

Chapter – I

INTRODUCTION

Background of the Study

Mathematics is an essential part of school curriculum. So every student should study it and gain better achievement. For the improvement of students' achievement in school mathematics education, many researchers have been done to identify the variables that influence the achievement scores of the students. It is believed that girls are weak in math in comparison to boys with respect to educational achievement.

As mathematics is said to require sufficient time and labor to study, especially in our context, girls, by social nature, have not sufficient time for study. It is one of the major reasons for girls to be back warded. The participation of woman is very low in economic, intellectual, social and political opportunity in the society; hence involvement of girls in education is very low as compared to boys. This position of girls in labor market is partly mirrored by their performance in educational system. So education have began to feel that education up to the middle standard is not sufficient for the citizen, so the policy of compulsory education for the people have been announced by most of the countries in the world to raise the equality in every aspect by gender.

Mathematics is taught in +2 levels according to curriculum. In Nepalese context, mathematics is considered as complex subject and has become a cause of failure of students in campus as well as school education in general. Studies as well as the researcher's own empirical observation have created a query that whether girls and disadvantages family children are much affected by math in their failures in different level of education. in addition to this, many of the students are troubled by

the level of understanding and achievement in their learning too. The experience of failure has created less interest in students in studying mathematics. Participation of girls in comparison of boys' students in Mathematics at grade XI in context of Nepal from the year 2064 to 2067 is tabulated below:

Year	Boys	Girls	Total
2064	17040 (73.11%)	6266 (26.89%)	23306
2065	21072 (72.66%)	7928 (27.34%)	29000
2066	23013 (72.64%)	8668 (27.36%)	31681
2067	28496 (73.47%)	10292 (26.53%)	38788

Source : Cited as Baniya, 2012.

By simple observation this table shows that the selection of mathematics as Major subject at grade XI, the participation of girls students are comparatively less than boys from the year 2064 to 2071. This table also shows that the participation of girls' students in Mathematics at grade XI is increasing yearly. Percentages of students are shown in the small bracket.

Mathematics is necessity of civilization. It was originate together with the origin of human civilization. It was originated from practical experiences of man's needs and it continued to develop along with the development of civilization and vice versa. Mathematics is creation of human mind, concerned with ideas, process and techniques of research. Mathematics gives us insight into the power of the human mind and becomes a challenge to intellectual curiosity. In this world of today nobody can live without knowledge of mathematics for a single day. Mathematics is intimately involved in every movement of every man's life. It is also said that, if

anybody wants to make a success of his/her life, he/she must have recourse to mathematics.

Most of the girls students at higher secondary level do not like to select mathematics as major subject due to the possibility of failure in examination. Girls' dislike to this subject has become a great problem to educationists and stake holders. There is now an equity theory that both male and female should have chance of getting education as social importance. When girls are distracted from mathematics, it is certain that women could not get the position of scientist and the domains of works which, by tradition, is considered as male domain. The students in general and girls' students in particular, have negative attitude towards this subject but the factors that are responsible for creating negative..

Mathematics provides a set of tools for describing, analyzing and predicting the behaviors of system of many kinds' conversing different aspects of the world. It is accounting, surveying, and engineering and physical sciences to biology, economics business and many factors of everyday life. Mathematics structure is characterized by undefined terms, defined terms, axioms and rules of logic. Pandit (1998) "mathematics is the language of science and as such uses carefully defined terms and symbolic representation that enhance our ability to communicate." He further added that "Mathematics is an organized body of knowledge in which each proposition follows as a logical consequence of proved proposition or assumption." Such mathematical structure is characterized by undefined terms, assumption and rules of logic (Cited as Baniya, 2012).

Most of the studies that are been done so far are the comparative study of achievement in different aspect of school/campus mathematics. The girl students' participation in Mathematics at higher secondary level in Education and the factors

affecting the girls' participation in Mathematics at grade XI in Education is a problem under the study.

Rational of the Study

Mathematics is a very useful subject in our everyday life. It has been a key subject in school curriculum through the world. In the context of Nepal, 'it has been taught from primary to secondary level as compulsory subject. In higher study, mathematics is being taught as optional subject. Mathematics learning helps the students to understand and interpret the, important quantitative aspect of the living. This is possible only when the attitude of the students towards mathematics is favorable.

Statement of the Problem

Girl students' participation in Mathematics at higher secondary level course is very low in the context of Nepal. They do not 'select mathematics for the advance mathematics course in faculties like engineering, science and technology. For these faculties, it is necessary to select mathematics course. What factors influence the girl students in selecting mathematics is not yet determined on the basis of the research. Thus the researcher is interested to explain the factor affecting learning mathematics or participation in mathematics at higher secondary level course.

The study was mainly concerned with the participation of girls' students at grade XI Mathematics at higher secondary level in Education. It also focused on the factors that affect on participation in the mathematics. For this, the study intended to address the following research questions:

-) What is the level of participation of girl students in Mathematics?

-) What are the factors that affect on participation of girl students in Mathematics?

Objectives of the Study

The expectation of certain outcomes from the research study is reflected in the objectives of the study. These are stated in short and clear form, and should be achievable. Thus, the present study is related to girl students' participation in Mathematics at higher secondary level in Education. So this study is intended to accomplish the following specific objectives:

-) To find the level of participation of girls students in Mathematics.
-) To find the factor that affects the participation of girls' students in Mathematics.
-) To analyze the most significant factors that affect on participation of girls students in Mathematics.

Significance of the Study

Mathematics is taught as an essential subject of school or higher level curriculum. It has been taught as compulsory subject at all level of school education and optional subject at higher level. Although, mathematics has been given an important place in the curriculum at all levels of education, girls student have less participation in learning mathematics. So this study was intended to find out the factor affecting in participation of girls at higher secondary level.

The study has some significance as follows:

-) The study would find the factors affecting in girl's participation at higher secondary level, which is valuable thing for teacher, curriculum designer and other stake-holder related to education.

-) It would provide the appropriate information about the difficulty of girl' student in learning mathematics.
-) It's finding would be supportive to improve for the mathematical achievement of students.
-) This study would also open the door for the further study about the problem in mathematics learning of girl's student.
-) It would help to develop effective mathematical instructional planning for girl's student.

Delimitation of the Study

This study has some limitations which are pointed as fallow:

-) This study is limited to Doti district.
-) This study is included only grade XI students of higher schools in Education.
-) This study is conducted only in the Mathematics subject at grade XI in Education.
-) This study is conducted only on girl students in the mathematics at grade XI in Education.

Definition of Related Terms

Participation:

The term participation is defined as attending class regularly, interact with teacher in the class room, interact with peers, doing homework and class work regularly etc.

Teachers Behaviors in Classroom:

Teacher behavior is related to encourage or discourage the girl students to study mathematics such as individual suggestion, gender equity, learning opportunity, etc. in the classroom.

Peers Influence:

It is related to peers' help in subject selection, motivation towards this subject, learning help, etc. on mathematics.

Family Background:

Family background refers what of family a student conic from. It relates with consciousness of guardian, educated, economic status, freedom and other facilities.

School related factor:

The variables such as teachers' behavior, prior achievement and peer group influence are taken under school related factors. These variables affect the attitude of girl student's while selecting mathematics.

