist form and Likert's statement questionnaire. For this study, researcher used the following types of tools:

Open-Ended Questionnaire

Open ended question was developed for the mathematics teachers to get information regarding the perception and practices towards the motivational techniques used in mathematics classroom. Open ended question allows the information for expressing their techniques, their teaching experiences and understanding about the motivational techniques used in mathematics classroom. These types of questions give the information about teacher perception and practices about the motivational techniques which are used in the teaching /learning process.

Closed-ended questionnaire

Multiple choice questions are a type of the closed ended questionnaire. This type of questions was developed for the students to get information regarding the practices towards the motivational techniques used in mathematics classroom. In this question students choose the answer that best reflects his/ her answer by putting tick marks.

Checklist form

There are several types of checklist according to its nature. In this study, it was conducted in natural setting and got more reliable data for the study. Checklist form used in this study having 22 statements is divided in 5 parts for measuring the perception and practices towards motivational techniques in mathematics classroom. Researcher focused on how mathematics teacher uses the motivational techniques in classroom and what kinds of motivational techniques is used in teaching/ learning process in classroom.

Questionnaire

Likert's Scale Statement based questions for mathematics teachers were developed as tools in this study. In this type of questions, researcher develops the

question about to know the teachers' perception on these questions which have limited opinion and teachers give the answer only by making tick mark (). Weightage of 5,4,3,2 and 1 score is assigned to a statement if the response is "Strongly Agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree" respectively in case of positive statement and similarly reverse marking is awarded for negative statement.

Data Collection Procedure

Researcher collected the data for this research from primary sources. For this propose, the researcher had visited sample school along with achievement test, requested letter form T.U to get full support from administration. After that, the researcher requested to the head master and subject teacher for his propose. The researcher selected five secondary schools of mathematics, teacher for questionnaire, then, the researcher observed their performance while teaching mathematics. Also, the researcher filled the check list of mathematics teachers from my observation note.

Data Analysis and Interpretation

Researcher analyzed and interpreted the obtained data by using different statistical techniques. After the completion of data collection procedure, researcher had started data analysis. For the analysis of quantitative data, data were analyzed and interpreted by using simple statistical tools such as measures of frequency, percentage and chi-square test. Also, qualitative data were analyzed and interpreted by descriptive in general inductive method. The analysis of the collected data was presented under sub heading. Similarly, researcher had collected the quantitative data from closed ended questionnaire (multiple choice questions) and opinionnaire. Opinionnaire were based on Likert's five-point Scale Statement. Weightage of 5, 4, 3,

2 and 1 score is assigned to a statement if the response is "Strongly Agree", "Agree", "Undecided", "Disagree" and " Strongly Disagree" respectively in case of positive statement and similarly, reverse marking was awarded for negative statement. These data were analyzed by simple statistical tool such as frequency, percentage and Chi-square test. Closed-ended questionnaire were analysis by frequency and percentage.

Ethical Consideration

Ethical consideration is very important to be considered by researcher while collecting data and information. So, researcher would consider informant's personal matters and organizations own rules. The following consideration followed in my research: At first, researcher took permission from schools administers, principal and subject teacher. The researcher built trust the respondent and respect the respondent answers. Also researcher didn't culturally, ethically, socially biased while selecting the schools as my research sample.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

This section mainly deals with the analysis and interpretation of the data collected from the primary sources. The primary sources of data were collected from the five sample schools, fifteen mathematics teachers and fifty students of Devchuli municipality in Nawalpur district at secondary schools. The main focus of the study was to find out the teacher's perception and practices towards motivational techniques used in mathematics classroom at secondary schools.

The analysis and interpretation both qualitative and quantitative data collected from the open-ended questionnaire, close-ended questionnaire in Likert's scale form, checklist form are presented in this chapter. On the basis of their nature, qualitative data were analyzed and interpreted descriptively in general inductive method. In contrary, quantitative data were analyzed and interpreted using simple statistical tools such as measures of frequency, percentage and chi-square test. The analysis of the collected data is presented under different sub-heading.

Analysis of Open-ended Questionnaire

I asked nine questions to each five different public secondary level mathematics teacher who were selected through purposive sampling from different schools of Nawalpur district. All questions related to the perception and practices about the motivational techniques were used in mathematics at secondary level and the responses provided by all mathematics teachers are presented descriptively as follows.

Activities to Create Basic Motivational Situation

To accomplish the objective of the study the researcher asked the question with the mathematics teacher "How do you create basic motivating situation in

classroom?" Most of the mathematics teachers were attempting to motivate the students to learn in their classroom. They try to make student friendly learning environment, building good rapport with students, making class quiet and anxiety free and warm up activities. One mathematics teacher said that;

"To motivate students I always move around the classroom to observe the student's activities, revision of previous class, brainstorming questions and fun making games / activities. Also I try to interpret mathematical contents by relating with students daily life activities which makes mathematics more interesting and lively."

From these responses we can conclude that most of teachers create a motivating situation in classroom by behaving friendly with students and building good rapport with students. Along with activities, other teachers are using aforementioned activities for creating motivating situation in mathematics classroom. Beside this, the brain storming questions raised by teachers in mathematics creates motivating situations.

Teachers' Role on Motivation

The teachers have responsibility to motivate all the students in their learning. Most of mathematics teachers were positive towards the role of teacher to motivate all students. They responded that they should play effective role as a facilitator, promoter, tutor, observer, guide, and a resource person. They also added that teachers should play the role of developing good friendly relation between teacher and student, creating active involvement environment of the students, try to understand student's psychology, regular supervision, use of appropriate, concrete and understandable examples, helping students achieve goals by themselves, to give the freedom asking

the question, create the threat free and effective environment, give always positive response and reinforcement. One mathematics teacher added that

"To motivate the students in teaching learning activities, teacher should focus on students learning ability and interest. In this regard, I always try to provide equal opportunity to all students".

Effects of Classroom Environment

Most of the respondents agreed that classroom environment is one of the factors to motivate students. Mathematics teachers believed that classroom should be proper physical facilities, instructional materials, and comfortable desk bench. Similarly, teacher argued that classroom should be clean, proper lighting and ventilated. Mathematics classroom would be more interested and motivating if teacher have proper knowledge of subject matter, pedagogical knowledge, accountability and responsibility towards their profession. In this regard, one mathematics teacher argued that:

"Students motivation is one of the important factors for effective and attractive learning environment. Teacher has important role to maintain all classroom activities".

