

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

**A
THESIS
BY
USHA SUNAR**

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Ref.

Date;

LETTER OF CERTIFICATE

This is to certify Mrs.Usha Sunar, a student of academic year 2072/74 with campus roll no. 67, Exam roll no.7228418, TU Registration no. 9-2-278-1056-2012 and this no 1462 has completed her thesis under my supervision, during the period prescribed by the rules and regulation of Tribhuvan University, Nepal. The thesis entitled “Causes of Low Participation of Dalit Girls in Learning Mathematics” embodies the results of her investigation conducted during the period of 2017 to 2018 under the Department of Mathematics Education, University Campus, Tribhuvan University, Kirtipur, Kathmandu. I recommend and forward that her thesis be submitted for the evaluation to award the degree of Master of Education.

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LETTER OF APPROVAL

This thesis entitled “**Causes of low participation of Dalit girls in Learning Mathematics**” has been approved in partial fulfillment of the requirements of the Degree of Master Education.

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RECOMMENDATION FOR ACCEPTANCE

This is to certify that **Mrs. Usha Sunar**, has completed her thesis entitled **“Causes of Low Participation of Dalit Girls in Learning Mathematics”** under my supervision during the period by the rules and regulation of Tribhuvan University, Kirtipur, Kathmandu, Nepal. I recommend and forward her thesis to the Department of Mathematics Education to organize final viva-voce.

.....

Mr. Lok Nath Bhattarai

(Supervisor)

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Defense date.....

DEDICATION

This study is dedicated to my affectionate parents who gave me grander

Opportunity to step in this earth and all my respected teachers

Who have contributed to arrive me in this position.

DECLARATION

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

.....

Usha Sunar

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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's situation of the participation of Dalit girls 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 five Dalit girl students of grade IX selected from Narayani Model secondary school, Bharatpur, 11, Chitwan. 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 show that engagement of household work, poor economic Condition, illiterate parents, academic environment at home and school, socio Cultural norms and value, family occupation etc. are the causes of low Participation of Dalit girl students in learning mathematics.

TABLE OF CONTENTS

	Page No.
<i>Letter of certificate</i>	<i>i</i>
<i>Letter of approval</i>	<i>ii</i>
<i>Recommendation for acceptance</i>	<i>iii</i>
<i>Dedication</i>	<i>v</i>
<i>Declaration</i>	<i>vi</i>
<i>Acknowledgement</i>	<i>vii</i>
<i>Abstract</i>	<i>viii</i>
<i>Table of Contents</i>	<i>ix</i>
 Chapters	
I. INTRODUCTION	1-10
Background of the Study	1
Statement of the Problem	6
Significance of the Study	7
Objectives of the Study	8
Delimitation of the Study	8
Definition of the Related Terms	9
II. REVIEW OF RELATED LITERATURE 11-19	
Review of Empirical	11
Theoretical Empirical	15
Conceptual framework	18
III. METHODS AND PROCEDURE 20-25	
Research Design	20
Site Selection	21

Sample of the Study	22
Data collecting Instruments	22
Reliability and validity of Tools	23
Data collection Procedure	24
Data Analysis Procedure	25
IV. ANALYSIS AND INTERPERTATION OF DATA	26-48
The present situation of Participation of Dalit girls	27
Introduction about Study Site	29
Introduction of Case Student	30
Causes of Low Participation of Dalit Girls Students in Learning Mathematics	35
Dissatisfaction of Students of Mathematics	36
Academic Environment at Home	37
Academic Environment at School	39
Parental Education	42
Economic Status of Parents	43
Socio-Cultural Norms and values	44
Teacher Students Interaction	46
V. FINDINGS, CONCLUSIONS AND IMPLICATIONS	49-53
Summary of the Study	49
Findings of the Study	50
Conclusion of the Study	51
Recommendation for Future Study	51
Recommendation for Educational Implications	52

REFERENCES

APPENDICES

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 student's achievement in school mathematics, many researchers have been done to identify the variables that influence the achievement score 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 girl's; social factor is one of them. Not only in developing countries also in developed countries, girl's 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 Euclid, Newton, and Pythagoras 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.(Bhatt 2015)

Participation means involvement of people in many activities for certain purpose. Student involvement creates and models environment where students find opportunities for personal and professional development. We integrate in class and out of class learning to provide experiences through programs services and events. Mathematics is a technical subject which needs more time to practice and high attention to learn but by nature such qualities are found in very few girls. In context of our country girls and mainly Dalit girls are not encouraged for study by their parents

and society. Less number of dalit girls gets chance to involve in mathematics education comparatively. (Devkota 2017)

In Nepal men tend to be the owners of property and the decision makers in the families women 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 women 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. Their 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 opposition 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 the literacy rate women are only 44 percent. This is a staggering inequality for women's education which directly linked to the area of poverty in Nepal. Another issue of women's of 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 language. 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 be 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 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, Gahat raj, 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 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, much 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. (Bhatt 2015)

Estimation of the number of Dalits in Nepal vary greatly. According to the official census of 2011, dalit constitute 13.6 percent of the total population (on 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 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 traditional four-fold caste system consisting of the hereditary Brahmin, Kshatriya, Vishya 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 Dalit in village tea stalls.
- Discriminatory seating arrangements and separate utensils in restaurants.
- Prohibited from entering into village temples.
- Prohibited from entering dominant caste homes.

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

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 students 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 educationalist and stake holders. There is now equity 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. The mathematical concept is given from the basic level to secondary level while teaching mathematics in classroom. Students 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 was mainly concern to find the causes of low participation of Dalit girl students in learning mathematics of at secondary level. Especially Dalitgirls, they don't chance of going to school in learning mathematics at secondary level.