Chapter – II

REVIEW OF RELATED LITERATURE

Research takes advantage of the knowledge which has accumulated in the part as a result of constant human Endeavour. It can never be undertaken in isolation of the work that has already been done on the problems which are directly or indirectly related to a study proposed by a researcher. A careful review of the research journals, books, dissertations, thesis and other sources of information on the problem to be investigated is one of the important steps in the planning of any research study. Review of related literature helps the researcher to define the limits of his field, delimit and define his problem, avoid unfruitful and useless problem areas, avoid unintentional duplication of well-establish findings, understand the research methodology, know about the recommendations of previous researchers listed in their studies for further research etc.

The review of the related literature is divided into two sections: empirical literature and Conceptual understanding.

Empirical Literature

Pandit (1984) found that, there is positive correlation between attitudes towards mathematics and achievement but differs by sex. The men attitude score of boys towards mathematics as school subject as greater than that of the girls. Both boys and girls held positive attitudes towards mathematics but the mean attitude core of boys are higher than that of girls (Tiwari, 1984). The attitude scores of boys towards geometry were significantly greater than the attitudes of scores of the girls.

CERID (1990) found that, Children's participation and continuation on education depend upon parent's attitude towards education. How children continue

their education was totally depended upon the attitude of the parents. When parent realize the need of their children's education, this is the opportunity to the children in education. Both father's and mother's discipline affects their children to improve their personality. The previous researchers have shown that children's education mid achievement are related to parental education, income, profession, and children's own attitudes towards education, parent's education and income has direct positive influence on scholastic achievement of student (Mathur and Hardrill, 1972).

Tiwari (2002) had reported that both farmer and non-farmer parents had positive attitude towards the mathematics, farmer and non-farmer parents had positive attitudes towards their male child and female child about the mathematics. However, farmer and non-farmer parents had greater attitudes score towards their male children than female children in higher secondary school mathematics.

Subedi (2000), studied on "A study on effectiveness of mathematics teacher attitudes towards the visually impaired/blind students achievement in integrated school". The study was in quantitative phenomena, the sampling method was stratified sampling. He used 5 points Likert's attitude scale for scoring and questionnaire as research tools and concluded that specially trained teaches held significantly better attitude towards the blind students than that of untrained teachers. Similarly, the untrained teachers showed their unfavorable attitude than that of trained teachers.

Kafle (2001) studied on "A study on attitude of secondary level students and teachers towards compulsory mathematics curriculum". He selected fifteen teachers and one hundred sixty students from the Kavre district and concluded that: the secondary level students had a positive attitude where as teachers has negative attitude towards compulsory mathematics curriculum, the secondary level boys and girls had

similar attitude towards compulsory mathematics curriculum. The mean attitude score of students towards compulsory mathematics had no difference their teacher attitude score on compulsory mathematics curriculum.

Panta (2004) studied on “Attitude of secondary level students and teacher towards geometric transformation at Chitwan district”. Survey type research design was used in his study. He used area sampling and questionnaire also opinionnaire as research tools and concluded that the secondary level students had a positive attitude towards geometric transformation. The teacher of secondary level had positive attitude towards geometric transformation and the secondary level boys and girls had similar attitude towards this topics. There was no gender wise difference in attitude among students towards geometric transformation and both boys and girls have significantly better attitudes than teachers towards geometric transformation.

Poudel (2005) studied on “Attitude of grade IX girls towards mathematics and their achievement at Syangja district” and concluded that there was a positive attitude of grade IX girls towards mathematics. The grade IX girls of rural and urban schools had similar attitude towards mathematics i.e. in attitude among girls towards mathematics. The achievement of girls having positive attitude is somewhat better than the achievement of girls having negative attitude and the achievement and attitudes are somewhat correlated.

Shah (2007), studied on “Students attitudes towards mathematics at secondary level”. The design of study was survey type. He used purposive sampling for sampling and interview schedule, classroom observation form, open ended questions as research tools. He concluded that secondary level Kami students had positive attitudes towards mathematics.

Upadhyay (2010) suggested that, female are very backward in comparison to male in respect to educational development. There are many causes of backwardness of females among them, social factors is one female could gender differences in math achievement have declined. However, gender difference still preparatory courses that are considered essential to acquiring the foundation for future study of advanced mathematics.

Baniya (2012) found that, girl's participation in higher secondary level is low with comparison of boys. Home environment, school environment, social variable, interest of learner etc. are several factor that affect on learning mathematics for girls.

Thakuri (2013) studied on “Effect of gender in learning mathematics concluded that girl’s are quietly differently treated from the way of boys are treated. Boys are praised for their ability when they do well where as girls are complimented on their hard work. Boys also are attended to teacher more than girls. So this small difference found between boys and girls performance effect on learning mathematics of girl’s student.

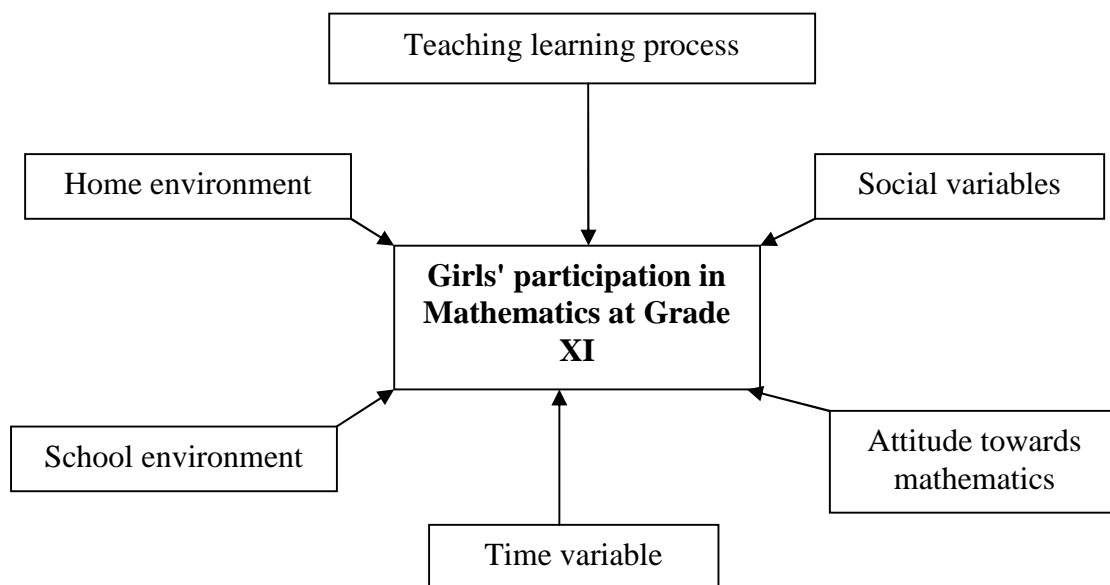
Chaudhary (2014) studied on “Factor affecting girl’s participation in mathematics” where survey type research design was used in this study. She use questionnaire, interview and opinionnaire as a research tools and concluded that social variable, learning process, teaching process attitude towards mathematics, time variable etc. are main factor affecting girl’s participation in mathematics.

