

Chapter I

INTRODUCTION

Background of the Study

The knowledge of mathematics is an essential tool in our society (Baroody, 1987). Mathematics directly deals with human life. Mathematics, in initial stage it was created to fulfill human needs. In Nepal, Mathematics is a compulsory subject in school education. Nepal is multi-lingual, multi-ethnic and multi-cultural country with huge diversity as its unique identity.

Mathematics plays an important role for the development of science and technology as well as every human discipline. It helps people to understand and interpret very important quantitative and qualitative aspects of living and natural phenomena. In this modern age, understanding and interpreting every discipline, the stage of mathematics is essential. The importance of mathematics was related from primitive age people not only in modern age. The mathematics has been utilized to solve the difficulties arisen by natural calamities, political purpose, economic planning and other social events. In the ancient period, most of the mathematical structures, rules, formulae etc. were the outcomes of the empirical mathematics. But now, the empirical (practical) mathematics has been developed into abstract mathematics theory. "Oriental literature reveals that mathematics was originated from practical experiences (Eves, 1982: p. 22). Without having the knowledge of mathematics now, it is very difficult to understand other disciplines such as chemistry, physics, social sciences, economics etc. Thus, mathematics is intimately involved in every movement of every one's life and every discipline of human civilization. It is accepted as the heritage of human civilization.

The Central Bureau of Statistics has identified 126 caste and ethnic group in Nepal, 12.18% of whole population as Dalit (CBS, 2011). Basic level is foundation of mathematics, it's create premise for upcoming days. Dalit is generally known for poor and uneducated background people. Dalit students are identified as having specific learning difficulties especially in mathematical difficulty but there is a divergence of views about causes and identification. The affluent high caste the same word Karma now imply socially and religiously unacceptable actions translates into fat echoing poverty, negativity, passivity and eventually untouchability” (Koirala, 1996). Also, Dalit girls faced many problem during basic level school period. Dalit girls they suffer from triple discrimination as oppressed by the so-called high caste people which equally affects both male and female Dalit, oppressed by the design of the Hindu patriarchal system and oppressed by Dalit males. So, their learning abilities is poor and achievement is lower in mathematics (Sob D, 2005).

Statement of the Problem

Mathematics is essential for all human being but the learning situation would be different. This study is concerned with the study of difficulties in mathematics at basic level of Dalit girl students. So, it is appropriate to discuss about the learning difficulties faced by Dalit girl students to improve in learning mathematics. For learning mathematics, there was affected by various factors like home, school environment, physical facilities, attitude towards mathematics, classroom interaction, and discrimination faced by girls as well as being Dalit communities.

The educational status is one the major factors that determine the quality of life. The overall educational status of Dalit in Nepal is very lower than other communities in Nepal. Only about 11.8 percent of Dalit (lowest caste in Nepal) women are in secondary school. This indicates that education is both an issue of

gender and class division (Brogen project, 2018). As Dalit girls, they faced more difficulties than others such as they are coming from poor economic background so they couldn't buy all mathematical material, they feel discrimination in class as a girl and Dalit. Dalit are socially, economically, politically and culturally disadvantaged caste group. They have been low social condition with accepting the caste base discrimination and gender discrimination. Dalit girl's education condition were weak. So, the researcher intended to study causes of difficulties of Dalit girl students in learning mathematics.

Research Question

The problems were based upon the solution related to the following questions:

-) What are the difficulties faced by Dalit girls students in learning mathematics at basic level?
-) How to minimize the difficulties faced by Dalit girl students in learning mathematics at basic level?

Objectives of the Study

The main objectives of this study are as follows:

-) To find the causes of difficulties faced by Dalit girl students in learning mathematics at basic level.
-) To explore the mathematics learning environment of Dalit girl students at home and school.
-) To identify the causes of difficulties faced by Dalit girl students in learning mathematics.

Significance of the Study

Mathematics plays an important role in our everyday life for this reason the national Education System plan (1971) has emphasized in making the mathematics

teaching life oriented and practical. Mathematics is taught as an essential and important component of basic level curriculum and also foundation for secondary and graduation. Although, mathematics has been given an important place in the curriculum, it is believed that most of the students are weak, dislike and suffered by mathematics anxiety.

The study mainly concerns with the difficulties in learning mathematics faced by Dalit girl students. Most of Dalit girls' students are poor in mathematics and take mathematics as difficult, abstract and boring subject. Thus the purpose of the present study is to identify the causes of Dalit girl student's difficulties in mathematics learning at basic level. Following are the significance of the study:

-) This study would help teachers, educators, local activist, curriculum planner, and related agencies to improve in learning mathematics.
-) It provides the appropriate information about difficulty in learning mathematics.
-) This study would help further research in the areas of difficulties in learning mathematics faced by Dalit girl students.
-) This study would be helpful for students to be aware of the main problems of the mathematics to adopt required strategies for the reduce difficulties

Delimitation of the Study

Each study is not rigorous, perfect and free from limitation. Since I am from Bharatpur, Chitwan, so research is doing here. All studies have some short of delimitation, which is pointed as below:

-) The study was delimited in Chitwan district, Bharatpur metropolitan city only.
-) This study was conducted to only government school.
-) This study was included the Dalit girls students of grade VIII only.

) This study was based on one basic level school of Chitwan district.

) The study was conducted only for the subject of mathematics.

Definition of Related Terms

Difficulties: In this study, difficulty means those students who are unable to understand the mathematical concept.

Dalit: According to Nepali dictionary, “Caste or group of people who are unable to get equal rights prestige, proud in the society, exploited and disadvantage caste or group of people due to unequal social system. Person or group of people who are socially, economically, culturally and politically disadvantaged (i.e. Pani nachalne jaat) is known as Dalit. Here, the term Dalit refers to the students who are religiously, culturally, socially, economically and historically oppressed, excluded and treated as untouchable communities who have to face discrimination in different forms whether be it in school or society.

Learning Difficulties: Learning difficulties is obstruction of learning of situation in which as students feels difficulty. In this study, the Dalit girl students' obstacles consider as learning difficulties in mathematics at home and school environment.

Government School: In this study, government school means which is fully funded by the government of Nepal.

Students: In this study, the term students stands for those Dalit girls students who were studying in grade VIII of Bhanu Secondary School, Pahiotar, Chitwan.

Parents: In this study, the 'parents' means father, mother, brother, sister and other guardians of Dalit girl students studying in Shree Bhanu Ma.Vi., Pahirolotar, Chitwan.

Basic level: In this study, Class I to VIII in the school system of Nepal is consider as basic level.

Causes: Causes mean those problem, which affect mathematics learning of Dalit girl students.

Chapter II

REVIEW OF RELATED LITERATURES

In this section, I describe the literature to related to this are classified two types Empirical and theoretical. A literature review is an important source of the further research study. It helps to researcher better perspective and essential for guidance for the research plan. I have reviewed some kinds of literature, which are related to my study.

Empirical Review

A brief summary of previous researches and writing of recognized experts provide evidence that the researcher is familiar with what is already known and with what is still unknown and untested. The review of related literature should conclude with the summary of area agreement and disagreement in findings.

