

Chapter- 1

INTRODUCTION

Background of the Study

Mathematics is an important part of the human society. Mathematics came into practice with the beginning of the human civilization. Mathematics plays very important role in building up modern civilization. It has been contributed in every aspect of science and technology as well as human daily life to the field of science and technology, music and arts, engineering and soon. It is believed that the development of mathematics and development of civilization were occurred together. "Mathematics is the way of settle in mind and the habit of reasoning and it is an expression of human minds reflects the active well complete reasons and desires for aesthetic perfection." Mathematics is interpreted, explained and used in different situation to generate logical, intuition, constructivism, analytical, formulation and generalization of judgment power.

The mathematics discipline is generally regarded as a difficult and tricky subject but is essential for everyday life and for higher studies especially in the field of science and technology. The mathematics involved in developing theory and want to abstracting it to other disciplines and fields. But the mathematics education explains about the application of theory in every field of human beings. Going together both played a very important role in building up modern civilization by perfecting all sciences.

Mathematics education is a modern discipline in the world. In the beginning it was thought that mathematics and mathematics education were same discipline. Now, mathematics and mathematics education by nature are considered as the two distinct

disciplines. Mathematics education deals with mathematics from the philosophical, psychological and sociological aspect of education. The first international congress of mathematical education held at Lyons in France in August 1969, established mathematics education as a discipline.

Mathematics education is concerned with the development and implementation of appropriate mathematics curricula and with all issues associated with the teaching and learning of mathematics in keeping with the concept of lifelong learning, mathematics education covers learners of all ages and at all levels from early childhood to adult. Thus mathematics education is not concerned with curricula, classroom, teachers and learners in the school and schools, nevertheless, issues associated with school mathematics will be major focus. Hence mathematics education is the study of practice and method of both teaching and learning of mathematics.

In our country, textbooks are used as only major tools to achieve the objectives of the curriculum so that many teachers have misconception about textbook and curriculum. Because of the financial problem, rules and regulation, lack of proper training, lack of opportunity of facilities that are essential for teaching and learning activities but these are not available in substantial amount. Large numbers of students are packed in a small classroom. They have not got opportunity to take on a sit. For this complicated situation how they learn? Often the classroom is not well ventilated and not well physical facility. Also on the remote area's teacher have not have the essential material of the mathematics.

About the aspect of teaching Bhatia and Bhatia (1997) said 'Teaching is establishing a harmonies relationship between teacher, pupil and subject'. So that three dimension of teaching are pupil, teacher and subject, it is giving useful

information it is causing the child to learn. It is the stimulation and direct of learning.

It is helping for the child to make effective and easily adjustments, it is guiding for the pupil activity and it is training of his emotions.

About the modern mathematics classroom, Bhatia and Bhatia(1997) said that the teachers tool have long consisted of chalk, blackboard and textbook. However the emphasis today is to use demonstration model of various shapes and sizes, slide rules overhead projectors, drawing instruments, graph, stencils, measuring instruments, and pictures, pamphlets books and mathematical magazines, films, slides, manipulative kits, teaching machine and computation are being used in teaching mathematics in the modem classroom.

So, in our schools there are the students of different culture. Our classroom is the reflection of the societies. There are various problemsin teaching -learning mathematics in the culturally diverse classroom. Till we can not identify the problems of teachers to teach mathematics in teaching process it occurs many problems that are occurring frequently. For to identify the problems and to overcome the problems, I am motivated to study on “ ProblemsFaced by Mathematics Teachers: An Interpretive Inquiry”.

Statement of the Problem

Teaching mathematics meaningfully is very' difficult and challenging job. Mathematics teachers must be well trained and should have deep understanding in contents. But this only is not sufficient. There are different problems which arc to be overcome by mathematics teachers in general. There are very problems faced by mathematics teacher and the learner. Nepal is diversified country. To teach mathematics in a diversified in classroom meaningfully is very challenging task. On

the one hand, the mathematics classroom is full of students from different cultural, lingual, ethnic and intelligence groups. On the other hand, there is a lack of resource materials like textbooks and instructional materials. To overcome these issues many studies have been made but very few found to be valuable. This study concerned with the problem faced by secondary level mathematics teacher. So, this study intended to answer the following research questions.

- How are the problems faced by students in learning mathematics?
- How can overcome the problems that are faced by students in learning mathematics?

Objectives of the Study

The main objectives of this study were:

1. To explore the problems faced by students in learning mathematics.
2. To suggest the ways to overcome the problems that are faced by students in learning mathematics.

Significance of the Study

Mathematics has been taught as compulsory subject up to secondary level of school education program. It is the optional subject for the secondary level at present but it will be compulsory subject for this level. Even mathematics has been taught as compulsory subject there may be many factors that hinder student progress in this subject. One of the main factors of this reason may be problem of teacher in teaching mathematics. Problem is not limited on the problem it may arise because of confusion about subject matter, lack of physical infrastructure, teacher training, economically poor condition, rule of educational policy any how to make the pass policy, confusion

to find the difference between textbooks and curriculum, lack of special subject teacher. This study may provide some logical and valuable information about the Problems Faced by Students in Learning Mathematics: In Interpretive Inquiry. Thus, the study is significant for the reason that it helped to provide information for the concerned agencies to refer and improve the mathematics teacher at secondary level. The following will be the significance of this study

-) It helps untrained teacher as well as trained teacher to improve their skill of teaching mathematics.
-) It is helpful to curriculum planner, policy maker, administrator and educationalist to make further policies, rules and regulation.

Delimitation of the Study

The following are the delimitation of the study.

- This study is concerned only with pedagogical problems on secondary level mathematics teacher.
- This study was based on the sample of one school of Learning Zone Academy secondary level mathematics teacher of Kathmandu valley.
- The findings of this study based on qualitative design.

Operational Definition of the Related Terms

I have used number of terms with their specific meaning in my research. The terms I used in my research imply contextual meanings to clarify my perspectives.

Secondary school mathematics teachers: The teacher who teaches mathematics at grade IX and X are considered as secondary school mathematics teachers.

Problems: The difficulties or barriers/ challenges created by teachers in teaching mathematics in the classroom.

Interpretive: It refers to obtaining the information from different sources and the findings can be obtained from its triangulation process

Chapter- II

REVIEW OF THE RELATED LITERATURE

It is very important to review related literature to complete the study which provides strong knowledge about the related topic. The related literature shows the knowledge gap, information of already researched fields and direction for the current study. Numbers of books, research reports, paper and other booklets can be found that concerned with curriculum teaching materials, method and so on. It helps to construct the framework to achieve the objectives of this study. This chapter deals with the review of other related literature about facing problems challenges concerning with teaching instructions, method and materials, classroom management, teachers and student characteristics on teaching activities. I have reviewed some related literature are cited below. I reviewed the literature by categorizing the two types. They are empirical and theoretical review.