Ways of Demotivated Learners towards Learning Mathematics

Most of the mathematics teachers agreed that there are various factors to demotivate students in learning mathematics such as teachers learning style and activity, classroom environment, less use of interactive and innovative tools and techniques and so on. Besides that mathematics teachers paid attention to those students who were demotivated in classroom activities. One mathematics teacher argued that:

"Most of the students give less concentration in mathematics classroom whenever we try to teach using traditional lecture method. To motivate the students in learning mathematics, I behave child friendly, establishing good rapport and relation with students, try to find cause, providing inspiration/ encourage, draw connection of content to real life, telling success story, persuaded them to tell their problems and helped them to complete the tasks making learners feel enjoy in teaching learning through varying activities".

Majority of the teachers replied that they all start their class by motivating students who felt bore and demotivated in the classroom. They replied that they did not ignore demotivated learners in their classroom. Instead, they tried to motivate them by asking some questions, changing their seat plan, standing beside them and asking them to do some related exercises.

Student's Participation

Motivation plays the vital role for the active participation in mathematics classroom. Most of mathematics teacher argued that students actively participate in learning mathematics whenever teacher attempt to teach mathematics introducing innovative and interactive tool and techniques. Instead of that, students became less motivated to participate actively in mathematics classroom if teacher uses traditional techniques of teaching learning. Different students have different ability to learn, so teachers have responsibility to teach mathematics on the basis of student's level and interest. One mathematics teacher added that:

"In mathematics classroom, the student's participation plays the vital role for effective and efficient teaching learning activities. For the active participation all the students in classroom activities, I try to teach mathematics on the basis of students

need, and interest integrated with daily life activities of students using different interactive teaching learning tools."

The above responses show that the most of students were participated in learning activities and some of students were not actively engaged in learning process because of the ability capacity to learn, variation in student's knowledge level, nature of contents, behavior of friends and teacher, effect of teaching aids, problem of his/her life also.

Motivational Techniques used in Classroom Practices

Most of the mathematics teachers argued that they try to use various techniques to motivate students in classroom activities. They try to understand the psychology of the students, need and interest of students, relate to previous class with classroom activities, to give the suitable examples, give rewards and punishment. Similarly, they attempt to clarify the mathematical concepts by introducing the example which is related to the daily life activities, use of ICT tools and techniques, purposive questioning and positive reinforcement along with the relevant feedback and to develop good rapport with students. One mathematics teacher said that:

"As most of the students conceive mathematics as complicated and difficult, they became less motivated in classroom activities if I try to teach them without use of any of teaching material. That's why I attempt to use various motivational techniques to motivate them in learning interestingly and interactively. I emphasize on their need and interest, use of different ICT tools, and encourage them for their active participation".

Most of the mathematics teachers used the various motivational techniques related with classroom situation, course of content, demands and interest of students. Teacher's motivational techniques also effect on success and failure of

teaching/learning process in mathematics classroom. It has been believed that a good teacher uses a lot of motivational techniques in the classroom which helps make learning effective and attractive.

Use of Instructional Materials in Mathematics

Most of the respondents agreed that instructional material is one factor to motivate students in learning mathematics. They were using digital chart paper, multimedia, projector, locally available teaching materials, Geo-board and sometimes technological tools also. In opposition, some of teachers argued that they were inept to use teaching material in mathematics classroom in regular basis because lack of time, knowledge and skill, difficulty of content, lack physical infrastructures and so on. One mathematics teacher added that:

"Though most of the students feel relief in classroom if we teach mathematics integrating with innovative and interactive tools, nevertheless we were inept to use them in regular manner because of having lack of well physical infrastructures, lack of effective training opportunities and other many obstacles".

Above responses of teachers showed that teaching materials is essential for motivating the students in teaching mathematics. The most of schools has lack of well management physical infrastructures as well as sufficient teaching materials in school. Some mathematics teacher used materials whenever nature of course content, and insufficiently time. Instructional aids play a vital role and effective teaching sustain the knowledge of students in an efficient way. For effective and attractive teaching/learning, the students are motivated by using of teaching materials in his/her teaching style.

Use of Teaching Method

Most of the respondents agreed that teaching method has an important role in effective and efficient teaching learning mathematics. The researcher asked the question to mathematics teacher as "which teaching methods are you using in teaching mathematics properly". Most of them said that they were using different types of teaching method on the basis of nature of course content and classroom environment. They also added that they were using lecture to give the overall information about any content, demonstration and discussion to clarify the concept, problem-based method to make students more creative. Also, they focused on individual group discussion, brainstorming activities, problem solving, and game method, use of projectors with lecture method. One mathematics teacher shared his experience as:

"Most of the students feel bothersome in their mathematics classroom if we try to teach mathematics using only one teaching method regularly. So, to make mathematics class more students friendly and enjoyable, it is necessary that teacher should use different teaching strategies on mathematics classroom on the basis of students demand and interest as well as nature of content".

Above responses showed that most of teacher applied different teaching strategies according to the nature of content, need and demands of classroom environment. Some teachers responded that sometimes they were using motivational strategies to make learners refresh towards teaching/ learning activities. So, various methods of teaching /learning focusing student centered such as group/ pair work, problem solving, lecture, demonstration and discussion which help to motivate the students.

Applied Motivational Techniques and Behavioral Change

In order to find out the answer of question, "what kind of change in student's while using motivational techniques in teaching mathematics classroom?" Most of the mathematics teachers replied that when they used motivational techniques in classroom. Most of the students gave more attention in mathematics learning activities, actively participated in the classroom, developed critical thinking and reasoning power, aroused the related content question and developed the curiosity on subject matter. On mathematics teacher said that:

"Because of teacher has less focus on students' need and interest, most of the student give less concentration in their classroom activities, they cannot enjoy mathematics learning that's why to motivate student in learning, teachers have responsibility to motivate and encourage students introducing different motivating techniques such as ensuring their active participation in classroom activities, teaching using interactive teaching materials and so on."

From the above responses, it showed that mathematics teachers were using various motivational techniques in teaching /learning activities which help to changes student's behavior. Such types of changes found students actively participated, aroused various questions related with content, developed critical thinking, formation and learning, interaction program, presentation skill, solving the mathematics problem skill also. These all factors related with teacher's applied motivational techniques and their impact on the student's behavior. To sum up, the above changes are concerned with the creation of good teaching/learning process and classroom environment.