Participation of dalit girls in mathematics, Science, and all of field of technology is extremely low. So it's necessary to understand causes of low participation of dalit girls in mathematics and also need to know how to increase participation of dalit girls in mathematics. It also focused on the present condition of participation of Dalit. So this study was based on following research questions:

- What is the present condition of participation of Dalit girl students in mathematics?
- Why the Dalit girls have low participation 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 the study is helpful to identify some of the factors that can affect the girl's 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 technological field. Thus, in this sense the study would have following significance:

- This study would help to improve mathematics achievement of Dalit girl students.
- The study would help mathematics teacher to improve mathematics teaching.
- It supports to find the information about the low participation of dalit girls in mathematics.
- 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 objective of present research was as follows:

- 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 would have some limitation which is pointed as below:

- This study was limited to Chitwan district.

- This study included only grade IX girl students.
- This study was limited to only one school of the district.
- This study was focus on the participation of Dalit girls.
- This study was conducted within six Dalit girls of grade IX.

Operational 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 term participation is defined as attending class regularly, interacting with teacher in class room, interacting with peers, doing homework and class works in the classroom.

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 IX 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 Educational materials, school building and furniture, drinking water, toilet, and playground are considered as school facilities in this study.

Dalit According to District Administration Office, Chitwan the following caste are mentioned as Dalit; sharki, Lohar, Kami, Damai, Badi, Gaine, Kasai, Tamata, Dum, Ramdam, Ghatraj, Lohani, Rasaili, Chunara, Sunar, Chamar, Oad, Dholi, Hudke, Gotame, Panti, Barali, Rasaili, Bk, Dhobi, Parki.

Chapter II

Review of Related Literature

A literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of its research. It 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 weakness in previous work. So helping to identify them in our own research and eliminate the potential weakness, which provides the force and potential strengths.

Review of Empirical Literature

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 girl’s participation had increased to 89% from 84% a few years back, Burdon said more needed to be done especially for disadvantaged girls are countries like Nepal. “Half of Dalit (low cast) 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, 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.

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. He selects only one case school of the Kaski district. His study concluded that teacher and teaching methods were not main factors to affect students achievement, but poverty, social belief, social tradition, cost of education, household work load, problem of health, psychological effect, lack of motivation are also the 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 expends at the Jun 11-12 regional meeting on equality. Gender and quality is education organized by the global advisor committee of the United Nation Girl’s education Initiative (UNGEI).Representative from 12 countries in different continents took part is the 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 was headed. It has about beyond the numbers and asking how :We can better support young people in the Asia pacific region, and help makes schooling safer, enjoyable and more meaningful experience for girls” Said Fences Turner, deputy regional director for south Asia for the United Nation Children’s Fund (UNICEF)

Bohara (2009) studied on “Factors Affecting on 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 out the factors affecting on 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 from 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 , family occupation , social belief , social tradition, childhood marriage , working in upper cast family were the major affecting factors on mathematics achievement of the Dalit students.

Pokharel (2010) did the research on “Girl’s participation in optional mathematics in Dolpa district.” The objective of the study was to find the factors that affect the participation of girl’s 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 use the interview schedule and oppinare form for data collection tools. He was found that the home environment such as gender bias at home, parent’s education, practice time given to solve problem, economic condition of family influence in the girls participation on optional mathematics.

Pokharel (2011) conducted his thesis on the topic “Girls participation in learning mathematics "at secondary level. The objective of this study were to identify the girls participation in learning compulsory mathematic among thami girls student at secondary level and to find out the cause of low participation of girl in learning

compulsory mathematic at secondary level. Only six thami girls of grade IX were selected purposively for the study as cause respondents form Kalika Higher Secondary of Chemawati VDC and Dolkha district. Semi-structured interview schedule and observation from were used to collect primary data for this study. Triangulation was adopted to maintain the validity of the data and thematic categorization was used to analyze the collected data .Moreover, the collected data were justified and interpreted accordingly to the culture difference and discontinuity theory. The main finding of the study is thami girl's participation in compulsory mathematic is low mainly due to language problem, poverty, illiterate parents, gender discrimination and dominated behavior by thami students. Therefore from the finding it is concluded that most of the thami girl's students were forced to discontinue schooling because of language difference in home and at school, cultural discrimination, male dominance society, poverty, and illiterate parents. So, thami girls have no time for learning mathematics at home.

Upadhaya (2011) did a research on “Causes of low Achievement of Dalit students” (A case study of bajhang district)”. The objective of this study was 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 document. The study concluded that the home related variables such as parent's education poverty gender bias lack of study hour, behavior of parents are the major aspects of causes of low achievements in mathematics.

Bhatt (2015) did a research entitled “causes of low participation of Dalit girl's in learning mathematics”. They study attempts to identify the present situation of

Dalit girl's students and find out the causes of low participation of dalit girls students in learning mathematics at secondary level. He applied case study design in his study. The study was conducted with the sample size of four dalit girls students of grade X selected from Shree Purna Higher Secondary school, Vimdatt municipality-12; Kanchanpur. This study used three types of tool 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 engaged of household work, poor economic condition, illiterate parents, over aged/ early marriage, socio cultural norms and values, family occupation etc are the main causes of low participation of Dalit girls students in learning mathematics .

In the conclusion, the empirical review is a source of further study of research task. It will take the research task to be undertaken is better prospective and is essential for guidance of research planning. After study of all above research, there are done different aspects of girl's participation in mathematics. But not yet causes of low participation of dalit girls in learning mathematics at secondary level.so, I need to research on this topic.

Theoretical Review

The Feminist Dalit Organization has produced a report surveying Dalit girl's 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, student, teachers, political parties, Dalit activists and others, the study team found that the delay in Dalit girls starting Dalit

girls are irregular in attending school, because of underachieving in their studies, caste and gender based discrimination etc.(Bhatt,2015)

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 emphasizing.