Adhikari (2000) concluded a research on "A comparative study of achievement in mathematics of primary level students related to parents income" by using purposive sampling method. His study was based on qualitative nature. For this research, researcher selected 10 students from each comparative study by taking interview schedule and observation form. The finding of this study showed that the achievement of middle group was not found significantly higher than that of low-income group. He found that mathematics achievement of student was affected by their parent's income.

Pant (2002) has conducted her study on the topic, "A study of achievement and participation of female in bachelor level mathematics education." The main objective of the study were to compare the mathematics achievement of male and female students in B.Ed. level and to find out the factor affecting participation of female in mathematics learning in B.Ed. level. For the data collection, the researcher

developed a form of table and set of questionnaire. For the collection of data, the researcher visited sampled campuses which by random sampling. The conclusions of the study were: There is no difference in mathematical achievement in higher education by gender sex. Social factor such as discrimination behavior, economic condition, lack of time for hard labor are responsible for making lower participation of female in the study of mathematics.

Luitel (2005) did a study on "A study of learning difficulties area in mathematics of grade VIII for deaf students." The objective of the study was to identify the difficulty in arithmetic and to locate areas as to relate them to their cases. The students were chosen sample random process; observation and interview were used to identify the learning difficulties in mathematics. The study concluded that deaf student had the fundamental knowledge of mathematics but in academic course they were feeling difficulties in learning mathematics (arithmetic) because of various reasons such as to develop clear concept on verbal problems, to generalize the learners concept, to understand the language association, limited vocabulary in mathematical words, fast forgetting to discriminate the condition of the situation. These difficulties are not only due to their problems but due to lack of supportive environments such as teaching methods instructional materials, social interaction and their place in the family and the society.

Chanda (2009) did a study on "Factor affecting the achievement of secondary girl students in mathematics at Baitadi district." The main objectives of this study were to determine the personal factor and physical factors that affects the girl's mathematics achievement and to measure the correlation between affecting factors and mathematics achievement. For this purpose researcher selected 40 girl students from four government school by random sampling method of the academic year of

2008. The data of sample student were obtained through the student questionnaire form. A study found that mathematics achievement of girl student are found to be strongly as associated with the peer behaviors, self-confidence and practice of learner. The teacher's behavior, home environment, interest of learner and motivation have low positive correlation with mathematics achievement of girl student. But school environment, classroom environment and motivation have negative effect in mathematics achievement of girl students.

Lamichhane (2012) studied on the topic "Causes of girl's difficulties in mathematics learning at secondary level". The objective of the study were to find the causes of difficulties faced by girl students in learning mathematics at secondary level. This study was conducted with the sample size of five girl students. The researcher adopted the case study method. Different tools such as semi-structured interview and observation form were applied to identify the learning difficulties of girl student. The conclusion of this research was in home environment parent's education, poverty, gender bias, lacks of study hour, behavior of the parents were the causes of girl's student difficulties. The motivational factor is poor. The mathematics teacher does not motivate the girl students rather they discourage them. Moreover, their own passivity while studying and low confidence also hampers the learning. So, at last but not least we can claim that so many factors like socio-economic factors, environment teacher's ill treatment students' own faults have affected the learning mathematics regarding the girl students.

Ghimire (2013) conducted a study on "Difficulties of student in learning mathematics". This study based on descriptive survey design. The objective of this study was to find the difficulties of Bote students in learning mathematics at lower secondary level. This research was qualitative in nature. The study was conducted

with sample size of four Bote students of grade VII. Face to face interview with students, parents, mathematical teacher, head teacher and the observation was taken. Such collected data were analyzed by using thematic categorization and interpreted. According to cultural difference and discontinuity, theory finding of the study show that, there is cultural difference and discontinuity at school and home. There is discontinuity in language, poor relationship with entire teacher's low participation in classroom discussion and poor interaction with the teachers. Bote socio-economic and financial condition is not enough to send their children at school and afford them in further education.

Sunar (2017) did research entitled "Mathematical disposition of basic level students" in which the researcher explored the contextual effects associated with classroom and school that may be related to self-concept and achievement. Current literature suggests that educators try to enhance self-concept and skill development simultaneously. The researcher used mixed method (qualitative and quantitative). In this study, the researcher took 8 school as samples among different schools of Kathmandu district. The mean and median score were used to investigate the mathematical disposition. According to the analysis of the difficulties in mathematics of this thesis, problem is higher when based on the test instead of grades. Grades in turn have a stronger impact on self-concept. Implications of literature suggest the separation and focus on the specific domain that is known to directly affect because the correlation between the self-concept and students problem is higher for non-related subject.

Yadav (2017) has done a research in the title "Difficulties faced by Dalit students in learning mathematics" and he found that language plays the vital role in learning mathematics. Due to the lack of proper understanding of the language, it has

created the difficulties in learning mathematics. The economic condition of the parents has been poor. In addition, there has not been favorable learning environment for students at home, and there has been no awareness program of parents. Students have not been provided any extra classes in the school.

New neuro science finding that more than 30% students in school today have significant difficulties learning math's in spite of normal or abnormal intelligence. There has been a wide range of problems or symptoms observed within this group, leading educators initially provide that there were a number of different types of math's learning difficulties. However a careful review of the recent literature suggest that most symptoms can be ascribed one of four men, well established causes, each having its characteristics of symptoms.

-) The largest fraction of the students having math's learning difficulties suffer from inadequate preparation on the effective early education in the underlying basic math's students at their current level (or for their education or occupation activities etc.)
-) A specific math's learning disability of neurological, genetic developmental origin (called dyscalculia) affects 5 to 7 % of the population.
-) Math's anxiety including any negative emotional reaction or attitude towards clearing math's can be considered a primary cause of significant enough by itself to limit educational or career opportunity.
-) Dyslexia (reading disability) not only affects reading but contribute to significant problem learning math. It affects the same number of people as dyscalculia but causes of different cluster of math's learning (www.Mathelearningdifficulties.com).

Theoretical Review

The theoretical discussion is needed for the interaction of the findings of the study. There are many theories about the learning and development of children such as cognitive, behaviorist, humanist, and social constructivism and so on. In this chapter, the researcher discusses the theoretical framework for the studies what would support the significant of causes of difficulties in learning mathematics of Dalit girl students. Low intelligence, teaching material, different class size, activities of teacher and students in the class, home environment were more causes of difficulties in learning mathematics. As a consequence, students learn poorly in class and ultimately they have no option except dropping out from their schools.