Practice of Motivational Techniques

In this part, researcher has tried to find out current practices of motivational techniques while teaching of mathematics in secondary level. Researcher made the various questionnaires and asked selected students from each school who were

studying in secondary level. The responses providing by all students to find out the students' perception regarding their teacher practices in mathematics teaching and they are presented as follows:

Initiation of Lesson by Teacher

In order to find out the initiation of lessons by teachers in mathematics classroom in sample schools. The participant students were asked a question that is "what does your mathematics teacher do before start the lesson?" The response obtained from the participant students are presented as in the following:

Table 1: *Response of students in initiation of Lesson by Teacher*

Response	Sample schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Revised the previous lesson	3	30	5	50	4	40	4	40	1	10	17	34
Directly start today content	4	40	2	20	3	30	2	20	4	40	15	30
Does other activities	2	20	1	10	2	20	0	0	2	20	7	14
Ask question previous lesson	1	10	2	20	1	10	4	40	3	30	11	22

[Where, F = Frequency, % = Percentage]

In comparison to all five sample schools, the response "revised the previous lesson" was asked to all fifty students. Sample school "B" students gave the highest 50% response and sample school "E" students gave the lowest 10% response. Similarly, for the response "directly start today content "sample school "A" and "E" students gave the highest 40% response and sample school "B" students gave the lowest 20% response. Likewise, few numbers of teachers only used other activities in

the initiation of class. Similarly, the response "ask question previous lesson" sample school "D" students gave the highest 40% response and sample school "A" and "C" students gave the lowest 10% response.

Overall, the maximum percentage of student's response in " that is 34% and the lowest percentage of students response in the initiation of the class was "revised the previous lesson was "does other activities" that is 14% response. Table 1 clearly shows that most of teachers start class revising the previous lesson. In checklist observation form, teacher starts the class revising the previous lesson.

Analysis of using Teaching Aids

To find out the mathematics teacher using teaching materials while they teach in the classroom in given sample schools. The participant students were asked a question that is "does your teacher use the instructional material while teaching? The data obtained from the participant students are presented as in the following table:

Table 2: *Use of Instructional Aids in Mathematics Teaching*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Always	4	40	7	70	6	60	4	40	5	50	26	52
No	1	10	2	20	0	0	0	0	1	10	4	8
Sometimes	2	20	0	0	0	0	3	30	0	0	5	10
Nature of content	3	30	1	10	4	40	3	30	4	40	15	30

Table 2 presents that in sample school "B" as 70% and "E" as 50% students responded that math teacher always used the instructional materials in classroom. Similarly, in sample school "D" students were responded to sometimes mathematics teachers using the instructional materials in mathematics teaching classroom.

Likewise, in sample school "C" as 40% students were responded to math teacher using the teaching material with the nature of course content.

From table 2 the maximum percentage of students responded that math teacher always using instructional material in classroom that is 52% .It means that the math teachers used the instructional material in his/her teaching / learning process in classroom to motivate students. In my classroom observation, teachers used the instructional material in classroom for motivating students in learning process.

Student's involving in Mathematics Learning

To find out engagement of students in mathematics class. The participated students were asked a question " Does your mathematics teacher make you participate in learning in mathematics classroom?". The data obtained from the participant students are presented as in the following table:

Table 3: *Students Participation in Mathematics Learning Activities*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Always	6	60	5	50	7	70	6	60	5	50	29	58
No	1	10	0	0	1	10	2	20	1	10	5	10
sometime	1	10	1	10	2	20	1	10	1	10	6	12
Nature of content	2	20	4	40	0	0	1	10	3	30	10	20

In comparison to all five sample schools, the response on "student's participation in mathematics learning activities" were asked to 50 students. Only one sample school "B" as 40% students responded to nature of content to math teacher in participating in learning activities in classroom. Similarly, other sample schools "A"

as 60%, "C" as 70% and "D" as 60% students responded about math teacher as always actively participating students in learning activities in classroom.

From all the sample schools, data shows that the maximum percentage of students' response as actively participation in mathematics learning activities was 58% as to learn the effective and attractive way.

Analysis of Classroom Environment

In order to find out the student's intention in mathematics classroom in sample schools. The participant students were asked a question that is "How do you feel in mathematics classroom while the teacher teaches you?" The data obtained from the participant students are presented as in the following table:

Table 4: *Analysis of Mathematics Classroom Environment*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Feel energetic	7	70	8	80	6	60	5	50	5	50	33	66
Feel Boring	1	10	1	10	2	20	1	10	2	20	7	14
Afraid with teacher	1	10	1	10	1	10	2	20	1	10	6	12
Do not like mathematics	1	10	0	0	1	10	1	10	1	10	4	8

For the question "condition of classroom environment in teaching learning? " All sample school, 50% above respondents that they felt mathematics class as energetic. So that teachers teach with energetic, attractive and effective way.

From all the sample schools, the data shows that maximum percentage of students' responding that energetic feel was 66%. In these sample, schools a smaller number of students were not energetic while teacher teach them.

Analysis of Time management for Class Activities

In order to find out the teacher time management for classroom activities in sample schools. The participant students were asked a question that is "Does your mathematics teacher provide you enough time for class activities?" The responses of the participant students are presented in the following table:

Table 5: *Analysis of Teachers Time Management for Class Activities*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Always	5	50	5	50	6	60	4	40	8	80	28	56
Never	2	20	3	30	1	10	3	30	1	10	10	20
Sometimes	2	20	1	10	1	10	2	20	0	0	6	12
As mood	1	10	1	10	2	20	1	10	1	10	6	12

In comparison to all five sample schools, the response "teacher time management for class activities" were asked to all 50 students. All samples school "A" as 50%, "C" as 60%, and "E" as 80% students responded that their teachers always provide the time for classroom activities. Remaining percentage of student's response was never, sometimes or as per the mood, the math teacher provided the time for class activities.

Overall the data shows that the maximum percentage of student's response math teacher always providing time management for students' activities that is 56%. Most teachers manage the time for student participation in classroom activities. It was found that the mathematics activities in classroom were highly appreciate. In my

opinion, there was lack of time management, and poor equipment beside there was some problems in classroom management and so on.

Analysis of Classroom Discussion Style in Teaching Mathematics

To find out discussion style of mathematics, teachers in given sample schools, the participation students were asked a question that is "How your math teacher make discussion teaching mathematics classroom?" The data obtained from the participant students are presented as in the following table:

Table 6: *Analysis of Classroom Discussion Style*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Individual	5	50	4	40	4	40	6	60	6	60	25	50
In group	2	20	3	30	5	50	1	10	1	10	12	24
Peer group	2	20	2	20	1	10	2	20	1	10	8	16
No any discussion	1	10	1	10	0	0	1	10	2	20	5	10

In comparison to all five sample schools, the response "classroom discussion style in teaching mathematics" was asked to all 50 students. Sample schools "B" as 30% students responded to teacher discussion style in group. Similarly, other sample schools "A" as 50%, "D" as 60% and "E" as 60% students responded to discussion style in individual.

From all the sample school's data it is revealed that majority of participants provided information regarding most of math teacher had applied in individual discussion style in classroom that is 50%. Most of teachers applied individual group

discussion style, few math teacher followed in group, in peer group discussion style in teaching mathematics classroom.