Conceptual Understanding

As discussed above related literature, participation of girl students in Mathematics at higher secondary level may depend under different variables. Generally participation of girl students in Mathematics at higher secondary level

specially in girls influence from teaching learning process, home environment, school environment , social variables, time variables and attitude towards mathematics. Under teaching learning process teachers' qualifications, interest of learners, expectations of teachers, views and beliefs of teachers about girls' participation will discuss. The variable related to home environment consists gender bias in home, parents education, practice time providing at home for children especially daughters, economic condition of parents, study hour of children at home. The physical facilities, students' number in classroom, gender bias, teachers and peers behaviors are considerable elements for doing better or worse students in Mathematics at higher secondary level. Social variable is also non separable and important factor on participation students in Mathematics at higher secondary level. This includes social system, culture customs, and traditional effects of gender in society. Along with time variable are also played significant role on girls' participation students in Mathematics at higher secondary level. The researcher develops the following framework with the help of those variables.

Conceptual framework of Factor affecting girl's participation in Mathematics at grade XI



Source : Baniya, 2012 as cited from Chaudharya, 2013.

The above diagram relates the factor affecting in learning mathematics of girl's student on basis of home environment, school environment, time variable, attitude towards mathematics, social variables and teaching learning process. The main objective of this study is find out the factor's affecting in girl's participation in mathematics in higher secondary level.

Chapter – III

METHODS AND PROCEDURE

This chapter presents the procedure of the study, which was carried out to achieve the objectives of the problem. This chapter delineates design of study, population of the study, sample of the study, tools and instruments of the study, reliability and validity of the study, data collection procedure and data analysis procedure used to collect the information.

Design of the Study

This study was based on survey design. To explain the term survey, it is a form of plan to collect the information for the purpose of analyzing the relationship between certain variables. Thus, this present study is more quantitative as well as qualitative in nature including some description of the phenomenon.

Population of the Study

The population of the study consisted of all regular girl students studying mathematics of higher secondary level at grade XI in Education in academic year 2072/73 B.S. in Doti district.

Sample of Study

The sample of the study was determined by stratified random sampling. There are 24 higher secondary schools in Doti district. Among them, three urban higher schools and three rural higher schools were selected for the sample of the study.

For the interview, six mathematics teachers were selected purposively and all girl students for the opinionnaire were selected from the sampled schools. The total 48

girl students are studying in academic year 2072/073 BS. Among them 24 girl students are regular. The following table gives the clear picture of the study.

Table 1: School/Gender-wise Presentation of Sample

S.N.	Schools' Name\Area	Gender	Number of number students	Total of students
1.	Shree Radha Krishna Higher Secondary School, Gopghat, (Rural area)	Male	17	24
		Female	7	
2.	Shree Saraswati Higher Secondary School, Sanagau, (Rural area)	Male	13	19
		Female	6	
3.	Shree Mastamandau Higher Secondary School, Pokhari, (Rural area)	Male	19	27
		Female	8	
4.	Maglek Higher Secondary School, Dipayal, (Urban area)	Male	23	29
		Female	6	
5.	Padam Public Mukti Narayan Higher Secondary School, Silgadhi, (Urban area)	Male	26	38
		Female	12	
6.	Shree Sujan Higher Secondary School, Dipayal, (Urban area)	Male	16	27
		Female	9	

Tools and Instruments of the Study

Every study needs tools to collect data. Likewise, one set of opinionnaire, one set of interview and one set of observation schedule were the main tools of study. The researcher collected data by observation based on the following guidelines;

Observation Schedule

Student Name	Attendance			C.W.			H.W.			Interaction with peers			Integration with teacher			ECA			If other
	D	S	N	D	S	N	D	S	N	D	S	N	D	S	N	D	S	N	

The construction process and validation of the tools in this study are described below:

Opinionnaire Scale

Information that attempts to measure the attitude of belief of an individual is known as an opinionnaire or attitude scale. So, one set of opinionnaire was developed as an instrument for the collection of needed information which was used for girl students. Prior to construct those tools for the study, the following factors that affect the girls' participation in mathematics were identified from the review of literature with the help of experts and advisors. Teaching learning process, home environment, school environment, time variable, attitude towards mathematics and social variables were the factors that were included in this study. It is assumed that these variables as already established could influence the girls' participation in Higher Secondary level mathematics in Education of Nepal (Particular in Doti District).

One set of opinioinnaire scale was developed having forty two statements related to the above variable (see Appendix-A) for the girls students who are studying at grade XI (Education) in Doti district. These scales were developed in Likert Scale.

Both positive and negative statements were included in the scale. Scoring of the statements was done as shown in the following table.

Table 2: Likert-Scale Point Used in Technique of Scoring

S.N.	Meaning of rating	Marks	Negative statement	Positive statement
1.	Strongly Agree	5	1	5
2.	Agree	4	2	4
3.	Undecided	3	3	3
4.	Disagree	2	4	2
5.	Strongly Disagree	1	5	1

This study has used opinionnaire for measuring girl students' attitude towards the factors that affect on their participation in mathematics with the help of the variable given in theoretical framework of this study.

Interview

Interview is a process of communication or interaction in which subject or interview gives the needed information verbally in a face to face situation. Interview is encouraged to respond towards the question after building a better rapport. There are many types of interview; especially direct interview was conducted with clients in this study. In this technique, the researcher not only asked the questions but also observed all behavior and answering method of respondents. In this study, on the basis of objectives the researcher developed the interview guideline in a semi-structured form (see Appendix-B) to collect the information from mathematics teacher because semi-structured interview was used to discover in-depth understanding of people in the phenomenon under study.

Reliability and Validity of Instrument

Reliability and validity of the research instruments are the necessary qualities of instrument. For the purpose of reliability of achievement test, pilot test was conducted at Padam Public Mukti Narayan Higher Secondary School, Silgadhi in Doti district. The average time taken by the students to complete the items was 60 minutes. The number of students participated in the pilot study was 38.

Again for the purpose of establishing reliability of opinionnaire, two higher schools were selected from Doti District to implement the procedure of testing reliability and validity. Ten girls student were participated in the pilot survey. There are one set of opinionnaire with rating scales for the given statements. Strongly agree, agree, undecided, disagree and strongly disagree with rating 5,4,3,2 and 1 respectively in each statements. From pilot study, those statements towards which all students had responded on the same scale were discarded and remaining statements were included in the opinionnaire. This set of statements were set as an opinionnaire and distributed to the experts for checking the validity.

Data Collection Procedures

After selecting the sampled higher schools purposively, the researcher visited the related higher schools with instrument to collect data. Before administration of the tools, researcher met the authorities and explained the purpose of the study in detail. Once the principal of the higher schools agrees to allow the study to be carried out, the researchers arranged the date and time for administering the instrument when the students and teachers assembled ready to participate in the study, the researcher explained its purpose and relevance and research tools were administered in group with direct supervision. The data was achieved by administering the opinionnaire test

paper, interview and observation schedule among the sampled student. Finally the researcher scores for the analysis. For the opinion of girl students, the researcher distributed opinionnaire form for sampled students and translated each statement one by one in course of administering the opinionnaire (see in appendix A). After getting response of all the students, the opinionnaire was taken back with thanks.

With the help of semi-structured interview schedule, the interview was conducted with mathematics teachers of each sampled higher school. For this purpose, the researcher took permission letter from Central Department of Education, T.U., Kirtipur and he was hand over the letter to the Principal of sampled higher schools.

Data Analysis Procedures

The researcher analyzed the obtained data by using the following statistical techniques.

-) Chi-square (χ^2) test: Here at first, significance of each statement was tested by computing corresponding chi-square value and comparing them with tabulated chi-square value 9.488, the value of chi-square at 0.05 level of significance with four ($n - 1 = 5 - 1 = 4$) degree of freedom. If the calculated chi-square value exceeded the tabulated chi-square value, then the statement was considered to have been significant.
-) The data derived through interview was analyzed descriptively in accordance to the objective and conceptual framework.
-) I observed the class to find the regularity of student, participation of student, teaching style of teacher, teaching process, student behavior etc.