Empirical Review

Acharya (2011) conducted a mini research study on topic “A critical inquiry of culturally relevance of primary level school mathematics education in Nepal”. He raised the research questions: “Does the contents of primary level mathematics curricular material comprise the cultural group math?”, “How do the teachers use teaching strategies in the multi culture classroom?”, “What are the problems faced by teachers and students while teaching-learning mathematics?”. The main aim of the research was to examine the primary level mathematics education in Nepal from the perspective of cultural studies in mathematics education. The researcher used mixed research design. He concluded that the students have faced problem to learn mathematics because of the language. The students have faced problems due to colonized culture and develop mathematical anxiety. Centrally prepared curriculum

makes teacher as the implementer and moreover they are handicapped and invite problem. In the multicultural setting teachers do not have the knowledge of pedagogy which brings problem in teaching learning process of mathematics. It was found that politics invited favourism and hence political activities need to be stopped in the school. Due to the centrally prepared document, the curriculum of mathematics in Nepal is not inclusive, hence it bring the problems for teacher and students while teaching, learning mathematics in the classroom.

Khanal (2015) completed the Ph.D entitled “Learning Strategies of Mathematics Students”. His aim were to explore students’ learning strategies in mathematics, to analyze the differences in students’ learning strategies by gender, ability group, location and school types, to identify the most effective learning strategies for better achievement in mathematics, to examine classroom practices as learning strategy promotion activities, and to determine the factors contributing to the formation of learning strategies. He raised the research questions: what are the learning strategies of students in mathematics? what learning strategies do secondary level school students adopt most to solve mathematical problems? what difference is there between boys and girls students in their preferred learning strategies? How are classroom practices promoting learning strategies? He used mixed method research design to deal above’s research questions. The research tools were questionnaire, observation and open ended interview. He found that students created and used different learning strategies while learning mathematics like: peer learning, elaboration, help seeking, effort management, rehearsal, time and study management, organization, metacognition and critical thinking. The mismatches existed between teacher’s teaching strategies and students’ learning strategies. The effective teacher was an extremely good classroom manager. Effective teaching and learning could not

take a place in a poorly managed classroom. He also concluded that students attempt to memorize material by repeating over and over. Similarly, they even elaborate by summarizing and putting the materials in their own words. They are also involved in deeper processing through the use of various tactics such as note-taking, drawing diagrams, listing, developing concept map or organizing materials in some manner. Students even use critical thinking strategies to learn mathematics. Students do certain planning, summing and setting up goals as promoted by metacognition strategies. In addition, they performed to seek assistance from their peers, teachers and elders. Asking for help is a good strategy as it allows students to learn from others when s/he cannot deal with the problem alone. They learn in different ways like: by seeing and hearing, reflecting and acting, reasoning logically and intuitively, analyzing and visualizing steadily. The action of varied students produce varied strategies in learning. However, peer learning, elaboration, help seeking and effort management are the learning strategies mostly used by the mathematics students. Teachers' teaching strategies have a significant role in promoting learning strategies. Classroom practices play significant role in promoting students' learning strategies.

Acharya (2015) carried out the Ph. D on the topic, Relevance of Primary Level Mathematics Education in Nepal: A Cultural Perspective. He raised the research questions: To what extent are the existing primary school mathematics curricular materials students' cultures friendly? How are the pedagogy used by the teachers in multicultural classroom culturally relevant? What challenges/problems are faced by teachers and students while teaching- learning mathematics in the multi- cultural classroom? What vision do mathematics educators, mathematics teachers, educated cultural group people and curriculum planners have for making primary mathematics education culturally relevant? In dealing with research questions based on the above

themes, he used ethnographic methodology under interpretive paradigm to explore the multiple realities through the methods of observation, documents analysis, and in an interactive or dialectical manner. The data have been analyzed using a sequential process of transcribing, coding, categorizing, and themetizing. The phenomena have been visualized from multiple theoretical perspectives and the researcher's own reflections or insights. He found that contents of primary mathematics curriculum were related to the everyday problems of human life to some extent. However, these were not sufficient to solve practical problems related in various dimensions of daily life. Further, the existing pedagogical practices were less appropriate to address the multicultural classroom environment. There was a huge gap between the practice and the theory of culturally responsive teaching learning process. Moreover, the medium of instruction was found to be a key challenge in the multicultural classroom teaching- learning process. De/contextualization of mathematics teaching- learning activities, incompetent teachers in teaching mathematics in multicultural situation, mono-cultural pedagogies, and contents dominated by ideologies of western culture were found challenges of mathematics education. He also found that the application of fallibility approach rather than absolutistic one in teaching learning activities, mother tongue based primary education, incorporation of local mathematical knowledge in the curriculum; culture friendly pedagogy and continuous assessment system are the major approaches to make mathematics education culturally relevant in primary level. Likewise, teaching learning mathematics is to be linked with the culture of students, associating it with the real life situation, mitigating the existing dilemma of making culture unfriendly curriculum and promoting multiculturalism as well as culture friendly assessment is to be the other important aspects to make mathematics education culturally relevant.

Pandit (1999) mentioned on an article "Problem faced by mathematics on three years B.Ed level mathematics curriculum in Nepal". He concluded that mathematics teacher education program in Nepal is disturbed by so many factors such as lack of lectures involvement in curriculum planning, lack of efficiency to conduct teaching facilities, students weak background in the subject matter, lack of opportunity given to upgrade their knowledge and huge number of personal problem of lectures.

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

Chaulagain(2005) conducted his study entitled "A study of problem faced by secondary school mathematics teacher in teaching geometry" and made a conclusion that geometry teaching and learning in Kathmandu is not satisfactory-.

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

Ojha(2011) conducted a thesis entitled "A study on the problem faced by

mathematics teachers in teaching mathematics at secondary' level". He concluded that most of the problems were arisen because of large class size, irrelevancy of teachers guide book in the sense of teacher needs, lack of instructional materials, adequacy of teacher training, lack of supervisory help, lack of physical facility.

Rijal (2008) conducted a study on Difficulties in Learning Mathematics: A Case Study of Rana-Tharu Students in Kanchanpur District. This is a case study related to the difficulties and causes of difficulties in learning mathematics of Rana-Tharu students. The finding of this study shows that, there is a cultural difference and discontinuity at school and home. There is discontinuity in language, lack of interpersonal relation, no proper interaction between teacher and students. The home environment and school environment are not conducive for mathematics learning.

Akdemir (2009) made an article on the topic "Identifying Factor Affecting the Mathematics Achievement of Students for Better Instructional Design". This study was conducted to identify the factors affecting the mathematics achievement of students through collecting the opinions of mathematics department students. Results revealed that instructional strategies and methods, teacher competency in mathematics education, and motivation or concentration were three most influential factors. Here the writer taken junior and senior students in the mathematics department were compared in this study. Here the writers classified the affecting factor in three sectors: Demographic Factors: (gender, socio-economic status, and parents' educational level) Instructional Factor: (curriculum, instructional strategies and methods, teacher competency in mathematics education, school context and facilities) and Individual Factor: (self-directed learning, arithmetic ability, motivation or concentration, method).

Theoretical Review

There are so many theories which can be used to understand the problems in learning mathematics such as sociological theories, learning theories, cultural theories, everyday life theories and cultural difference and discontinuity theory, social constructivist theory and so on. So, for the analysis and interpretation of data I will be used different theories which are described briefly below.

