

**CAUSES OF LOW PARTICIPATION OF DALIT GIRLS
IN MATHEMATICS**

**A
THESIS
BY
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Letter of Certificate

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Thesis

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Entitled

“Causes of Low Participation of Dalit Girls in Mathematics”

has been approved in partial fulfillment of the requirements for the
Degree of Master of Education

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ABSTRACT

The present study focuses on the “Causes of Low Participation of Dalit Girls in Learning Mathematics.” The study attempts to identify the present situation of the participation of Dalit girl students and find out the causes of low participation of Dalit girl students in learning mathematics at secondary level. The case study was necessarily of qualitative and descriptive in nature. The study was conducted with the sample size of four Dalit girl students of grade X selected from Shree Purna Higher Secondary School, Vimdatt Municipality-12, Kanchanpur. This study used three types of tools such as interview schedule, observation and document analysis to collect the data. The collected information was analyzed by thematic categorization and interpreted according to the cultural difference.

This study shows that engagement of household work, poor economic condition, illiterate parents, over aged /early marriage, socio cultural norms and values, family occupation etc. are the causes of low participation of Dalit girl students in learning mathematics.

TABLE OF CONTENTS

	Page No.
<i>Letter of Approval</i>	<i>ii</i>
<i>Letter of Certificate</i>	<i>iii</i>
<i>Acknowledgement</i>	<i>iv</i>
<i>Abstract</i>	<i>v</i>
<i>Table of Contents</i>	<i>vi</i>
 Chapters	
I: INTRODUCTION	1-9
Background of the Study	1
Statement of the Study	6
Significance of the Study	7
Objective of the Study	8
Delimitation of the Study	8
Definition of Related Terms	8
II: REVIEW OF RELATED LITERATURE	10-20
Empirical Literature	10
Theoretical Framework	18
Conceptual Framework	19
III: METHODS AND PROCEDURES	21-27
Research Design	21
Site Selection	23
Sample of the Study	23
Data Collection Instruments	23
Interview Schedule	24
Observation Form	25

Written Documents (Published and Unpublished)	25
Reliability and Validity of Tools	26
Data Collection Procedure	26
Data Analysis and Interpretation	27
IV: ANALYSIS AND INTERPRETATION OF DATA	28-45
Introduction of Case Students	29
Major Causes of Low Participation of Dalit Girl Students in Learning Mathematics	34
Learning Environment at Home and School	37
Parental Education and Economic Status	38
Over Aged and Early Marriage	40
Socio-cultural Norms and Values	42
Teacher Students Interaction	43
V : FINDINGS, CONCLUSION AND IMPLICATIONS	46-51
Summary of the Study	46
Finding of the Study	47
Conclusion of the Study	48
Implication of the Study	49
Recommendation for Further Study	50
REFERENCES	52-54
APPENDICES	55-59
Appendix A: Interview Guidelines for Dalit Girl Students	55
Appendix B: Interview Guidelines for Parents	56
Appendix C: Interview Guidelines for Mathematics Teacher	57
Appendix D: Interview Guidelines for Head Teacher	58
Appendix E: Semi-structured Observation Form	59

Chapter I

INTRODUCTION

Background of the Study

Mathematics is an essential part of school curriculum. So every student should study it and gain better achievement. For the improvement of students' achievement in school mathematics, many researchers have been done to identify the variables that influence the achievement scores of the students. It is believed that girls are weak in mathematics in comparison to boys with respect to their achievement. There are many causes of backwardness of girls; social factor is one of them. Not only in developing countries also in developed countries, girls are very far from education and social equity. That is why they have not contributed more in field of education included the area of mathematics education. From the ancient time girls are not involved in study so they are unable to represent as Pythagoras, Euclid, Archimedes, Newton etc. Especially in our context, girls don't get sufficient time for study. It is one of the reasons for girls to be weak in mathematics.

All over the world, women have played the significant roles in their country development. They were working as doctors, teachers, electricians and artists etc. Hence, women are contributing in economic growth of their country. Unfortunately, every society didn't agree to involve the women for country development. Some beliefs and practices create societies in which males play the dominant role. Religious traditions can contribute to making woman second class citizens.

In Nepal, men tend to be the owners of property and the decision makers in the families. Woman often stay at home, cleaning, cooking and caring for their children. Although these activities are essential for the

well-being of the family, women are often not respected for their work. Many times, when woman venture out of the home to take part in other types of activities such as; going to school, owning business and participating in politics, they are often held back or discouraged. The participation of women is very low in economic, intellectual, social and political opportunity in the society. Hence involvement of girls in education is very low as compared to boys. This position of girls in labor market is partly mirrored by their performance in educational system. The policy makers of education have been felt that the education up to the middle standard is not sufficient for the citizens. So, the policy of compulsory education for the people has been announced by most of the countries in the world to raise the equality in every aspect by gender.

One of the biggest problems in Nepal's education system is female education. This issue has been neglected since the 1950's. In fact, there is an extreme inequality in the literacy rate between men and women. In Nepal 71 percent of men are literate whereas only 44 percent of women. This is a staggering inequality for women's education which directly linked to the area of poverty in Nepal. Another issue of women's education is that the parents do not have enough money to ensure their children have to access the proper education. The issue of poverty is playing main role in Nepal's educational system.

The gender discrimination starts at the very early stage in the life of Dalit girls. Normally, girl children are retained at home to look after the siblings. Another factor is the compulsory marriage of the girls at very early age after which the formal education is generally stopped. Joint family system, polygamy, property structure, early marriage and permanent widowhood were hurdles for the development of all women in early period.

Nepal is a multi-cultural, multi-lingual and multi-religious country with 26 million populations with 59 ethnic group and 125 different languages. There exist many religious and racial forms in the society and people from different group who are engaged in different occupation by cast system. In spite of most of the people of Nepal are engaged in agriculture (Upadhyay, 2064).

Nepalese disparities are also closely linked to the Hindu caste system that divides the population into dozen of hereditary groups. At the top of the social order, members of Brahman class are present and scholars followed by Chhetri (ruler and warriors), the Vaishya (merchants) and Sudra (peasants and manual labors). In major four castes Sudra is said to be Dalit. The lowest position in the social order is occupied by the Dalits. The term Dalit is used to untouchable caste (paninachalnejat). For example, if Dalit may fetch water from wells than that is not used by member of higher castes. Dalit are settled in all 75 districts of Nepal. Kami, Sharki, Agri, Nepali, Damai, Lohar, Bk, Badi, Sunar, Bhul, Oad, Pariyar, Gahatraj, Dholi and other many castes belong to this group of people.

Nepal's beauty lies with its diversity in nature and culture. However, cultural and ethnical diversity also stands as barriers for the equitable development. The quality of lives of Nepalese people strictly follows the caste hierarchical lines. In such hierarchy, Dalit caste group lies at the very bottom. The diversity in culture and ethnicity that deeply has rooted in the Hinduism, largely deteriorating the lives of Dalit people in general and the Dalit women in particular.

Almost half of Nepal's Dalits live below the poverty line. They are landless and much poorer than the dominant caste population. Their life

expectancy is lower than the national average and so is their literacy rate. Dalits are routinely denied access to religious sites, they face resistance to inter-caste marriage and refusal by Non-dalits to water touched by them as well as many other forms of discrimination.

In the context of caste discrimination, many progress has been made in recent years. The Dalit movement has secured some provisions for non-discrimination, equality and protection in Nepal's interim constitution. In the international arena, the government of Nepal has expressed support for the UN principles and guidelines to end caste discrimination. Thus showing a willingness to involve the international community in addressing the issue and setting an example for other countries.

Estimation of the number of Dalits in Nepal vary greatly. According to the official census of 2011, they constitute 13.6 percent of the total population (or approximately 3.6 million people). Nepal's Dalit women are even worse off than Dalit men. They have no control over land, housing or money and are forced into the most demeaning jobs.

Who are Dalit ? And what is untouchability ?