Chapter – IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter deals with the analysis and interpretation of collected information of the study. The collected information from the informants was analyzed and interpreted to find out the girls' participation in mathematics. It had already been mentioned that statically analysis was used to find out the girls' participation in mathematics and descriptive analysis was used to determine the influencing factors that affect girls participation in mathematics.

The analysis and interpretation of the obtained data is presented under following objective.

-) Level of participation of girl students in Mathematics.
-) Factor that affects the participation of girls' students in Mathematics.
-) Most significant factors that affect on participation of girls students in Mathematics.

The Level of Participation of Girls' Students in Mathematics

The first objective of the study was to find out the level of participation of girls students in Mathematics. In order to find the level of girl students participating in mathematics, for this the researcher observed their daily behavior activities by sitting back side of class room. Then analyzed and interpreted as follows:

a) Regularity of Sample Students

The regularity of students directly effect the achievement of students. The following table present the regularity of sample students.

Table 3: Attendance Percentage of the Students

Sample Schools Students	Shree Radha Krishna HSS Gopghat	Shree Saraswati HSS Sanagau	Shree Mastamandau HSS Pokhari	Shree Maglek HSS Dipayal	Shree Padam Public Mukti Narayan HSS Silgadhi	Shree Sujan HSS, Dipayal
Boys %	89	86	87	85	91	89
Girls %	72	80	73	69	70	75
Observed Girl's Attendance	42%	83%	58%	33%	33%	44%

This table shown that the attendance percentages of girls' students were comparatively less than boy students in every sample higher secondary schools. According to sample higher secondary schools register, the highest attendance percentage of boys was 91 percent of Padam Public Mukti Narayan Higher Secondary School, Silgadhi and the lowest attendance percentage of girl students was 69 percent of Maglek Higher Secondary School, Dipayal. It also shows that, according to observation, the highest attendance of sample girl students was 83 percent of Shree Saraswati Higher Secondary School, Sanagau and the lowest attendance of sampling girl students was 33 percent of Maglek Higher Secondary School, Dipayal and Padam Public Mukti Narayan Higher Secondary School, Silgadhi. So the researcher found

the level of participation of girl students in Mathematics was low compare to boy students.

b) Class Work and Homework Complete by the Sample Students

Class work and homework are the most important factor in learning. It increase the level of learning and understanding. Here the table presents the class work and homework done by boys and girls students.

Table 4: Percentage of Class Work and Home Work Done by Students

Sample School Students	Shree Radha Krishna HSS Gopghat		Shree Saraswati HSS Sanagau		Shree Mastamandau HSS Pokhari		Shree Maglek HSS Dipayal		Shree Padam Public Mukti Narayan HSS Silgadhi		Shree Sujan HSS, Dipayal	
	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.	C.W.	H.W.
Boys%	92	78	84	66	87	79	87	75	80	65	87	72
Girls %	66	55	84	72	65	53	80	83	75	50	70	50

This table shown that the percentages of class work as well as homework done by girl students were low in maximum sample higher schools. The highest and lowest percentages of class work and home work done by boys were 92%/80% of Shree Radha Krishna Higher Secondary School, Gopghat/Shree Padam Public Mukti Narayan Higher Secondary School, Silgadhi and 79%/65% of Shree Mastamandau Higher Secondary School, Pokhari/Shree Padam Public Mukti Narayan Higher Secondary School, Silgadhi respectively. But the highest and lowest percentages of class work and home work done by girl students were 84%/65% of Shree Saraswati Higher Secondary School, Sanagau/ Shree Mastamandu Higher Secondary School,

Pokhari and 80/50% of Maglek Higher Secondary School, Dipayal/Shree Sujan Higher Secondary School, Dipayal respectively. But the researcher found that the level of girls participation in mathematics was low.

c) Interaction with Peers

Good interaction behavior among friend creates the good harmonious environment in classroom. Thus, this table shows the participatory learning environment between peers.

Table 5: Interaction with Peers

Sample schools	Girl students	Day 1	Day 2	Day 3
Shree Radha Krishna HHS Gopghat	7	Poor	Normal	Normal
Shree Saraswati HSS Sanagau	6	Poor	Normal	Poor
Shree Mastamandau HSS Pokhari	8	Poor	Normal	Poor
Maglek HSS Dipayal	6	Normal	Good	Normal
Padam Public Mukti Narayan HSS Silgadhi	12	Good	Poor	Normal
Shree Sujan HHS, Dipayal	9	Poor	Normal	Good

From this table the researcher found that, by observing class, the interaction with peers in average normal. In the first day, the researcher found that the girl students were hesitating to discuss with friends. But day by day, the researcher found that the girl students were improving themselves by discussing/asking problem each other but never seen boyfriends. The researcher also shown that the girl students of urban area higher schools, they always discussed with their girl friend as well as boyfriends but the girl students of rural area higher schools, they discussed only with girl friends but never asked with boyfriends.

d) Interaction with Teachers

Interaction with teacher and student also create good environment in classroom and school. This environment involves the participatory learning environment within student and teacher leading to quality education.

Table 6: Interaction with Teachers

Sample schools	Girl students	Day 1	Day 2	Day 3
Shree Radha Krishna HHS Gopghat	7	Good	Normal	Normal
Shree Saraswati HSS Sanagau	6	Poor	Good	Normal
Shree Mastamandau HSS Pokhari	8	Good	Normal	Normal
Maglek HSS Dipayal	6	Poor	Good	Normal
Padam Public Mukti Narayan HSS Silgadhi	12	Good	Normal	Good
Shree Sujan HHS, Dipayal	9	Good	Normal	Good

This table shown that the girl students of every higher school were interested to ask question or discuss with teacher which was not understood properly. So the researcher can conclude that the interaction with teacher of girl students were good in general. But in the compare of urban and rural area higher schools, the researcher had shown that the girl students of urban areas were more familiar with teacher in comparison of rural area's girl students.

e) Extra Curriculum Activities of Students

Extra curriculum activities has great influence in the improvement of knowledge and be successful because it refers to the eagerness of the learners to learn.

So how much the student obtains depends on how much the student is interested in extra curriculum activities.

Table 7: Extra Curriculum Activities

Sample schools	Girl students	Day 1 (participate)	Day 2 (participate)	Day 3 (participate)
Shree Radha Krishna HHS Gopghat	7	0	1	2
Shree Saraswati HSS Sanagau	6	2	1	3
Shree Mastamandau HSS Pokhari	8	1	0	2
Shree Maglek HSS Dipayal	6	0	0	1
Shree Padam Public Mukti Narayan HSS Silgadhi	12	1	2	0
Shree Sujan HHS, Dipayal	9	1	0	1

This table shown that, the participation of girl students in extra curriculum activities was low. In the first day observation class, the researcher shown that participation of girls in comparison of admission was few. Among them, the participation of girls was few in ECA. In the same way, the observer found that in second and third day observation classes, the enrolment of girl students in ECA was few.

The Factors that Affects the Participation of Girls' Students in Mathematics

The information obtained from an Opinionnaire scale and semi- structured interview schedule is analyzed and interpreted in this part. There are several factors affecting the girls' participation in mathematics. With the help of related literature and

theory, it was assumed that the different six variables directly affected the girls' participation in mathematics. Such variables are described separately as follows.