Analysis of Daily Life Experience related Examples

In order to find out the daily life experience related examples provided by math teachers in classroom in sample schools, the participant- students were asked a question that is "Does your math teacher give examples with daily life related while teaching?" The data obtained from the participant students are presented as in the following table:

Table-7: *Analysis of Daily life experience related examples.*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
always	6	60	7	70	5	50	4	40	8	80	30	60
sometime	2	20	1	10	2	20	4	40	0	0	9	18
seldom	2	20	1	10	1	10	1	10	1	10	6	12
frequently	0	0	1	10	2	20	1	10	1	10	5	10

In comparison to all five schools, the response "Daily life experience related examples" was asked to all 50 students. Most of math teacher give example which is daily life activities that is "A" as 60%, "B" as 70% and "E" as 80%. Sample school "D" as 40% responded that sometime to give the example which is daily life related experiences. Few of the respondents said that they seldom or frequently gave the example of daily life experiences.

Overall, the maximum percentage of student response "Daily life experience related examples that is 60% ". Most of the teacher give the daily life experience examples.

Use of ICT/ Multimedia

In order to find out the status of using ICT by teacher in mathematics classroom in sample school, the participant students were asked a question that is "Does your mathematics teacher use ICT and multimedia while teaching mathematics?" The data obtained from the participant-students are presented as in the following table:

Table 8: *Analysis of Use of ICT in Classroom*

Response	Sample Schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Always	3	30	3	30	4	40	5	50	1	10	16	32
Never	4	40	1	10	6	60	3	30	5	50	19	38
Sometime	2	20	2	20	0	0	0	0	2	20	6	12
Nature of content	1	10	4	40	0	0	2	20	2	20	9	18

In compassion to all five sample schools, the response "used of ICT/multimedia in teaching mathematics "asked to all 50 students. Table 8 clearly that, most of math teacher never used of ICT in teaching mathematics i.e.38% and 32% student respondent to always math teacher to use the ICT in teaching mathematics. Few students gave the sometime math teacher use multimedia in teaching i.e. 12%.

Opportunity of Classwork for Students

To find out the opportunity of classwork for students end of teaching mathematics classroom in sample schools. The participant students were asked the question that is "Does your math teacher give classwork in classroom?" The data obtained from the participant students are presented as in the following table:

Table 9: *Analysis of opportunity of classwork for students*

Response	Sample schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Always	5	50	8	80	6	60	4	40	6	60	29	58
No	2	20	0	0	1	10	3	30	0	0	6	12
Sometime	1	10	2	20	1	10	1	10	2	20	7	14
Nature of content	2	20	0	0	1	10	2	20	2	20	7	14

In comparison to all sample schools, the response "opportunity of classwork for students" was asked to all students. Among them, 60% above respondents responded as always math teacher giving the classwork in the classroom. The majority of student's participants responded to "always" for getting classwork. It is clear that the teacher give the classwork while they are teaching them and motivating students by using classwork in teaching period. I also found that most of the teacher giving the classwork.

Summarizing the Content at the End of Class

To find out the summarizing the content at the end of class in sample schools. The participant's students were asked the question that is "Does your mathematics teacher summarize the content at the end of class? The data obtained from the participant students are presented as in the following table:

Table 10; *Analysis of summarizing the content at the end of class*

Response	Sample schools										Total	%
	A		B		C		D		E			
	F	%	F	%	F	%	F	%	F	%		
Always	8	80	6	60	5	50	5	50	7	70	31	62
No	1	10	0	0	2	20	0	0	0	0	3	6
Sometimes	1	10	2	20	0	0	1	10	2	20	6	12

When students request	0	0	2	20	3	30	4	40	1	10	10	20
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In comparison to all sample schools, the response "Summarized the content at the end of class" asked to all students. 62% responded that the mathematics teachers always provided content summary at the end of class. The majority of student participants responded to "always" summarizing the content at the end of the class. It concluded that most of the teachers summarized the session, solved student's problem and achieved the intended objectives.

Analysis of Checklist Form

In this section, the classes of selected teachers were observed using prepared observation checklist. A checklist containing different items was prepared for the purpose of observing teachers practice of using motivational techniques in mathematics classroom. The researcher observed that the total 30 classes of 15 different teachers to examine the practices of learning in the real mathematics classroom using the observation checklist. The observation checklist form has been divided into five sections: Ignition Motivational Techniques, Class Presentation Motivation Techniques, Class Practice Motivation Techniques, Class Production Motivation Techniques and Class Closing Motivation Techniques. I found teachers were much aware of using different motivational techniques while teaching math. Data collected through observation checklist is presented in descriptive way as mentioned below.

Motivational Techniques Used in the Initiation of Classroom.

To obtain data regarding ignition motivational techniques used in mathematics teacher prepared three items. These are presented below: Greeting, Warm up activity and Learner readiness with students.

Table 11: *Initiation of Classroom*

S.N.	Ignition Motivational techniques	Rating Scale							
		Excellent		Good		Mediocre		Poor	
		F	%	F	%	F	%	F	%
1	Greeting	7	46.67	4	26.67	3	20	1	6.66
2	Warm up activity	5	33.34	6	40	2	13.33	2	13.33
3	Learner readiness	6	40	4	26.66	3	20	2	13.34
Remarks		More than 26.66% are good at ignition motivation techniques but 13.34% were found poor to employ warm up techniques.							

The above table shows that 46.67% teachers used greeting as a motivational technique excellently, 26.67% are good at it, 20% are using it moderately and 6.66% teachers use it poorly. Similarly, warm up activity for ignition of motivational technique most of the teachers that is 40% are good at using it where only 33.34% are excellent and 13.33% are poor in using warm up activities as ignition motivational techniques. In the same way, regarding learner's readiness, it is found that 26.66% teachers are good, while 20% teachers are mediocre and 13.34% teachers are poor.

Finally, it shows that most of the teachers are familiar with the class ignition motivational techniques and majority of them are good at employing them in real classroom teaching.

Analysis of class presentation Motivational Techniques

Under class presentation, there were different motivational techniques prepared to elicit the teachers practice of motivational techniques while presenting the lesson. The data regarding this are presented as in the following:

Table 12: *Class Presentation Motivational Techniques*

S. N.	Class Presentation motivation techniques	Rating							
		Excellent		Good		Mediocre		Poor	
		F	%	F	%	F	%	F	%
1	Create Pleasant & supportive Classroom environment	3	20	5	33.34	3	20	4	26.66
2	Use appropriate teacher behavior	2	13.34	4	26.66	4	26.66	5	33.34
3	Establish good student teacher relation	1	6.67	6	40	2	13.34	6	40
4	Encourage learner satisfaction	3	20	7	46.66	3	20	2	13.34
5	Offer reward & grade	0	0	6	40	4	26.66	5	33.34
6	Infusing humor in class session	6	40	4	26.66	2	13.34	3	20
7	Making teaching material relevant to the learner	0	0	5	33.34	4	26.66	6	40
8	Making learning stimulating or interesting	2	13.34	7	46.66	2	13.34	4	26.66
9	Presenting the task in motivating way	1	6.66	7	46.66	3	20	4	26.66
Remarks		Majority of the teachers are familiar with lesson presentation and motivation techniques but making teaching material relevant to the learner and establish good student teacher relations 40% are found poor.							