The word 'Dalit' comes from the Sanskrit root 'Dal' which means "broken ground-down, downtrodden, or oppressed." Those previously known as untouchables. Depressed class and Harijans are today increasingly adopting the term 'Dalit' as a name for themselves. 'Dalit' refers to one's caste which have born the stigma of 'untouchability' because of the extreme impurity and pollution connected with their traditional occupations. Dalits are 'outcastes' falling outside the traditional four-fold caste system consisting of the hereditary Brahmin, Kshatriya, Vishay and Shudra classes. They are considered impure and polluting and

are therefore physically and socially excluded and isolated from the rest of society. More than 260 million people of the world are suffering from this hidden apartheid' of segregation, exclusion and discrimination.

Types of Untouchability practices and discrimination

In the name of untouchability, Dalits face nearly 140 forms of work and descent-based discrimination at the hands of the dominant castes. Some of them are as;

-) Prohibited from eating with other cast members.
-) Prohibited from marrying with other caste.
-) Separate glasses for Dalits in village tea stalls.
-) Discriminatory seating arrangements and separate utensils in restaurants.
-) Segregation in seating and food arrangements in village functions and festivals.
-) Prohibited from entering into village temples.
-) Prohibited from entering dominant caste homes.

(www.ncdhr.org.in/ National Campaign on Dalit Human Right)

Mathematics is taught in school according to curriculum. It is taught as a compulsory subject for each of the school education system in Nepal. In Nepalese context, mathematics is considered as a complex subject and has become a cause of failure of student in school education. Most of the girl's students do not like the Mathematics subject due to the possibility of failure in examination. Girls dislike to this subject has become a great problem to educationalists and stake holders. There is now an equity theory that both male and female should have chance of getting education as social importance. When girls are distracted from

mathematics, it is certain that women could not get the passion of mathematician, scientist or technologist.

Discrimination against Dalits in the educational system is a widespread problem in caste-affected countries. Alienation, social exclusion, and physical abuse transcend all levels of education, from primary education to university. Illiteracy and dropout rates among Dalits are very high due to a number of social and physical factors. Legislation on the area is limited and measures that have been taken are often inadequately implemented.

The forms of structural discrimination and abuse that Dalit children face in schools are often so stigmatizing that they are forced to drop out the school. One of the main issues is the discriminatory practices conducted by teachers, which may include corporal punishment, denial of access to school water supplies, segregation in class rooms, and forcing Dalit children to perform manual scavenging on and around school premises.

Statement of the Problem

This study is related to the Causes of Low Participation of Dalit Girl Students in Mathematics. So the study is considered as a case study. The mathematical concept is given from the basic level to secondary level while teaching mathematics in classroom. Student centered teaching method is applied by teacher in classroom; expect traditional method only. Also the courses are not generally finished within the academic year. So the students are less interested to learn mathematics.

The study is mainly concern to find the causes of low participation of Dalit girl students in learning mathematics at secondary level. It also

focused on the present condition of participation of Dalit girls in learning mathematics at secondary level. So this study intended to answer the following research questions:

-) What is the present condition of participation of Dalit girl students' in mathematics?
-) Why were the Dalit girls not actively participate in learning mathematics at secondary level ?

Significance of the Study

This research tries to investigate the causes of low participation and difficulties in mathematics learning of Dalit girl students at secondary level. The result of this study is helpful to identify some of the factors that can affect the girl students' participation in mathematics learning. This Knowledge is helpful for parents, teachers, educationalists, curriculum-designer and other related organizations and agencies to promote the participation level of Dalit girl students. This ultimately can increase woman participation in science and technology field. Thus, in this sense the purpose of the study will be significance for the following reasons:

-) It helps to improve mathematics achievement of Dalit girl students.
-) It helps to mathematics teacher to improve mathematics teaching.
-) It helps to curriculum designer while designing mathematics curriculum for them.
-) It helps to pay attention of concerned agencies to promote participation level in mathematics.

Objective of the Study

The expectation of certain outcomes from the research study is reflected in the objective of the study. These are stated in short and clear form and should be achievable. Thus the general objectives of present research are:

-) To identify the present situation of the participation of Dalit girl students in learning mathematics at secondary level.
-) To find out the causes of low participation of Dalit girl students in learning mathematics at secondary level.

Delimitation of the Study

Each study is not rigorous, perfect and free from limitation. They have some sort of limitation and on the other hand they cannot overcome the problems of every field. Thus this study also has some limitation which is pointed as below.

The following limitations are made while carrying out the research study:

-) This study was limited to Kanchanpur district.
-) This study included only grade X girl students.
-) This study was limited to only one school of the district.
-) This study was focus on the participation of Dalit girls.
-) The study was conduct within four Dalit girls of grade X.

Definition of Related Terms

Class Activities: Class attendance, regularity in school, behaviors, doing homework/class work and interaction with teacher or students are known as classroom activities in this research.

Participation: The presence of Dalit girl students in comparison with other students in their class activities is known as participation in this study.

Present Situation: Condition of Dalit girls' students in learning mathematics when researcher do this study.

Public School: A school run under the financial support of government and managed under the school management committee.

Subject Teacher: A person, who teaches mathematics subject in class X are considered as subject teacher in this study.

Early Marriage: Marriage Before 18 years old is known as early marriage.

Household Works: Works like that; kitchen works, collecting drinking water, firewood and look her younger siblings.

School facilities: Distance of school, educational materials, school building and furniture, drinking water, toilet, playground etc.

Dalit : According to District Administration Office, Kanchanpur the following caste are mentioned as Dalit; Sharki, Lohar, Kami, Damai, Badi, Gaine, Kasai, Tamata, Dum, Sunar, Chamar, Oad, Dholi, Hudke, BK, Dhobi, Parki.

Chapter II

REVIEW OF RELATED LITREATURE

Review of related literature is an essential part of research for the researcher because related literature helps and gives the guidance to researcher for the future study. By undertaking a literature review we are able to critically summaries the current knowledge in area under investigation, identifying any strengths and weaknesses in previous work. So helping to identify them in our own research and eliminate the potential weaknesses, which provides the force and potential strengths.

This study was concerned with the participation in learning mathematics of Dalit girl students at secondary level. Actually there is few number of studies about Dalit girl students in learning mathematics.

Empirical Literature

According to **Hindu Dharma Sastra**, "Be it a girl or young women or women advanced in years, nothing must be done even in her own dwelling place merely to please her. A female must be dependent on her father in her childhood, in youth on her husband and on her son later in life. A woman must never seek independent."

Benbow and Stanely (1980), found that females do not perform as well as males in mathematics because females have inferior innate ability in spatial visualization. This view is challenged by the socialization theory, according to which gender differences in academic outcomes are due to influences of the environment of home, school and community.

Eccles (1987), reported that throughout childhood and adolescence, girls both like and spend more time than boys in reading, writing and

participating in activities related to arts and crafts, domestic skills and drama. Boys in contrast, spend more time in sports, working with machine and tools, involved with scientific and math related hobbies. These differences she reported may have a direct effect on training girls and boys seek out and on the skills they acquired during childhood. The barriers to girls participating in mathematics learning are image of economic uneducated family background, social-cultural and other realities vary by community.

CERID (1990), concluded that the children's participation and continuation on education depend upon parent's attitude towards education. How children continue their education was totally depended upon the attitude of the parents. When parent realize the need of their children's education, this the opportunity to the children in education. Both father's and mother's discipline affects their children to improve their personality.

CERID (1996), did research on the topic “The Girls Education in Nepal”. It showing parents reasons for their daughters not allowing school by gender. Girls students in secondary level are normally drop out, not sent to the school because of social discrimination, poor economic condition and child labor requirements in the family. Normally, girls are used for household requirements such as fetching water, collecting fuel wood, cooking, washing and cleaning, child care, land preparation, planting and harvesting. The most drop outs were for agricultural families. It was observed there was a strange inverse relationship between household income and early school leaving and that need to work was the primary causes of dropping out from school. There was also a strong inverse relationship between family size and early withdrawals from school.

Koehler (1990), found that teacher's expectation from students can have a direct influence on their learning and achievement. Teachers generally are expecting less academically from girls than from boys and treat girls quite differently from the ways the boys are treated. Boys are rewarded for their ability when they do well and criticized for not working harder. When they don't whereas girls are complimented on their hard work and need performance when they succeed in mathematics: they are told that they are not bright when they fail. Boys also are attended to teachers more than girls, they receive more teachers on area which they have problems academically, and are called on more often to give answer in class.