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 factor which include family size, household income, parent's education, culture and traditional beliefs all contribute substantially to poor female enrollment in school. Girls are pulled out of school and boys life 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)

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 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 feeling leads 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 that mentally healthy individual is 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 research the successful life but they face the obstacles that setback their efforts from

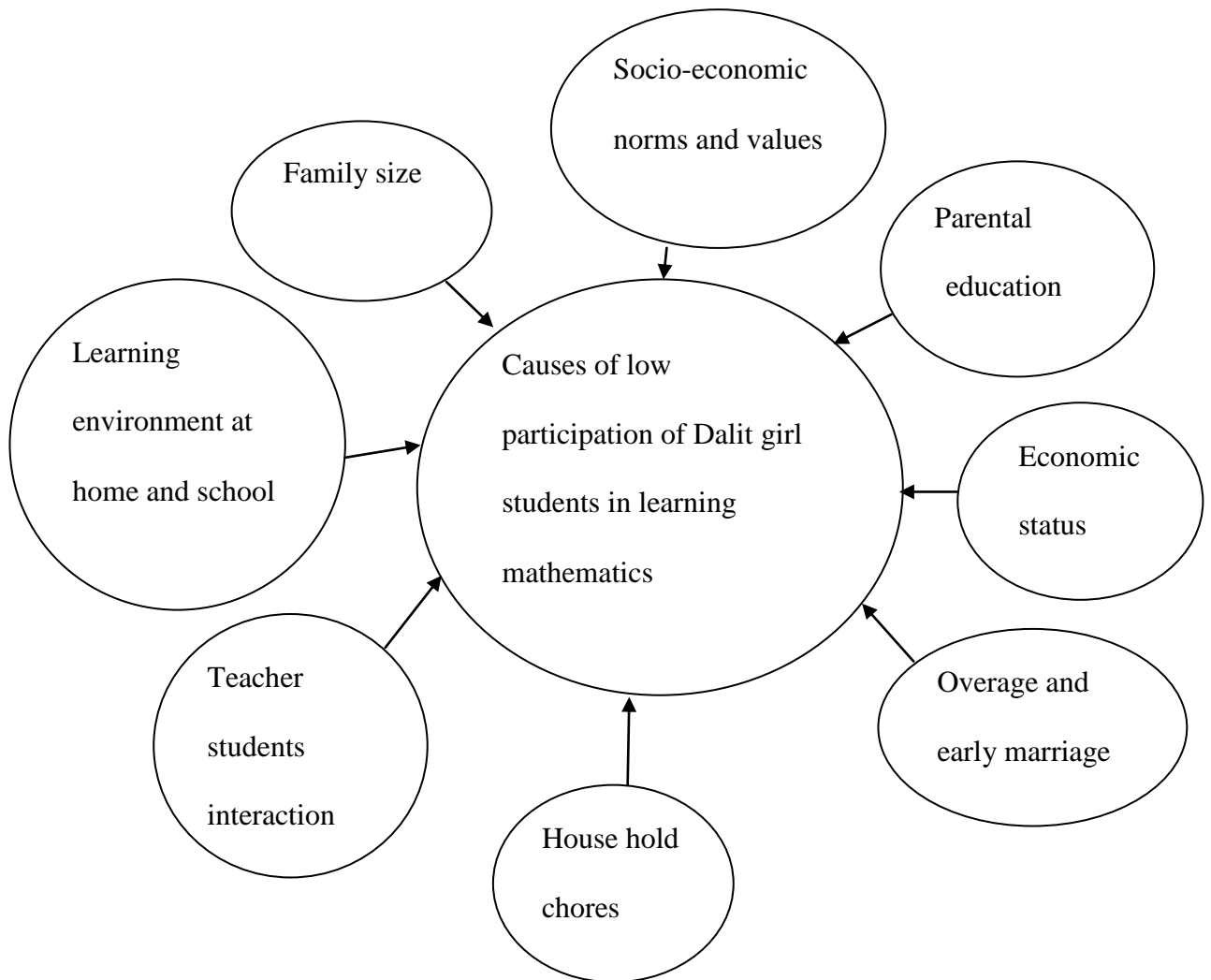
the family, members of the societies and government in initiating the reduction or eradicating the failure of the girls students in secondary school.

Conceptual Framework

A conceptual framework is made 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, parent's 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 development variable whereas socio-cultural norm and value, school facility, economic status learning environment at home and school, engage in learning activities, lack of parents education, household chores, gender discrimination, family types, parents education are taken as independent variables.

Conceptual framework about causes of low participation of Dalit girls students in learning mathematics.



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

The above diagram relates the causes of low participation of Dalit girls students in learning mathematics on the basis of family size, learning environment at home and school teacher students interaction, household chares, over age and early marriage, economic status, parental education and socio-economic norms and value.

Chapter III

METHODS AND PROCEDURES

This chapter includes the methods and procedure which would 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 refresh to the plan that specify the population to be studied and the method of data collection. Researchers enable to be choosing 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 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 in conducted; it constitutes the blueprint for the collection, measurement and analysis of data. As such the design includes an outline of what the researcher was done 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 similarly 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.

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

Site Selection

Site selection is the most important part of the study. The researcher was selected Chitwan as a study site 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 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 for ?

The researcher used the purposive sampling method to select the sample school. Then, for the appropriate and actual information of study, the researcher was selected any five Dalit girls student as the main respondent in this study..

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 instrument 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

On the basis of objective of the study and socio-culture status of the Dalit, the researcher would develop the interview schedules to fulfill the research objectives and to meet the conceptual framework of the study 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 to collect primary data.

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 events. Observation can be done as setting or physical environment, social interaction, physical activities, nonverbal communications, planned and unplanned activities and interactions, and unobtrusive indicators. The observer also should be alert for non-occurrences things that should have but did not (Best & Kahn, 1999).

The class observation form was developed to observe the girl participation and the performance in classroom practices. The researcher was evaluating the attendance and classroom activities of the students and teacher by using observation form. Then the observation was done by setting in the classroom, where researcher could watch, listen, interact and record the essential data from the subjects.

Written Documents (Published and unpublished)

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

Reliability and Validity of Tools

Reliability and validity are essential to the effectiveness of any data gathering procedure. Reliability of the research instruments is the necessary qualities of

instrument. Reliability is the degree of consistency that the instrument or procedure demonstrates; whatever it is measuring, it does so consistently.

