

**OBSTACLES IN LEARNING MATHEMATICS FOR GIRL STUDENTS OF
GRADE IX**

**A
THESIS
BY
BUDDHA LAXMI TANDUKAR**

**FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER IN MATHEMATICS EDUCATION**

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LETTER OF CERTIFICATE

This is to certify that **Ms. Buddha Laxmi Tandukar**, student of semester system **2071/072** with campus Roll No: **275**, Exam Roll No: **28710270** and T.U. Registration No: **9-2-257-19-2008** has completed her thesis under supervision of **Mrs. Sarala Luitel** during the period prescribed by the rules and regulations of Tribhuvan University, Nepal. The thesis entitled **Obstacles in Learning Mathematics for Girl Students at Grade IX** has been prepared based on the results of her investigation conducted during the period of April 2018 to March 2019 under the Department of Mathematics Education, University Campus, Tribhuvan University, Kirtipur, Kathmandu. Her thesis number is **1388**. I recommend and forward her thesis for evaluation as the partial requirements to award the Degree of Master of Education.

.....
Prof. Dr. Bed Raj Acharya

Head of the Department

Date: 20 February, 2020



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Letter of Approval

This thesis submitted by **Ms. Buddha Laxmi Tandukar** entitled on
Obstacles in Learning Mathematics for Girl Students at Grade IX has been
approved for the partial fulfillment for the requirement of Master's Degree in
Mathematics Education.

Committee for the Viva-Voce

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Recommendation for Acceptance

This is to certify that **Ms. Buddha Laxmi Tandukar**, has completed her thesis entitled **Obstacles in Learning Mathematics for Girl Students at Grade IX** under my supervision during the period prescribed by the rules and regulations of Tribhuvan University, Nepal. The study embodies the result of investigation conducting during the period of 2018 to 2019 under the Department of Mathematics Education, University Campus, Tribhuvan University, Kirtipur, Kathmandu. I recommend and forward her thesis to the Department of Mathematics Education for the final viva-voce.

Date.....

.....

Mrs. Sarala Luitel

(Supervisor)

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Declaration

I declare that this thesis is my own work which contains no materials from other accepted thesis of degree awards which have been already done in any institutions. Similarly, I declare that this thesis has not been submitted for any other degree.

Buddha Laxmi Tandukar

Date 20-02-2020

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Buddha Laxmi Tandukar

Abstract

The title of the study was **Obstacles in learning mathematics for girl students at grade IX**. The objectives of this study were to find the obstacles faced girl students in learning mathematic and to find out the remedies of those obstacles in learning mathematics. This study used qualitative research design and case study approach where two mathematics teachers and five students of class nine has been selected through purposive sampling procedure. Questionnaire, interview and observation schedule were used as tools to collect data. Data were analyzed inductively so as to use the results of the analysis on basis for subsequent data collection.

After analysis of data, the researcher found that the number of student in class is low. Most of the parents were labor and illiterate. Their family background is so poor. They do not have proper idea of importance of mathematics education for girls. Students were weak in mathematics and they feel mathematic is difficult subject. Girl's workload, social environment and culture, student's absent, learning environment in home were found as the major obstacles of learning mathematic of girls. Active participation of student in learning mathematics, organization of refreshment training for teacher, manage necessary teaching materials, use suitable method in mathematical classroom are the key point to promote student achievement.

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ABBREVIATION

B.B.S.	:	Bachelors of Business Studies
B.S.	:	Bikram Sambat
BHU	:	Banaras Hindu University
ICT	:	Information and Communication Technology
NGO	:	Non-Government Organization
Ph.D	:	Doctor of Philosophy
S.L.C.	:	School Leaving Certificate
SEE	:	Secondary Educational Exam
SIMS	:	Second International Mathematics Study
T.U.	:	Tribhuvan University

Chapter I

INTRODUCTION

This study is an attempt to find the obstacles in learning mathematics for girl students at grade IX. Mathematics gives us in sight into the power of the human mind. And mathematics is the backbone of the education but the achievement of the student in mathematics is low. That's the reason behind the selectin of the topic. In the context of Nepal, our society is patriarchal, the role of woman's is constructed by male in such a way that they need to associated themselves with household works at any cost. Every girl student is supposed to carry out both household work and study simultaneously. When girl student is required to balance/divide her time for work and study, it's that she won't able to concentrate more in her study and resulting in poor academic performance. So, the suggest remedial way to minimize the obstacles in the learning mathematics. The researcher has selected this topic. This chapter deals with background of the study, statement of problem, research questions, objectives of the study, significance of the study, delimitations of the study and definition of terms.