CERID (1996), did research on topic “Gender Disparity and Girl’s Education in Nepal”. Teacher and parents were the best information as regards girls’ participation on class and out of class activities. Also they were the stakeholders who knew more about how to increase girls’ admission to science and technology education.

Hata (2001), said high school dropouts among girls’ students can be attributed to a number of causes like early marriage, household burden, working in the field for agriculture caste and ethnic discrimination, distance of the school, irregularities in school operation due to the teachers, absence or non existence, poverty etc. So the fact that governments’ policy to provide free education to the girls children in a burning questions as well.

Acharya (2004), did the study on “Democracy, Gender Equality and Women’s Literacy”. The topic of women’s literacy in the midst of diverse value and practices, the analysis of the lived values and practices of ethnics and caste group of Nepal reflected immense diversity. Among

diversity there are some commonalities as well. (a) Marriage is a social and cultural obligation and thus a compulsion, (b) Child bearing is the most important part of married women's life is thus a compulsion. Child bearing especially giving birth to a son is linked to a women's security, respect and family dignity as the sons give continuity to the family lineage, and (c) Sons alone are entitled to ancestral property.

Burdon (2004), did study on 'Gender Equality in Education.' While 30 million more children had been sent to school globally since 2000, there were still 72 million children, most of them girls which remains out of school. While girls' participation had increased to 89% from 84% a few years back, Burden said more needed to be done especially for disadvantaged girls are countries like Nepal. "Half of Dalit (low caste) girls drop out in grade I only eight percent make it to grade V", he said adding that strong political leadership in this areas is important. The problem of infrastructure also continuous to the educational system in the Asia pacific now, a lot of school had no drinking water, toilet and electricity. Teachers were also ill-trained and poorly motivated. Other problems included the lack of text books, teacher, classrooms and proper medium of instructions. Discrimination based on caste, ethnicity, religion or disabilities also needed to be seriously addressed.

Baral (2004), did research on "A case study of street children for learning mathematics" The main objective of this study was to investigate how the street children learned mathematical skills. Different tools such as case study, observation and interview were applied to investigate their learning of mathematical skills and Vygotsky's social constructivism theory was applied to analyze the data. He concludes that street children of the Kathmandu valley had basic mathematical knowledge. The level of

their skill was different according to the work where they involved. They have learned counting, addition, subtraction, multiplication, weight, probability, sets, distance, profit, loss, gain, discount as they interacted with the environment of their adults. All these skills which have helped them to live on the street where learnt mostly from experience situation and the culture where they living on since they landed on the street private speech observation, advice from adults, peers and imitation were the sources of learning mathematics for them.

Adhikari (2007), concluded a dissertation “Cultural Discontinuity and Learning Difficulties in Mathematics" (A case study of primary level Dalit school children). Her study focused on the difficulties in learning mathematics for Dalit students at grade five. The objective of the study was to identify the causes of difficulties in learning mathematics at school level for Dalit students, influencing factors of learning mathematics, impact of home environment. Her study was conducted on the simple size of four Dalit school children of five classes in Shree Bani Bilas Secondary School Chapagoan. The study concluded that Dalit children have great discontinuity in interpersonal relation between Dalit children and teachers. Dalit students want to do friendly behavior with teachers but teachers do not want to do so.

Bastola (2007), did a research entitled "Factor Affecting of Dalit student in Mathematics (A case study of Kaski district)". The purpose of study was to identify the factor affecting on achievement of Dalit students in mathematics in Kaski district. The study was conducted in Hemja VDC of Kaski district. His study was qualitative in nature. He had used semi-structured face to face interview with mathematics teacher, case respondents, their guardians and classroom observation form to collect primary data for only one case school of the Kaski district. His study

concluded that teacher and teaching methods were not main factors to affect their achievement. But poverty, social belief, social tradition, cost of education, household work load, problem of health, psychological effect, lack of motivation all these factors affected the respondent mathematical achievement of students.

Corporal (2008), did a study on ‘Gender Equality in Education.’ This was the consensus of education experts at the Jun 11-12 regional meeting on equality. Gender and quality is education organized by the global advisory committee of the United Nations Girl’s education Initiative (UNGEI). Representative from 14 countries in different continents took part in this brainstorming sessions, looking at ways to narrow the gender gap and ensure that both boys and girls can have better equal access to education. We need to use this forum and partnership not just to understand better where we are right now but also where we are headed. It has about beyond the numbers and asking how “We can better support young people in the Asia pacific region, and help make schooling safer, enjoyable and more meaningful experience for girls” Said Frances Turner, deputy regional director for South Asia for the United Nations Children’s Fund (UNICEF).

Bohara (2009), studies on "Factors Affecting Achievement of Dalit students in Mathematics at Lower secondary Level (A case study in Daijee VDC, Kanchanpur District)". The main objective of his study is to find the factors affecting to achievement of Dalit girls in mathematics. He had used semi-structured face to face interview with mathematics teacher, case respondents with their guardians and classroom observations to collect primary data for only one case school of Kanchanpur district. His study concluded that illiteracy, ignorance, poverty, prior knowledge, motivation for study at home, parental support, quality of teacher, class

size, student teacher interaction, social belief, social tradition, family occupation, childhood marriage, working in upper cast family were the major affecting factors on mathematics achievement of the Dalit students.

Thapa (2009), did a research on "Causes of Students Difficulties in Proving Theorems of Geometry at Secondary Level (A case study of Kathmandu district)". The objective of this study was to find the difficulties on learning environment of the school and find the difficulties of teachers and students activities in the classroom. He used the tools observation from and interview schedule for data collection. The study concluded that the causes of the students leaving the theorems and geometrical questions in examination due to lack of practice for learned topics. There is lack of motivation and encouragement to students because students are not well participation in extra classes.

Pokhrel (2010), did a research on "Girls participation in optional mathematics in Dolpa district". The objective of this study is to find the factors that affect the participation of girls in optional mathematics. There are fourteen secondary schools in Dolpa district. Among them the researcher selected three urban schools and three rural area schools for study. Researcher used the interview schedule and oppionnaire form for data collection. He was found that the home environment such as gender bias at home, parents' education, practice time given to solve problem, economic condition of family influence in the girls participation on optional mathematics.

Upadhyay (2011), did a research on "Causes of Low Achievement of Dalit Students" (A case study of Bajhang district)". The objective of this study is to find out the causes of low achievements of Dalit students in learning mathematics. He carried five Dalit students as a sample of the

study. He used the interview schedule, observation and document analysis for data collection. The study concluded that the home related variables such as parents' education poverty, gender bias, lack of study hour, behavior of parents are the major aspects of causes of low achievements in mathematics.

The **Feminist Dalit Organization** has produced a report surveying Dalit girls' education in Nepal entitled "Late comers in school"; Dalit girls in Nepal are the last to be enrolled in school and begin their education late due to their low status in society. Through extensive consultation with parents, students, teachers, political parties, Dalit activists and others, the study team found that the delay in Dalit girls starting school often has a negative effect on education. The report shows that Dalit girls are irregular in attending school, because of underachieving in their studies, caste and gender based discriminations etc.

Education of females has a profound effect on national development as lack of their education has been linked to low birth weight, poor health and high mortality rates in children, high fertility rates, poor family nutrition, low life expectancy, poor sanitation and high illiteracy rates. The socio-economic importance of female education can thus not be over emphasized.

Efforts to boost female education have been made by governments, international organizations and Non-governmental organization. However, there is still a gender disparity in education. Females still have low access to education, low participation and poor performance in many subjects, especially in mathematics and science subjects. Many factors such as, home, community and school based are restrict developments in

female education. Research has shown that factors within the classroom are not only the cause of gender imbalances in education and that home based factors which include family size, household income, parent's education, cultural and traditional beliefs all contribute substantially to poor female enrollment in school. Girls are pulled out of school and boys left in school when the family income dictates that all children cannot be educated. Girls miss school when they are doing the work at home or nursing a sick family member. Girls are taken out of school when they are mature for marriage or to help supplement the family income by selling, farming or performing other money earning activities (www.mwakalundec.blogspot.com).