For the purpose of establishing reliability of interview schedule, one secondary school was selected from Chitwan District to implement the procedure of testing reliability and validity. For the purpose of reliability of observation form the researcher was observed the activities of the key children in their class by using observation form. The data from observation was consist of derailed description Dalit girls students' activities, behavior, actions and organization process. Researcher also was observed the interaction between students and teachers, teaching learning activities in the classroom and interrelationship between key students and others students.

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. For making tools; the researcher was consult to subject expert, specialist and supervisor and their suggestion was taken to future standardize the questions. Validity of tools was established by test retest method.

Data Collection Procedure

This case study concerned with qualitative and descriptive in nature. The class observations have been done by the researcher for 10 to 15 days to collect the qualitative data. On the basis of observation form the researcher was observed the behavior of Dalit girl students in the classroom, types of difficulties they get in mathematics learning and other essential information. The researcher was record activities of key students and teacher in their classes.

The interview would 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 girls student's class attendance, regularity, exam results and behavior was noted by reviewing the school files and records.

Data Analysis Procedure

The study is concerned with girl's participation in learning mathematics of Dalit girl students. The collected information from class observation, interview and school records first was categorized according to the category of the respondent and a different theme was given in the text of interview schedule and observation form. These themes was collect as a code, similar code version of the respondents. It was collected together and explained in their perspectives. Cross match was adopted to maintain the validity and reliability of the result of the study. Data analysis and interpretation was done on the basis of theoretical framework developed by the researcher in the literature review. The school environment and interview with the head teacher as well as document analysis of the school, the home environment and other details was obtained by taking interview with their parents.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

The main focus of this 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 qualitatively. 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 student's home environment and their behavior was evaluated by the researcher with the help of interview guideline. The researcher interviewed with key children, their parents, mathematics teacher and head teacher of the selected schools. 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 and form some sort of findings and conclusion. According to Willison 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.

The description 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 collected information were analyzed under the following heading.

- The present situation of participation of Dalit girls.
- Introduction of study site
- Introduction of case students
- Dissatisfaction of students towards mathematics
- Academic environment at Home
- Academic environment at school
- Parent's education
- Economic Status of Parents
- Socio-cultural norms and value
- Teacher student relation

The present situation of participation of Dalit Girls

In this section I deal with the present situation of participation of Dalit girls in learning mathematics at secondary level. For this I observed class of IX Dalit girl students and took interview with the students. After completing the classroom observation, interview and school record document. I found low enrollment of Dalit girl students in learning mathematics. I found low enrollment of dalit girls in learning mathematics. One of most reason that the girls enrollment in learning mathematics is mathematics anxiety. Anxiety means nervous or worried about something.

Moreover, it is a feeling of emotional tension about something. Mathematics anxiety in one which means fear from mathematics as a result mathematics learning which emphasizes less participation on mathematics learning and does not motivate the students for the future study in mathematics. (Subedi, 2010)

From the opinion of headmaster and mathematics teacher of secondary level Dalit girl students worried about learning mathematics because there are fear from the mathematics there parents are illiterate some of Dalit girls are low confidence in learning mathematics. As a result enrollment rate shows decreasing especially in mathematics left the mathematics subject to study. From the class observation, I found dalit girls self-level was not good compared with other caste girls students.

About the participation of dalit girls in class nine; Narayani Model Secondary school's record is given below;

Years	Total students	Dalit girl students
2072	183	3
2073	218	5
2074	197	8
2075	203	6

The above table shows the participation of dalit girls in learning mathematics of class nine. In year 2072 there were all together 183 students in that class but among them there were only 3 dalit girls. In 2073 there were 218 students in total but only 5 Dalit girls are present at that time. After 1 year the table shows the decreasing data in total number of students but increasing trend in Participation Dalit girl students. In 2074, 197 students are present and among all there were 8 dalit girls are present. In year 2075, observation of class nine there were all together 203 students are participation among them only 6 dalit girls are participation in learning mathematics. From above it is clearly said that, in present situation there were less participation of Dalit girls in learning mathematics compared with other cast girls during this time of period.

Introduction about Study Site

Narayani Model secondary school is located at Baharatpur – 11 Chitwan. Which is the rebound schools of Chitwan district with peaceful environment and all needed facilities. Dalit community was one of the major communities around the school. The presence of this community in the school was less. The dalit students in the community compared with other students were less in number. I found around ten dalit students were in this committee. I found two teachers from Dalit community in this school. The presence of dalit students was less in the school activities and programs. Head teacher opinion regarding this issue was:

The dalit students in this school are especially from poor and uneducated communities and the parents in these communities are away towards education. To make responsible towards school, the school management committee includes the member of Dalit communities. We usually inform the parents about their child education .But they were not presents in our formal programs.

From the above version of head teacher, the researcher found that, the girl students from Dalit community were few in number than the other community. The parents of the Dalit students were hardly involved in the different activities of the school like school management committee, educational programs and physical aspects of the school.

Introduction of Case Students

Respondent A

Respondent A was Denisha BK 14 year's old girls studying in grade IX. She was born at bharatpur-11 Chitwan district. There are 5 members in her family. All family followed Hindu religion Her father Bikram BK and mother Kalpana Tamang. Were both illiterate. In her family, she have one brother and one sister and parents. Her family used Nepali language at home. She is interested in her study but due to the poor economic condition of family some time she have to do all the house hold works. Her father and mother were more busy to earn money around the village area so she must. Denisha's study was not so good because she had to work in his home. Her parent engaged in agriculture. Beside the vegetation in the field, they went to the daily work to gain economic help. Denisha main work was to take care her younger brother. She did not have good family environment to study. About her mother say that "We are Dalit, there was no provision of study. So I am illiterate, because of illiteracy I did not understand about her study. Due to poor economic condition it is very difficult for us to manage to for her tuition fee. Her father earns money by doing the work around the village area. It is very hard to manage money for her study."