Cultural Difference and Discontinuity Theory

Ogbu (2000) delineates about the cultural difference and cultural discontinuity theory. That deals with the problems in children's learning caused by the differences and discontinuity between the culture of home and school. Those children, whose home culture is much similar to the culture of school, can cope easily with the system that may result better learning achievement. Similarly, the children with unmatched or dissimilar home cultures with school cultures and those who do not have enough attention in their learning and do not get much recognition of their cultures and they have to work hard achieving learning outcomes compared to their children with good matched. He has identified the features of cultural differences mainly of three types of minority groups, they are: autonomous, voluntary and involuntary minorities.

According to Ogbu (2000), autonomous minorities are minorities in number, they do not have the problems of cultural differences and language since they have similar culture and language to the minority. Voluntary minorities are people who have migrated voluntarily expecting a better life, opportunity and more political freedom in any other society. They usually encounter the problems in the schools mainly due to cultural and language differences. Involuntary minorities are found as caste like minorities who were forcefully brought any other society against their will for slavery or forced labor in the time of colonization. He argues that the gap between the minority cultures and the mainstream culture does not favor schooling/learning of

minority children who are socially and culturally disadvantaged.

Ogbu (2000) has emphasized on two types of cultural differences, i.e. the primary cultural difference of voluntary minorities and the secondary cultural difference of involuntary (caste like) minorities. As his study suggests, “involuntary minorities face more problems in schools learning, participation and performance due to his gap between their cultures and mainstream culture”. For them, it is too difficult to cross cultural boundaries in schools compared to the voluntary minorities with the primary cultural differences. He further elaborated that primary cultural differences may create problems in interpersonal and inter-group. Among them, most important reason as children with different cultural backgrounds start schooling assuming different cultural world and human relations in school but they get a vast difference reality.

Constructivism

Constructivism is a theory of knowledge that argues humans generate knowledge and meaning from an interaction between their experiences and their ideas. During infancy, it was an interaction between human experiences and their reflexes or behavior-patterns.

Learning means the relatively permanent change in behavior, which occurs as a reinforced practice. It considers both physical and mental process. Behaviorist mentioned that learning is the interaction between human being and external environment. They take learning as stimulus response process. If response to the stimulus is reinforced or rewarded then a kind of habit is informed. The cognitivist mentions that learning is an innate capacity of human being.

Another kind of thought about learning derived that it occurs from social

interaction. These scholars believe that each and every child learns from society through social interaction with family and environment knowledge can be constructed through the active participation. This new thought is given by constructivism following the theories, actions, reflection and socialization.

Obviously people make their own meaning from their own beliefs, constructs new ideas from what they observe, listen and perceive. They do not always use the traditional method but use their own strategies to solve their problems on their own ideas. The child needs some mediators like parents or peers to uplift his/her knowledge that existed with him/her.

The constructivism theory is based on observation and scientific study about how people learn. People construct their own understanding and knowledge, through experiencing things and reflecting on those experiences. The learner is active creator of his/her knowledge. In general case, it usually means encouraging students to use active techniques (experiment problem solving) to create more knowledge and then to reflect and talk about where they are doing and had their understanding is changing. Students in the constructivist classroom ideally become “expert learner” by questioning themselves. This flues teacher helps student to construct knowledge by providing tools such as problem solving and inquiry based learning activities with which students formulate and test their ideas, drew conclusions and inferences, and pool and convey their knowledge in a collaborative learning environment. Constructivism transforms the students from a passive receipting of information to active participant in learning process. Constructivism categorizes students on its three axioms that are as follows.

- (i) Learners learn knowledge from their active participation.
- (ii) Learners gain knowledge while reflecting on their own action.
- (iii) Learners gain knowledge when they try to convey their solution to others.

From above axiom, Upadhyay (2001) took three terms action, reflection and scaffolding to describe broad aspects of constructivism, psychological aspects, philosophical aspect. Piaget stresses on the key word 'action' through which he advocates that knowledge is gained. He said that essential way of knowledge is not directly through our sense, but primarily through our action. Philosophical aspect of constructivism is also called radical constructivism, which is led by Glasserfeld who advocates that knowledge is personal, subjective and unique. And anthropology aspect is termed as social constructivism headed by Vygotsky, who states that knowledge is socially constructed.

Bernstein's Language Code Theory

Basil Bernstein made a significant contribution on the study of communication with its sociolinguistic theory of language codes. Within the broader category of language, codes are elaborated and restricted. The term code, as defined by Stephen Littlejohn (2002) "refers to a set of organizing principles behind the language employed by members of a social group" (p. 278). Littlejohn (2002) suggests that Bernstein's theory shows how the language people use in everyday conversation both reflects and shapes the assumptions of a certain social group. Furthermore, relationships established within the social group affect the way that group uses language, and the type of speech that is used. According to Bernstein (1971), "Forms of spoken language in the process of their learning initiate , generalize

and reinforce special types of relationship with the environment, and thus, create for the individual particular forms of significance” (p. 76). That is to say that the way language used within a particular societal class affects the way people assign significance and meaning to the things about which they are speaking. Littlejohn (2002) agrees and states, “people learn their place in the world by virtue of the language codes they employ” (p. 178). The code that a person uses indeed symbolizes their social identity (Bernstein, 1971).

Theory of Fear

John Holt (1964) in his book, *How Children Failed* expressed that children fail because of fear in schools. The tedium, confusion, fear, limitless hopes, and expectations of adults all contribute to failure. Fear is one strategy or ideas that schools and teachers have used for a long time to control, discipline, and motivate students. Fear destroys intelligence, and affects a child's whole way of looking at, thinking about, and dealing with life. A fearful mind cannot learn. Fear and failure are very closely linked. Schooling is about fears, and throughout their schooling children are taught to be afraid of failure. The fear of failure and subsequent experience of humiliation, insult, punishment, and scolding prompts children to refrain from working hard. Children then begin to perceive themselves as incompetent learners. Incompetence not only reduces what others expect and demand but also reduces what one expects from him or herself.

Holt concluded that the best thing was to help children overcome fear so that they came to believe that they had the ability to learn. He further suggests that the experience of failure is humiliating and it does not lead to more learning. Children should be subjected to honorable and constructive experience that inspires them to learn. Schools need to be organized in such a way that even children with learning