Theoretical Framework

In dealing with the study, there are two suitable theories which could be more applicable so as to bring the valid and more accurate in guiding through doing the research study. These theories are Functionalist Theory and Theory of Adlerian.

Functionalist Theory

Functionalist theory is the suitable because it will be helpful in guiding to examine the role of the family, education and its components such as teachers and other stakeholders in shaping the individuals in the community. Example in education we believe that "function performed by education work is to maintain the stability and smooth operation of the societies and among the most important function are transformation of cultural behaviors, social integration , creation of knowledge and technology and effective role of occupation." (Thomas, W. La Verne). These may change the altitude of the parents and other community

members' positivity towards girls' students by giving them moral behaviors in education studies.

Theory of Adlerian

It is the theory that propounded by Alfred Adler (1870 -1937). In this theory of Adlerian psychology he argues that every individual is running towards the success (from inferiority to superiority). Human are moving forwards fiction goals that they think will leads to superiority. The inferiority feelings lead to discouragement. These discouragements may leads to the substance abuse, criminal abuse and also suicide. (Adlerian, 1956)

To combat these problem Adlerian counselors seeks to help the client lead to society useful life style. These useful lives mean those mentally healthy individuals are parts of the mainstreams characterized by their successfully meeting the challenge of the primary Adlerian life tasks of society or work.

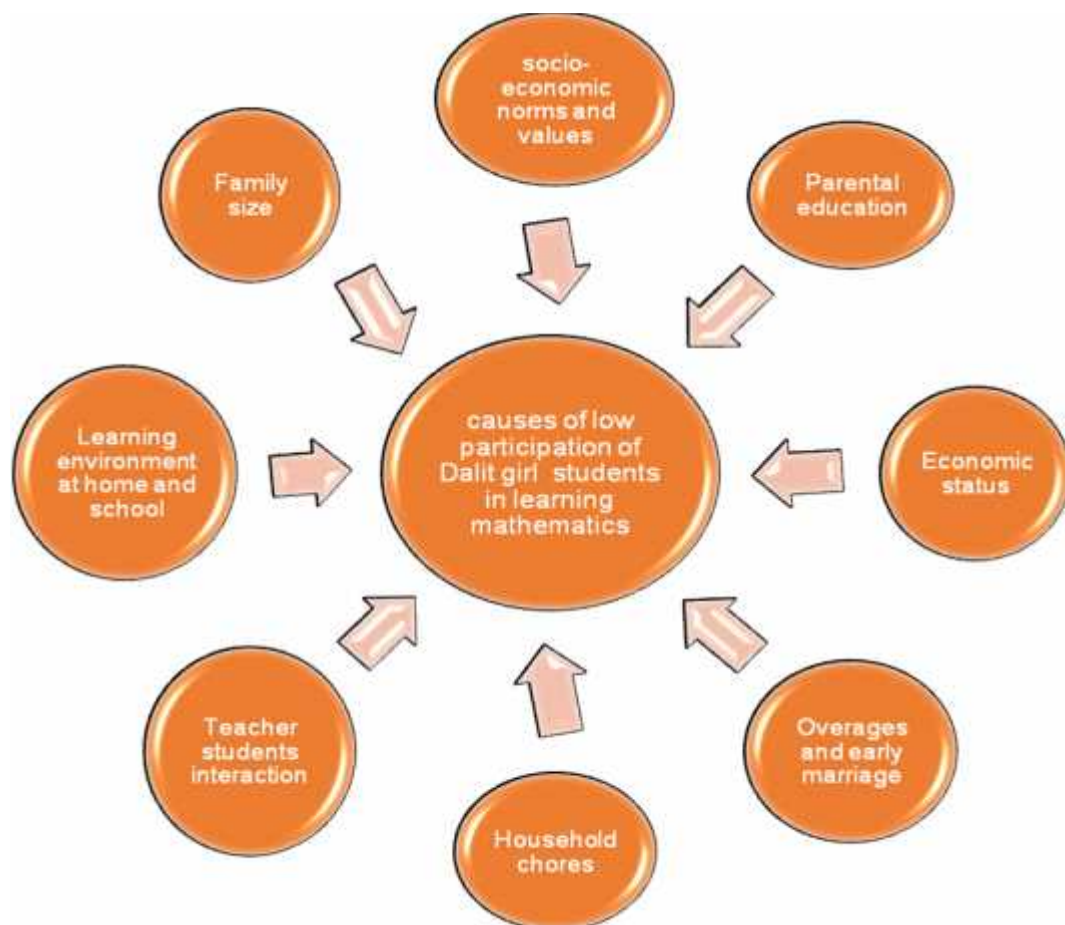
The theory relate to the study that the students are fighting getting chance to reach the successful life but they face the obstacles that setback their efforts from the family, members of the societies and government in initiating the reduction or eradicating the failure of the girls students in secondary schools.

Conceptual Framework

A conceptual framework is make to find out the causes of low participation of Dalit girls in learning mathematics which deals directly or indirectly to school enrollment of girls. According to Dr. Rita Torto females still have low access to education, low participation and poor performance in many subjects, especially mathematics and science. Many

factors which are home, community and school based, continue to restrict developments in female education. The factors within the classroom are not only causes of gender imbalances in education and that home based factors which include family size, household income, parents' education, culture and traditional beliefs all contribute substantially to poor female enrolment in school.

Therefore the girl's participation status in learning mathematics is taken as a dependent variable whereas socio-cultural norm and value, school facility, economic status learning environment at home and school, engage in earning activities, lack of parents education, household chores, gender discrimination, family types, parents education are taken as independent variables.



(Source: www.unesco.org/education/educprog/...)

Chapter III

METHODS AND PROCEDURES

This chapter includes the methods and procedure which word carry out to achieve the objectives and to get answer of the statements for the problems of this study. It describe the design of the study, selection of site and case respondents, data collection instruments, data collection procedure, validation of tools and data analysis and interpretation of the study.

Research Design

Research design refers to the plan that specify the population to be studied and the method of data collection. Researchers enable to be choose the design that best enable them to address research question at hand (Smith, 1991).

The formidable problem that follows the task of defining the research problem is the preparation of design of the research project, popularity known as the ‘research design’. Decisions regarding what, where, when, how much, by what means concerning an inquiry or a research study constitute a research design. “A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure.” In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. As such the design includes an outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data (Kothari, 2004).

This is a case study to find the cause of low participation of Dalit girls in mathematics learning. So, qualitative as well as descriptive method was adopted to analyze the data.

Descriptive analysis limits generalization to the particular group of individuals observed. No conclusions are extended beyond this group, and any similarity to those outside the group cannot be assumed. The data describe one group and that group only. Much simple action research involves descriptive analysis and provides valuable information about the nature of a particular group of individuals.

A case study involves an up-close, in-depth and detailed examination of a subject or the case as well as its related contextual conditions. Case studies appear with great frequency throughout popular works, with nearly anybody able to claim to have done one. Case studies also can be produced by following a formal research method. These case studies are likely to appear in informal research venues, such as journals and professional conferences, rather than popular works.

In doing case study research the “Case” being studied may be an individual, organization, event or action existing in a specific time and place.

Thomas offers the following definition of case study;

“Case studies are analyses of persons, events, decisions, periods, projects, policies, initiations or other system that are studied holistically by one or more methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame and an object within which the study is conducted and which the study illuminates and explicates.”

Site Selection

Site selection is the most important part of the study. The researcher has selected Kanchanpur district of far western development region to find the causes of low participation of Dalit girls students in mathematics learning. In the selected area different caste people are living, Dalit is one of them. In that area the ratio of Dalit is less than the other cast people. So, there is discrimination with Dalit as untouchable caste and they do not have any opportunity even in public program. They have congested over the particular area. So, the Dalit are far back from the opportunity of education than the other castes people. Thus the researcher has selected this area for study.

Sample of the Study

The sample size of case study depends upon the researcher; What he want to know? What is the purpose and credibility of the study? How much time and resources available?

The researcher used the purposive sampling method to select the sample school. Then, for the appropriate and actual information of study, the researcher selected any four Dalit girl students.