Vygotskian Social Constructivism Theory

Vygotsky has developed socio-cultural theory and he believed that children are active seeker of knowledge. This study is mainly related with Vygotsky's theory of constructivist approach to learning mathematics. . In this theory, rich social and cultural context deeply affect children's cognition knowledge is constructed in social situation of discussions rather than being the reflection of the objective reality, which is known as social constructivism. It helps to find out difficulties in learning mathematics. Vygotsky (1978) states every function in the child's cultural development appears twice: first on the social level and later on the individual level; first between people(inter-psychological) and then inside the child (intra-psychological).An accessible, introductory volume that provides a good summary of Vygotskian core concepts, including the sociocultural genesis of human thinking, a developmental approach to studying human thinking, and the power of cultural mediation in understanding and transforming educational practices. Well written and worth a look (Moll, 2014). The objectives of Vygotsky's theory are:

-) To motivate the learner for learning.
-) To emphasize on previous knowledge, previous experience and students' capacity for learning.
-) To emphasize on both personal and grouping teaching method.
-) To teach mathematics effective by interaction method.
-) To emphasize on cooperative learning (scaffolding method).

While studying learning difficulties in mathematics of Dalit girl students, theory of society and theory of opportunity mainly guided in this study. Thus, Vygotsky's child is a social, outer culturally determined child.

Critical Race Theory

Critical race theory (CRT) is a school of thought meant to emphasize the effects of race on one's social standing. Critical race theory refers to a broad social scientific approach to the study of race, racism, and society. Kimberlé Crenshaw and Derrick Bell popularized the notion of critical race theory within the subfield of critical legal studies in the 1980s. Critical race theory (CRT) is a theoretical framework in the social sciences that uses critical theory to examine society and culture as they relate to categorizations of race, law, and power. A collection of critical stances against the existing legal order from a race-based point of view (Brooks, 1994).

The notion that race is a social construct essentially means that race has no scientific basis or biological reality. Instead, race as a way to differentiate human beings is a social concept, a product of human thought that is innately hierarchical. Of course, this does not mean that there are no physical or phenotypical differences between people from different regions of the world (Bodenheimer, 2019). Race has historically been, and continues to be, a significant issue in all aspects of American

society. In the field of education, racial inequality is prominent in the areas of access, opportunity, and outcomes. CRT is a framework that offers researchers, practitioners, and policy-makers a race-conscious approach to understanding educational inequality and structural racism to find solutions that lead to greater justice. Placing race at the center of analysis, Critical Race Theory scholars interrogate policies and practices that are taken for granted to uncover the overt and covert ways that racist ideologies, structures, and institutions create and maintain racial inequality. (Paula Groves Price, 2001)

Central to critical race theory is that racism is much more than individual prejudice and bigotry; rather, racism is a systemic feature of social structure. Given that racism is so deeply embedded in social structure, Bonilla-Silva argues that racial inequality often gets misrecognized as a natural process rather than a by-product of a system of racial domination (Bonilla-Silva, 2015). Also, he has redeveloped the tenets of CRT to the following:

-) Racism is ‘embedded in the structure of society’.
-) Racism has a ‘material foundation’.
-) Racism changes and develops over different times.
-) Racism is often ascribed a degree of rationality.
-) Racism has a contemporary basis.

Feminist Theory

Feminism is theory that men and women should be equal politically, economically and socially. Feminist theory is a major branch of theory within sociology that shifts its assumptions, analytic lens, and topical focus away from the male viewpoint and experience and toward that of women. In doing so, feminist theory shines a light on social problems, trends, and issues that are otherwise

overlooked or misidentified by the historically dominant male perspective within social theory (Crossman, 2018). Feminist theory is one of the major contemporary sociological theories, which analyzes the status of women and men in society with the purpose of using that knowledge to better women's lives. Feminist theorists have also started to question the differences between women, including how race, class, ethnicity and age intersect with gender. Feminist theory is most concerned with giving voice to women and highlighting the various ways women have contributed to society.

There are four main types of feminist theory that attempt to explain the social differences between men and women. They are described below:

Gender Differences: Some feminist theory provides an analytic framework for understanding how women's location in, and experience of, social situations differ from men's. For example, cultural feminists look at the different values associated with womanhood and femininity as a reason why men and women experience the social world differently. Other feminist theorists believe that the different roles assigned to women and men within institutions better explain gender difference, including the sexual division of labor in the household. Existential and phenomenological feminists focus on how women have been marginalized and defined as “other” in patriarchal societies. Some feminist theorists focus specifically on how masculinity is developed through socialization, and how its development interacts with the process of developing femininity in girls (Crossman, 2018).

Gender Inequality: Feminist theories that focus on gender inequality recognize that women's location in, and experience of, social situations are not only different but also unequal to men's. Liberal feminists argue that women have the same capacity as men for moral reasoning and agency, but that patriarchy, particularly the sexist

division of labor, has historically denied women the opportunity to express and practice this reasoning. These dynamics serve to shove women into the private sphere of the household and to exclude them from full participation in public life. Liberal feminists point out that gender inequality exists for women in a heterosexual marriage and that women do not benefit from being married. Therefore, the sexual division of labor in both the public and private spheres needs to be altered in order for women to achieve equality in marriage (Crossman, 2018).

Gender Oppression: Theories of gender oppression go further than theories of gender difference and gender inequality by arguing that not only are women different from or unequal to men, but that they are actively oppressed, subordinated, and even abused by men. Power is the key variable in the two main theories of gender oppression: psychoanalytic feminism and radical feminism. Psychoanalytic feminists attempt to explain power relations between men and women by reformulating Freud's theories of human emotions, childhood development, and the workings of the subconscious and unconscious. They believe that conscious calculation cannot fully explain the production and reproduction of patriarchy. Radical feminists argue that being a woman is a positive thing in and of itself, but that this is not acknowledged in patriarchal societies where women are oppressed. They identify physical violence as being at the base of patriarchy, but they think that patriarchy can be defeated if women recognize their own value and strength, establish a sisterhood of trust with other women, confront oppression critically, and form female-based separatist networks in the private and public spheres (Crossman, 2018).

Structural Oppression: Structural oppression theories posit that women's oppression and inequality are a result of capitalism, patriarchy, and racism. Socialist feminists agree with Karl Marx and Friedrich Engels that the working class is exploited as a

consequence of capitalism, but they seek to extend this exploitation not just to class but also to gender. Intersectionality theorists seek to explain oppression and inequality across a variety of variables, including class, gender, race, ethnicity, and age. They offer the important insight that not all women experience oppression in the same way, and that the same forces that work to oppress women and girls also oppress people of color and other marginalized groups. One way in which structural oppression of women, specifically the economic kind, manifests in society is in the gender wage gap, which shows that men routinely earn more for the same work than women. An intersectional view of this situation shows us that women of color, and men of color, too, are even further penalized relative to the earnings of white men.

In the late 20th century, this strain of feminist theory was extended to account for the globalization of capitalism and how its methods of production and of accumulating wealth center on the exploitation of women workers around the world (Crossman, 2018).

Conceptual Framework

The case study related to find the causes of Dalit girl student's difficulties in learning mathematics at basic level. This study is mainly based upon constructivist and feminist theory.