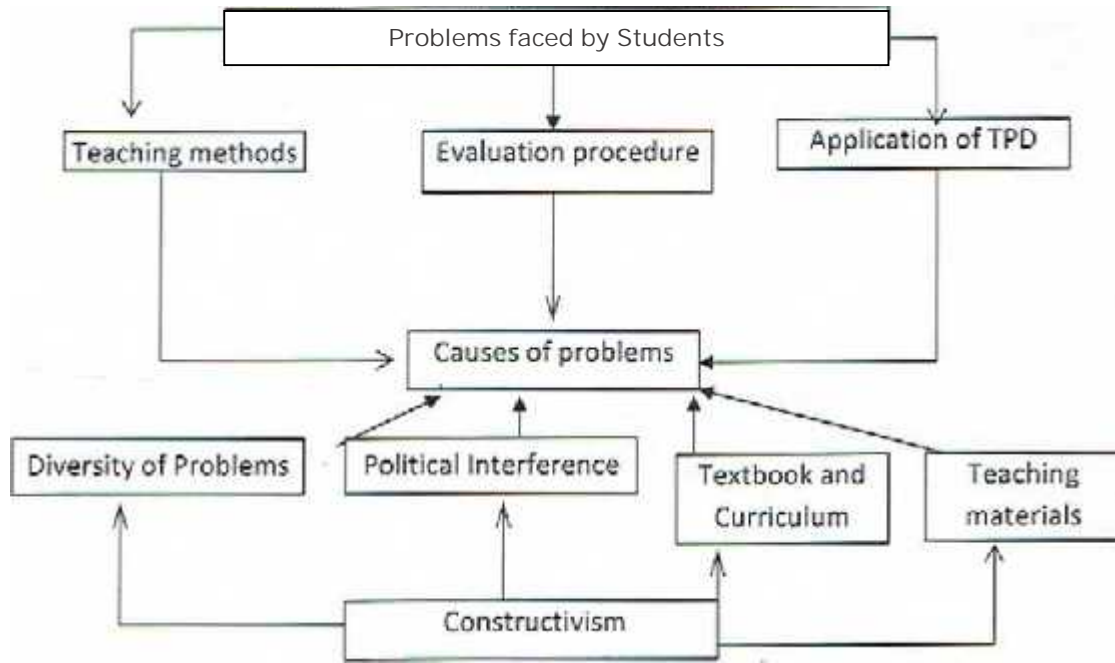
difficulties think that they have the ability to succeed and do extremely well. Holt is of the view that learning in schools is scrappy, irrelevant, distorted, and short lived and does not meet the real needs of children. School experiences are often boring, small, disused, and narrow and that there is limited opportunity to further expand their intelligence, capabilities, and talents. The reality they experience on a day -to -day basis is so different from the reality they are taught in schools that they find school learning meaningless.

Conclusion

As I know that very few researches have been carried out on the problems by mathematics teachers in learning mathematics in the qualitative paradigm. I studied many previous research works. They have not discussed in this area. I found the gap between the reviewed literature and my proposed title of study. Thus, to fulfill the gap, I would like to study on this topic. So, I believed the topics for the dissertation is suitable for carrying out a research.

Conceptual Framework

Conceptual framework is the pictorial representations of the relation existed between the variables (Kumar, 2007). The conceptual framework of my study is depicted by the following figure.



(Source: Kumar:2007)

This assesses and find out the different problem Problems Faced by Students in Learning Mathematics: In Interpretive Inquiry . I carried out different tools and instrument namely, they are interview and classroom observation of the teacherand Students. On the basis of these instruments, data was collected for reaching to draw finding and conclusion of the study. Moreover, the teachers problems is analyzed and interpreted with the theory of teaching as described previously. The theories which I used as of constructivist as shown above figure.

Chapter - III

METHODS AND PROCEDURES

This chapter deals with the procedure of the study, which is carried out to achieve the objectives of the study. The method applied in this study has been discussed in the following section such as research design, sample of the study, tools, data collection procedure, data analysis procedure.

Research Design

Research design is an important part of the research. So, it is taken as heart of the research. A good research depends upon design of the study. The design of this study was qualitative with case study approach. Qualitative researcher usually studies real-world situation. There is no manipulation and controlling of variable in the research. Denzin and Lincoln (2005) as cited in Acharya (2017) define qualitative research as multi-method in focus, involving an interpretative, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural setting, attempting to make sense of or interpret phenomena in terms of the meanings people bring them. It is a subjective types of research based on the phenomenology of the research on the specific topic.

Study Site

Learning Zone Academic school of Gangabu, Kathmandu was the study site of my study. The school is situated in Gangabu Naya Basti. The school was established in 2059-11-12.

Sample of the Study

This is qualitative inquiry. So, the sample size in this study is not fixed. Qualitative inquiry typically focus in depth relatively small samples, even single case (n=1) can be selected purposefully. So, the sample size of this inquiry depends upon

the researcher what s/he want to know, what is the purpose of inquiry, what can be the credibility of the study and what can be done with available time and resources. Number of students in class 9 was 23 students (13 girls & 10 boys). In Class 10 there were 21 students (10 boys & 11 girls). So, the respondents of this study were 6 students of grade 10, two mathematics teachers and one head teacher.

Sampling of the Study

It is the process of selection of sample from population. As one of the non-probability sampling i.e purposive sampling was used in this study.

Research Tools

Anything that becomes a means of collecting information for the study is called a research tool or research instrument (Gall, 2003). Constructing a research tool is the first practical step in carrying out the research process. A researcher needs to decide how he/she will collect the data then should construct a research instruments for this. Class observation guideline and interview schedule were the tools of my research. The brief description of the tools is described below:

Class Observation Form

Observation is used to capture the physical setting that is the physical environment of school and classroom, the human setting that is the organizations of students in the classroom and interaction setting that is the participation as well as interaction of teachers with students and vice versa. Observation guideline was developing with reference to research objectives. My role during the observation was non-participant observer noting down the things as it occurred and making notes of the things that notice. Observation helped me in collecting detail information about respondents in my study teacher, students, their everyday practices in the class and faced the problems in the period of learning time in the classroom.

Interview Guideline

Interview is a two-way interaction between researcher and researched as in the form of interviewer and interviewee in which interviewer creates situations that can attract the attention of respondents for a enough period of time in asking questions and answering the questions which interviewee puts his/her understanding and meaning (Wikipedia). Interviewer, asks a person being interview, the respondent and questions designed to obtain answers pertinent to the purpose of the research problem.

In this study all, the required information was not possible to gather through the observation. To go in-depth of the information interview is much more helpful. So, I had carried out open ended interview to clear his/her difficulty regarding teaching mathematics. I took the interview of all six students and one mathematics teacher based on problems faced by students in learning mathematics.

Data Collection Procedure

Going through the above process the information were gathered from students' view about problems in learning mathematics. I took with teacher views about child problems and observation, their daily activities in their school. In my study I included in-depth interview with those problematic children and teacher. From this I identified the real problems of student while learning mathematics. All the information that was collected through in-depth interview was recorded in the field note. First I went to the place where the school is situated and talked about my purpose. Then I observed the class, which was being conducted by class teacher on this way I continued for two weeks.

Finally, the required data was collected with the help of interview guideline and classroom observation form. For data collection process I visited each

the samples School along with interview guideline, class observation form and a request letter from T.U. and observed the class and took the interview of teachers.

I participated with students and teachers in the classroom every day. On the basis of observation form, then I observed Mathematics class of grade X and recorded the behavior in the classroom on this observation form. In this way the required data were collected systematic manner.

Data Analysis Procedure

The record of the interview of the students and teacher was transcribed properly. The records of the observation were also transcribed. Then I had set of data of observation, and interview. The collected information at first was categorized in different heading and sub-heading. Identify the real problems in the learning mathematics of students through in-depth interview with respondents and were categorized in different area. Influencing factors and school and home environment were identified through the teachers and parents viewpoint by the interview and discuss with the documents which are relevant. The data thus analyzed was interpreted by using the conceptual framework the researcher develop and matched with the theories which are describes in the literature review section. Finally, the information was collected by primary sources and analyzed and interpreted qualitatively by applying the information triangulate and linking different theories describe in literature review section.

Quality Standards

To maintain the standard of my research I used credibility, transferability, dependability and conformability.

Credibility

This concept replaces the idea of internal validity, by which researchers seek to establish confidence in the truth of their findings. To maintain credibility of the research the researcher tried to spend as much as time for observation and engaging with different people with their work(Acharya, 2017). So, I spend as much as time for observation and engaging with students.