Data Collection Instruments

Since the case study is concerned with the causes of low participation of Dalit girls in learning mathematics at Secondary level, qualitative data collecting instruments are applicable. Qualitative method consisted many kind of tools to get information during the research. There are three kinds of data collection tools in qualitative research. The following data collection instrument was applied to find the causes of low participation of Dalit girl students in this study.

Interview schedule

"The purpose of interviewing is to find out what is in or on someone else's mind. The purpose of open-ended interviewing is not put things in someone's mind but to access the perspective of the person being interview" (Patton, 1990). In conducting interviews, it is important to keep this quote from Patton in mind. Interview data can easily become biased and misleading if the person is being interviewed is aware of the perspective of the interviewer. Too often, interviewees provide information based upon what they think the interviewer wants to hear. Therefore, it is critical for the interviewer to make sure the person being interviewed understands that the researcher does not hold any preconceived notions regarding the outcome of the study.

The main characteristics of unstructured form of interview schedule is topics and issues to be covered are specified in advance, in out-line form; interviewer decides sequence and wording of questions in the course of the interview. And strengths of unstructured form of interview schedule are the outline increases the comprehensiveness of the data and makes data collection somewhat systematic for each respondent. Logical gaps in data can be anticipated and closed. Interviews remain fairly conversational and situational.

On the basis of objectives of the student and socio-culture status of the Dalit, the researcher was developed the interview schedules in unstructured form. Then with the help of developed unstructured interview schedule researcher was taken the interview of selected students, mathematics teacher, head teacher and corresponding parents.

Observation Form

When observation is used in qualitative research, it usually consists of detailed notation of behaviors, events and the contents surrounding the events and behaviors. On the other hand, in quantitative research, observation is usually employed to collect data regarding the number of occurrences in a specific period of time, or the duration of very specific behaviors or an event.

Observations can be of the setting or physical environment, social interactions, physical activities, nonverbal communications, planned and unplanned activities and interactions, and unobtrusive indicators. The observer also should be alert for nonoccurrence things that should have but did not (Best & Kahn, 1999).

Observation is one of the most useful tools for data collection in any kind of research study. Being as an observer the researcher observed the activities of the key children in their class by using the observation forms. The data from observation consisted of detailed description of Dalit students' activities, behavior, actions and organization process. The researcher also observed the interaction between students and teachers, teaching learning activities in the classroom and interrelationship between key students and other students. The class observation form was developed to observe the girl participation in classroom practices.

Written Documents (Published and Unpublished)

The data from document analysis consisted of experts' quotations, program records, memorandum, reports, personal diaries, students' sheet, past results, physical facilities, teachers' demography, students' records etc.

Reliability and Validity of Tools

Reliability and validity are essential to the effectiveness of any data gathering procedure. Reliability is the degree of consistency that the instrument or procedure demonstrates; whatever it is measuring, it does so consistently. Validity is that quality of a data-gathering instrument or procedure that enables it to measure what it is supposed to measure. Reliability is a necessary but not sufficient condition for validity. That is, a test must be reliable for it to be valid, but a test can be reliable and still not be valid.

For making tools; the researcher was consulted to subject expert, specialist and supervisor. Validity of tools was established by expert judgment method and reliability by test retest method.

Data Collection Procedure

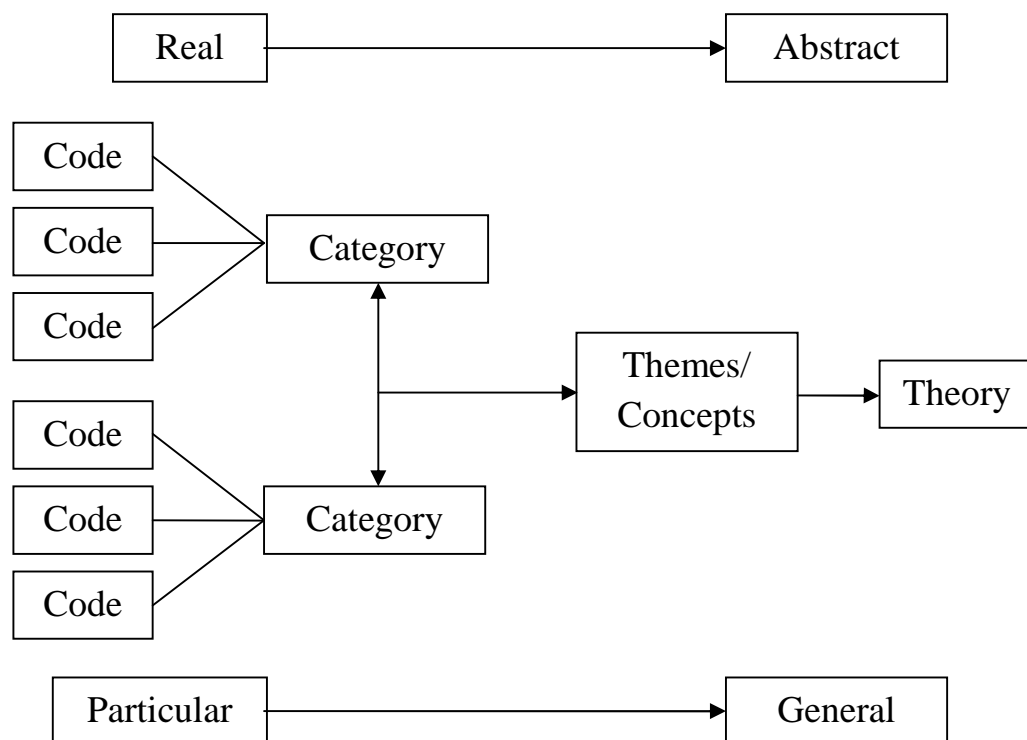
This case study concerned with qualitative and descriptive in nature. The class observation was did by the researcher for 10 days to collect the qualitative data. On the basis of observation form the researcher observed the behavior of Dalit girl students in the classroom, types of difficulties they get in mathematic learning and other essential information. The researcher was recorded activities of key students and teacher in their classes.

The interview was focused on key girls, parents, head teacher and mathematics teacher. The researcher was discussed with the parents, mathematics teacher and head teacher with the help of unstructured interview schedule. The interaction with the respondents was carefully listened and noted properly. The key girl student's class attendance,

regularity, exam results and other behavior was noted by reviewing the school files and records.

Data Analysis and interpretation

The study is concerned with girl’s participation in learning mathematics of Dalit girl students. The collected information at first was categorized according to the category of the respondents and different themes were given in the text of interview and observation note. These themes were collected as a code and the similar code version of respondents. It was collected together and explained in their perspectives. The school environment and interview with the head teacher as well as document analysis of the school, the home environment and other details were obtained by taking interview with their parents.



A streamlined codes to theory model for qualitative inquiry.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

The main focus of the study is to find out the causes of low participation of Dalit girls in mathematics. This chapter deals with the analysis and interpretation of the collected information from the case study. The researcher had used different types of data collecting tools in this study. Direct observation was done in the classroom. The classroom behavior of student and teacher was carefully observed and noted. The students' home environment and their behavior was evaluated by the researcher with the help of interview guideline. The researcher interviewed with the key children, their parents, mathematics teacher and head teacher of the school. The researcher had also noted the key students pre-class documents, their regularity in class, their behavior etc. from school documents.

The process of evaluating data using analytical and logical reasoning to examine each component of the data provided. This form of analysis is one of the many steps that must be completed when conducting research experiment. The data from various sources were gathered, reviewed and then analyzed to form some sort of finding and conclusion.

According to Willinson and Bhandarkar, analysis of data involves a large number of operations that are very closely related to each other. These operations are carried out with the aim of summarizing the data that has been collected and then organizing. This summarized data in a way that helps in getting the answer to the various questions or may suggest hypothesis.

Respondent A

Respondent A was Janki Lohar 16 year's old girl studying in grade X. She was born at Vimdatt municipality - 11 of Kanchanpur district. Nowadays, she lived on the same place at where she was born. There were 8 members in her family. All family followed Hindu religion. Her father Krishna Lohar and mother Sundari Lohar both are simply literate. Their occupation is farming as well as laboring. In her family she have two younger sister and one younger brother, grandfather, grandmother and parents. Her family used Doteli language at home. They does not have to land for farming. She is interested in her study but due to the lack of her economic condition of family she have to do all the house hold works because her father and mother are busy to earn money around the village area.