Background of the Study

Education is considered as the most powerful tool to change the world. It can be considered as functioning aspect in overall development of child. Education is important for the development of individuals as well as the society. It took impossible for people to make the best use of the environmental resources for life and society without having proper education in their respective settings.

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. Every society has observed

mathematics as basic needs of human civilization. In the rapidly changing world and in the development of science and technology, mathematics plays a vital role. In twenty first century, school mathematics should focus solving daily life problem of the society and learners.

Our society is patriarchal, the role of girls is constructed by boy in such a way that they need to associated themselves with household works at any cost.

Consequently, every girl student is supposed to carry out both household work and study simultaneously. Many girls students think that mathematics is hard subject and is made only for boys. So, we should encourage and motivate to the girls towards learning mathematics. Teacher's role is most important in it. To eliminate all these problems regarding female's unequal participation in learning mathematic we should discard the patriarchal values and beliefs. And they should be given equal chances to the females or girl students (Tyson, critical theory today). Canadian citizen, Gila Hanna presented a report including the boys and girls of twenty(20) countries in achievement of mathematics. She used the data of the SIMS in her report. According to her reports, the students of class 8 of age 13 to 15 including boys and girls in achievement of mathematics' the following result has been shown; In learning achievement of mathematics boys are successful in 75% items and girls are successful in 25% items only. So, in conclusion it was found that girls are backward and weak in learning mathematics than boys. Boys are successful in learning achievement in comparison with girls. So, I have tried to study about the obstacles in learning mathematics for girls students at grade IX.

In this study, obstacles means difficult, barriers, problem, disadvantages.

Statement of Problem

In my experience, there is always low participation of girls in mathematics classroom, boys receive more academic helps and teachers are more likely to accept boy's ideas or opinions during classroom. When I studied master degree at TU, in my class there were 49 students and just 9 were girls in the class. Educators also noted that girls had low self-confidence regarding their performance with mathematics. Thus, in my view girls may be think mathematics as a male dominated subject that is difficult to reconcile with their sex-role identity.

Girls student is required to balance her time for work and study, it's that she won't be able to concentrate more in her study and resulting in poor academic performance.

This study attempted to seek answer of the following research questions;

- What are the obstacles that affects to the girls in learning mathematics?
- What strategies can be applied to reduce the obstacles in learning mathematics?

Objectives of the Study

The main objectives of this study were as follows;

- To explore the obstacles faced girl students in learning mathematics at grade IX.
- To find remedial way to minimize the obstacles in learning mathematics.

Significance of the Study

Mathematics is taught as an essential and important component of school level curriculum. It has been taught as compulsory subject at all level of school. Although, mathematics has been given an important place in the curriculum at all level of school

education. The National Educational System Plan has emphasized in making the mathematics teaching life oriented and practical. In Nepal, the different educational reports shows about one third of school going children in primary level and more than 40% secondary school going children are out of school. In school level, dropouts and failures are still in large number, most of the girls fall under this category. Girl's education still in dangerous and challenging situation. Early marriage and economics condition are challenge to education. Most of the girls can not complete their secondary level due to early marriage. In such a obstacles affecting girls in learning mathematics so, researcher was motivated by these issues and wanted to forward this study.

The significance of this study are as follows;

- This study would provide the information about obstacles in learning mathematics for girls student at grade IX.
- This study would help the school administration to create suitable environment for girls.
- This study would be helpful for girls to minimize wrong impression about the study of mathematics.
- This study would help to focus the social variable that supports for the girl.
- This study would help to create to home environment in learning mathematics for girl.

Delimitation of the Study

This study has following delimitations;

- This study was limited to the community school with secondary level at Lalitpur District.
- This study was included the girl students only of grade IX.

- This is case study so that it may not be generalized.
- The primary data for the research would collected by interview schedule(Appendix II-IV) and class observation(Appendix-I).