Out of thirty classroom observation, fifteen teachers are found stating 33.34% teachers are good at creating pleasant and supportive classroom environment. Whereas 20% teachers are mediocre and 26.66% teachers are poor. Similarly, 26.26% teachers are good at using appropriate teacher behavior, 13.34% were excellent, 26.66% are mediocre and 33.34% are poor to maintain appropriate behavior to the students. In the same way, 40% teachers are good to establish mutual student teacher

relation, 6.67% are excellent, 13.34% are mediocre and 40% are poor to establish good relation with their students. Furthermore, to encourage learner satisfaction 46.66% teacher are good, 20% are mediocre, and 13.34% are poor to maintain learner satisfaction. In same vain, only 40% teachers are good to offer reward and grade, and majority of the teachers as 33.34% are poor to use these motivational techniques while presenting lesson. In addition, 40% teachers are found excellent at infusing humor in the class session, 26.66% are good, and 20% are poor to present lesson with smile and sense of humor. While making teaching material relevant to the learner 33.34% teachers are found good, 26.66% are mediocre, and 40% are poor. Likewise, in making learning stimulating/interesting 46.66% teachers are found good, 13.34% are mediocre, and 26.66% are poor. In the same vain, at presenting task in motivating way, only 6.66% are excellent, other 46.66% are good, 20% are mediocre, and 26.66% are poor to present the lesson in motivating way.

It shows that most of the teacher use appropriate teacher behavior, establish good student teacher relation and make teaching material relevant to the learner. But it shows that secondary level teachers are poor at motivation techniques offering reward and grade.

Analysis of Class practice Motivation Techniques

Classroom practice motivational techniques were observed being based on four techniques. The frequencies of employing those techniques while practicing the lesson are presented in the following table:

Table 13: *Class Practice Motivation Techniques*

S.N.	Class practice motivation techniques	Rating Scale							
		Excellent		Good		Mediocre		Poor	
		F	%	F	%	F	%	F	%
1	Personalizing learning	2	13.33	6	40	5	33.34	2	13.33

2	Having students do in class/ role play	3	20	5	33.34	4	26.66	3	20
3	Employing classroom demonstration	0	0	5	33.34	3	20	7	46.66
4	Questioning purposefully	3	20	6	40	4	26.66	2	13.34
Remarks		Majority of the teachers are good at practicing lesson practice motivation techniques but more than 13.33% teachers are poor except questioning technique.							

While employing classroom practice as motivational technique, 13.33% teachers are excellent at personalizing learning where as 40% are good, 33.34% are mediocre, and 13.33% are poor to personalize teaching learning. In the same way, having students do in class/ role play a classroom practice motivational techniques 33.34% teacher are good, and rest of other 20% are poor at it. Furthermore, 33.34% teachers are good at employing classroom demonstration, 20% are mediocre and 46.66% are poor. Last but not list, at questioning purposefully, 20% teachers are excellent whereas 40% are good, 26.66% are mediocre and 13.34% are poor.

It means majority of the teachers personalize learning, employ role-play, and questions purposefully but only half of them are good at employing classroom demonstration.

Analysis of Class Production Motivation Technique

To find out the teachers' practices of class production motivational techniques, two items were prepared and data was collected from thirty classroom teaching observation of fifteen teachers. The collected data is presented in the following table:

Table 14: *Class Production Motivation Technique*

S.N.	Class production	Rating
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	motivation techniques	Excellent		Good		Mediocre		Poor	
		F	%	F	%	F	%	F	%
1	Using formative assessment	4	26.66	8	53.34	2	13.34	1	6.66
2	Reward innovative creativity	1	6.66	6	40	2	13.34	6	40
Remarks		More than 53.34% teachers are good at lesson production motivation techniques but above 6.66% are found poor.							

The above table shows that 53.34% teachers are good at using formative assessment techniques of classroom production motivational techniques while 26.66% are excellent, 13.34% are mediocre and 6.66% are found poor. Similarly, 40% teachers are good at reward innovative creativity a motivational techniques of classroom production whereas 40% are poor at using it as a classroom production motivational technique.

So, it shows that more than half of the teachers are using formative assessment and reward innovative creativity for the classroom production motivational techniques.

Analysis of Class Closing Motivation Techniques

There were four techniques prepared under class closing motivation techniques. The practice frequency data of those techniques while closing class session by the sampled fifteen teachers, thirty classroom observation are presented in the following table:

Table:15: *Class Closing Motivation Techniques*

S.N.	Class closing motivation techniques	Rating Scale							
		Excellent		Good		Mediocre		Poor	
		F	%	F	%	F	%	F	%
1	Summarized and	1	6.66	7	46.66	5	33.34	2	13.34

	ended the lesson								
2	Solved students problem	6	40	6	40	2	13.34	1	6.66
3	Achieve the intended objective	3	20	9	60	1	6.66	2	13.34
4	Thank students for their cooperation	3	20	8	53.32	2	13.34	2	13.34
Remarks		Though majority of the teachers are good at summarizing and ending the lesson through motivation techniques, at achieve the intended objective-one of the vital technique, 13.34% teachers are found poor.							

The above table shows that 46.66% teachers are good at summarizing and ending the lesson as a class closing motivation technique, 33.34% are mediocre and 13.34% are poor at employing this technique. In the same vain, 40% teachers are excellent performer at solving student's problem whereas 40% are good, 13.34% are mediocre and 6.66% are poor. Furthermore, 60% teachers are good at achieving the intended objectives while 6.66% are mediocre and 13.34% are poor to reach their purposed destination. Similarly, at thanking students for their cooperation, 53.32% teachers are good, 13.34% are mediocre and 13.34% are poor to appreciate their students for their involvement.

It shows that majority of the teachers summarized the session and solves the student's problem, achieve the intended objectives and thank students for their cooperation.

Analysis of Likert's Scale Questionnaire

To find out the teacher perception towards the motivational techniques in mathematics. Researcher prepared ten questionnaire related five points Liket's scale. The response of teachers was tabulated and analyzed as below.