About her study, her grandfather told;

"We are Dalit, there was no provision of study. So I am illiterate. Because of illiteracy I did not understand about her study. Hence she leaves her homework. Due to poor economic condition it is very hard for us to arrange the food and clothing. Her father earn some money by doing the some work around the village area. It is very hard to buy her pen, copy etc."

About the own study Janaki said;

"Main occupation of my family is farming. I am busy every time in household work, so I could not give sufficient time for the mathematics learning at home. I couldn't understand the mathematics problems and I felt very difficult in learning mathematics."

From the above view of parents and students the researcher concluded that she had no time to do homework. She was investing her maximum time to do household work. Her family members are not educated to give feedback for her further study.

Respondent B

Respondent B is Maya Sharki of 17 year's old girl studying at grade X. She was born on Vimdatt municipality-11, Kanchanpur. Her family is joint family with 11 members. Her parents are farmer, so their income depends upon farming. She has two younger brother and one elder brother. Elder brother is studied up to grade XII, younger brothers are on grade VII and grade III. Her father's name is Tej Sharki and mother is Kali Sharki. Her father is literate but mother is illiterate. Her house is small without sufficient room. Parents are unable to manage the physical facilities that they need. She said,

"Due to poor economic condition my father could not buy our copy, pencil, school dresses, bag etc."

She does not like to do household work with her mother. She is interested in reading and writing. Further she said,

"My father said to me, farming is our occupation so you should engage in this work rather than school."

When the researcher observed the class she was sitting with discipline. The teachers' behavior was not different for her and other students. She felt that her relation with other is going to be good than previous.

About her study the mathematics teacher told;

"She often does not have copy and pen but she always does homework, except special condition. She would get good result if she study at home regularly."

She doesn't have good family environment to study. About her study her mother told:

"We are the people of passing our life by working in daily wages. We have the problem of fooding and clothing, so we cannot give attention in her study. The main problem is that we are economically weak."

And her father said;

"We are economically backward because of lack of knowledge and education. We have not capacity to help for her study. The sources of income hardly complete their demand so children could not get good facilities for education. Maya does the household work because of our business."

These statements conclude that most of the Dalit parents are economically and educationally backward, which plays the main role of low participation in learning mathematics.

Respondent C

Respondent C was Laxmi BK of 17 years old girl studying in grade X. She was living with her parents, two younger brothers and two younger sisters. She was living at Vimdatt Municipicity-12 of Kancanpur district. Her family speaks Doteli language. Her father is Ramesh BK and mother is Dhana BK. Her father was literate with under SLC and mother was illiterate. Home environment for learning was not so effective in her

family. There was economic problem in her family. Her father worked in India. The distance between her house and school approximately 3 km. She goes to school by walking. Her family thinks that daughter must do house hold works. It is her duty to finish all the works of house. Her family members said, *“Study is not important for girls.”*

After returning from school Laxmi gets engaged in household works. The researcher asked her about the learning difficulties in mathematics, she said:

“I have not enough time for doing homework and practice the extra problems of mathematics, so I felling difficulties in learning mathematics.”

About her study Laxmi's father said:

“I don't know no more about education but I have been providing expense for education. Teacher said me that my children are doing better than that of past years. I have left responsibility to the school.”

According to these views, researcher conclude that the lack of education of parents affects the educational status of their children. The role of teacher in learning process is not sufficient, the parent's awareness, their education, way of handling and guiding the family members are also most effective factors. If the parents have good education, they try to do their best to enable their children academically. The parents teach the basic knowledge of life, practical aspects, skillful concepts, right vision, appropriate norms and values to their children. So they can live easily in society and inspire them to the right use of life's every potentiality and opportunity.

Respondent D

Lalita Sharki is one of the Dalit girl student of Shree Purna Higher Secondary School in grade X. She was 16 years old. In her family there were five members with one sister, one brother and parents. She is eldest children of her parents. In comparison with other Dalit family her family seems to be small. Her father's name was Jagi Sharki and mother was Sharada Sharki. Her family speaks the Doteli language. Her family engaged in agricultural works. The distance between her house and school is nearly two kilometer. She goes to school by walking. They followed Hindu religion. Her family does not have the sufficient land but they farmed in landlords' farms. They are very poor so they have difficulties to manage daily life. Her father Jagi was skillful farmer for making halo, juwa, kuto, kodalo etc. instrument of agriculture. Her mother Sharada is housewife. She was illiterate. She was laborious in working the field. But she has not awareness about the education of her children. Lalita said she did not like to go to school. Researcher asked with her, "*Why you did not interested to go to school?*"

She said; "*I am always became late due to household works and dominated by other students of my class.*"

Researcher again asked her about time for mathematics learning at home. She said; "*I have no sufficient time for mathematics learning at home due to household works.*"

According to the school attendance register, she seemed to be late but presented except special conditions. There were no any opportunity provided by school to her. Nepal government providing special scholarship for the Dalit students which help her to manage the stationeries. About the difficulties of learning mathematics, Lalita told:

“There are so many difficulties in learning mathematics. I have got more difficulties in geometry, mensuration and arithmetic.” This is because of lack of study time, poor economic condition, friendship of bad society etc.

Major Causes of Low Participation of Dalit Girl Students in Learning Mathematics

Factors that discourage the students from learning mathematics can be related to school environment or their home environment. Anxiety about learning mathematics can be due to students’ bad experience from previous school, lack of teachers’ consideration for students various learning styles as well as to certain situations connected with students’ family environment. Very often children watch their parents struggling with unpaid bills, unforeseen debts and many other problems. As a result, young people start to associate mathematics with pain and frustration and don’t try to learn it. Many of them remain convinced that mathematics is something unpleasant and should be avoided throughout their whole lives. In their adult lives they miss professional and personal opportunities because they perform poorly in mathematics. Another reason for students’ aversion towards mathematics is their inability to connect mathematics concepts with their daily life.

According to mathematics teacher:

“Mathematics education requires highly motivated students because it requires reasoning, making interpretation and solving problems, mathematical issues and concepts. The challenges of mathematics learning for today’s education is that it requires disciplined study, concentration and motivation. To meet these challenges, learners must be focused and motivated to progress.”

Supporting these views, the head teacher says;

“The teachers’ role in students’ motivation should not be underestimated for helping students to become motivated learners and obtain the mathematical knowledge successfully. The teachers’ main instructional task is to create a learning environment where students can engage in mathematical thinking activities and see mathematics as something requiring “exploration, conjecture, representation, generalization, verification and reflection.”

Today’s students strongly need to know the uses of mathematics that taught in their practical life. They could not see any connection of their lives with different part of mathematics such as geometry, trigonometry and algebra. This is due to the fact that the process of information and their motivation for learning does not correspond with traditional method of classroom teaching. According to mathematical abstract, lecture method is still commonly used to teach mathematics. They are supposed to look for those connections on their own outside the classroom. However, nowadays students desperately need to understand how mathematical concepts will relate to their working place as well as their society. And if they do not see any reason why they have to learn a topic, they lose motivation and their problems in learning mathematics can results in severe failures in their future, professional lives.

Every teacher should be capable to teach the subject matter effectively. But most of the teachers in school level are untrained with low qualification. Parents’ negligence plays the favorable role to reduce the children’s self-confidence. Weak relationship between teachers and students destroyed the creativity, which must be realized. Many students who are weak in study are interested to sit with weak students and it is

difficult to create the learning environment. They copy the guide and talent students' note for doing homework but do not devote time for thinking seriously. Ultimately, they hate mathematics. They do not know about application and utility within and outside, national and international perspective. School environment is directly related to the effective learning. School environment need to maintain suitably according to the philosophy of learning, if not the learning program will be technically paralyzed. Most of the schools are unable to maintain the effective learning opportunity.