Definition of Related Terms

Student

The person involved study in Adarsha Kanya Nikten H.S.School in Lalitpur district in academic year 2075/2076 B.S at grade IX.

Learning obstacle

An obstacle to learning is anything that stands in the way of a student being unable to learn effectively.

Home environment

In this study home environment is defined that the education status of the family, lack of good motivation and burden domestic work had seen the major obstacle to hinder to get good achievement of students.

School Environment

In this study, school environment is defined in all the physical facilities are available in the school.

Social variable

In this study, social variable is defined is traditional effects of gender thinking cultural customs in society etc.

Community school

In this study, community school means, a school which is fully funded by the government.

Chapter II

REVIEW OF RELATED LITERATURE

Review of related literature is source of further study for the research task. The review of the related literature is also an essential part of research for the researcher because literature helps and guides research research to meet theoretical way for the study. It helps to conduct of related literature is an essential aspect of a research project and this work is basically undertaken for the purpose of documenting the research finding drawn by the different researchers related to present study. It deals with some literature, which are reviewed from different books and reports related to this study.

Empirical Literature

A brief summary of previous research and writing of recognized experts provide evidence that the researcher is familiar with what is already known and with what is still unknown and untested. Since effective research must be based upon past knowledge, this step helps to eliminate the duplication of what has been done and provides useful hypothesis and helpful suggestion for significant investigation (Lamichhane, 2012). It provides useful suggestion for significant investigation. Several types of related literature are reviewed in this study which helps to make the concept clear for the study and also direct to analyze and interpret the data with this assumption. Some related literature are reviewed as follows;

Chanda (2009) did a study on “factor affecting the achievement of secondary girl students in mathematics at Baitadi district”. The main objectives of this study were to determine the personal factor and physical factors that affects girl’s mathematics achievement and to measure the correlation between affecting factors and mathematics achievement. For this purpose researcher selected 40 girl students

from four government school by random sampling method of the academic year of 2065. The data of sample student were obtained through the student questionnaire form. A study found that the mathematics achievements of girls' student are found to be strongly as associated with the peer behaviors', self-confidence and practice of learner. The teacher's behavior, home environment, interest of lower and motivation have low positive correlation with mathematics achievement of girl student. But school environment, classroom environment and motivation have negative effect in mathematics achievement of girl students.

KC(2009) conducted a thesis "A study of problem faced by students in compulsory mathematics at secondary level". The nature of this study was quantitative as well as qualitative. This study followed survey design. He selected six schools from urban area of Lamjung district randomly. Among them three were government schools. From each school, one mathematics teacher and three mathematics students of grade X were selected as a sample for the study. For the data collection, a set of class observation form and interview schedule were used. The obtained data was analyzed and interpreted with the help of mean weightage.

The major finding of this study were illiterate parents, poverty of parents, lack of encouragement for study, the gap of low achievement and high achievements lab, lack of trained teacher. It concluded that there had been significant problems in learning geometry at secondary level.

Upadhyay (2010), advocated that females are backward in comparison to male with respect to educational development. There are many cause of backwardness of females then males. Among them, social factors are one. Female could not educational and social equability for a long time. Researcher found that gender difference in math achievement has declined. However, gender difference skill

preparatory courses that are considered essential to accusing the foundation for future study of advanced mathematics.

Ghimire (1997), studied on “ A study on factors affecting teaching and learning mathematics at secondary level” with the objective to explore the factors affecting of school’s mathematics in term of school environment, family background, motivational factors, physical facilities, interest of the learners, instructional materials. The tools for the study were administered to the sample of 90 students and the data was analyzed by using t-test. He concluded that environment of the school in rural and urban areas affect equally but boys are more affected than the girls. Likewise, environment affect more to the subject of rural areas and girls are affected more than boys. He was also finding out that motivation, students interest, instructional methodology and materials also effect on the teaching and learning mathematics.

Janwali (2007), did her research entitled” A study on causes that affect mathematics achievement of girl’s students” with the objective to determine school related factors and out of school related factors which affects the mathematics achievement of girl’s students and to determine the correlation between affecting factors and mathematics achievement. The tools for the study were administered to the sample of 50 students from rural and urban area of Rupendahi district and mean, Sd, correlation coefficient and multiple regressions were used for the analysis of data and found that mathematics achievements of girl’s students were strongly positively correlated with peer’s behaviors, effective classroom teaching and learning. The teacher’s behavior and family background were also had some positive effects on mathematics achievement of girl’s students.