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

Respondent B

Respondent B is Namrata Sunar of 16 years old girl studying at grade IX. She was born on Gorkha. Nowadays, she lived on Bharatpur 11, Chitwan. There are 4

members in her family. All family followed Hindu religion. Her father worked as a security guard and mother had a small groceries shop in village. The economic condition of her family was not bad. She has one brother. Elder brother is studied up to grade XII. She does not like to do household work with her mother. She interested in reading and writing. Her father and mother are literate. Her house is small with 5 rooms. Parents are unable to manage the physical facilities that they need. About her study she said “My parents are uneducated therefore they don’t know the importance of education. I understand mathematics at class but I can’t remember for long time. Because of my father’s drinking habit and I can’t get good educational environment at home. So, I feel difficult in mathematics than other subjects.”

The above view indicates that she couldn’t give so much time for study at home. She face the difficulties in mathematics learning because of her home environment created by her father. According to the gender difference perspective, how woman’s location and experience of social situation differ from men. In our particular society, parents often drink alcohol and they quarrel with family members which is our traditional culture. This culture has affected all of the members so that, this kind of culture has become hindrance the study of their children. Thus, we should improve our culture and cultural behavior.

About her study mathematics teacher told, “She always does homework she was joined tuition class in evening time .she would get good result if she study at home regularly.”

From the above mathematics teacher’s view shows that students does homework but do not practice the extra exercise of mathematics at home. According to Alderian theory, the students are fighting getting chance to research the successful

life but they face the obstacle that setback their effort from family, member of the societies and government in initiating the reduction or eradicating the failure of the girls students in secondary level.

About her study her mother told;

“She was weak on mathematics than other subjects. And we cannot give attention in her study. The main problem is that we are always busy in our business. But ‘she had joined tuition class. I hope she could get good result”

These statements conclude that most of the Dalit parents are educationally backward. Parents were always busy in work and they can't guide their children. So student did not have the learning environment at home. Due to this reason they become weak in mathematics.

Respondent C

Respondent C was Binita Uppokoti of 14 years old girl studying at grade IX. She was living with her parents. She have one older brother and one elder brother. She was living at Bharatpur -11 of Chitwan district. Her father is Om Bahadur Uppokoti and mother is Ganga Maya Uppokoti. Her father was literate with under SLC and mother was literate with under SLC. Home environment for learning was not so effective in her family. Her father is working on gulf country. The distance between her house and school is approximately 2 km. She goes to school by cycling. She studies math subject per day 1 and half hour at home. Her mother worked as a beautician so her duty is to finish all the works of household work.

After returning from school, Binita gets engaged in household works. The researcher asked her about the learning difficulties in mathematics She said, “My all

parents support me for my study. But I feel difficulty in learning mathematics. I can't solve any mathematical problem.

About her study Binita's Mother said; "I don't know more about her education but I have been providing expense for education. Teacher said me that my children are doing better than that of past year. Time to time I had visited school."

According to these views, researchers conclude that the lack of education of parents affects the educational status of their children. The role of teacher is not sufficient, the parents were aware of their children's but they were unable to handling and guideline the children. 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 concept, right vision, appropriate norms and values to their children.

Respondent D

Respondent D was Asbina Pariyar of 15 years old girl. All the way from Chitwan . She was the only girl child in her family with two elder brother. Talking about her parents both her mother and father used stitch clothes. They had their own small shop with only one sewing machine. Both belonged from literate and well civilized background. Her father was under SLC graduate and her mother was intermediate graduate. Although her parents are quite literate they don't have enough time to guide Asbina and help her in solving her problems. Mean while, when researcher asked about her interest about mathematics and the time period. She takes while solving the question in a reply she said she does not like math subject because the find all the question hard and to be honest, she said she don't have any interest in

that. Additionally she said math is the subject people should spend maximum time but because of household work she can't give her dedication in this subject.

According to the school attendance register, she seemed to be late but she attained in regular basis. Because of her household problem. She had to walk a long road to attain her class. That was the reason why she was late always. Knowing everything school administration did not show any concern about her difficulties. There were no any opportunities provided by school to her for their learning purpose. Nepal government providing special scholarship for the Dalit students which help her to manage the stationeries and school's uniform. About the difficulties of learning mathematics Asbina, one of my participant expressed her expression on; "There are so many difficulties in learning mathematics. I have got more difficulties in geometry, time and work and arithmetic." This is because of lack of study time, poor economic condition, bad society etc.

Respondent E

Respondent E was Anjila Gotame of 15 years old girl studying at grade IX. She was born on bharatpur-11 Chitwan. She lives with her parents. Her family is very small family. There are four members in her family. Her father is Tirtha Gotame and mother is Rina Gotame. Her father was literate with under SLC and mother was illiterate. Home environment for learning was not good in her family. There was economic problem in her family. Her mother is house wife and her father worked in India. The distance between her house and the school is approximately 3 km. She goes to school by cycling. She is not more interested in mathematics, because she knew it is difficult than other subject for her. Her family thinks that daughter must do household works. It is her duty to finish all the works of house.

After returning from school Anjila gets engaged in household works. The researcher asked her about the learning difficulties in mathematics, she said: "I have not practice the extra problem of mathematics, so I feeling difficulties in learning mathematics." Her mathematics practice is irregular. Not only mathematics her textbook reading in home is irregular. So in last year result of grade Viii, she had obtained third division marks in mathematics. She feel bored to study mathematics; she gives more time to other subject. About her study her mother said; "I don't know more about education, her father have been providing expense further education. Teacher said me that she is very weak in mathematics rather than other subject so she have been need to join extra tuition class"

According to these views, researcher concluded 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.