Negative attitude of parents towards the daughter affects her study and tending to narrow minded. Parents have some duties to perform for schools. The role of parents is not only to send their children to the school but also to check reliable situation that their children are going to right way or not. But most of the students play the optimum role for the betterment even so many economical and sociological disasters which are still standing opposite to the improvement. Most of the people in Nepal still lie below the poverty boarder line. They do not able to fulfill their basic needs and their capacity runs far from them. Such condition destroy the family background, consequently the poor children become servant for rich family. They do not get the opportunity to study. Such conditions play the vital role to the educational achievement.

With the help of related literature, theory, interview with students, their parents, mathematics teacher, head teacher, observation and related documents of school it was assumed that there were different causes of low participation of Dalit girls in learning mathematics. Such variables are described separately as follows:

Learning Environment at Home and School

We know “Home is the first school and school is the second home for each child.” The children learn how to behave other, how to respect the elders, how to cooperate to each other. Learning environment is the totality of the educational atmosphere in home and school. Hence, home is regarded as the first school for all individuals. Home environment plays a vital role in learning; it refers the occupation, economic condition and learning opportunities of the student at home. School is the second home of any child. The teacher, students and parents are the components of the school. School environment reflects belief and tradition of the school community delineating the relation among parents, students and teachers. Scholarships to the students, extra-class provided and dominance of language are the major aspects of school environment.

The overloaded household works do not permit women involvement in directly productive work. It has been informed that Dalit females have more workload at home than male. Similarly, Dalit male have laborious work for earning money, but their children help at their works such as cook food, washing clothes and pots etc.

The researcher found that Dalit students are busy in household works, care of children, care of cattle, cutting firewood etc. in the evening and morning. Also, there are no separate rooms for study.

According to Janaki Lohar (Respondent A):

“My father and mother are illiterate, they can’t teach me. My parents are busy to earn money by doing laborious work. I should have so many household workloads every day. I have no light to study at night. Therefore, I could not complete my homework.”

Parents view,

“We don’t have basic things in our house, how long can we go on this way. We are in difficult situation to survive. How can we send the children to school?”

From above views, it indicates that the economic status of family influences to the achievement of the students. The highly economic status can get better chances to buy books, copies and to take tuition and coaching classes. Mathematics needs more labor and effort than other subject and Dalit children do not have sufficient time for mathematical practices.

Respondent B said that;

“Our parents forced us to do the farming and household works. They said farming is our main occupation and you should engage in farming rather than study.”

Dalit students are not economically strong so they cannot afford their study easily. There is difference between their home culture and school cultures. Since their school culture and home culture cannot be matched each other they feel themselves as inferiority complex company with other students. So Dalit students are weak in mathematics.

Parental Education and Economic Status

Home is the first school for the children and mother is the first teacher of the children and father, elder brothers and sisters are transfer the knowledge to the child. If the parents are literate and have good moral and character then their children also imitated the same behavior. If parents have bad behavior and are illiterate, their children learn that

behavior from parents, elder brothers and sisters. Hence, the poor parent education is also cause of low participation of student in mathematics learning.

Respondent C said that;

“My parents are simply literate. They always engages in household work. I have to help my parents. So, I can’t take effort about my education. My mother spends almost time to making domestic materials. Grandfather and grandmother are sick and too old. They do not know the value of education. So I have no guidance at home and there is no separate room to read peacefully at home.”

The above view shows that most of the Dalit parents are illiterate. Dalit parents can’t guide their children at home due to the lack of education. Dalit parents are engaged on different works. The involvement of parents in their children’s learning is negligible. Parents’ educational level has been most effective factor in academic achievement. Parents serve as a role model and a guide in encouraging their children to pursue high educational goals and desires. By establishing the educational resources on hand in the home and holding particular attitudes and values towards their children’s learning. Researcher asked to a respondent about her families’ economic and academic condition, she said;

“Our economic condition is very poor. There is no other than my father or earning money. It is difficult to afford the educational expenses. In family there was no well-educated person that would help in my mathematics learning.”

The number of studies indicated that the students’ achievement is correlated highly with the educational attainment of parents. For instance,

students whose parents had less than high school education obtained lower grade in mathematics than those whose parents had higher level of education.

Over Aged and Early Marriage

The girls coming from the Dalit community were found over aged rather than other caste students. The main cause to be over aged was lately joining in the school. Almost Dalit girls were admitted in the school after more freedom. According to respondent C;

“My almost classmates have already been got married and dropped school. In my classroom I am older than other classmates. So, I feel heisted and cannot ask any problems frequently to the teacher. As a result I am poor in mathematics.”

Supporting the students view, parents said;

“Farming and laborer is our main occupation, which is main source of income. We are mostly poor in economic status, so we married them in their early age. Dalit give first priority to their parents’ culture than education for their children.”

From above statements given by student and parents, it indicated the culture influenced by their parental convention due to which, they are obliged to get married in their early age and usually appeared in school very late comparing other students. Dalit students were generally over aged due to which they are after teased by their friends and ashamed to ask solving question with the teacher. Most of the Dalit girl students do not come in school regularly due to their household works. They are not provided with conducive environment for their effective learning due to which they feel some sort humiliation and embarrassment. So, they are

poor in mathematics. Most of Dalit parents admit their over aged children in the school so they cannot be more attentive in school.

Mathematics Teacher said;

“Dalit students get admitted in school very late and most of them are married. They are after supposed to their creative age for their better learning and they also feel hesitation in asking question with me.”

The above view stated by mathematics teacher clarify that admission of Dalit students in school is highly influenced by their parental culture and poor economic condition in which they are tied with their professional boundaries. Regardless to say that they can't deserve if they are not willing to follow it, they have to give first priority to their culture and family requirements than their education. So their status makes than appear at school very late.

The over aged also hamper in learning mathematics. Due to over age and discontentedness in school, the student feel frustration and humiliation to ask the problem. At school most of their friends are in lower age in comparison to them. School does not emphasize their family problem. So, they feel difficulty for the adjustment. Mathematics needs more support and interaction with teacher and classmates, which is not favorable to these students due to psychological depression in school and classroom. Ogbus (2000) argued that the difference in culture at home and school arises the difficulty in mathematics learning.

Finally, it can said that over aged and early marriage are factors affecting the learning achievement in mathematics for Dalit girl students.

Socio-Cultural Norms and Values

Socio-cultural status is determined to be a predictor of mathematics achievement. A number of studies showed that parents with higher socio-economic and socio-cultural status are mostly involved in their children education than parents of lower socio economic status. The involvement of parents develop the positive attitudes of children toward school, classes and enhancement of academic achievement. It is believed that low socio-economic status negatively influences academic achievement in part because it prevents students from accessing various educational materials and creates a distressing atmosphere at home.

Because of the girls remain uneducated they got married very early. Marriage in the high reproductive stage with high fertility rate they got many children. Because of the unlimited family, the burden fell on the young girls which affected their health. They were not able to assist in family matters to their husbands. But now the situation is different. The girls manage to plan their family, educate the children and assist the husbands in family matters. Nowadays girls are became professional and improving their economic condition. The whole family becomes socially developed because of the education of girls. Education among women increased inter-caste marriages, which is definitely a sign of development. Untouchability practices are acute in villages. However, there is a gradual change in rural areas because they have become aware of their rights.

The researcher has indicated about the four key respondents in given chapter by studying their everyday situations at home. From above indication it is conclude that Dalit of Kanchanpur district are in poor economic condition. The main occupation of Dalit is farming as well as

labor, tailoring, shoe making, black smithy (iron worker), gold smithy etc. Some of respondents' parents were engaged on the labor of other caste people. Most of the Dalit were uneducated person, due to the lack of knowledge about the education. They were engage in household works. The respondents also engaged in their household works. They have no sufficient time for the study at home. Dalit girl students were depended upon the school study only.

Dalit students have to engage in farming work and house hold work rather than their study. They were tied with their cultural boundary as a result they could not decide themselves as their well. They did not have sufficient time for the study due to which they could not study more and they were poor in mathematics and so on. Most of the Dalit students faced economic crisis. They were not financially capable of affording their further education. They also explained that due to the primary culture of the student at home created the bone felling in mathematics learning. Dalit girl students learned everything from their culture which was not matched at the home and school.

Finally, it concludes that due to the culture of combined family, poor economic condition, illiterate family and lack of sufficient time at home for mathematics learning created the poor participation in learning mathematics for Dalit girl student.