Transferability

Transferability replaces the concept of external validity. This criterion refers to the applicability of findings in one context to other contexts or settings. To maintain transferability the researcher explained practices in the particular community briefly (Acharya, 2017).

Dependability

This concept replaces the idea of reliability. It refers to the stability or consistency of the inquiry processes used over time. So, I had presented the logic used for selecting and events to observe, interview and included in the study.

Conformability

A fourth standard is conformability, which refers to the quality of the results produced by an inquiry in terms of how well they are supported by informants (members) who are involved in the study and by events that are independent of the inquirer. This is sometimes referred to as audit trail (a record of how decisions were made throughout the study). To maintain conformability, before concluding information I reviewed these information myself several times and sometimes I conform those information to my participants before concluding information as well.

ANALYSIS AND INTERPRETATION

In order to explore the problems faced by students in mathematics' learning I did observation of the classroom discussed, met with teachers and children themselves in group and separately. The main focus of this study was to find problems of students in learning mathematics. In this section, the data obtained of the study are presented in terms of following topic/ heading. To achieve the objectives or to answer the research questions, I organized this chapter into two sections. Section-I, it deals the problems faced by students in learning mathematics and section-II explores the ways to overcome the problems of students in learning mathematics.

Section-I: Problems Faced by Students' in Learning Mathematics

In this section, I have articulated the information related to finding the answer of the first research question; ' How are the problems faced by students in learning mathematics? This information was collected through interview schedule and classroom observation guideline during field visits. I have interviewed with teachers students and got different views how the students have faced challenges. The field data were linked with different theories and literatures to analyze and interpret.

Lack of Teacher-Students Meaningful Interaction

Interaction is social activity. Interaction may be within persons or groups. Within person, interaction refers to the mental activity with his/her mind and soul. In this line my students participant (S₁) said that

“In the school teacher speaks in English medium teachers at the school are from Brahmin and Kshetry. They do not response me because I am poor in English. If mathematics teacher response other language it help to learn mathematics and could easily interact with him”

The above views of student indicate that there was language discontinuity in the mathematics classroom. Due to the mixed language used by students in the classroom. Teacher did not understand the mathematics problem raised other students efficiently. There were difficulties to interact with mathematics teacher and other students of mathematics classroom for Magar, Kami, Rai and Tamang students which were due to neglecting language. The above views also indicate that the mathematics teacher had been neglecting them was not proper interaction between students and other students as well as teacher in the actual classroom practices. Supporting this view Ogbu (2000) learning takes place through environment, Culture between students if students and home culture and school culture is same then it is better to learn mathematics otherwise it is difficult to learn.

After took the interview I observed the classroom observation in class 10 of Learning Zone Academic school of Gangabu. After taking consent with head teacher and subject teacher and I entered into the grade 9. Students greeted us we did the same. Thirty students out of forty were presented. A quick glance over their faces revealed me the multicultural classroom scenario which I had come across after skimming the names in the attendance register thoroughly in the office. They were from Indo – Aryan, Tibeto-



Brahman and Newari culture. From the managerial aspect, the class was well managed. I saw three students sitting in each pair of desks and benches.

I found that the black board had been replaced by the white board in the class. The classroom seemed to be comfortable for teaching learning activities. After writing the topic on the board, the teacher started his lesson by solving problems. The problem was related law of index:

During the teacher presentation, I found that the teacher used lecture and problem solving methods. Ethnic students did not pay attention; I tried to explore the causes behind it. The teacher scolded them, and told them to be quiet and to pay attention to her without bothering to find out the reason behind their apathy. For me, their indifference may be due to the difficulty in following the teacher's language, or due to the lack of culturally responsive teaching that the teacher was using. The teacher made no effort to teach the students by linking the textbook contents to their culture. With regard to the teaching methods, the teacher used similar teaching methods for both mainstream and marginalized groups of students without considering their ethnic identity. It is essential for a teacher to look into specific cultural contexts in which a learner is placed to make teaching learning effective. Considering the above observed teaching learning scenario of the mathematics class, the teacher seems to focus the principle of equality, neglecting the principle of equity. His focus is evidently on the product, rather than on the process of the learning. This is contrary to what Bruner (1992) says that knowledge is process not product. The teacher needs to be more democratic, constructivist and creative in applying methods to make their teaching more students' culture friendly. Teachers can create a lovely and friendly teaching environment only when their methods are culturally responsive in the multicultural classroom situation. On the whole, teachers were theoretically knowledgeable, but they did not practice in their day to day classroom activities.

According to Ogbu(2000), a culturally relevant pedagogy provides ways for students to maintain their cultural identity while succeeding academically. This means that a culturally relevant pedagogy is designed to fit school culture with students' culture to help them to understand themselves and their peers, develop and structure social interactions, and conceptualize mathematical knowledge.

Discrimination of Teacher

Good teachers focus to all students equally. No one discriminate to the caste and gender cognitive different. Thus, in the above line, I concern my respondent S₂

“In our classroom the teacher focuses the talents students always. If I asked some things he was humiliated saying pick names”.

So it indicated discrimination among students. Students never raised the question in return teacher also didn't paid attention towards their difficulties. In a common parlance teacher paid more attention to the bright students and discard paying attention to the weaker students and they are marginalized in the class as well.

In my observation, discrimination is not confined only with the girls indeed, majority of the students are marginalized. Similarly, teacher pays less attention, has less eye contact, and hardly forces them to work them out in the board. So these things always create barriers in the path of teaching and learning mathematics.

Constructivist believes in student's self-interest and self motivation. For this reason, teacher should give responsibilities to students, respect their answers and encourage them to justify their reasons. Teacher should encourage students to keep trying "quitters never win and winner never quit". Thus, teacher should encourage the students that men learn through mistake (Upadhyaya, 2001).

After interview I observed the classroom by the help of observation guideline. The observed class was grade 10 students in my sample school. I observed mutually how the teacher teaches and students learns in this situation what types of difficulties faced by students in the classroom learning. In that day the teacher thought the lesson profit and loss of grade 9 students. In the classroom the teacher did the following activities:

In 10.15 the teacher enter the grade 9, all students stood up and said good morning sir and the teacher replied good morning class and sit down. He wrote the topic in the white board. The teacher motivated the students to learn mathematics. The teacher gave some examples related to the topic ratio and proportion. After that the teacher summarized the lesson and at last the teacher evaluate the students achievement.



From the above classroom observation I concluded that his teaching strategies was more focus on talent students. The opening of the class was good and makes the students attention to learn. He has the good command on subject matter and sequential presentation. The teacher focus on talent students in front side students that's why we can say that teacher was discriminate the students

Low Socio-economic Condition of Students

Having low economic condition of parents can't provide necessary materials to their children. So, in this line my participant S₃ opinion as follows:

“As the low income of my parent I cannot take tuition and extra class and cannot buy sufficient materials to learn.

The students do not bring practice books and other necessary materials in mathematics class. So, they have low achieved” (Mathematics teacher of respondent- T₁).

“I have to do lots of work in my home. Even after returning from the school I have to do some household works. I have no money to buy books and other practice text. I want a separate group to discuss mathematics problems in my class” (Student responds₃).

The perceptual views of the above line made me to say low economic condition occurs the problems in learning mathematics.