Sapkota (2012), has identified some significant factors about learning math of girl. This study focuses on the “ factor effecting learning mathematics of girls”. This was a survey type study that attempts to analyze the factors affecting learning mathematics. This study was conducted among ten public school which were select randomly from all public schools of Kailali district includes rural and urban areas. One set of opinion scale was prepared and distributed to the students to find out the effect of teaching learning process, home environment, social variable, time variable and school environment in learning mathematics of girl’s students. Unstructured interviews were taken with girl’s students, parents and mathematics teacher from respective sample school concerning these factors. Related literature, theories mathematical tools which are related this study have been used to interpret. Reflection on the study over the analyzed information χ^2 value was used to interpret the result as well as discipline analysis was also done with information obtained from interview.

Cultural background plays important role in teaching and learning. In that area Acharya (2014) conducted a mini research on “Problem encountered in teaching learning mathematics in multicultural classroom.” The purpose of his research was to explore classroom practices in teaching materials through a cultural perspective and to explore the challenges faced by teachers and students while teaching and learning mathematics in culturally diverse classroom. He adopted ethnography approach for inquiry then he found that lecture based teaching activities, there is less participation, lack of teacher’s knowledge to teach mathematics in the cultural setting are the major factors for not supporting in learning mathematics in culturally diverse classroom.

Theoretical Review

The theoretical discussion is needed for the interaction of the findings of the study. Theories are provide an important base for understanding and interpreting the

realities that comes across the process of research. Here, I used the feminist theory in my research study.

Feminist Theory

Feminist theory is one of the major contemporary sociological theories, which analyzes the status of women and men in society with the purpose of using that knowledge to better women's lives. Feminist theorists have also started to question the differences between women, including how race, class ethnicity and age intersect with gender. Feminist theory is most concerned with giving a voice to women and highlighting the various ways women have contributed to society.

There are three main types of feminist theory that attempt to explain the societal differences between men and women:

Gender Difference: The gender difference perspective examines how women's location in , and experience of, social situations differ from men's. For example, cultural feminists look to the different values associated with womanhood and femininity as a reason why men and women experience the Social world differently. Other feminist theorists believe that the different roles assigned to women and men within institutions better explain gender difference, including the sexual division of labor in the household. Existential and phenomenological feminists focus on how women have been marginalized and defined as the other in patriarchal societies.

Women are thus seen as objects and are denied the opportunity for self-realization.

Gender Inequality: Gender-inequality theories recognize that women's location in , and experience of, social situations are not only different but also, unequal to men's. Liberal feminists argue that women have the same capacity as men for moral reasoning and agency, but that patriarchy, particularly the sexist patterning of the division of labor has historically denied women the opportunity to express and

practice this reasoning. Women have been isolated to the private sphere of the household and thus, left without a voice in the public sphere. Even after women enter the public sphere, they are still expected to manage the private sphere and take care of household duties and child caring. Liberal feminists point out that marriage is a site of gender inequality and that women do not benefit from being married as men do. Indeed, married women have higher levels of stress than unmarried women and married men. According to liberal feminists, the sexual division of labor in both the public and private sphere needs to be altered in order for women to achieve equality.