Influence of Teaching Learning Process in Girls' Participation in Mathematics

Theoretically, it was assumed that girls' participation in mathematics is influenced by the teaching learning process. Teachers' qualification, interest of learners, expectation, views and beliefs toward mathematics are explained under the teaching learning process. Teachers' qualification as determined by education, experience, expertise and licensure has been shown to be the single most significant factor contributing to student participation. Interest of learners is also an important determining factor in students' participation. If students do not have curiosity to learn the teacher cannot teach. The expectations of teacher, parents and students themselves have a significant effect on participant levels. Different research shows those students who are expected to learn are more likely to participate in school. It has been shown that teachers generally tend to have lower expectations for minority children and children from poor families. Girl students' attitudes and beliefs also effect the achievement in mathematics. Many articles suggest that girls have negative attitudes and expectations for their performance in mathematics. Teachers' teaching style such as their use of cooperative rather than comprehensive learning also plays a vital role in girls' relationship with mathematics. The following seven statements define the teaching learning process that can influence girls' participation in mathematics.

Table 8: Influence of Teaching Learning Process in Girls' Participation in Mathematics

S.N.	Statements related to Teaching Learning Process	Strongly agree	Agree	Undecided	Disagree	Strongly	t ² value	Decision
1	I am not curious and active while learning mathematics.	3	2	0	12	7	18.92	S
2	I enjoy when solving mathematical problems.	11	13	0	0	0	36.42	S
3	The class of mathematics is less interesting than other.	0	4	0	14	6	27.67	S
4	Our teachers try to make the mathematics class interesting.	13	11	0	0	0	36.42	S
5	Mathematics is an essential part of the science and technology.	9	14	0	1	0	33.92	S
6	Teacher always use teaching materials while teaching mathematics.	2	19	1	2	0	53.08	S
7	All mathematics teachers are trained on motivating students with different ability.	5	14	0	3	2	24.75	S

'S' stands for significant and 'NS' stands for insignificant. The table of t² test at 0.05 level of significant at 4 degree of freedom is 9.488 i.e. $t^2_{0.05,(n-1)} = t^2_{0.05,4} = 9.488$.

The statements were tested using χ^2 -test at 0.05 level of significance. The statements No. (1) is significant with χ^2 -value 18.92. From the total sample students 50% of sampled student are disagree and 29.16% are strongly disagreed with this statement. Hence majority of student are curious and shows they have more interest in learning mathematics. The statement first, second and third are related with the interest of teacher statement no. (2) is significant with χ^2 -value 36.42 at 0.05 level of significance. In this statement 45.8% student are strongly agree and 54.1% student are agree. This indicate that they enjoy when solving mathematics problem.

Likewise statement no. (6) has χ^2 -value 53.08 which is significance. About 79.16% student agree with this statement. From this we can say that teacher use teaching materials while teaching mathematics sufficiently. Statement no. (7) was also found to have significant with the χ^2 -value 24.75 at 0.05 level of significance. About 58.33% student agree and 20.83% student strongly agree with this statement which indicate all mathematics teacher are trained on motivating students with different ability. From all these statement it is concluded that the teachers qualification, interest of learner, use of teaching materials, expectation etc. are the influencing factors in participation of girls students in mathematics.

In addition to quantitative information the interview was taken from the mathematics teacher to derive qualitative information regarding the influence of teaching learning process in mathematics. According to the information provided by the mathematics teacher, the main influencing factor on low participation of girls' were the interest of learners, teachers' qualification and method of teaching, limited time period, the teacher uses sufficient teaching materials or teaching aids while teaching mathematics. Most of the teachers use traditional method. On the other hand, girl's participation in teaching learning process is very low.

Hence, from the result analyzed in quantitative techniques and responses of math teacher in interview it is concluded that the teaching learning process is the main influencing factors in girls' participation in mathematics.

Influence of Home Environment on Girls' Participation in Mathematics

Home is considered as a foundation of education. Theoretically, it is assumed that the participation of girl in mathematics is highly influenced by the home environment. Parents' education, socio-economic conditions of family, study hour at home, practice time of mathematics and gender bias in family generally considered as the home environment. The participation of child depends not only on the part played by teachers but also on the parents' awareness, interest and knowledge about handling and guiding their children at home. The economic status of the parents directly affects the child participation. Various researches have shown that higher the socio-economic status of family have the greater children participation. The roles, responsibilities, contains, opportunities, practice time given by family to daughter in home is also played the vital role on the participation of girl in mathematics. The following seven statements given in table 9 are related to the home environment support in course of learning and sorts of pressure created to girl students' participation in mathematics.

Table 9: Influence of Home Environment on Girls' Participation in Mathematics

S.N.	Statements related to Home Environment	Strongly agree	Agree	Undecided	Disagree	Strongly	t ² value	Decision
8	My parents do not manage all required materials for the study of mathematics.	4	2	0	7	11	15.58	S
9	My parents treat unequally my brother and me.	1	7	1	5	10	12.67	S
10	My parents do not discuss about my performance with basic math teacher.	1	3	1	9	10	16	S
11	My family manages tuition and coaching if necessary	11	11	1	0	1	26.83	S
12	I have no more time to study mathematics at home.	1	2	0	13	8	25.58	S
13	Learning environment of mathematics is Better for me at home.	0	2	2	12	8	20.67	S
14	My parents always say me to do not spend more time in mathematics at home.	1		0	11	11	26.83	S

As in the above table statement no. (8, 9 and 10) are significant with the χ^2 -value 15.58, 12.67 and 16 at 0.05 level of significance respectively and more than 40% student strongly disagree with these statement. It refers that the parents treat equally and manage the learning materials.

Statement no. (12) is significant with χ^2 -value 25.58 at 0.05 level of significance. About 54.16% students disagree this statement. This indicates that girls have no more time to study at home.

Statement no. (13) is significant with χ^2 -value 20.67 at 0.05 level of significance. About 53% student disagree this statement. This reveals that learning environment of mathematics is not better for girl's student at home. So from their responses it is concluded that the gender bias at home is also responsible to increasing the participation of girls student in mathematics.

Beside the quantitative data, the researcher had conducted interview to the teacher to collect qualitative information about the influence of home environment on participation of girl students in mathematics. In course of interview period, the teachers' views were the time period given by students to learn mathematics at home, parents views towards their daughter, extra time managed by parents in home are also the influencing factors on participation of girl in mathematics.

Hence from the above informations, it can be concluded that parents education, parents behaviors, study time at home are the influencing factor on participation of girls in mathematics. Due to the less priority given by the parents to their daughter in learning mathematics is main cause of low participation of girls in mathematics.

Influence of School Environment on Girls' Participation on Mathematics

There are many factors that affect girl student's participation in mathematics. This study explored one factor that historically has received little attention by educational leaders. Researchers showed that planners should give serious consideration in designing learning environments outside of the traditional classroom.

Along with more attention should be given to the exterior design of school buildings. The classroom lighting, color choices and windows play a significant role in the participation of students. The teaching materials managed by school, number of students in classroom, teachers behavior towards girl students, peers behaviors with their friends, collaboration, sharing of knowledge questions answer to the teacher and student and roles, responsibilities and opportunities given by school and teachers to the girls student are main determining factors for girls' participation in mathematics. The following seven statements define the positive influence of school environment in girl students' participation in mathematics higher school curriculum.