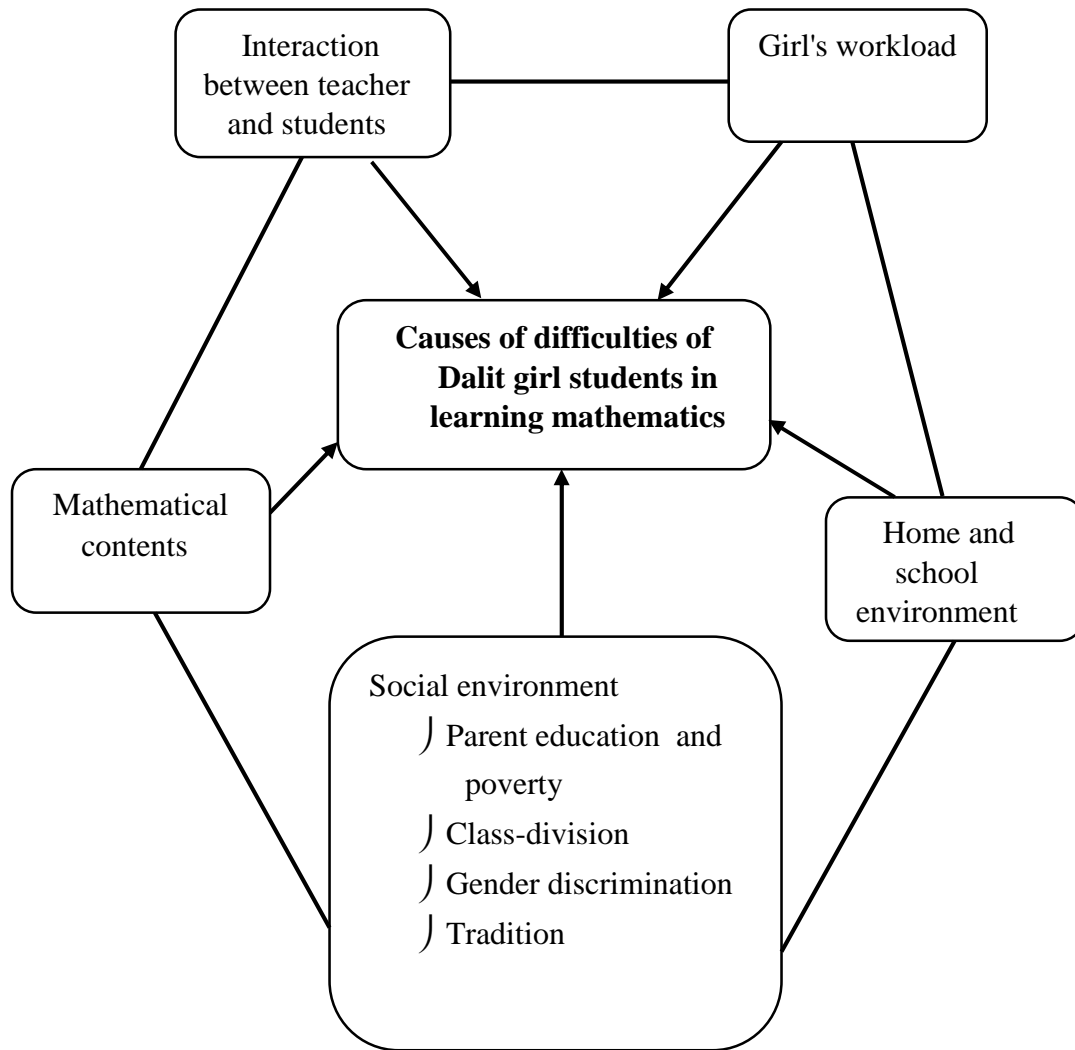


Figure 2.1

(Source: Thapa, 2009)

In the context of Nepal, most of the girls have to prepare the meal, look after sibling, cleaning and sweeping and all the household activities. As result, they don't have much time to study and sometimes they are unable to attend the class because of heavy workload in house. Social and cultural believes, practice and attitudes of often

do not favor girls in their pursuit of education to the same extent as a boys. A tradition of early marriage, discrimination, social norms are social factors which affect in learning. Social environment reflect belief and tradition of the social communities and delighting the relation among the parents, student and teacher. Generally, in our schools all the students kept in single class or group and taught whether they are very talented and weak. The teacher use lecture method rather than interaction method. So that, those students who are weak in the mathematics unable to learn mathematics properly (Lammichhane, 2012).

The above review of the literatures concluded that achievement in mathematics learning of the student was weak who belongs that community who are backwards in socio-economic condition. Also, they recommended for further study in same context and less study are doing in related to Dalit community. Especially, Dalit girls have more problems in learning mathematics. So it was required to research the causes of difficulties in learning mathematics and to identify reality of the situation of Dalit girls in learning mathematics, this study was carried.

Chapter III

METHODS AND PROCEDURES

Research is the systematic approach to obtain new and reliable knowledge (Ethridg, 1995). Research methodology is a science, which determines how the research becomes complete and systematic. So the methodology is the branch of the research. It is a qualitative research; the researcher studies things in their natural setting attempting to make sense of or interpret phenomena in terms of meaning. This research includes the study and collection of validity of empirical materials, case study, personal experience, life story interviews, observation, historical interaction, visual text that describes routine and problematic moment and meaning in individual's lives (Anderson, 2001)

This chapter describes the research design, sample of the study, tools of the study, data collection method, interpretation of the data. Here, researcher took some major procedure for research methodology.

Research Design

Research design is an overall plan and strategies to fulfill the goals of the purposed study. It leads the researcher to know what the study is about; why it is being studied, where the study is carried out, what type data is required and where can it be received, what techniques of data collection can be used and how data is analyzed etc.

This is a qualitative research. This research is case study of the causes of difficulties of Dalit girl students in learning mathematics at basic level. In the case study researcher typically observed the characteristics of an individual unit a child a class a school or a community.

Selection of Study Area

My study related to the participation of Dalit student in mathematics learning, the site selection is also a very important task in order to find the appropriate information. The selection of the research sites is mainly based in my previous knowledge about the research area. So, I had chosen Bhanu Higher Secondary School, Paharilotar, Bharatpur Chitwan is the study site of my study.

Respondent of the Study

This study was conducted at Chitwan district. It was done only on Dalit girls student. Purposive sampling is the process of selecting representative sample on the basis of objectives (Lohithaksham, P.M. 2002). The researcher chose 5 Dalit girl students from Bhanu Ma.Vi., Bharartpur for the sample of this study and also their parents and one mathematics teacher

Tools of Data Collection

The tools of data collection will be observation and interviews. The short descriptions of the tools are as follows.

Observation

Qualitative observations are those in which the researcher takes field notes on the behavior and activities of individual at the research site (Creswell, 2009). In this research, it was noted the mathematical difficulties from selecting more and more narrative people. Observing in a setting is a special skill that requires addressing issues such as the potential deception of the people being interviewed, impression management, and the potential marginality of the researcher in a strange setting. To get required information, I observed the grade VIII while teaching mathematics and observed classroom activities, Dalit girl students and teacher behavior classroom

interaction and school learning environment. And the guidelines for observation was given in appendix.

Interview

Interview is the process of data collection from face to face with interaction. Interview is a two way interaction between interviewer and interviewee. In interview, interviewer creates situations that can attract the attention of respondents for enough period of time in asking questions and answering the questions which interviewee put his/her understanding and meaning.