Table 16: *Teacher Perception towards Motivational Techniques*

S. N	Items		SA	A	U	D	SD	Total	Chi.
1	Motivation plays important role in teaching mathematics.	F	10	3	2	0	0	15	22.67
		%	66.67	20	13.33	0	0	100	
2	Motivational knowledge is essential for mathematics teachers.	F	12	2	1	0	0	15	34.67
		%	80	13.33	6.67	0	0	100	
3	Motivation is the best strategy for learners	F	9	5	1	0	0	15	20.67
		%	60	33.33	6.67	0	0	100	
4	Motivational techniques are helpful for creating joyful classroom environment	F	6	8	1	0	0	15	18.67
		%	40	53.33	6.67	0	0	100	
5	Motivational techniques enhance student's performance level.	F	8	5	2	0	0	15	16
		%	53.33	33.33	13.33	0	0	100	
6	There is no sufficient time to use the motivational techniques	F	0	0	1	11	3	15	28.67
		%	0	0	6.67	73.33	20	100	
7	ICT can help increase mathematics achievement	F	0	12	1	2	0	15	34.67
		%	0	80	6.67	13.33	0	100	
8	I enjoyed learning mathematics much more by using ICT	F	9	3	3	0	0	15	18
		%	60	20	20	0	0	100	
9	The teacher should motivate all the students in learning mathematics	F	10	5	0	0	0	15	26.67
		%	66.67	33.33	0	0	0	100	
10	I am in favor of motivation: it helps to encourage the students.	F	13	2	0	0	0	15	42.67
		%	86.67	13.33	0	0	0	100	

[Note: S.A= Strongly Agree, A= Agree, U= Undecided, D= Disagree, S.A= Strongly Disagree, F= Frequency and %= Percentage]

Statement 1 'Teacher's motivation plays important role in teaching mathematics.' In this statement, 66.67% of teachers were strongly agreed, 20% were agreeing and 13.33% of them were undecided about this statement. The calculated chi-square value

is 22.67 and the tabulated value with 4 degree of freedom and 0.05 level of significance is 9.488 which is less than the calculated value that's why indicates that the teachers have positive attitude towards this statement.

Statement 2 'Motivational knowledge is essential for mathematics teachers.' The 80% of total teachers were strongly agreed and 13.33% were agreed and only 6.67% teachers were undecided about this statement. The calculated chi-square value was 34.67. It indicates to the researcher that most of the teachers were strongly agreed with this statement that's why the teachers have a positive attitude towards it.

Statement 3 'Motivation is the best strategy for learners. A total of 60% of teachers were strongly agreed, 33.33% of teachers agreed and 6.67% of teachers found undecided about this statement. The calculated chi-square value was 20.67 which is greater than the tabulated value with 4 degree of freedom and 0.05 level of significance. This implies that the teachers have positive attitude towards this statement.

Statement 4 'Motivational techniques are helpful for creating joyful classroom environment.' Out of total participated teachers, 40% of them were strongly agreed, 53.33% teachers were agreed and 6.67% of them were undecided about this statement. The calculated Chi-Square value is 18.67 which is greater than the tabulated value 9.488 with 4 degree of freedom and 0.05 level of significance. It indicates to the researchers that the majority of teachers have positive attitude towards this statement.

Statement 5 'Motivational techniques enhance student's performance level.' A total 53.33% of teachers were strongly agreed, 33.33% of them were agreed and 13.33% of them were undecided about this statement. The calculated chi-square value was 16, which is greater than the tabulated value with 4 degree of freedom and 0.05 level of

significance. It indicates to the researchers that the teachers have a positive attitude towards this statement.

Statement 6 'There is no sufficient time to use the motivational techniques.' A total 6.67% of teachers were undecided, 73.33% of them were disagree and 20% of them were strongly disagreed about this statement. The calculated Chi-Square value is 28.67, which is greater than the tabulated value 9.488 with 4 degree of freedom and 0.05 level of significance. Therefore, it indicates that the teachers have positive attitude towards this statement.

Statement 7 'ICT can help increase mathematics achievement.' A total 80% of teachers were agreed, 6.67% of them were undecided and 13.33% of them were disagreed about this statement. The calculated Chi-Square value is 34.67, which is greater than the tabulated value 9.488 with 4 degree of freedom and 0.05 level of significance. It indicates to the researchers that the teachers have positive attitude towards this statement.

Statement 8 'I enjoyed learning mathematics much more by using ICT.' A total of 60% of teachers were strongly agree, 20% of them were agreed and 20% of them were undecided about this statement. The calculated Chi-Square value is 18, which is greater than the tabulated value 9.488 with 4 degree of freedom and 0.05 level of significance. It indicates to the researchers that the teachers have positive attitude towards this statement.

Statement 9 'The teacher should motivate all the students in learning mathematics.' A total of 66.67% of teachers were strongly agreed, and 33.33% of them were agreed about this statement. The calculated Chi-Square value is 26.67, which is greater than the tabulated value 9.488 with 4 degree of freedom and 0.05 level of significance. Hence, it shows that the teachers have positive attitude towards this statement.

Statement 10 'I am in favor of motivation'. It helps to encourage the students.' Out of total participated teachers, 86.67% were strongly agreed, and 13.33% of them were agreed about this statement. The calculated Chi-Square value is 42.67, which is greater than the tabulated value 9.488 with 4 degree of freedom and 0.05 level of significance. That's why it can be concluded that the teachers have positive attitude towards this statement.

From the above, it can be concluded that most of the teachers create a motivating situation by behaving well treatment with students while teaching mathematics class. Role of motivation is a key factor in the mathematics classes that gives positive response. Classroom environment should be suitable, effective, attractive and collaborative so the teachers need to keep different pedagogical skills and knowledge of subject matter. It is believed that a good teacher always uses a lot of motivational techniques in the classroom which is effective and attractive. Teaching material is also one of the essential tools of motivational tool. Most of the school have not sufficient teaching materials so one reason of failing the students in mathematics is also teaching method focusing students centered such as group/pair work, problem solving way, lecturer and so on to help motivating the students.

Also, MI theory claims that each person has a different personality and emotional level and so do they have different profiles of intelligence. We can find all intelligence in one person but some potential in particular. Learners are viewed as possessing individual learning styles, preferences or intelligences. The goal of helping a diverse group of student identifies a challenge as well as motivation for the mathematics teachers in this classroom. It is critical either to adopt diverse group of students to identify one's own dominant intelligence or using variety of techniques compatible with the student's individual intellectual competencies.

Today, the educational system is generally found emphasizing on verbal and mathematical intelligence. Tests, assignments and teaching approaches all seem supporting these two intelligences in one hand while student's unique capabilities and talents in other areas are often neglected and overlooked.

Chapter V

FINDING, CONCLUSION AND IMPLICATIONS

This chapter includes with the analysis and interpretation of the data and major findings of the research, conclusion and recommendations based on the findings and conclusions.