Table 10: Influence of School Environment on Girls' Participation in Mathematics

S.N.	Statements related to: School Environment	Strongly agree	Agree	Undecided	Disagree	Strongly	t ² value	Decision
15	School manages all the teaching materials for Mathematics.	8	9	2	5	0	12.25	S
16	Teachers teach focusing the boys more than girls	2	2	16	4	0	34.33	S
17	Teachers are always suggestive to motivate girls student to study mathematics.	3	8	2	1	0	11.67	S
18	I like to solve basic mathematical problem with my friends in class	8	14	0	1	1	30.58	S
19	It is difficult to ask the problem which has not been understood.	4	3	0	12	5	16.42	S
20	The math teachers teach regular in the class.	11	10	3	0	0	23.92	S
21	All the teachers and students help to study mathematics.	10	13	0	1	0	32.25	S

From above table statement no. (15) is significant with the χ^2 -value 12.25 at 0.05 level of significance. More than 75% students agree on this view that school manages all the teaching materials for learning mathematics.

Likewise, statement (16) is significant with χ^2 -value 34.33 at 0.05 level of significance. More than 67% student undecided whether teacher teach focusing the boys more than girls.

Statement (18) is significant with χ^2 -value 30.58 at 0.05 level of significance. This shows that more than 60% of the sample student agree with solving basic mathematical problem with their friends in class. Statement no. (19) is also significant with χ^2 -value 16.48 at 0.05 level of significance. More than 50% sample student disagree that they do not feel difficult in classroom. It reveals that girls student feel no difficult to ask problem which has not understood while learning mathematics.

Statement no. (20 and 21) is also significant with χ^2 -value 23.92 and 32.25 respectively at 0.05 level of significance. This shows that more than 56% student agreed with these statement. This means the teacher are punctual in class and all the teacher and student help to study mathematics from these all statement it can be concluded that school environment which is existed in our context is also an influencing factors on girl's participation in mathematics.

Interviews were taken with the mathematics teacher to get the qualitative information concerning the role of school environment on girls' participation in mathematics. Most of the teachers' views were the low school facilities, limited teaching materials and culturally biased view about girls students are the main cause of low participation in mathematics.

Hence from the above discussion it can be concluded that the school environment which is not better to acquire high result is also the cause of low participation in mathematics.

Influence of Time Variable on Girls' Participation in mathematics

After gaining the mathematical concept or knowledge the most important things is to make it long lasting. To make it permanent drill, review and maintenance are the main factors. Appropriate drills not only develop the knowledge and skills in students but also it develops the most important factors in learning process. The main purpose of review is to organize and retain learning. It provides new motion to the girl students. At last the most important factor to permanent of the learning is maintenance. It prevents the students to forget the mathematical concept, skills and relations. The following seven statements given in table 11 are related to time variable that could create positive environment for girls' participation in mathematics.

Table 11: Influence of Time Variable on Girls' Participation in mathematics

S.N.	Statements related to: Time variable	Strongly agree	Agree	Undecided	Disagree	Strongly	t ² value	Decision
22	I study mathematics whenever I am free.	3	17	1	2	1	39.33	S
23	I always complete basic math homework of basic math given by the teacher.	8	16	0	0	0	42.67	S
24	Teacher gives class work as well as home work and Checks it.	13	10	0	0	1	34.4	S
25	I keep on practice of already taught math problem.	7	16	1	0	0	39.75	S
26	Course of mathematics is not complete in time.	0	6	8	8	2	11	S
27	I am regular student of math class.	11	13	0	0	0	36.42	S
28	Teacher does not give class work as well as homework.	0	0	0	12	12	36	S

From the above table it is concluded that the statement no. (22 and 24) are significance with χ^2 -value 39.33 and 34.4 at 0.05 level of significance. From the total sample of student more than 84% are agree with the statement 'I study mathematics whenever I am free' and 'teacher gives class work as well as homework and check it.'

Likewise statement no. (23 and 27) are also significant with χ^2 -value 42.67 and 36.42 at 0.05 level of significant. From total sample of student 100% are agree with the statement that they complete homework and regular student of math class.

Statement no. (26 and 28) are also significant with χ^2 -value 11 and 36 at 0.05 level of significance. From total student more then 85% student disagree with the statement course of mathematics is not complete in time and 100% student disagree with the statement teacher does not given class work as well as homework . At last it is concluded that time variable is also an influencing factor that affects participation of girls student in mathematics.

In addition to surveying the factor that affects the girls' participation in mathematics, the researcher had taken interview with teacher for qualitative information. The teachers' views regarding this time variable were also similar with the result obtained from the quantitative techniques. Most of the teacher focus on the drill, practice, and maintenance or reviewed of studied lesson done by students is the main factors for participating good or bad result in mathematics. They also added that especially the girl students do not give more time to study mathematics also, which is the main cause of low participation in mathematics.

Hence, from above both types of analysis it can be concluded that the minimum time given by girl students in learning mathematics is also the cause of low participation in mathematics.

Influence of Attitude towards Mathematics on girls' participation in mathematics

According to theory reviewed above, it is assumed that Attitude towards Mathematics is also an influencing factor on participation of girls in mathematics.

Some error as like reading error, comprehension errors, transformation error, process skill error, encoding error. It happened due to negative attitude towards mathematics. An error was classified as reading errors if a student could not read a key word or symbol. The comprehension error is an error in which the student cannot grasp the overall meaning of mathematics problem is known as translation errors. If the students have no idea to identify the operation or sequence of operation needed to solve the problem. An error was classified as process skill error when a student was able to identify the correct operation but did not know the procedure to carry out these operations accurately. Encoding error was an error in which students are unable to express the solution in an acceptable written form. The following seven statements define students' positive attitude towards solving problems of mathematics.

Table 12: Influence of Attitude towards Mathematics on Girls' Participation in mathematics

S.N.	Statements related to: Attitude towards mathematics	Strongly agree	Agree	Undecided	Disagree	Strongly	t ² value	Decision
29	I feel difficulty in reading mathematics key words or symbols.	4	8	2	8	2	7.67	NS
30	I feel hard to comprehend the overall meaning of mathematics.	0	15	0	7	2	33.92	S
31	I myself have no trick to solve any problem of Mathematics.	0	0	6	16	2	37.67	S
32	I need the help of teachers to solve any problem mathematics.	4	5	5	7	3	1.83	S
33	I cannot find myself the wrong of any mathematic question.	1	7	1	13	2	22.67	NS
34	I always make mistake in problem.	0	7	0	11	6	18.92	S
35	I think mathematics is boring subject.	0	1	1	13	9	28.50	S

From above table the statements 'I feel difficulty in reading mathematics key words or symbols' and 'I need the help of teacher to solve any problem mathematics' are insignificant with χ^2 -value 7.67 and 1.83 with 0.05 level of significance. More than 41.66% student disagree to this statement, 48% student agree to this statement and other sample student undecided to this statement that means almost all student have positive attitudes towards the statement. From these we can say that most of the

students do not feel difficulty is reading, comprehending the overall meaning of mathematics.

Statement no. (33, 34 and 35) are significant with χ^2 -value 22.67, 18.92 and 25.50 with 0.05 level of significance. More than 67% sample student disagree with these statement and conclude that they can find their self the wrong of any mathematical question. They always doesn't make mistake in problem and don't think mathematic I boring subject. So it is concluded that the girls attitude towards mathematics is also a cause of low participation in mathematics.