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

Feminist Theory and Education

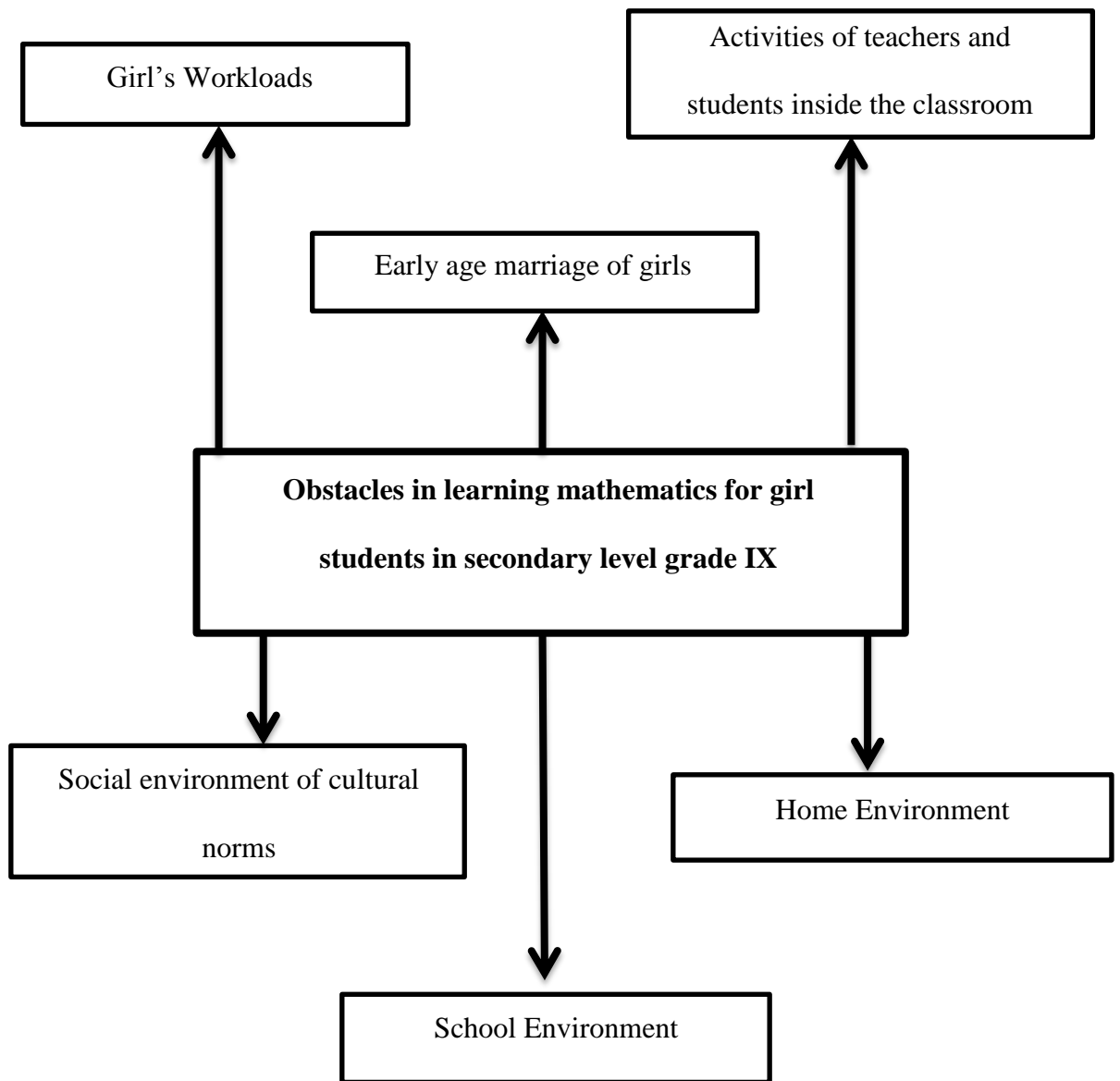
Since my study deals with the obstacles in learning mathematics for girls at grade IX, I discuss feminist theory and education particularly. The feminist argues

that patriarchal society prepare the girls for the subordinate roles both in public and domestic life with boys/men leading the upper posts and taking major decisions. In educational are, they have argued that girls are not only disadvantages in the educational system but also learn to be subordinate and to accept dominant ideologies of feminineness and masculine.

Feminist patriarchy research has shown that girls learn to create their identity as feminized, radicalized and located within a class system through schooling depicts patriarchal nature through structural positioning of women in lower level of schooling system. Female members of the school, both students and teachers or the policies of individual schools or local authorities that provide base for understanding and explaining actions of what is going on. As theories make sense of facts, similarly feminist's theories provide basis for explaining gender division in all spheres of society including education, about subordinations and oppression of the women. Most of the feminist theory focuses on analyzing gender inequality and the promotion of women's rights, interest and issues. So, from the concept of above reviews of the theory, the researcher had drawn the following conceptual understanding for the further study.