Causes of low participation of Dalit Girl Students in Learning Mathematics

Causes 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 situation connected with students' family environment. 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' dissatisfaction toward mathematics is their inability to connect mathematical concepts with their daily life. (Bhatt, 2015)

Dis-satisfaction of students towards mathematics

“Mathematics education requires highly motivated students because it requires reasoning, making interpretation and solving problem, mathematical issues and concepts. The challenges of mathematics learning for today's education are that it requires disciplined study, concentration and motivation. To meet these challenges, learners must be focused and motivated to progress.” (Math teacher's view)

Supporting these views, the head teacher says; the teacher for the motivation of students should not be underestimated for helping students to become motivated learners and obtain the mathematical knowledge successfully. The teacher's 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 which is taught in their practical life on a daily basis. They could not see any connection of their lives with different parts 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 the traditional method of classroom teaching. Nowadays students desperately need to understand how mathematical concepts will relate to their working place as well as their society.

Many students who are weak in their study are interested to sit with weak students and it is difficult to create the learning environment. They copy the guess paper 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. The school environment is directly related with achievement of students and effective learning process. School environment need to maintain suitability according to the philosophy of learning. Most of the schools are unable to maintain the effective learning opportunity for the students.

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 create reliable and effective learning environment 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.

Academic environment at home

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 belief and tradition of the school community delineating the relation among parents, students and teachers.

The over loaded 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 cloths and pots etc.(Yadhav,2017)

The previous study and National data of education shows that dalit students are poor in learning mathematics than others students. They are busy in household works in the evening and morning also there is no separate rooms for study. In the support of previous studies one of my participant Namrata say,

“My father and mother are illiterate, so they can’t teach me. My parents are busy to earn money. I should have so many household workloads every day

(Student’s view)

“We don’t have basic thing in our house how long can we go on this way. We are in difficult situation to survive.”

(Parent’s view)

The above views, it indicates that the economic condition of family and educational background of family influences to the achievement of the students. The highly economic status can get better chance 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. Because of their household work. And most of Dalit parents are illiteracy they have no any idea to guidance their children for the study.

“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.”

(Respondent A’s view)

“If there are educated people in our family than that would create the good learning environment at home. Parents could not success to manage the physical facilities we need at home and my house in small within sufficient rooms.”

(Respondent B’ views)

The above view indicates that due to poor-economic condition they didn’t get any facilities which they should get at home. The incoming source was not sufficient for their children. So the children spend their time to earn money to fulfill their basic needs rather than studying and building up their carrier. Although they visited school they did not get sufficient time to practice all the mathematical problems which was the huge requirement for the students studying that particular subject. Likewise, On the other hand, Dalit students they don’t belong from well off family background. They are so damn economically weak that they can’t afford the stationary materials of math subject.

Academic environment at school

All the activities which are conducted in the school came within school environment. It is one of the components for total educational atmosphere. However school is considered as second home of any child where the teachers, students and other staffs play the role as the family members. And the teachers guide control and provide information about the book and the current time. The schools have to maintain rule and regulation of the school period. No matter how the school environment, it has deep relation with society. The social environment becomes

adverse to the school environment. If the social environment maintains the educational environment is society, then the school environment become good for students to learn about the current knowledge. About necessary of good learning environment on school the mathematics teacher said:

“I use learner-centered method as well as explaining the problem step by step in the whiteboard for mathematics teaching but Dalit girl students can’t understand the concept than other students.” Also they are irregular in mathematics classes due to these reasons;

“The children of Dalit community become shy to ask question about mathematical problem.”

“The students does not afford for tuition classes to improve in mathematics. They have inferiority of complex in comparison of other students.”

From the above view, it become clear that Dalit girl students become shy to ask mathematical problem with teacher that’s why they unable to understand and feel difficulty so Dalit girls have low participation in learning mathematics. On other hand, most of dalit students have weak economically background, they have no money for tuition classes to improve mathematics and have feeling inferiority complex.

The learning environment of the mathematics classroom can be expressed by the following episode;

Episode-1

I went to Narayani Model Secondary school for the observation of mathematics class. It was one observation of class nine there were all together 51 students in that particular class Among all the students there were only 5 dalit girls who were present. At that time as always teacher entered inside the classroom there was very nice environment for student to study. Teacher started the topic named tri-goniometry. He didn't check the pre-knowledge but repeated the class activity as a summary. That was revision class that's why teacher did not mentioned about any method and did not give any theoretical k knowledge. He just wrote the problems on the whiteboard and solve the problem of tri-goniometry step by step and described one by one. Teacher provides conversation among students of different ability but teacher didn't provide extra guidance for Dalit students. As a same process, the researcher found that there was no regular attendance of Dalit girl students. The teacher did not use teaching material besides teacher centered method. All students are not interested in learning mathematics. Dalit girl students did not ask question to the teacher, whether they understand or not. Lastly the teacher summaries the class and gives the assignment.

From the above episode, It is clearly said that there was no regular attendance of Dalit girls in learning mathematics class. The researcher asked about the reason of absence, they said that there weren't understand the subject matter and hence there was no solution of rote learning to pass in exam. Also the teacher was actively

providing contents but students were writing the something. Math teacher provides conversation among students of different ability but teacher didn't give extra guidance for Dalit girls students. Dalit girls Students self-level was not good compared with other caste girls students. And it is conclude that teaching materials and class control is also another factor which creates the difficulty in learning mathematics for the Dalit students.

Parental Education

Home is the first school for the children and mother is the first teacher of the children and father, elder brothers and sisters are transferring the knowledge to the child. If the parents are literate and have good moral and character then their children also imitate 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 students in mathematics learning. About the parents support in learning mathematics one of my participant B said; "My parents are simply literate. They always engage in household work. I have to help my parents. So, I can't take effort about my education. My mother spends almost their time to making domestic materials. Grand father 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 not separate room to read peacefully at home." By supporting the view of participant B another participant E said; "Our parents are illiterate they could not read and write. So our parents cannot provide guidance at home for mathematics learning."

"I am helpless; I have no education so I can't help them."

(Parent's view)

“Parents do not give the guidance to them for learning mathematics. Their children do not complete the homework regularly. Due to this reason they become weak in mathematics subject.” (Teacher’s view)

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 work. The involvement of parents in their children’s learning is negligible. Parent’s educational level has been most effective factor in academic achievement. Parents serve as a role model and 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.