Undoubtedly, I claimed that from my classroom observation at school most of the students are from the high economic status but, some student found difficulties in adjusting and sharing a co-operation with teacher and students at school. Because of poverty, they have to do hard at home. Respondents did not give the sufficient time for the mathematics learning at home but mathematics need more practice than other subject.

The theory of cultural differences and discontinuity emphasizes that, those children, whose home culture and socio-economic condition are much more similar to the cultural of educational system that may result better learning achievement.

Similarly, children with socio-economy with school they don't have enough attention

in their learning and do not get much recognition of their culture and they have to do hard achieving learning outcomes compares to the children with good matched. It was found that the culture home and school were unmatched.

They are laborites; their parents had difficulty in materials which is also the cause of incompleteness of homework. They didn't get sufficient time at home. They had to work household work and other. On average, children from disadvantaged low-income families perform substantially worse in mathematics than their counterparts from higher income families. Poor children are 1.5 times more likely to have a learning disability and two times more likely to repeat a grade and eventually drop out of high school than are their non-poor counterparts.

Less Motivational

Motivation directs controls and clarifies the human behavior. Some students seem naturally enthusiastic about learning, but many need or expect their teachers to inspire, challenge, and stimulate them. Erickson (1978) argues that Effective learning in the classroom depends on the teacher's ability ... to maintain the interest that brought students to the course in the first place.

In regard to motivation, my teacher participant (T₁) said that,

"I do not have any fixed daily plan for motivation, sometime I asked formula, explain the important points why this is to learn, providing some reward also rather than criticizing the unwanted behavior or answer, reward correct behavior and answers. They did not plan any fixed rule for providing the motivation, they motivated their students randomly."

Since motivation factors for students are crucial to their learning, teachers should channel students' attitude and interest in subjects, conducive to learning. Teachers

need to support and enhance students' motivational orientation how they feel about a subject and their confidence to do well in a subject and beliefs that what they learn is worth learning. Teachers need to make students understand the purpose of the lesson and value what they learnt. The teachers' main task is to motivate students to become involved in the learning activity. In other words, instruction aims to enhance the interest first and then to develop the skills. Social constructivist teachers create a classroom culture to support the students' intrinsic motivation. They provide ample opportunities for social interaction and self expression. They also make their students develop a sense of their active roles as producers not only consumers of knowledge. Interviews with the students show that they motivated hardly towards learning mathematics in the classroom because of various factors of cultural imbalance between and teachers and students. On the other hand, teachers also did not show any painstaking activities in order to motivate such students towards learning mathematics.

Mathematics Anxiety

Mathematics anxiety as a feeling of tension and anxiety that interfere with the manipulation of numbers and the solving of mathematical problems in a wide variety of ordinary life and academic situations math anxiety can cause one to forget and lose one's self-confidence (Tobias, 1993; as cited in Curtain-Phillips, 2015). People who feel tension, apprehension and fear of situations involving math are said to have math anxiety. And, perhaps not surprisingly, math anxiety is associated with poor math performance in school. Students with a high degree of math anxiety perform worse in math from elementary school through college, relative to their less math anxious counterparts (Beilock & Willingham, 2014).

In the data collection period, I observed the class and taken interview to the students. While taking interview I asked a question, *why do you feel math difficult?* In this question student (S₃) answered that,

“Mathematics is very difficult for me but why I don’t know. I am not good in mathematics, geometry is very difficult for me, I feel bored to proof theorem, so I cannot do this truly. My mother is uneducated, my father is far from wefor his job. So, there is no one to help me in my home while I am reading mathematics. I donot ask some question to the teacher because when I ask question, teacher also told me say yourself. I am feeling fear with mathematics teacher”.

In same question, S₄ replied that,

“Mathematics is not too hard for me but I feel it is more difficult subject. All friends are weak in math as well as me, because we do not give more attention in classroom. I had listened that math is very difficult subject in higher level, so I do not want to study math in higher level. Our madam always teaches by using lecture method so, I do not understand clearly. I feel difficult in geometry more than other parts because there are more rules”.

From this answer, we can say that more students are feel mathematics as difficult subject. Most of the students at school level are weak in mathematics. There are many reasons to be creating this situation. Traditional teaching learning methods is one of the main causes for this. Most of the teachers use lecture method in teaching mathematics, which is not relevant for students. Students learn best when they are active rather than passive learners.

In this regards, Furner & Duffy, (2002); as cited in Smith, (2004) state that, Math anxiety is caused by poor test grades, inability/unwillingness to complete difficult assignments, negative predispositions of parents, and even that mathematics teacher. Teachers and parents that are afraid of mathematics pass that on to their students and children. It could be very difficult for students to like mathematics when their parents did not do well in mathematics themselves, and thus do not understand it or do not think it is important. Students could see their parents as having a job and doing well without a great love for mathematics as well. If the teacher does not value mathematics, his/her students certainly cannot be expected to value mathematics either. Another major source of math anxiety is the teaching approach of “explain-practice-memorize”(Steele & Alfred, 1998; as cited in Smith, 2004). The mathematics teacher needs to be creative in his/her teaching methods, so students do not lose interest. Further more, Bourdieu (1977), argue that the main reason for under achievement of working class children are the education systems because it reproduced the culture of dominates class, which is based. This is way the children from the working class and the income poor do not understand more and learns specific skills. Ogbu (2000), also argue that the children with unmatched and dissimilar home cultures with school cultures do not have enough attention their learning and do not get much recognition of their cultures and they have to work achieving learning outcomes compared to the children with good matched.

After taking the interview I observed the class 9 students in classroom learning how they feel the problems to learn mathematics. I entered the class with subject teacher. Subject teacher started to teach Trigonometry chapter and I started to observe



how he taught the students in the class. There were only 17 students where 10 students were boys and 7 were girls. The teacher and students activities in the class were observed as follows:

Teacher directly presented the subject matter without giving the concept and previous related rule. He solved problem with out understanding through drill and practics. After that teacher asked one question to the Srijana, "come and solve this problem in white board" then Srijana try to answer the question on board. But she cannot solved because she was afraid when going in front of all classmate. After then he return back and took her seatt and next girl came to solve that problem on board. Again She was also very nervous and only three step done and return back on sit. Nabin had solved that problem on his copy but when he started to write on board, she was nervous and fearing. He forget formula and solving process. Then Nabin said, "Sir I forget solving process and formula". After then sir said, "Sit on your bench and look at your copy, how you solve before"? Nabin feels shy and little bit smiley. Again teacher told to other students to solve that problem on board, but nobody be ready to go infront and solved.

After that classroom observation, I conclude that lack of self confident and drill and practice without understanding also the cause of anxiety. In this regards Greenwood (1984) stated that the principle cause of mathematics anxiety has been in teaching methodologies. He said that mathematics classes did not encourages reasoning and understanding. Teachers can create anxiety by placing too much emphasis on memorizing formula learning mathematics through drill and practice, applying rote memorized rules and setting out our work in the traditional way.