Conceptual Framework of the Study

As discussed above related literature obstacles in learning mathematics for girl students at grade IX, generally obstacles of girl students are influenced by parent's education, cultural behavior, economic, interest of learner, physical facilities, motivation factors etc. Beside these influencing factors, researcher conducted a research on the factors like early marriage of girls gender difference, social environment, school environment, political and institutional policy etc. and had developed the following conceptual framework with the help of these variables.



Source: Chaudhary (2014)

Chapter III

METHODS AND PROCEDURES

This chapter presents the procedure of the study which would help to achieve the objectives of the study and to get answer of the statement of the problem. It described the design of the study, selection of the study area, selection of the respondents, data collection procedure and data analysis procedure.

Design of the Study

This is case study about obstacles in learning mathematic for girls at grade IX in Lalitpur district. This study was based on qualitative research design as well as descriptive in nature. It was descriptive because all the expressed logic, views and opinions obtained by respondents were subjective.

Selection of the Study Area

For the research, researcher used the convenience sampling method for the sample of the study. Researcher selected the one community school of Lalitpur district which is the girl school. And researcher was also a girl student of the same school as well as has taught for some months. Beside this, the requirements related to the researcher's topic were available in that school. So, the school was best for the research.

Selection of Respondent

This is a case study in qualitative inquiry. So, sample size is not large. For that purpose the researcher first met the school administration and then math teachers in the sample school. This research depends on only girl student of grade IX. So the respondents were girl students of grade IX. The girls were selected on the basis of their previous results with low achievement, family status, economic status

performance in classroom activities, their interest towards mathematics and homework etc. Researcher found 18 girls in grade IX. Then researcher used purposive sampling and selected 5(five) respondents among 18 on the basis of criteria defined previously.

Data Collection Tools and Instruments

To get the reliable data, the researcher developed tools to fulfill the objectives about the collection of data. Best and Kahn (1998) stated that “qualitative methods consists of three kinds of data collection; in-depth, open-ended and interviews, direct observations and written documents” (p. 184). Similarly, Ritchie and Lewis (2003) stated, “Main qualitative methods include observations, in-depth individual interviews and focus groups biographical methods such as diaries and narratives and analysis and text” (p.4). The necessary tools were described here below:

Interview Schedule

Interview is two way conversations (communication) between two or more persons which is presented on the basis of the planned/situational question in order to get information of the interviews. The researcher had prepared separate interview guideline for mathematics teachers, parents, school administration and students to explore related information. The criteria of students interview guidelines were student and their family background related to teacher, school, teaching learning activities and school environment as appendices II-IV. Qualitative research needs natural setting data. Thus, interviews were one of the prime source of the data collection. It gives depth understanding of the problem and identify the key information for the solution.

Observation Form

The research was observed in a community school of Lalitpur district with grade IX girl students in a girls school. Researcher had maintained daily notes on class observation of the sample school. The class observation totally depends on students activities in the classroom learning environment in the classroom activities, teachers' activities and use of teaching materials and teaching method as appendix-I. The main objective of such observation were to be familiar with various obstacles in learning mathematic for girls. Observation classes were done directly or indirectly classroom observation. A classroom observation was a formal or informal observation of teaching class observation of grade IX students was conducted and relevant data were collected for further data analysis.

Quality Standards

According to Denzin and Lincoln (2011), qualitative research is recently developed research approach. In this, researchers modify, adopt and adjust techniques to craft their practice. It confronts uncertainty, fragmentations, diversity and plurality. There are many trusts and their generalizations, typologies are contrasted, troubled or challenged (Denzin & Lincoln, 2005; Freitas, 2007; Onwuegbuzie & Leech, 2004). In my research, I have set the following mentioned quality standards.

Trustworthiness

“Research findings should be a trustworthy as possible and every research study must be evaluated in relation to the procedures used to generate the findings” (Graneheim & Lundman, 2003, p. 109). In order to maintain trustworthiness of my research, I have gone to the real field and appreciating social state, understandings and perspectives and participants by conducting research in personal, social and natural setting. I have maintained credibility through prolonged engagement by

visiting of the participants frequently for interview, sharing and discussing my research topic and reinterpreting the situations. Before starting discussions with the participants, I had clarify them the purpose of taking their interviews.