It is clear that, the number of studies indicated that the students’ achievement is corrected 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.

Economic Status of Parents

Generally the below castes and Dalit are below the line of poverty and among these castes. Dalit is the one of the caste who lives under poverty. Poverty is an obstacle which effect on every aspects of life, in this present context, the cost of education is very high. The people living under the poverty are not the expected group of private schools. Though the fee is not necessary in government school the necessary things for students like copy, pen, books, bags, dress are not provided by school. Educational tours, tiffin and matters of entertainments are out of reach to the students of poor family which are necessary for students, (Bhatta,2012) The poor

parents cannot provide all these necessary things to their children and these factor affects in the learning process of the students.

“The government has provided facilities to the Dalit students in the school. But these facilities are not sufficient for the Dalit girl students. The especial economic package should be launched by the governments to the students of Dalit girl because the poor parents can't expend money to their education” (Parent's view)

I asked, what is your family's income sources? The students gave her view as:

“Our family income depends upon agriculture and labor which is not sufficient for us it is difficult to manage daily expenditure of home. We do not have tuition class to improve mathematics.” (Student's view)

“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 mathematical learning.” (Student's view)

To analyze the economic factor, they spend less time in study for mathematics which is require more time to practice but they do not provide more time. They have to engage

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 developed the positive attitudes of children toward school, classes and enhancement of academic

achievement. It is believe 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. The girls manage to plan their family, educate the children and assist the husbands in family matters.

Nowadays girls are become professional and improving their economic condition.

(Bhatt, 2015)

From above indication it is conclude that dalit of Chitwan district are in poor economic condition. The main occupation of Dalit is farming as well as labor, tailoring, 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 engaged 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 and house hold work rather than their study. They were bounded 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 future 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, from the analysis and interpretation of data it is conclude 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 students.

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 person's intellectual activity. Individual interaction between persons may be symbolic or code language. Interaction brings the maturity in learning.

“In the school all teachers are from Brahmin, Chhetri community. If mathematics teacher were from Dalit community, we could easily interact with them.”
(Student's view)“They did not ask the questions to me in classroom. Sometimes I asked question but they can't response. But all dalit girls are not same. Some girls are very excellent.”

(Teacher's view)

“Dalit girls do not keep interest in mathematics they always absent in mathematics class and if they appear in the class they take back seat.”

(Head teacher's view)

The above views of students and teacher indicate that there is caste based discrimination in mathematics classroom. There was no much interaction between mathematics teacher and Dalit students. The above views also indicate that mathematics teacher have been neglecting the question arise by Dalit students in the mathematics classroom. Hence there is no proper interaction between Dalit students

and other students as well as teacher in the actual classroom practices. About the teacher students interaction in the class my observed class record is presents here;

Episode-2

I went to Narayani Model secondary school for the observation of mathematics class. There were all together 58 students in that particular class among all the students there were only 4 dalit girls who were present at that time as always teacher entered. Inside the classroom and wrote the topic named unitary method in block letters. That only day was the revision day that's why teacher did not mentioned about any methods and did not give any theoretical knowledge. He just wrote the problem in the board and started solving it. There was no learning objective were found while he was teaching the writing on board. He was randomly solving the problems. Not a single materials used in term of teaching. As per observed there was not seen any discrimination between dalit students and other students all students were treated equally. There was great environment for students to study. Both teachers and students seemed to be enthusiastic in mathematical class. dalit student and teachers had a great bonding. They did not have any fear talking and asking question with teacher. Eye contact with dalit girls and friendly environment was the best part which was seen in that class. Teacher gave them a topic related example which helps students for learning mathematics.

From above classroom activities it indicated that there is no proper interaction between teacher and Dalit girls students in mathematics. Teacher just entered the

classroom and he wrote the problem on the board and he was randomly solving these problems. Teacher and Dalit girl students had a great bonding. He taught teacher centered rather than student centered method. Eye contact with Dalit girls and friendly environment was grate. Interaction brings the maturity in learning so interaction between teacher and students was the best part which was seen in that class nicely. 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 basic of research analysis. Finally present the Recommendation for educational implication and further study.

Summary of the Study

Mathematics is like a language as a basic tool for 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 this is based on Mathematics and thinking. (Bhatta, 2012)

This is the case study of Dalit girl students. Its main objective was to identify the Cause 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 apply the interview schedules in unstructured form for The respondents, their parents, mathematics teacher and head teacher of the related school. Form this, the researcher was selected Narayani Model Secondary school, Bharatpur 11, Chitwan as a code 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 students,

relationship between case student and other students etc. To find out the main cause 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 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 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 at school.
- There were gender discrimination in Dalit community. Daughters were more often forced to spend their time on household works rather than school study.
- Lack of parent-teacher interaction was also problem in this school.
- The attendance record of Dalit girls was lower than the other caste girls.
- There was not any 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 become unable to check student's homework.

Conclusion of the Study

This study is concerned with girl's participation in learning mathematics. The research derived from his field work in Narayani model secondary school Bharatpur 10, Chitwan. Comparing other students with Dalit girl students there were many factor that affect Dalit girl students learning in mathematics. One of them was caste discrimination. The Dalit are known as low caste in the society. They are discriminated in every aspect.

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

Recommendation for Further Study

Since the study is related with the Dalit girls participation in learning mathematics. 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 parent study's finding.

- The study was done only in Chitwan 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 in the causes of school dropout problem of Dalit girls.
- A similar study could be done by survey type.

Recommendation for educational Implications

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 other.
- 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 feeling, behaviors and problems.

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Appendix A

INTERVIEW GUIDELINES FOR DALIT GIRL STUDENTS

Name:-.....

Date:-.....

Address:-.....

Place:-.....

This interview with students will take under the following topics.

- Family background.
- School records.
- Teacher's 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 for Dalit girls.
- Difficulties in learning mathematics.
- Reading habit at school and home.
- Administrative Support for learning.
- Classroom environment and social believe towards Dalit girls.
- View about own culture.