Beside this qualitative analysis the researcher also took interview with the math teachers regarding the Attitude towards Mathematics in mathematics problem. The teacher's views were generally the students can read and comprehend mathematics problem but they are unable to use properly in problem solving. Teachers in interview added that improvement of language is necessary for the girl students to understand mathematics depending upon the understanding of other subjects too. Basic concept of other subject is equally important for learning mathematics.

From the above discussion, it can be concluded that errors made by girl students in understanding mathematics is also the cause of low participation in mathematics.

Influence of Social Variable on Girls' Participation in Mathematics

Theoretically it was reviewed that culture and social factors are responsible for the under participation of girls in mathematics. The different social variable such as social system, cultural customs, and traditional effects of gender biases are the main factors that minimized the girls' participation in mathematics. In olden days, boys

were educated exposed to the society but girls were restricted to their kitchen and spent most of their time in helping their mothers in domestic work. This is the traditional effect of gender equity which influences the girls' mental development and achievement. The following seven statements define the social and cultural factor which affects on student participation in mathematics.

Table 13: Influence of Social Variable on Girls' Participation in Mathematics

S.N.	Statements related to: Social Variables	Strongly agree	Agree	Undecided	Disagree	Strongly	t ² value	Decision
36	Our society unequally treats boys and girls.	6	12	4	2	0	17.67	S
37	There are literate people in our society.	4	19	0	1	0	54.75	S
38	Female have inferior place in our Society.	1	2	1	12	8	20.58	S
39	Low role and opportunity of girls in society.	2	7	5	7	3	44.33	S
40	Our society has no idea whether the subjects' matter of mathematics is good or bad.	0	9	8	3	4	11.42	S
41	The society and persons admire the girls in learning mathematics.	4	12	3	5	0	16.42	S
42	The society does not inspire girls to learn mathematics.	0	2	2	6	14	26	S

The above table shows that all statements are significant at 0.05 level of significance. Statement no. (36) is significant ant with χ^2 -value 17.67. From total sample student more than 75% student agree on the view that society unequally treat

boys and girls. Likewise statement no. (37) is significant with the χ^2 -value 54.75. This shows that more than 96% of the sample student agreed with the statement that society has more literate people.

Statement no. (38 and 42) are significance with χ^2 -value 20.58 and 26 with 0.05 level of significance respectively. More than 84% sample student disagreed with the statement 'female have inferior place in our society' and 'the society doesn't inspire girls to learn mathematics.

Statement no. (41) is significance with χ^2 -value 16.42 at 0.05 level of significance. More than 67% students agreed with this statement. This reveals that most of the people of society encourage and admire the girls to learn mathematics. From all these statements, it can be concluded that social variable in which low role and opportunity of girls in society is influence factor that effects the participation of girls students.

Beside quantitative testing qualitative information were collected from mathematics teachers regarding the relation of social variables in girls' participation. By the response of math's teachers, it was concluded that there is still misconception that mathematics was what men did. This views and beliefs that mathematics and related fields are more appropriate for boys than for girls persist in many contemporary societies. On the other hand, a specific obstacle is the prevalent bad image of mathematics and mathematician in society and community. Some people hate mathematics because it caused their failures or the failure of their students at higher school. Political, economics, religious and cultural condition of the society affects in the participation of girls in mathematics. The response of the interview of teacher and the result of opinionnaire scales are found in conformist remain same. So

it is concluded that the girl students' participation in mathematics is influenced by social variable.

The Most Significance Factors that Affect on Participation of Girls Students in Mathematics

After the analysis and interpretation of data, the researcher found that the factors teacher learning process, home environment, school environment, - time variable, attitude toward mathematics and social variable are influencing factors that affect on participation of girls students in mathematics because the elements has played vital role to take or do not take mathematics as major subject. From the above tables of influencing factors shown that, the statements related to girl students, the most of statements are significant but from the above table 12 the two statements "I feel difficulty in reading mathematics key words or symbols." and "I need the help of teachers to solve any problem of mathematics." and from the table 13, the one statement "Low role and opportunity of girls in society" are insignificant. So at last, among these six factors of influencing girl students' participation in mathematics, the researcher concluded that the attitude towards mathematics and social variable factors are most influencing factors to participate the girl students in mathematics. Because the attitude towards mathematics of girl students was not strong they always feel difficulty and worry about math subject that I will fail in the final exam. They always dependent upon sir and never use mind to solve mathematics problem themselves. Another causing factor is social variable because the society treated unequally boys and girls and the role and opportunity of girls in society was very low. So the researcher concluded that the factors attitude towards mathematics and social variable was most influencing factors of girl students' participation in mathematics.

Chapter – V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is basically concerned in deriving some findings and conclusions from the discussion of the previous chapter. Besides finding and conclusion, it has some recommendations which will be useful for further studies and educational implications.

Summary of Study

This study was based on the survey study. The study design has utilized both quantitative and qualitative research approach. The main purpose of the study was to find the girls' participation in mathematics and to identify the factors affecting participation of girl students in mathematics. The population of the study. consisted of all girls students . at grade XI (Education) in the academic year 2072/073 of Doti District. For the survey purpose, the researcher employed convenient sampling techniques to select the sample higher schools in the first stage. Among twenty four higher secondary schools of Doti District, six higher schools which have three from urban and three from rural area were selected as the sample schools. All girl students of grade XI (Education) was the sample students of the sampled higher school. Altogether 164 students where 116 were boys and 48 were girls' students from 48 girl students the regular 24 girl students were selected. The researcher used a one set of opinionnaire scale, observation schedule and one set of interview schedule for collecting information or data. Opinonnaire scale was used only to girl students to investigate the factors that affects on participation in mathematics. The opinionnaire scale was developed on basis of Likert five point techniques. The collected data from opinionnaire scale were analyzed by using χ^2 - test in 0.05 level of significance.

Interview was carried out to the math teachers of the selected sample higher schools. Then the researcher substantiating as triangulation to the qualitative analysis result from the qualitative information from the interviews.

Finding of the Study

From the analysis of the huge number of data at the end the researcher found the major findings of the study are categorized as follows.

-) Teaching learning process in which teacher's qualification, interest of learners, student as well as parents' expectation and their views and beliefs directly influence on girls' participation.
-) It is found that home environment such as gender bias at home, parents' education, practice time is given to solve problem, economic condition of family and study hour of student at home influence in the girls' participation in mathematics.
-) The school environment such as physical facilities of school, the number of students, gender bias at school, teachers and peers' behaviors towards girl students affect the girls' participation in mathematics.
-) From the analysis, it is found that continuous practice, review and application of mathematical concepts affect the participation of girl students in mathematics.
-) The girls who were encouraged by society to study mathematics did better in mathematics, where as those who were discouraged did not do well in mathematics. Thus it can be concluded that the social variables such as social system, cultural customs, and traditional effects of gender directly influence the participation of girl students in mathematics.

) Form analysis, it is found that most of the girl students feel difficulty in reading, comprehend the overall meaning of mathematics and some time make mistake in solving the mathematical problem. I concluded that they are doing better in mathematics but participation is low.

Conclusion

Mathematics is a gateway to many areas of further study. The participation of girl students in mathematics is very low. Society as a whole believed that female is mathematically less capable than male. This belief is communicated by parents and teachers to students. Girls come to view their failures in mathematics as evidence that they indeed feel inferior and view their success as flunks. This reinforced the belief that they are not capable of doing well in mathematics. So they are not participating in mathematics classroom.