Credibility

Credibility is known as internal validity of a qualitative research. The credibility criterial involves establishing that the results of the qualitative research are credible or believable from the perspective of the participants in the research. For the credibility of the collected date and information, triangulation was done on the basis on document analysis and in-depth interview. During the whole process, I used personal notes, reflective notes and theoretical notes in each interview.

Transferability

Transferability is the external validity of research findings. It refers t the degree to which the results of a qualitative research can be generalized or transferred to other contexts of setting. From the qualitative perspective, transferability is primarily the responsibility of the one who is doing the generalization. As theoretical generalization or transferability was practiced in qualitative research, I enhanced transferability by doing a thorough job of describing the research context and the assumptions were central to the research.

Ethical Issues

“Ethical responsibility begins with the individual researcher and the researcher is the main determinant of ethical standards.” (Anderoson, 1998, p.26). As a researcher, I need to clarify the purpose of my research so that the participants could express their views openly. I selected a few participants and make sure that their name will not reveled in any part of my research. So before I start my research, I took permission form the participants. Also I sought prior permission to conduct research

from the authoritative persons in the institute. I ensure that the participants were not harmed and their involvement also benefited themselves. I tried to remain detached from any such kind of emotions and biasness during the period of my stay with the participants and thus I gave fair justice to the research. I always respected my participants views and their logical thinking.

Data Collection Procedure

Data collection procedure was techniques or process to collect data to fulfill the research objectives. The primary and secondary data were necessary for reliable and valid output. For this purpose, researcher met first the school administrators and explained the detail of the purpose of the visit and heartily requested to provide previous mathematics progress report data of the grade IX. Researcher found 18 students in class IX. Researcher talked with these girls about their perception of mathematics and mathematic teacher and selected 5 girls among them. For the data collection, researcher used interview guidelines and classroom observation guidelines. In this research, data were collected by conducting interview with school administrations, mathematics teachers, parents and students. A field note was used to collect the data.

Data Analysis Procedure

After collecting data, the researcher analyzed and interpreted using qualitative and descriptive method. The data and information were collected from the interviews and observations. Among different things that influences the school, internal influences, social influences, learning strategic, teacher behavior, students' behavior for the study was given in the text of interview and observation. The data analyzed and interpreted by using conceptual framework which was organized by researcher from triangulation of recommend relevant findings.

Chapter-IV

ANALYSIS AND INTERPRETATION OF THE DATA

This chapter deals with the analysis and interpretation of collected information of the study. This is considered as the main body of the research. Being the main body of the research, it can be seen as the practical aspect of the study. On the basis of the intended objectives and constructed tools for collecting information, researcher visited to research field for collecting current data.

This chapter analyzed the collected data under the following topics: girls' workloads, school environment, home environment, parent's occupation, economic status, social environment and cultural norms and the activities of teachers and students in the classroom. At first, the collected information was categorized according to the category of the respondents and different themes were given in the text of interviews or the observation notes.

History of Case School

Adarsha Kanya Niketan Higher Secondary School is located at Mangal Bazar-12, Lalitpur Municipality in Lalitpur district. It was established in 2004 B.S. The school initially started from home with the motive of education for girls at the period of Rana as people started with the philosophy that both girl and boy are equal. In 2008 B.S. the school was formally shifted at Mangalbazar for formal education. The school appeared in SLC examination for the first time in 2010 B.S. Gradually it started higher education (+2) form 2051 B.S. and then B.B.S affiliated to T.U. Now there are 450 students altogether in the school and about 50% of student are getting scholarship from different NGO, organizations.

Parents View Towards Girl students

Parents' expectation has an adverse effect on their children's education. They expect high from their sons and so they will try to give the best school as far as they can but in case of girls, parents sent their daughters in community school just to complete their responsibility of education.

“Daughter must have the knowledge of household works so that they can be able to handle their house after marriage.” (Parents' view)

“No, we don't have equal opportunity in learning mathematics because we must work the whole household works as a result we don't have time to study whereas brothers have nothing to do the household work at home rather than study.” (Girl's View)

Parent's Occupation and Economic Status

Occupation is a person's usual or principal work or business, especially as a mean of earning a living, vocation. That parent's education has the highest significant influence on the academic achievement of students in mathematics while the effect of academic motivation. (Reyes & stanic,1988 as cited by Yadav)

Respondent 'B' said, “my father works in handicraft manufacturing factory as a labor. He goes to the work in the early morning and return back to home at late night. So I need to manage all work at home. So, I cannot do my homework at home.”