Finding of the Study

In this section, the finding derived from the analysis and interpretation of the data. The major finding of the study are summarized and presented bellows. This study was conducted on the topic Teacher perception and practices towards the motivational techniques in mathematics classroom. This study aims to find the teacher perception and practices towards the motivational techniques at secondary level math's teacher of Devchuli Municipality in Nawalpur district.

Findings of Teacher's perception towards the motivational techniques

To find out the teacher perception towards the motivational techniques in mathematics classroom at secondary level, the researcher develops the Likert's scale questionnaire and open-ended questionnaire as a data collection. The major finding were;

- Secondary level mathematics teacher opined that, they create basic motivating situation through behaving friendly with the students, building good rapport with them, focusing on perceived competence making class quiet and anxiety free & creating a fair competition situation.
- They opined that, they use some kind of motivation technique before starting the class to make teaching learning purposive & effective.
- All the teachers agreed that the students must be motivated before starting the class.

- They opined that, a teacher needs to pay attention to the unmotivated learners & with the use of varying motivation techniques they need to bring in the main stream of the learning.
- All the teacher replied that, they do not use the same method always to motivate their students
- They further opined that, to motivate learner from beginning to the end of the class we need to employ various effective and applicable motivational techniques.
- They opined of Likert's statement, that the overall average chi- square value 26.336 is greater than average tabulated value 9.488 with 4 degree of freedom at 0.05 level of significance have positive attitude towards this statement.

Finding of teachers practices on motivational techniques in classroom

The second objective of this research program was to analysis the current practices of motivational techniques used by mathematics teacher in classroom. For this objective to achieve the researcher develop the observation checklist and closed – ended questionnaire for students for data collection activities and the major finding were;

- Majority of the teacher were found trained in mathematics teaching, all of them were found using vivid motivation techniques to some extent.
- Similarities, Majority of the teachers are familiar with the class ignition motivational techniques and more than 26.66 % of them are good at employing them in real classroom teaching.
- Likewise, Majority of the teachers are familiar with lesson presentation motivation techniques but making teaching material relevant to the learner and establish good student teacher relations 40% are found poor.

- Similarly, Majority of the teachers is found good at practice motivation techniques but more than 13.33% teachers were found poor except questioning technique.
- Likewise, at practice of class production motivation techniques more than 53.34% are good and majority of them use formative assessment and reward innovative creativity in the lesson production phase.
- Majority of the teacher more than 40% are good at using class closing motivation techniques but 13.34% teacher were poor at achieve the intended objective techniques.
- Majority of supports to enhance the quality of learning and increase the students actively participation, ability, performance skill, logical and thinking power in classroom activities.
- Most of the teacher are familiar materials related to examples,
- Connecting course content to current events for stimulate the critical thinking, develop the logical power of students.
- Pleasing, relaxed and supportive environment for good learning of students.
- Threat free environment, fair competition situation and develop a good relation with students by creating smiling face of student and teacher together.
- Used the cooperative/ peer/ group teaching/ learning activities with actively engage of students.
- Providing the positive emotion, feedback, verbal reward and reinforcement to the all students in classroom.

Conclusion

According to the different psychologist and educationists there are several motivational techniques which help the teacher to motivate their learners in teaching

mathematics. On the basis of rigorous analysis and interpretation of the data it can be concluded that, all the mathematics teacher has positive perception towards employing motivational techniques while teaching and other every field. All teachers agreed that motivation is the necessary component of every field and its most affects teaching learning process. In teaching process, students must be motivated before, starting the class. A teacher needs to pay attention to the unmotivated learners and with the use of varying motivation techniques they need to bring in the mainstream of the learning.

All participation teacher agreed that the classroom environment, physical facilities, instructional materials and teaching method, classroom management, teacher personality, ICT technology etc. were supports the student's motivation in teaching mathematics classroom. Almost all teachers use motivational techniques before beginning the lesson in the classroom every day. Not only at the beginning of the class but also at the lesson presentation, practices, production and end too. They had maintained motivation through various motivational techniques according to the demand of course content and context considering the student need, interest, ability and level. All the teacher response that, they don't use the same method always to motivate their students. It means that, same method may not work all the time. To motivate students we need to employ different method to maintain motivation for effective and purposive teaching/learning. There are various motivational techniques to motivate students while to use the teaching learning process but most frequently used the mathematics teacher in mathematics classroom which are: revised the previous content, related questions for previous class, create pleasant, relaxed and supportive atmosphere in classroom activities, non-threatening environment, using instructional materials, group learning activities, use of example related teaching

materials, connecting course content to current events, focused on student's centered activities, students participation, pleasant teacher behavior, focused on students interest and level, teach by constructivist way, ask the questions purposefully, teacher's engagement with students, explain course content/topic, provide some assignment for students, summarizing the whole content at the end of class, evaluation of students solving the student's problems, provide feedback, reward at the end of classroom and student's happiness at the end of class.

Implications

This research is conducted for the partial fulfillment of master in mathematics education study. There are number of limitations on this study especially in terms of resources and area covered. The search is solely conducted in Devchuli municipality in Nawalpur district and the motivational techniques used by secondary level in mathematics classroom. On the basis of the finding from the analysis and interpretation of the data, the following recommendation for policy level, practices level and for further researchers.

Policy related recommendations

- Policy makers and curriculum designers should analyze the learner's motivation to make the teaching learning process more effective, attractive and sustain.
- The technology should be used in mathematics widely, it makes easy to implement actively learning in mathematics.
- Ministry of education and other related institutional should provide training about the motivational techniques used in teaching mathematics classroom for the teacher to update them with new approaches, methods and techniques in teaching.

Practice related recommendations

In the course of the study, the researcher felt that the following measures would be valuable for promoting the motivational techniques in teaching mathematics at secondary level.

- The mathematics teachers should manage their classroom environment effectively mainly focused on discipline, relation between teachers and students and arousing curiosity so that it can help to motivate their students.
- The mathematics teacher should motivate the students beginning the lesson by different warming up activities to the students.
- Mathematics teachers should employ better teaching method and instructional materials according to the context and content such that it can be motivated their students.
- Mathematics teachers should use students oriented teaching methods to active participation of students in the classroom.
- Mathematics teachers should provide positive and frequently feedback to their student in necessary cases.
- Students should be motivated from beginning to the end of the class through practical and applicable motivational techniques.
- School management committee and head of the school should provide adequate physical facilities and teaching aids as per the need and capacity of school.

Further Research related recommendations

On the basis of the conclusions derived from the finding of this study, the researcher would like to suggest some recommendations that would be helpful for further research as well as for the improvement in teaching/ learning activities.