Although mathematics education has been given an important place in curriculum of all level of schools and the university education. Most of the students fail in this subject. This is unknown factors impeded students' progress in this subject. In this case of failure, the number of girl students is very high. It is felt that girls are unable to catch the mathematical ideas what boys do. However, this reason is not scientific because different researches have shown that girls are also equally capable to do math with boys. But what is the causing factor that makes girls' failure in mathematics study has still not found.

In a conclusion of the study, mainly six factors were identified as influential variables for the participation of girl students in mathematics. Those six variables were as follows:

) Home environment,

-) School environment,
-) Teaching learning process,
-) Social variable,
-) Attitude towards mathematics,
-) Time variable

At last, it is concluded that girls are equally talented and should be given equal facilities at home and at school to learn mathematics. Parent and teachers should not consider boys are assert and daughter as a liability.

Recommendation for Further Study

The conclusion of this study cannot be generalized to all higher schools' girl students and to all areas (rural and urban) due to the limitations contained in this study. Thus, after analyzing the conclusions and implications of the study the researcher has made the following recommendations or suggestions for further study to validate the present study's findings.

-) Almost of the girl students are weak in mathematics and are not participation in mathematics education programs for girl students. Research should be focused in this area.
-) This study was done only in Doti District as a case. For generalization of the result of the study, similar study should be done in a wide scope and large sample.

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Appendix-A

Students - Opinionnaire Form

Dear Students,

I am Pratima Giri, a student of M.Ed.; 2070/71 Batch, specialization in mathematics education from Tribhuvan University, Faculty of Education, Kirtipur, Kathmandu, Nepal. I have tried to prepare a thesis on **“Factor Affecting Girl’s Participation at Higher Secondary Level Mathematics in grade XI (Education) in Doti District”**. This survey is a part of this M.Ed. field research in order to submit to the Department of Mathematics Education as a partial fulfillment for the Master’s Degree in Education.

There are 42 statements concern with Mathematics achievement and participation of girls. There is right or wrong answer. The right answer is your own opinion of feeling. Please, read the statements carefully and give your own opinion about the intensity of putting tick mark () on any one of the five rating of each statement.

Here,

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

D = Disagree, S.D. = Strongly Disagree

Name:-

Date:

School:-

Sex:

Class:-

Roll no.:

Address:-

.....VDC / Municipality.

Ward no.:-

Math teacher’s Name :

Principal Name :

S.N.	Statements	SA	A	U	D	SD
1	I am not curious and active while learning mathematics.					
2	I enjoy when solving mathematics problems.					
3	The class of mathematics is less interesting than other.					
4	Our teachers try to make the mathematics class interesting.					
5	Mathematics is an essential part of the science and technology.					
6	Teacher always use teaching materials while teaching mathematics.					
7	All mathematics teachers are trained on motivating students with different ability.					
8	My parents do not manage all required materials for the study of mathematics.					
9	My parents treat unequally my brother and me.					
10	My parents do not discuss about my learning progress report with basic math teacher.					
11	My family manages tuition and coaching if necessary					
12	I have no more time to study mathematics at home.					
13	Learning environment of mathematics is Better for me at home.					

14	School manages all the teaching materials for Mathematics.					
15	Teachers teach focusing the boys more than girls					
16	Teachers are always suggestive to motivate girls student to study mathematics.					
17	It is difficult to ask the problem which has not been understood.					
18	I like to solve basic mathematical problem with my friends.					
19	The basic math teachers teach regular in the class.					
20	I study mathematics whenever I am free.					
21	I always complete basic math homework given by math teacher.					
22	Teacher gives class work as well as home work and Checks it.					
23	I keep on practice of already taught math problem.					
24	Course of mathematics is not complete in time.					
25	I feel difficulty in reading mathematics key words or symbols.					
26	I feel hard to comprehend the overall meaning of mathematics.					
27	I myself have no trick to solve any problem of Mathematics.					
28	I need the help of teachers to solve any problem of mathematics.					

29	I cannot find myself the wrong of any mathematics question.					
30	I always make mistake in solving the problem.					
31	Our society unequally treats boys and girls.					
32	There are literate people in our society.					
33	Female have inferior place in our Society.					
34	Low role and opportunity of girls in society.					
35	Our society has no idea whether the subjects' matter of mathematics is good or bad.					
36	The society and persons admire the girls in learning mathematics.					
37	The society does not inspire girls to learn mathematics.					
38	All the teachers and students help to study mathematics.					
39	My parents always say me that do not spend more time in mathematics at home.					
40	I am regular student of math class.					
41	Teacher does not give class work as well as homework.					
42	I think mathematics is boring subject					

Thank you very much for your assistance in completing this opinionnaire as well as my research.

Appendix - B

Interview Guideline for Teacher

Name of teacher:-

Qualification: -

Trained/untrained: -

Teaching experience:-

Address:-

..... VDC / Municipality Ward no.:-

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

Interview questions for teachers

) Teaching strategies of mathematics

1. Is solving the entire mathematics problem by the teacher necessary? Should students do exercise themselves?
2. Does the teachers' qualification affect on the girls' participation in mathematics? How?
3. Do you use instructional materials while teaching mathematics?
4. What types of materials do you use? Are those all materials sufficient?
5. Do you encourage girl students to study mathematics?

) Home environment

6. Did the home environment affect the girl's participation in mathematics? Yes or No. Mention those factors.
7. What will be the cause of the low participation of girl students' in mathematics?
8. In your opinion do you think the other probable factors could also affect the girls' participation in mathematics?

) School environment

9. How about the participation of your girl students in mathematics subject?

Why?

10. Is the teachers' behavior helps to increase the girls participation in mathematics?

11. Are there any comments or suggestion to improve girl's participation in mathematics?

) Probable error during mathematics problem solving

12. What do you feel when you entered the classroom to take the mathematics class?

13. Do you review the mathematics course from time to time?

) Social variables and girls achievement

14. How do the students' values and beliefs affect on learning mathematics Of girls student?

15. Does the peers behavior or co-operation help to increase the girls' participation in mathematics?

16. Is there any discrimination between boys and girls in your class?

17. Social variables are also the important factor that affects the girls' participation in mathematics. Do you agree? Give reasons to support your view.

) Study time and interest of learning

18. What is the factor that affects girl students' participation in mathematics?

19. What do you think about the girl students' interest in reading mathematics?

Appendix - C

Observation Schedule

School Name :

Date :

Teacher 's Name :

No. of Students :

Principal's Name :

Students Name	Attendance			C.W.			H.W.			Interaction with peers			Interaction with teacher			ECA			If others		
	D	S	N	D	S	N	D	S	N	D	S	N	D	S	N	D	S	N			

Where, D = daily attendance, S = some time attendance, N = never attendance, ECA = extra curriculum activities

Appendix-D

Statistical Formula

1. The computation formula used for the calculation of χ^2 -test was

$$\chi^2 = \frac{(O_{ij} - e_{ij})^2}{e_{ij}} \text{ where, } O_{ij} = \text{Observed frequency}$$

$$e_{ij} = \text{Expected frequency}$$

$$\text{And } e_{ij} = \frac{i^{\text{th}} \text{ Row total} \times j^{\text{th}} \text{ column total}}{\text{Grand total}}$$