The researcher took the semi-structured interview on the basis of the first objective i.e. to find out the causes of difficulties in learning mathematics, which related on the topic; girl's workload, learning environment of school and home, and teacher and students activities in the classroom. Here, the researcher took interview with case students, parents of those case students and mathematics teachers with their experiences, opinions, feelings and knowledge. And the interview guidelines are given in appendix.

Data Collection Procedure

I visited one school of Bharatpur Metropolitan city of Chitwan district for data collection. I observed the class of grade VIII during mathematics period. I took interview of all case students, parents and mathematics teacher. At that time, I took photos with field note. The data was collected form participants' observation and interview. It took 15 days for data collection in related field.

Data Analysis and Interpretation Procedures

The data and information was collected from the interview and observation form were analyzed and interpreted by using descriptive method.

To find out the difficulties in learning mathematics all informants were collected from primary sources and match with information from reviewed documents. The data obtained were presented in terms of following topics: intellectual ability, social factor, classroom environment, home's workload, teacher and students' interaction and girl's participation in mathematics learning. The researcher began with the detail analysis of the data and equally analysis and triangulation form. The collected information at first class and different themes were given in the text of interview and observation form. These themes were considered as a code and the similar code version of respondent class of student's were collected together and explained in their perspectives (Creswell, 2009).

Chapter IV

ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the collected information derived from the case study. This was a qualitative study. The main focus of the study was the causes of Dalit girl students' difficulties in mathematic learning at grade VIII of Chitwan district. The researcher minutely studied the school documents such as; mark ledger, attendance as well as the other activates of Dalit girls students. Also, the researcher had observed mathematics classroom, behavior, activities and interaction with mathematics teacher in this research. Each activities and behaviors of the girl students and teacher were carefully observed and noted.

The semi-structured interview was taken to the focused Dalit girl students, their parents, mathematics teacher and head teacher. It was taken from the school Shree Bhanu Secondary School is located at Bharatpur-21, Chitwan. It was established in 1961 A.D. The responses of respondents during face to face interview were carefully noted. The students have environment and behavior was evaluated by the researcher with the help of interview schedule. There was some limitation of responses for respondents. There were some pre-structured question asked the interview time and observed the classroom for data collection.

The descriptive method is mainly used in this research. The researcher has attempted to calculate the study by describing and analyzing the information acquired in the research process. The collective information was analyses and described by learning environment at home and school, parents education and economic condition, teacher students interaction, gender discrimination, ethnic discrimination, mathematical content and social environment where the data are collected from the views of respondent of the research.

Introduction of Case Students

The brief description of the five girl students, parents, mathematics teacher and head teacher, which the researcher interviewed and observed during the study and given below.

Respondent –A

She is 13 years old studying in grade VIII. She lives in Bharatpur -22, Chitwan. It takes about 15 minutes to go to school from her home. In her family, there are 6 members. Her father is in India for work and mother is housewife. Her economic condition is medium. Although she got opportunity 1 hour daily to read after seeing brother's son. Since her family was uneducated, so her family can't help to complete homework. In this situation, She said that *"I felt difficulties in learning mathematics because there were no other higher educated people in my home to teach mathematics."* Even though, She complete all homework and assignment at right time. Her mathematics teacher was very good and satisfied with her teacher. Teacher and friends encourage to solve difficult problem.

Respondent –B

She is 16 years old studying in grade VIII. She lives in Bharatpur -23, Madhupuri, Chitwan. It takes about 20 minutes to go to school. Her father read only class 5 and mother is uneducated. In her family, there are 8 members. When I asked which are the most difficulties topic. Then, she replied *"Geometry is most difficult subject for me"*. There was no discrimination in her class instead of Dalit girls. Due to poverty, she was unable to take tuition class, and no one to help to complete at home. Teachers and friends help while she faced difficulties. She was not regular in classroom and didn't submit homework regularly. Although she joined coaching, she was unable to get tuition class and no one at home to teach her. So, she think math

subject is difficult subject. After completed class VIII, her family is going to married her. She didn't take seriously about study.

Respondent –C

She is 15 years old studying in grade VIII. She lives in Bharatpur 21, Chitwan. It takes about 5 minutes to go to school. Her father is taxi driver and mother is housewife. Her responsibility at home was to care brother's children and sometimes cooking food in evening. So, she didn't get enough time to study. About the difficulties of learning mathematics, she told: *"There are so many difficulties in learning mathematics. I have got more difficulties in geometry, indices and factorization"*. Her friends tease her while questioning to teacher. She took extra class to improve her weakness in mathematics. Her parents support to learn new thing and helps to study. She said, *"I am interested in doing problem but I don't know how I can solve a problem in easy way"*.

Respondent –D

She is 15 years old studying in grade VIII. She lived in Bharatpur 23, Madipur near the school. There are 8 members in her family that is joint family. Her father works in India and mother is housewife. Her duty on house is to caring brother's children and also cooking food .she used only 30 minutes to read. It is not sufficient time for reading. She didn't have separate room for reading. Her relation with friend is good but not with teacher. She feel fear while questioning teacher and teacher respond incase ask a question. She felt difficult indices and geometry. She didn't have good family environment for the study but her family encourage her to study. Her friends and teacher support her. From above the statement says that, she has very little time for the study. As a result she is very poor in mathematics. Moreover, she was not awareness about her good study because she had workload.

Respondent –E

She is 14 years student of basic level VIII. She had been studying in the Shree Bhanu Ma. Vi., Bharatpur Chitwan. She lives with grandfather, grandmother, father, mother and with two brothers. Her family is medium. Her father is in India for work and mother is a housewife. She helps mother to complete household work. She said about her duty, "*my duty is cooking food, washing cloth and sweeping home. I have just 30 minutes time for reading and practicing.*" She hasn't enough time for reading and practicing mathematics at home. She didn't have separate room for reading. She is familiar in classroom and her behavior is good in classroom. When I asked which topic is difficult then she replied, "*My difficult topic is transformation and algebra*". Teacher encourage her to read. She was so weak in mathematics. She confused while learning in classroom and afraid to ask teacher. She was so nervous when teacher asked in classroom. Her home environment is not well to learning, since her family is uneducated.

Classroom Observations of Respondent Students

The researcher observed classes in the school. It is based on teacher activities and student's activities in associate class. As we know the teacher's activities and student's activities affect the teaching and learning mathematics in classroom. In general, while learning in the classroom teaching materials, teaching method, interaction, between teacher and students, homework, class work attendance, and so many factors affect it.

Interaction is to communicate with somebody, especially while in the work or teaching activities. It is a social activity and all the human continuously get the any of interaction since human is the phenomenon of the society. Teacher student interaction is the engage to know or to understand the subjects to encourage students them into

investigate and solve mathematical problems by discussing each other and with the teacher.

Research in education and psychology has demonstrated that teacher and students often understand shared experiences through learning by doing. This topic focuses on the interplay between teacher and girl students understanding through student-teacher interaction in learning mathematics class. Dalit girls were afraid that interaction with teacher didn't care them so; this also causes of difficulty in mathematics learning.