Lack of Proper Knowledge to Address the Students Diversity

I have some bitter experiences about inclusive classroom and child-friendly environment within the classroom. On the one hand students come into classroom with different capability and background; on the other hand our community expects same result from all learners. Is it possible to develop equally our learners where as we have different kinds of learner? There are three types of learner; talented, average and weak but I think every learner is different from each other and they have their own styles and speeds of learning. They need different kinds of learning opportunities. Can our schools provide equal opportunities for all learners? Question again arises. My participant H₁ said,

“Nepal is multi-cultural, multi-ethnic and multi-lingual country. School is accepted as a true representative agent of society. Different kinds of learners with their own unique character come to school to study. If we cannot address their individual differences, our teaching-learning activities become ineffective and meaningless effort. Keeping this reality in mind, I try to address different kinds of learners according to their need in classroom. When we talk about inclusiveness from instructional perspective or pedagogical perspective, we should understand that it tries to provide educational opportunities without any discrimination. Inclusiveness in education means education should be provided for all Dalits, girls, back ward class, all ethnic groups and those caste and class who need special support from the nation. But it is challenges task and face challenges by teacher”.

Having interviewed of head teacher I found that he has also developed theoretical knowledge about inclusive education and use of instructional materials. But his classroom practice was different.

When I observed his classroom activities, I found that he was teaching in a very ineffective and standard way. His perception encouraged me to observe his classroom instruction but there were no any new activities and strategies to address inclusiveness. Very few materials such as textbook, chalk-board were being used. Extra supports and special teaching strategies were limited. There was a big gap between his perception and its implementation in classroom instruction.

Undoubtedly, I can claim that inclusive classroom practices are guided by several internal and external factors. Mainly it is guided by school environment and societal beliefs as well. Likewise, within the classroom more learning opportunities are needed for disadvantaged groups. Here, I argue that particular instruction method and ways of teaching learning activities might be useful for particular learner but not for all. Are teachers providing equal opportunities for all learners within the classroom according to their need and capability?

Principally, inclusiveness always advocates that every student should get equal learning opportunities. It also emphasizes that sufficient learning opportunities should be provided who need to more support from other to learn. But classroom instruction seems to be far from child-friendly environment and learner centered activities.

Then after I observed the class 10 to identify the challenged faced by students in learning mathematics. My classroom observation was in grade 9. In that



class also, there were 14 pairs of desks and benches arranged in two rows with 7 pairs in each row. The total numbers of students were 68 with mixed culture group. There were more Tamangs and Lamas students in the class. Students with other castes were also presented there which made the class a multi-cultural setting. Teacher entered the classroom and students greeted good morning sir.

Teacher replied good morning class and sit down then after to take our the home assignment which he had given them to complete the previous day but one student stood up and said that he had done a little and said that he felt difficult to do others because he didn't knew how to do them, and requested to do those exercise for them. Teacher solved all the remaining exercise which was quite difficult for the students. Teacher focused on the problem solving rather giving the lecture method. Students and teacher followed discussion method of teaching in that class to solve the problems. Teacher was quite friendly and students also acted as same. But some students were doing unnecessary things in the class and engaged in their own work rather than studying and understanding the problems. And teacher also didn't care for them. This indicated that teacher only cared for those who are interested to learn not to those students who are not paying attention in study.

Section- II: Overcomes the Problems

In this section, I have articulated the information related to finding the answer of the second research question; ' How can overcome the problems that are faced by students in learning mathematics? This information was collected through interview schedule, during field visits. I have interviewed with teachers headteacher and got different views how the challenges were overcome. The field data were linked with different theories and literatures to analyze and interpret. On the basis of the above causes of difficulties of students in learning mathematics through the observation,

interview with the key respondents, mathematics teacher and head teacher

overcome of these problems are as follow:

Ensuring Child Friendly Environment in the Classroom Teaching

To get better achievement in mathematics learning an environment plays vital role. So, at school and home if we cannot maintain child friendly environment learning cannot make effective and practicable.

Through the interview with my teacher's response T₁ his view about the environment is in the following lines:

“Environment is a most important indicator in learning process. So, we have to maintain properly home and school environment to be child friendly where they can read, write, learn, discuss to each other, share their difficulties and ideas to each other. Home environment can support their learning so, parents have to make child friendly environment at home” (Teacher T₁).

“A good environment can bring more effective knowledge so, we need child friendly environment in home and school. Child friendly environment helps us to create new ideas and to think new knowledge which is more important to do mathematics practice” (Respondent- T₂).

Reflecting on and analyzing through the above perception I came to know that child friendly environment is a way to overcome of the Difficulties of students in learning mathematics.

In the topic of improving quality of education in Nepal, national review report (2001-2015) Education for all noticed that ensure child friendly environment that is sensitive and supportive to children from different backgrounds.

Applying Equality and Equity Pedagogy in the Classroom Teaching

Education for all emphasizes that there is no any boundary to read and write everybody has that his/her own right. So, being all students or boys / girls ethnics students nobody can-not discrimination. They can read and write easily as others caste people.

The perception of Teacher (T₁) is given in the following lines:

“We need love from ourselves and different caste people to community. We want respect as equal to different caste people at school and in our society”.

From the view of my teacher respond we can claim that by acculturation and enculturation the students can learn better. When analyzing through the above views I understood that overcomes the difficulties of students in learning mathematics is addressing social equality and gender parity. It is a method to make social justice in the society. As well as school members, teachers and students have to follow it to maintain social equality and gender parity.

Constitution of Nepal, right relating to education has included that every citizen shall have the right to get compulsory and free education up to the basic level and free education up to the secondary level from the State. Also right against untouchability and discrimination, in our Constitution it has included that no person shall be subjected to any form of untouchability or discrimination in any private and public places on grounds of his or her origin, caste, tribe, community, profession, occupation or physical condition.

Linking Teaching Pedagogy with Students Daily Life

When I observed the mathematics classes, mathematics teachers were not linking different kinds of artifacts in the teaching process. Teachers do not want

interlink their home made materials. For example from a home- made hat as mathematics teacher can teach concept of centre of circle, concentric circles, hemisphere etc. So, undoubtedly we can say that mathematics creates culture and culture creates mathematics.

In my class-observation of class 9 I found that:

“Mathematics teacher has not use homemade materials and local materials which help the students to know mathematics and they can solve mathematics by interlinking with their daily life. But the teacher is practiced the students to get better marks unless understanding” (Class-observation)

“We need to understand how to make Doko, Nanglo, Chhatri (hat), Halo, Namlo in our education system so, if we can linked our teaching pedagogy with these our homemade materials then mathematics helps our lifelong learning”(Teacher T₁).

Supporting this view, I came to know that linking teaching pedagogy with student's daily life is over-comes of difficulties of students in learning mathematics. Through the class observation I suggested that being as mathematics teacher we need to practice in our teaching linking with students' daily life.

Parental Involvement

Hearing and caring is most important thing in learning process. Learning process depends interlink with students, teachers and parents to each other. Parental involvement plays vital role in their children education.

The Head Teacher H₁ of the participant is said that:

“Our parents do not want to visit our school. They do not ask any question about our study. If our parents take interest of our reading and writing it is better for us, which help us in our Mathematics learning”.

“It is better for us, when their parents take responsibility of their children education. We need their proper involvement in their children education. Parents have important role to change their children. They are also teachers for their children”(Head teacher of respondent).