Teacher Students Interaction

Interaction is social activity. Interaction may be within individuals or in groups. Within person interaction refers to the mental activity with his/her mind and soul. It depends upon the people's intellectual activity. Individual interaction between persons may be symbolic or code language. Interaction brings the maturity in learning.

According to students;

“In the school all teachers are from Brahman, Chhetri community. If mathematics teacher were from Dalit community, we could easily interact with them.”

Similarly, in this case mathematics teacher said;

“They did not asked the questions to me in classroom. Sometimes I asked question but they can't response. So, I do not asked questions to them.”

The above views of students and teacher indicate that there is caste based discontinuity in mathematics classroom. There was no much interaction between mathematics teacher and Dalit students. The above views also indicates that mathematics teacher have been neglecting the question arise by Dalit students in the mathematics classroom. Hence there is not proper interaction between Dalit students and other students as well as teacher in the actual classroom practices. One observed class episode is given below:

“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 students. Teacher always dominates the Dalit girls because they were not did mathematics homework regularly and they mostly became absent in school. Interaction brings the maturity in learning. But the interaction between Dalit 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 difficulty in learning mathematics for the Dalit girl students.

Chapter V

FINDINGS, CONCLUSIONS AND IMPLICATIONS

This chapter deals with the summary of the research, major finding, conclusion of research, recommends for educational implication and further study. The first section reveals the summary of the study, next section is the major finding and conclusion derives on the basis of research analysis. Finally present the recommendation for educational implication and further study.

Summary of the Study

Mathematics is the queen of all science. This slogan identifies the popularities of mathematics. Mathematics is like a language as a basic tool of communication because every human discipline such as chemistry, physics, social sciences, economics, engineering, psychology etc. are interpreted as a mathematical model. The twenty first century is said to be that of computer base information technology which is based on mathematics and thinking.

Even Asia is the largest continent of the world the girls' education is far back in comparison with other continents. Girls' education is intended to expand understanding and facilitate comparison with regard to achievement of gender equality in and through schooling. Measure has not been based on the Gender Parity Index (GPI) but on measures of girls' participation in and benefits from schooling. This is partly because the GPI gives scant insight into the qualitative dimension of schooling for girl and boys as well as into the intersection of schooling with other areas of social policy.

This is the case study of Dalit girl students. Its main objective was to identify the causes of low participation of Dalit girls in learning mathematics. To achieve this objective, various activities like class observation and school document have been involved. The researcher also applies the interview schedules in unstructured form for the respondents, their parents, mathematics teacher and head teacher of the related school. For this, the researcher was selected Shree Purna Higher Secondary School, Kanchanpur as a case school. In this research the researcher has analyzed the schools physical environment, home environment, parents' education, socio-culture status, factors related to teacher, relationship between teacher and student, relationship between case student and other students etc. to find out the main causes of low participation of Dalit girls in learning mathematics.

Findings of the Study

The major findings of the study were as follows:

- The financial condition was not stronger or enough of Dalit families to send their daughter at school and afford for their future education.
- The school should provide scholarship and financial aid for the Dalit girl students who were most talented but economically weak.
- Social factors are major obstacles on low Participation of Dalit girls in mathematics.
- There was lack of interpersonal relation between Dalit girls and other girl students at class.

- There was no proper interaction between Dalit girls and mathematics teacher.
- The home and school environment was not suitable for the mathematics learning of Dalit girls as they always received dominating behaviors by other students at school.
- There was gender discrimination in Dalit community. Daughters were more often forced to spend their time on household works rather than school study.
- The prior knowledge of Dalit girls were weak in mathematics than other subjects. The students were anxious towards mathematics because of their weakness in mathematics base.
- Lack of parent-teacher conference was also problem in this school.
- The attendance record of Dalit girls was lower than the other caste girls.
- There was not any fixed source of economy of Dalit families so the economic condition was poor.
- Uneducated parents give more importance for their daughter on household works than education.
- Because of large class size the teacher became unable to check student's homework.

Conclusion of the Study

This study is concerned with girls' participation in learning mathematics. The research derived from his field work in Shree Purna Higher Secondary School in Kanchanpur district.

Comparing other students with Dalit girls students there were many factors that affect Dalit girls students in mathematics learning. One of them was caste discrimination. The Dalit are known as low caste in the society. They are discriminated in every aspect. They are not allowed to involve in social programs, temples, water sources as well as sitting on the same bench of other caste students. So, the Dalit girls feeling dominance in school and do not like to go to study.

On the other hand, it was their culture that determines their schooling age, occupation, marriage and so on. In other words, Dalit girl students were strictly tied with their culture boundaries due to which they were obliged to do the things that their culture permits them to do. Their economic status was not strong enough to carry on their future education and as a result they were compelled to break their education. As they did not match to other students, they were given less emphasis for leaving and participation. Their experience and everyday lives were seemed to be ignored by school practices through they had in weeded enthusiasm in learning mathematics. So, poor economic status, caste dominance and cultural discontinuity were the main factors that created the poor participation in mathematics learning.

Implications of the Study

From the above findings and conclusion the researcher would like to suggest some recommendation for the improvement of low participation of Dalit girls in learning mathematics are pointed out as follows:

- The parents should not involve their daughter in the household work.

- The parents should send their children regularly in school.
- The mathematics teacher should use modern teaching materials.
- The mathematics teacher should encourage the girls to study mathematics in more time than another.
- The School should manage extra classes in mathematics.
- Manage more scholarship to the Dalit students up to higher education.
- Government should establish child development center in the Dalit community.
- Teacher may be played vital role in bridging the gap between the interpersonal relations of teacher Dalit students. They create in environment to understand their felling, behaviors and problems.

Recommendation for Further Study

Since the study is related with the Dalit girls participation in learning mathematics. Anyway this research is not complete research. There are limitations of this research. However, after analyzing, conclusion and suggestion the researcher made the following recommendation for the further study to validate the present study's finding.

- The study was done only in Kanchanpur District as a case for the generalization of the result of the study should be done in a wide scope and large sample.

- The findings of the research will be more applicable if similar study is conducted in more schools from different parts of the country.
- Similar study may be conducted at different caste.
- A study can do on the causes of school dropout problem of Dalit girls.
- A similar study could be done by survey type.

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Appendix A

Interview Guidelines for Dalit Girl Students

-) Family background.
-) Personal history.
-) Marital status.
-) Teachers' behavior towards them.
-) Reading opportunity at home.
-) View about mathematics subject.
-) Relation with other caste students.
-) Completeness of homework and class work.
-) Family support in learning mathematics.
-) Regularity in school.
-) Opportunity provided by school.
-) Difficulties in learning mathematics.
-) Administrative support for learning
-) School environment.
-) View about own culture.

Appendix B
Interview Guidelines for Parents

-) View about teachers and school.
-) Awareness towards their children's education.
-) Support for their children's learning.
-) Involvement in school.
-) School and home environment in learning for students.
-) Monthly Income of parents.
-) Numbers of children.
-) Expectation from school.
-) Opportunity provided for learning to their child.

Appendix C

Interview Guidelines for mathematics Teachers

-) Teaching strategies.
-) Area of difficulties in learning mathematics.
-) Problem on teaching Dalit girl students.
-) Effect of culture and language in learning mathematics.
-) Participation in mathematics class.
-) Encouragement provided to the girls students learning.
-) Impact of cultural differences in the mathematics learnings.
-) Plan for Dalit students in class activities.
-) Facilities provided by school.

Appendix D
Interview Guidelines for Head Teacher

-) Learning Environment in the school.
-) Guidance for mathematics teacher.
-) Dalit girl students' opportunity for learning mathematics.
-) Causes of low Participation in mathematics learning of Dalit.
-) Need for extra treatment for Dalit students.
-) Administrative support for learning.
-) Relation between teacher and Dalit students.
-) Economic condition of Dalit families.

Appendix E
Semi-structured Observation Form

Name:	Class:
Lesson:	Date of Observation:
Teacher input:	
What the student is expected to do:	
Support given:	
Learner's interactions with mathematics teacher or other learners	
Learner's response to task:	
Summary of strengths/difficulties:	