Episode-I

One episode of mathematics class is given here. It was observed when researcher went to the class with mathematics teacher.

The teacher went into class, and researcher also entered in the class with teacher. The teacher had entered in class with a marker only. He hadn't any kinds of teaching materials to be showed to the students or displayed in the classroom even textbook also. The entire student stood up and said good morning sir then sir said good morning and sit down. There were 13 students in the class. Teacher asked book with student and said that open the book. He wrote the topic set on board. He didn't check homework and there was not any interaction between teacher and student. He said "*From today we revised the course.*" He wrote some question on board and solved first problem. The teacher didn't review. Only explain that solved problem. Then said, "*Do it.*" He came towards me and said that they were so weak, they didn't know anything. All of the students were busy to solve that problems. After some time teacher asked, "*Any confusion?*" One girl asked question, "*Sir, how to solve question number 4'b'?*" Then teacher said that it's very easy and he solved on her copy. The teacher didn't care other students. Many students discussed themselves to solving that

questions. He checked one copy from one boy but he didn't give feedback him. Student teacher interaction is not enough. At last, he said, "*Today's questions are important for B.L.E. so do it properly at home and for today, the class was over.*" He left the class while 10 minutes remained.

From above classroom activities, it indicated that there was no proper interaction between teacher and Dalit girl students in mathematics classroom. It seems that he was just a problem solver. The cooperation between teacher and students couldn't be established. Teacher should help the learner to get to his or her own understanding of the content, teacher should provide guidelines and creates the environment for the learner to arrive at his or her own conclusions. But in case school it couldn't found. Thus it concluded that his teaching was only for how to get more marks not for learning.

Episode-II

Another episode of mathematics class is given here. It was observed when researcher went into the class with mathematics teacher.

The teacher just entered in the class with daily using teaching materials. Researcher also entered in class with mathematics teacher. He started to teach. He wrote the topic indices. He wrote some law on board. He didn't review the previous lesson. On that day one of the girl student asked the question not to the teacher directly but to her friend sitting near to her. Both the students discussed the problem. The teacher was angry and asked the students not to disturb. The students said that they were discussing about the problem but the teacher did not care that problem and he went to next problem. After that teacher asked the question one of the student but this student afraid of him, she couldn't say anything. And then class ended.

From the above observation, it seems that class was not effective for learning. Fully teacher centered method is used to teach.

Episode-III

Another episode of mathematics class is given here. It was observed when researcher went to the class with mathematics teacher.

The third class observation of the teacher. There were 13 students in the class. There were about 6 Dalit girl students among them. The class was well-managed. The white board was kept in the right place. The teacher started to teach the factorization. He started the class connecting previous lesson. Then he wrote a problem on the white board and solved it explaining. Then he gave a same kind of problem to the student to do without guiding. In the board explaining each step at the last he told them to do the exercise of the text book which too much for the students.

In the episode, I found that the teaching method used by the teacher was lecture and practice the class was well-managed. Only the little number of students was seen to be participated in the classroom. Most of the Dalit girl students has seated in the last bench. They were none well motivated and responded by the teacher.

Episode-IV

“The mathematics teacher was just entered in the class together with researcher by carrying daily use teaching materials. He had started to teach. He wrote the topic LCM. He did not review the previous lesson. The teacher wrote the question on blackboard and found the LCM by himself. Then, one of the researchers' respondent asked the question about factorization with the teacher, but he was angry and said, did you present yesterday? The student was quite serious and told “No sir.” Again teacher solving another question by himself. Teacher asked some question with other students but Dalit student did not get such opportunity at class. They were

sitting at last benches and seemed to be a silent. The teacher gave homework form exercise and the class was over.”

From above classroom activities it indicated that there is no proper interaction between teacher and Dalit girl students in mathematics. Teacher does not response to the Dalit girl students. Teacher did not check mathematics homework regularly and they mostly became absent in school. Interaction brings the maturity in learning. But the interaction between Dalit girl students and teachers could not be seen in the class nicely. It is due to their socio-cultural discontinuity. At last it can be conclude that the interaction is another factor which creates the participation in mathematics for Dalit students.

Causes of Dalit Girl Students Difficulties in learning Mathematics

The interview schedule was applied to collect the information and the class observation from was also applied to observe the classroom teaching activities. The mathematics classroom of grad VIII was observed in only one school. In the interview schedule and the classroom observation, we get the following causes of Dalit girl student's difficulties in mathematics learning.

Learning Environment of Girl Students at Home and School

Environment is the totality of the educational atmosphere at home and school. Home is regarded as the first school to all individuals. They learn how to respect elders, how to cooperate to each other. Home environment reflects the occupation, economic condition and learning opportunities of the student at home. School is second home of any child. The teacher, students and parents are the component of the school. School environment reflects belief and tradition of the school community delineating the relation among parents, students and teachers. Since students belong Dalit community their learning environment were so bad situation. Scholarship to the

students, extra class and appropriate teaching method are the major aspect of school environment which motivate the students to be regular in the class. When the regularity of the students increases then the mathematics learning also become effective.

Our parents forced us in farming and household works. Due to poverty, we had to go works for money. They said farming and labour is our main occupation. Parents said to us that we should engage in house hold works like farming, labor etc .and earn to money rather than going to school. So, we are unable to go school regularly. No one in our home to teach and help to do homework. Other student use computer to solve difficult question through internet but we hadn't any access such type of material. (Student's view)

The above view indicates that Dalit girl has no sufficient time at home for mathematics learning. Indeed mathematics needs more practice to achieve good marks. They have to engage on their main occupation i.e, farming, labour because of poor economic condition and unawareness of education of their parents. This is related to gender difference view.

We sent our children to school because of others are going. Education has no use especially in daughter's life since they have to do the household works after marriage. We cannot afford for the education. The income is merely enough for fooding and clothing. We cannot help our children to complete their work at home. (Parent's view)

The above views indicate that education is not important in their life. If you are going spent life as a housewife then why should be necessary to learn. Due to poverty, children didn't get better chances to buy books, copies and to take tuition and coaching classes. Mathematics need more labor and effort than other subjects and

Dalit girl students have not got such facilities at home. So, the school should provide the scholarship to improve the regularity of the students which have poor economic condition

I used student centered method as well as explaining the problem step by step in the whiteboard for mathematics teaching but they didn't understand. The parents are illiterate. They do not give the guidance to them for learning mathematics. Their children do not complete the homework regularly. Most of the parents leave the whole responsibility to the school for their children. Due to this reason they became weak in mathematics subject. (Math teacher's view.)

The above mentioned view manifests that due to illiterate parents of Dalit girl students are not getting expected achieve in mathematics. The parent do not guide them in house and always avoid taking responsibility to provide educational environment in the home. The above discussed evidence of students and parents view showed that student couldn't get more opportunity than other students. If they had access of internet then they could complete their work through help of internet. The theory of critical race theory argue that racism and power affect in learning. Due to such reason Dalit girl students are unable to participate in learning as others. Since poverty and social tradition of students are the part of learning activities affect in understanding problems. Student said that our parents were illiterate so they could not help us to complete our work. Teacher said that lack of guidance and support of parents was not sufficient and parents said that they were unable to teach mathematics at home to complete their work. So from this triangulation researcher conclude that home and school environment is one cause of difficulties in learning mathematics.