- This study was conducted only in Devchuli municipality in Nawalpur district to establish the finding in similar study other districts.
- Similar studies should be conducted in other grades of secondary level taking samples from different schools and different subjects as well.
- This study was focused on motivational techniques used by mathematics teachers. Similarly, study can be done to investigate the motivation techniques used by teachers to motivate students.

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Appendices

Appendix A

Open-ended questionnaire for teachers

Teacher Name:

School name:

Class:

Date:

Dear teacher,

The purpose of this questionnaire is to collect information to explore the teachers' perception and practices towards motivational techniques in mathematics classroom. Your participation on the questionnaire is extremely useful. Please, follow the instructions of each part before responding to the questions

Please give your own views for these questions.

1) How do you create basic motivating situations in classroom?

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

2) What are the techniques used to motivate students at the beginning of the class?

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

3) What can be the teachers role to motivate students better?

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

4) Do you think that the classroom environment affects student's motivation? If yes how?

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

5) Why do you think some students are not motivated to learn mathematics? How would you motivate them?

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

6) Do you students actively engage in classroom activities?

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

7) Do you always apply the same method to motivate students? why or why not?

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

8) What types of instructional materials do you use to motivate your students towards effective teaching learning classroom?

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

9) Which strategies you are applying to evaluate your students? Why?

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

10) What changes do you find in students while using such kind of motivational techniques in your teaching?

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

"Thanks for filling this Questionnaire"

Appendix: B

Closed- ended questionnaire for students

School's Name:

Subject:

Student's Name:

Roll No:

Class:

Date:

The purpose of this questionnaire is to collect information to explore the teachers' perception and practices towards motivational techniques in mathematics classroom. Your participation on the questionnaire is extremely useful. Please, follow the instructions of each part before responding to the questions. Tick the best answer.

1) What does your mathematics teacher do before start the lesson?

a) Revised the previous lesson

b) Directly start today content

c) Does other activities
lesson

d) Ask question previous

2) Does your mathematics teacher use the instructional materials while teaching?

a) Always

b) Never

c) Sometimes

d) Nature of content

3) Does your mathematics teacher make you participate in mathematics learning activities while teaching?

a) Yes

b) No

c) Sometimes

d) Frequently

4) How do you feel in mathematics class while teacher teaches you ?

a) Feel energetic

b) Feel boring

c) Afraid with teacher
subject

d) Don't like mathematics

5) Does your mathematics teacher provide to you enough time for class activities?

a) Always

b) Never

c) Sometimes

d) As mood

6) How do your mathematics teachers make discussion in classroom?

- a) Individual
- b) In group
- c) No any discussion
- d) In peer group

7) Does your mathematics teacher give examples with daily life experiences while teaching?

- a) Always
- b) Sometimes
- c) Seldom
- d) Frequently

8) Does your mathematics teacher use the ICT while teaching?

- a) Always
- b) Never
- c) Sometimes
- d) Nature of content

9) Does your mathematics teacher to give the classwork in classroom?

- a) Always
- b) Never
- c) Sometimes
- d) Nature of content

10) Does your mathematics teacher summarize the content at the end of class?

- a) Yes
- b) No
- c) Sometimes
- d) when student ask

5.	Class closing motivation techniques									
a)	Summarized & ended the session									
b)	Solved students problem									
c)	Achieve the intended objective									
d)	Thank students for their cooperation									

.....

Signature of Teacher

.....

Signature of Observer

Appendix: D

Likert Scale questionnaire

For teachers

Teacher Name:

School name:

Class:

Date;

Dear teacher,

The purpose of this questionnaire is to collect information to explore the teacher's perception and practices towards motivational techniques in mathematics classroom. Your participation in completing the questionnaire is extremely useful. Please strictly follow up the instructions of each part before responding to the questions. Please choose the answer that best reflects your views on the given alternatives and indicate your answer by checking () the column of your best choice.

Note:

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

N= numbers of students and %= Percentage

S. N	Items		SA	A	U	D	SD	Total	Chi.
1	Motivation plays important role in teaching mathematics.	F							
		%							
2	Motivational knowledge is essential for mathematics teachers.	F							
		%							
3	Motivation is the best strategy for learner	F							
		%							
4	Motivational techniques are helpful for creating joyful	F							
		%							

	classroom environment								
5	Motivational techniques enhance student's performance level.	F							
		%							
6	There is no sufficient time to use the motivational techniques	F							
		%							
7	ICT can help increase mathematics achievement	F							
		%							
8	I enjoyed learning mathematics much more by using ICT	F							
		%							
9	The teacher should motivate all the students in learning mathematics	F							
		%							
10	I am in favor of motivation: it helps to encourage the students.	F							
		%							

"Thanks for Your Truthful Information"

Appendix- D

Episode -1

Grade X was selected class for observation time period was 2nd at 11:00 AM. The researcher entered the classroom before the mathematics teacher to observe what techniques he / she use to motivate the students for mathematics learning. Firstly, mathematics teacher entered the all the students said good morning sir, he replied good morning class and he also ask about the all students. It was notice that the school environment was respectable to the teacher. There were 30 students in a classroom. The teacher ask all the student about today class topic, all the students replied that HCF and LCM sir. Before start the content mathematics teacher interact with students to clarify the concept of HCF and LCM and if students feel any difficulty on the content which had taught yesterday. He also added more examples of HCF and LCM of two numbers and also he briefly discuss about the factorization of algebraic structure which he had taught in previous class. He attempt to make class more interactive and impressive to encouraging students for learning. Mathematics teacher more focuses on students activities than this one way lecture. He always move around the classroom to observe the students activities to concentrate them in their learning. Most of mathematics teachers of government were less conscious about to motivate students nevertheless the mathematics teacher of this school always attempt to make students curious to learn, to ask questions and involve in interaction, actively participate them in classroom activities.

Episode-2

Researcher observed the mathematics class of grade ten, teacher had taught the topic set. There are 43 students appeared in class. Firstly, he warms up the students and started the class. He checked the home work but not one by one. He taught two problems including set, for this he asked a question when two or more sets are intersected? Student replied and he thanked to the student and he told them with example and student felt happy. Teacher motivates them all to prepare for the problem and he started write some formulae and clarified with Venn diagram. He gave a question to the students and they all tried to solve and most of the students appear bored and replied sorry sir we don't understand well the teacher help them and felt easy to the student. Finally, he treated well them and gave classwork and all students did their problem successfully.

Appendix : E**Name of sample schools**

- 1) Shree Prithvi Secondary School, Devchuli-10 , Nawalpur
- 2) Shree Janajyoti Secondary School, Devchuli-15 , Nawalpur
- 3) Shree Bhimsen Secondary School, Devchuli-07, Nawalpur
- 4) Shree Janajyoti Model Secondary School, Devchuli-14 , Nawalpur
- 5) Shree Kalika Secondary School,Devchuli-09, Nawalpur