Appendix B

INTERVIEW GUIDELINES FOR PARENTS

Name:-.....

Date.....

Occupation:-.....

Address.....

The interview with parents will take under the following topics.

- View about teachers and school.
- Awareness towards their children's education.
- Support for their children's learning.
- School parents interaction.
- 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.
- Views about mathematics.
- Extra guidance for students.
- Separate room for study.
- Investment for extra classes.

Appendix C

INTERVIEW GUIDELINES FOR HEAD TEACHER

Name:-.....

Date:-.....

Qualification:-.....

Address:-.....

This interview with headmaster will take under the following topic

- Learning Environment in the school.
- Guidance for mathematics teaching.
- Opportunity for alit girl's student in 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.
- Provision of extra class on school.
- Provision of remedial teaching.
- Evaluation system and feedback provided by the teacher.
- Scholarship and encouragement for Dalit girls.
- Interaction with parents.
- Visit of parents for their student's progress.

Appendix D

INTERVIEW GUIDELINES FOR MATHEMATICS TEACHERS

Name:-.....

Date:-.....

Qualification:-.....

Address:-.....

Trained/untrained:-.....

The interview with mathematics teacher will take under the following topics.

- Teaching strategies adopted in the class.
- Area of difficulties in learning mathematics.
- Problem on teaching Dalit girl students.
- Effect of culture and language in learning mathematics.
- Student participation in mathematics class.
- Encouragement provided to the girls students learning.
- Impact of culture difference in the mathematics learning.
- Plan for Dalit students in class activities.
- Facilities provided by school.
- Use of teaching plan and materials.
- Provision of extra classes and remedial teaching for Dalit students.
- Support of school for training and professional development.
- Discussion about student's performance with their pairs.

Appendix E

CLASSROOM OBSERVATION FORM

Name of Teacher:-.....

Date of Observation:-.....

Level of Observed Class:-.....

Name of observed school:-.....

Items	Qualitative Information (Thick Description)
Development of learning Objectives	
<ul style="list-style-type: none">Objectives for the class are given(verbally,written, or not all)	
<ul style="list-style-type: none">Objectives only discussion at the end of class	
Selection and Use of Instructional Materials	
<ul style="list-style-type: none">The text books are only materials provided to Dalit girl students	
<ul style="list-style-type: none">Films, websites and other audiovisual materials have been presented with a clear purpose	
Educational Climate for Learning	
<ul style="list-style-type: none">Dalit girl students and teacher are interested and enthusiastic in Mathematics class.	
<ul style="list-style-type: none">The teacher uses students' name in the class	
<ul style="list-style-type: none">Humor is used appropriately	
<ul style="list-style-type: none">Teacher does not embarrass or belittle students in any way	
<ul style="list-style-type: none">The atmosphere of the classroom is participative	

<ul style="list-style-type: none"> • The teacher has eye contact with Dalit students 	
Preparation for class session	
<ul style="list-style-type: none"> • The teacher provides examples that are appropriate. 	
<ul style="list-style-type: none"> • Students know what preparation(reading or other assignments) they should have completed prior to class 	
Instructional Methods	
<ul style="list-style-type: none"> • The opening attracted the attention of students. 	
<ul style="list-style-type: none"> • The opening outlined the topic and purpose of the lecture 	
<ul style="list-style-type: none"> • The delivery is paced to students' needs. 	
<ul style="list-style-type: none"> • The teachers present material or activity effectively. 	
<ul style="list-style-type: none"> • The teacher summarize the lesson and gives assignment 	
<ul style="list-style-type: none"> • The teacher suggests an idea to consider before the next class 	
<ul style="list-style-type: none"> • The teacher could be seen and hear students questions 	
<ul style="list-style-type: none"> • Key points were emphasized by the teachers in Mathematics class 	
<ul style="list-style-type: none"> • Explanation were clear to students 	
<ul style="list-style-type: none"> • Examples, metaphors ,and analogies were 	

appropriate	
<ul style="list-style-type: none"> • The lecture was stimulating and though provoking 	
<ul style="list-style-type: none"> • The teacher focuses small group work 	
<ul style="list-style-type: none"> • The teacher evaluates the class such that the students would know his presentation 	
<ul style="list-style-type: none"> • The teacher groups the students according to their learning ability during class 	
Opportunity for Dalit girl student participation	
<ul style="list-style-type: none"> • The teacher encourages students to summarize and add to other summaries 	
<ul style="list-style-type: none"> • There is less participation of Dalit girl students in class room interaction 	
<ul style="list-style-type: none"> • There is individual caring for need students 	
<ul style="list-style-type: none"> • Teacher provide extra guidance for Dalit girl students 	
<ul style="list-style-type: none"> • The teacher helps quieter students to interact with others 	
Individualization of Instruction	
<ul style="list-style-type: none"> • The emotional, physical, and intellectual needs of students are met 	
<ul style="list-style-type: none"> • The teacher solves the problem raised by individual student in the class 	
<ul style="list-style-type: none"> • The teacher problems awareness of students 	

prior learning and experiences	
<ul style="list-style-type: none"> The teacher provides conversation among students of different ability 	
<ul style="list-style-type: none"> Teacher provides feedback and individual responsibility for Dalit girl students 	
Responsiveness to student Feedback	
<ul style="list-style-type: none"> The teacher is paying attention to cause confusion 	
<ul style="list-style-type: none"> The teacher encourages students' questions 	
<ul style="list-style-type: none"> The teacher provides Dalit girl students opportunity to mention problem, concerns with the class, either verbally or in writing 	
Learning Difficulties	
<ul style="list-style-type: none"> Dalit girl students need assistance for a temporary or permanent disability 	
<ul style="list-style-type: none"> One or more Dalit girls are not motivated or unable to follow the class 	
<ul style="list-style-type: none"> One group dominates discussion and hinder others' participation 	

List the competencies that you learnt from the class observation

.....

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.....

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Observed by