Finally it can be said that the home and school environment of Dalit girl students was not favor of the mathematics learning. They didn't get opportunity to learning due to economic condition, negligible parent's involvement so they are weak in mathematics.

Girl's Workload

In the context of Nepal, girls did many works in home rather than boys. The main problem is the heavy workload for school going as girls it was found that poverty was not the only causes of girls no enrollment at school but their mother would not release them from work at home. Most of the Dalit girls are going work (mela) for earn money. So they couldn't complete their homework at right time.

Education has no use especially in daughter's life since they have to do the household works after marriage. (Parent's view)

The opinion support that girls are born for doing various house work. The opinion was also supported by the mother who felt that girl's education would bring no fruitful results as they had to do the same house hold chores after married.

Our family background is so poor. Sometimes, we have to go work for earning. We are bounding by poverty. Mothers went work so we had to do all household works in absence of them. Due to house hold work, we cann't go to school regularly and we cannot manage enough time for practicing mathematics. (Student's view)

My brother was taken a tuition class but I had to do housework. I had few time to practicing mathematics. (Student's view)

The above view indicates that mathematics need more times for practice and repetition. Because of lack of time for practice in mathematics Dalit girl students feel

difficulties in mathematic learning. They felt discrimination at home, and they hadn't equal opportunity to learnt mathematics.

In our society, Dalit community lives here, since they are uneducated, they thought girls are born for doing household works. They think they are not responsible for their children at home. Although, they aren't curious for learning mathematics. (Teacher's view)

Feminist theory argued that when girls face limited opportunities for education, their capacity to achieve equal rights, including financial independence, are limited. Feminist theory seeks to promote girl's right to equal education and world. So to reduce difficulties in learning mathematics, provide equal opportunity to took extra class and tuition at home and behave same in home as son to reduce discrimination.

The above view indicates the most of the parents in our society depend upon the school for their children's study but they don't take any responsibility and don't care at home. Since there was discrimination between son and daughter and girls need to do more work at home so these affect in girl's mathematics learning. So workload is the one of the cause of difficulties in learning mathematics.

Mathematical Contents

Mathematics is a unique subject and it is a fundamental part of school curriculum. It is an instrument for the development of all other sciences. Scarpello (2007) reports that seventy-five percent of Americans stop the study of mathematics and stay away from many careers that related to mathematics. He identifies mathematics anxiety as one of the main reason for this. Here, mathematical contents are also one cause of difficulties of mathematics. Since they felt difficult then they cannot complete their homework.

Indices is most difficult chapter for me. I can't understand the relation of algebraic term with their power. We faced difficulties while learning geometry, the axiom and theorem of similarity and congruent is most difficult and their application too. I don't know how to prove that kind of theorem. We felt bore in geometry class, thought that why this chapter include here?

(Student's view)

No extra class for difficult topics. If extra class was conducted then we could done every topic as easily. (Student's view)

The above view indicates that geometry and algebra are most difficult chapter. For this chapter, students need more times for practice and repetition. Because of lack of time for practice in mathematics Dalit girl students feel difficulties in mathematics learning.

In geometry class, they are not participated for learning lesson. They are unable to learn such topic, like similarity and congruency, construction, rational expression etc. I think the curriculum should be design according to student's capacity. (Teacher's view)

From the above response the researcher conclude that Mathematics is considered a difficult subject by most of the students. Due to aversive teaching style, difficulty in following the instruction, difficulty in understanding the subject, and difficulty in remembering its equations and ways to solve problem. The same reason is given by students for disliking mathematics and there is a strong association between their belief regarding the difficulty of subject and dislike towards math. Here according to the theory of constructivism, teacher's motivation is most important thing for learning difficult topics. In my opinion lack of interactive method student felt difficulties, for appropriate teaching teacher should provide

scaffolding for reduce difficulties. In 21st century, ICT is mostly used to teach abstract concept of mathematics, so in this situation teacher can use ICT to make easier to understand mathematical concept and it helps to reduce misconception.

Social Environment

The social environment, social context, sociocultural context or milieu refers to the immediate physical and social setting in which people live or in which something happens or develops. It includes the culture that the individual was educated or lives in, and the people and institutions with whom they interact. The interaction may be in person or through communication media, even anonymous or one-way, and may not imply equality of social status. As we are the social being and social environment affects all our activities; the teaching and learning too has no exception of it. In general, while learning, family background, friends and other so, many factors affect it. And so is the case of learning mathematics to the Dalit girl students.

Forty-one percent of Nepali women between ages 20 and 24 are married before the age of 18. Child marriage is most prevalent among less educated, poor women. Improving female education may improve the childhood marriage rate (Borgen project, 2018).

In our society, after 16 years family force to marriage that's why to read such type of difficult subject as mathematics. (student's view)

So they could not get chance to further study. It arose "why to read if you couldn't get chance to use it. So, it discourage to learn mathematics.

Dalit are always kept far from opportunity by the state. Most of the Dalit people of parental generation are uneducated and their economic condition is poor. They couldn't fulfill the needs of family. Dalit are uneducated person due to the lack

of knowledge. They do not know about the importance of education. So they are trail in social condition. Family background plays the vital role in their children education and their success. Due to lack of knowledge and poverty, they should not able to send their children at school. Moreover the Dalit girls becomes the victim of such consequences that generally happen in poor, rural and uneducated societies.

Education is not for us. We are that people who believed in work. It survive us. It is enough if they know their simple calculation and simple reading and writing skill.(parent's view)

From the above view, they are not psychologically aware for education. So they are backward of mainstream education.

Nepal is patriarchal structure. It seems that women are not given equal position in the society by males and they are continuous issues for the equal right. In Nepalese society, there is believed that son looks after in their old age. Due to these beliefs, sons are given more priority than girls. Especially, Dalit face discrimination although son and daughter are uneducated (Yadav, 2017).

Education has no use especially in daughter's life since they have to do the household works after the marriage.(Parent's view)

The researcher found that in Dalit society there are great differences existing between son and daughter. Dalit girls are forced to accept discrimination and differences. Dalit girls are forced to household works, take care of small sister and brother because their mother has been doing it, so they have to do it.

A tradition is a belief or behavior passed down within a group or society with symbolic meaning or special significance with origins in the past. There many cultural issues in teaching and learning mathematics in the context of Nepal. Dalit girls are deprived of listening radio, watching T.V., playing games and other activities which

broaden their mind. Another to do outdoor activities which increases confidence in them. There is an inborn concept about the girls that they shouldn't be sent in outdoor activities because they can't do.