Reflecting and analyzing through the above perceptual views I came to know that parental involvement is a most important to bring new change and establish the learning knowledge of their children. Supporting this view Kandel (2015) agree that parents also should be careful about their children’s learning ability and parents frequently should take information from school and if there are any problems to their children regarding their learning, they should guided at home and motivates them. Khanal (2015) concluded that it is necessary to have parents’ participant and help the students to use some strategies to address poor performance in mathematics.

Providing Guidance and Motivation

Guidance helps to solve the difficulties of mathematics and motivation helps to achieve success in mathematics learning. Motivation will remove the mathematical anxiety which plays a vital role in the learning mathematics; it increases the willing power of learners.

About this line my participants said that:

“We need help from our senior educator person at home like as from elder sister, brother and parents to solve mathematical problems. And teachers

also have to help us individually and motivate us to solve mathematical problems in classroom. In the confusion of mathematics problems we need help and guideline from our teacher and friends at home from the senior”(Respondents).

“Guidance and motivation are the ways forward for the difficulties of students in learning mathematics. So they need guidance from teachers as well as from their parents. To increase the achievement in mathematics learning we have to motivate them by organizing motivation programs”(Head teacher of respondent-H₁).

From the above views I claimed that guidance and motivation is a way to increase the achievement of mathematics. So, to deduce the difficulties of students in learning mathematics proper guidance and motivation is needed.

Motivation of both teachers and students towards learning plays vital role for better achievement. So as to motivate the students in learning the teacher should be familiar and curious in the aim and objectives of the class teaching. Students can be motivated through appropriate feedback. Informative feedback should be provided to the students during checking assignments, class works and distributing students’ progress report for betterment of their performance(Acharya, 2017).Khanal (2015) concluded that to enhance the personal confidence, guiding the students to find the effective learning skills and corrected the negative attitude.

Involving Group Discussion

In our traditional practices most of the students are study in alone in learning mathematics. So to enhance the achievement of students in learning mathematics, we can involve the students in group discussion.

The views for the heading of the participants are as follows:

“Children are shy in nature. They can’t express their difficulties of mathematics with teachers and friends. So, to children need to proper involvement in group discussion and enhance the relation with other caste children in the classroom. Then, they will be open to share them difficulties with teachers and friends”(Teacher T₁).

“The students need to involve in group discussion while teaching mathematics. They will get better understanding from their friends than their teachers because they are afraid to ask with teacher directly. They have to cooperate with other by involving inter-relationship programs”(Mathematics teacher T₂).

By supporting these views I concluded that group discussion is a good method to solve mathematical problems of students. To enhance the relation with other students and teachers inter-relationship is better method to learn mathematics, it helps them in cooperative learning in mathematics classes. In this line, Acharya (2017) agrees that students can learn more effectively if teacher makes group and gives group tasks in collaboration focusing for different cognitive group students.

Chapter- V

FINDINGS, CONCLUSIONS AND IMPLICATIONS

This chapter includes the findings, conclusions and implications of the study. Whole research is conducted to as reflected in the above chapter, analysis and interpretation of data which to explore the problems faced by students in learning mathematics and to suggests the overcome the problems that are faced by students in learning mathematics. The following were the findings of the study:

Findings Related to Problems Faced by Students in Learning Mathematics

-) Lack of teacher-students meaningful interaction
-) Discrimination of teacher
-) *Low socio-economic condition of students*
-) Less motivational
-) Feeling mathematics anxiety
-) Lack of proper knowledge to address the students diversity

Similarly, on the basis of the above problems faced by of students in learning mathematics through the observation, interview with the key respondents, overcome of these problems are as follow:

-) Ensuring child friendly environment in the classroom teaching
-) Applying equality and equity pedagogy in the classroom teaching
-) Linking teaching pedagogy with students daily life
-) Parental involvement
-) Providing guidance and motivation
-) Involving group discussion

Conclusions

From the above findings I came up with the conclusions that lack of teacher-students meaningful interaction, discrimination of teacher, low socio-economic condition of students, less motivational, and feeling mathematics anxiety so that problems can be reduced by applying the strategies of Ensuring child friendly environment in the classroom teaching, applying equality and equity pedagogy in the classroom teaching, linking teaching pedagogy with students daily life, Parental involvement, providing guidance and motivation, involving group discussion so the mathematics learning of students become enjoyable can be learned mathematics meaningfully.

Implications

Every research has implications in different sectors. This research has educational implications, which are as follows;

-) This research concentrates to ways forward the difficulties in learning mathematics. So that it is helpful for mathematics teacher, textbook writer and curriculum planner to develop their professional field.
-) It is helpful for every teacher to understand the difficulty in learning mathematics so it is helpful to minimize it.
-) It is helpful for teachers, students, researchers, institutions, educationist, and policy makers.
-) It is helpful to enhance co-operative teaching-learning mathematics in culturally diverse classroom.

-) This research will help in the study about the causes faced by students of other levels as well.
-) The teacher preparation about effective pedagogy can be another alternative for improving situation in understanding the language of the children. This inquiry will help to improve our mathematical pedagogy and solve the problems in teaching learning mathematics.
-) It should recognized their children causes of difficulties in learning mathematics,
-) The mathematics teacher should recognized student's behavior, interest and their difficulties in learning mathematics,
-) Government and non-government institution should provided their basic need to maintain their life easily,
-) It may be help to change the life style of people who are lived in poor economic condition,
-) It may be help me further study of different ethnic group students.

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Appendix – A

Classroom Observation Guideline

-) Classroom Structure
-) Size of Classroom
-) Classroom Environment
-) Teacher's space

Teacher's activities in Classroom

-) Regularity and Punctuality
-) Classroom Entrance
-) Revision of course
-) Language
-) Motivation
-) Use of re-enforcement
-) Encourage to students
-) Classroom pedagogy
-) Interaction with students
-) Class work
-) Providing extraclass for weak students

Student's activities in Classroom

-) Greeting to the teachers
-) Following direction of teachers
-) Completion of class work on time
-) Participation in Classroom discuss
-) Conversation with teachers
-) Unnecessary talks within students

-) Students co-operation
-) Sharing problem in classrooms with students
-) Sharing problem in classrooms with teachers
-) Interaction between teachers and students

Appendix – B

Interview Guideline for Teachers

Name of the School:

Name of the teacher:

Age:

Sex:

Teaching Year:

Education:

Caste/ ethnicity:

Address:

1. Problems related to teaching mathematics.
2. Problems related to concept formation of mathematics subject.
3. Problems related to deliver the subject matter to the students.
4. Problems related to contextualization or contextualize knowledge system
5. Problems related to student participation.

Appendix – C

Interview Guideline for Students

Name of the student:

Age:

Sex:

Class:

Position in class:

Caste/ ethnicity:

Address:

The interview for students can be taken on the following main topics.

-) Problems related to Classroom language
-) Problems related to learn mathematics for cultural diversity classroom.
-) Ways to teacher-students interaction
-) Discrimination of teacher
-) *Socio-economic condition of students*
-) Ways to motivational
-) Feeling mathematics anxiety
-) Lack of proper knowledge to address the students diversity

Appendix – D

Interview Guideline For Head Teachers

Name:

School:

Sex:

Experience:

-) Classroom environment in the classroom teaching
-) Equality and equity pedagogy in the mathematics classroom
-) Teaching pedagogy
-) Parental involvement
-) Guidance and motivation
-) Ways to Involving group discussion