I thinks that daughter should do only household work because outside the home is danger for them. In our tradition, it is not allowed to go outside alone. (Parent's view)

The above view indicates that parents and students are influenced by their society and tradition. It lost confidence of girls and at last they are weak in mathematics. Critical race theory argued that equal opportunity in education would ensure that students from marginalized groups would have access to the same curriculum, instruction, funding and facilities as other community's students (Ladson-Billings, 1998).

It conclude that students who come from marginalized groups based on race, sexuality, social and economic factors, have more negative experiences than higher caste's students. It shows that, society and their parents are not aware to teach their daughter and teaching was necessities.

Chapter V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the summary, findings from the discussion of chapter and conclusion and recommendation for further study.

Summary of the Study

Mathematics is a language which is basic tool of communication. Daily communication involves the frequent use of mathematical concept and skills. So mathematics is essential for understanding and interpreting of every discipline. Now every human discipline such as chemistry, physics social science, economics, psychology, etc are interpreted as a mathematical model. Without having mathematical knowledge, it is very difficult to understand those disciplines. Mathematical techniques are essential tools for the development of every field of knowledge.

Since the time immemorial, these Dalit people are being discriminated, humiliated and disadvantaged socially, economically, culturally and politically in the society by the other caste people and the state on the name of ethnic group.

This is a case study related to the causes of difficulties of Dalit girl students in learning mathematics at grade VIII in Chitwan district. The purpose of the study was to identify the causes of difficulties in learning mathematics. For the purpose of the study, the researcher used various activities like classroom observation and interview guidelines to teacher, students and parents were consulted. To identify the causes of difficulties in learning mathematics of Dalit girl students, the population of the study was taken students who were studying at basic level of grade VIII in academic year 2018/019 in Chitwan district. The major tools used for this study were interview schedule, classroom observation and related published and unpublished documents.

For the case study, five Dalit girl students studying in grade VIII were taken as sample. To support the findings of the study, Constructivist theory, Critical race theory and feminist theory were used.

Findings

The researcher found the following are the cause of difficulties in learning mathematics to Dalit girl students:

-) Dalit financial condition is not strong enough to send their children at school and afford them in their future education. Most of the parents of Dalit girl students are illiterate and their children are usually used as means of earning money for their simple livelihood.
-) Being uneducated family caused their children can't get good guidance and motivation in the home to do homework and practice of mathematics subject.
-) There is a discriminatory behavior between son and daughter.
-) Lack of parents- teacher meeting is also another problem. Without discussion about problem, so Dalit girl students can't progress in mathematics.
-) The mathematics class was well managed in structure of class and extra class was conducted.
-) Workload that directly disturbed to study at home and they didn't able to complete homework.
-) Being ICT is most appropriate thing to improve mathematics learning was not used in class and their home.
-) There was no proper interaction between Dalit girl students and mathematics teacher.
-) Home environment, interaction between teacher and students, poverty, workload are major difficulties in learning mathematics of Dalit girl students.

) They felt geometry, indices, rational expressions are difficult contents in mathematics.

Conclusions

From the above stated finding of this study, I conclude that teaching and learning mathematics was not satisfactory. The teaching method, home and school environment, parent education and economic condition, gender discrimination affect the learning of mathematics. Due to lack of time, Dalit girl students didn't able to do more practice.

These responsible factors should be managed properly. Student centered method should be implemented rather than traditional method to modify the teaching learning. Similarly to lift the level of awareness of parents regarding at education various types of formal and informal program should be lunched. Economic based program should be lunched at Dalit girl students by giving scholarship, discount in their tuition fee and so on.

Recommendations

Recommendation has made to improve the learning situation happening the Dalit girl student's difficulties in learning mathematics. This is the case study of Dalit girl student's difficulties in mathematics learning. This research is not complete research. There is limitation of this research. However, after the analysis and conclusion of the study, the research has made the following recommendation for further study to validate the findings of the present study.

) This study was done only in Bhanu secondary school, Chitwan as a case. For the generalization of result of the study, similar study should be done in large sample.

-) Teacher may be played vital role in the bridging the gap between the interpersonal relation among them and Dalit girl students. They may create an environment to understand their feelings and behavior.
-) To improve mathematics learning of Dalit girl students ICT can be used in mathematics class.
-) Teacher should be going to the Dalit girl students home and study their real situation and they should be discussed with parents and teacher about their children.
-) This study is limited and can be done for overall district wise.
-) Similar study can be carried out in secondary level and other subject as well as.
-) Implement awareness program to increase in participation of parents about study and reduce discrimination between son and daughter.

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Appendix - I

Semi-structured interview guidelines with parents

Parents Name:

Students Name:

Date:

Qualification:

Address:

The following interview with the parents will take on the following questions:

)What's your family education background?

)What is your concept about daughter's education?

) What is your economic conditions?

)How much time do you provide to study your daughter?

)Do you visit the school properly to interact with teacher?

)Do you check homework, they complete or not?

)Do you help to learning in mathematics?

)Do you send your children regularly in school?

)How to reduce the difficulties of your children in learning mathematics? What are the ways to address the difficulties?

Appendix - II

Semi-structured interview guidelines with students

Name of the students: Age:

Class: Address:

Roll No.: Date:

School:

The interview with dalitgirls students will take on the basis of the following questions:

)What's your family education background?

)What type of task do you at home? And how long?

)How long time do you spend to read? Do you get enough opportunity to read?

)Do you read in the separate room?

)What is the relation between your friends while learning in classroom?

)How does the teacher respond in case you ask a question?

)Which are the most difficulties topic?

)Do you complete your all Homework and assignment? Does the teacher check homework or not?

)What are the difficulties in class room?

)Do you feel any discrimination in classroom?

)What problem do you fell frequently experience in mathematics class?

)Do you satisfied or not with the mathematics teacher?

)What are the facilities provided to improve mathematics achievement?

)Do you get any encouragement form teacher and parents?

)What's your expectation about mathematics learning?

Appendix - III

Semi-structured interview with math teacher

Name:

Date:

Sex:

Qualification:

Religion:

The interview with dalitgirls students will take on the basis of the following questions:

)Do the dalitgirls students follow your instruction in the class hour?

)Which method do you apply in your teaching learning activities?

)Do you use teaching materials or not? And why?

)What is the conditions of dalitgirls students in the classroom?

)How do behave dalitgirls students in the classroom?

)How do you provide opportunity to learning in classroom?

)Does interaction takes place in the classroom?

)How much they are interested in mathematics learning?

)Do you provide homework or not? Do they do or not the classwork and homework?

)Do they participated in extra curriculum activities?

)Does your school administration conduct extra classes?

)How to reduce the difficulties in learning mathematics?

Appendix - IV

Class Observations Form

Name of School:

Date:

Class:

Period:

Total No. of students:

Subject:

Students Name	Student's Activities	Teacher's Activities	Homework	Classwork	Students Participation Individually	Observation comments

Researcher will conduct observation of Dalit girls students on the basis of following main topics and details.

)Main aspect of interesting in learning.

)Friend's behaving.

)Teacher's behavior towards the case students.

)Major interesting things in learning mathematics.

)Participation and interesting activities.

)Main instrument in learning mathematics.