Respondent 'D' said, “my mother work in other's home because she is illiterate. She does not care about my study. After school, I need to take care of my little sister.”

The following table shows the occupational status of students parents.

Table 1**Occupational Status of Parents**

Student	Occupation of parents	Category
A	Making sweets in sweet homes	Labor
B	Handicraft manufacturing factory	Labor
C	Construction of houses	Labor
D	Servant at home	Labor

From the above table, we can see clearly that most of the parents were labor. The labor parents were uneducated and they can't directly teach their children. They went school rarely to talk about their children achievement with teachers as well as they have problem to hand to mouth for daily life. Hence, the obstacles of occupation of parent have impact on their children's mathematics learning.

Student's Absenteeism

Student's absenteeism is another great problem. When students are absent in classroom, they missed different topics and it is difficult for them to understand next topics. Absenteeism is disturbing student's performance, promotion, dignity and job possibility (Parajuli, 2019). In this regards, teacher 'A' stated that; "*students irregularity in classroom is a biggest problem. Those students who are absent do not understand topics but I am compelled to move to another topic as I have to complete the course in time. I also take fine from the absent students but they do not pay fine.*" (Interview 21st Magh, 2075). Similarly, the teacher 'C' said, "*Many of the students are frequently absent in school and also they avoid classes even after presenting in school. As a result, they are weak in mathematics including other subjects which creates inequality in classroom.*" (Interview, 22nd Magh, 2075).

Most of the parents are labor working and they cannot provide more time and investment for their child's education. They even do not attend the school meetings and that's why teachers are not able to help the children properly. Parents can not check the students homework and other works in home because most of the parents are uneducated. Since the parents are not able to raise their children with good and quality manner, the students nowadays are very irresponsible and even they are not responsible towards their seniors and teachers. And even they do not provide their best effort towards their education and mathematics is one of the most irritating subject. (Head teacher's view)

In our school, parents are mostly from outside the Kathmandu Valley. Number of local students is almost zero. This might be one of the reason that students performance in school as well as in mathematics is poor. Also, the students lack their interest in mathematics. They are not ready for mathematics classroom in the school. We have tried our best to grab their interest. We have a lady mathematics teacher to assist them. We thought that, if a teacher is a lady, then students might feel comfortable for asking questions. The students are comfortable with the teacher but even they are not able to improve their performance. (Head teacher's view)

From the above argument, I found that student absenteeism is one of the major challenges in classroom. As students miss the regular classes, they lack the concept of the mathematics and at the end they suffer mathematics and cannot understand the concept of mathematics as well as cannot score a good marks in mathematics.

Observation**Episode-I**

I went to the class observation with mathematics teacher. The mathematics teacher went to the class and I sat at the back of the class. The students were silent and peace. All the students stood up to greet the teacher. It shows that the students know that they need to respect the teachers and the teachers are there for the development of the students knowledge. There are 18 students altogether in grade IX. And there were 12 present and rest were absent for that day. Teacher started the class with revision. They had a discuss and shortly teacher described that they have read yesterday. Teacher wrote clearly date and today's topic on the board so that the students concentrate towards the teacher. That day, they are going to read theorems of geometry and the theorem was that: A straight line segment drawn through the mid-point of one side of a triangle and parallel to the another side bisects the third side. First the teacher described the meaning of the theorem and made some figures of triangle on the board and elaborate the statement. At that time, I noticed that all the students were busy in copying the theorem and its proof. Neither they gave any attention for understanding the theorem not the teacher said them to understanding the theorem first. Once the teacher completed proof on the board and asked the students that did they understand the theorem or not. And students said at one voice that yes they have understood the theorem. Immediately teacher show a problem in the book which is related to the theorem that they just proved. Teacher was trying to check that whether the students are able to solve the second problem on the basis of the theorem but before the students finish the problem, the bell rang. The teacher have no time to discuss on that day. And immediately, the bell rang, the students started to keep their mathematics copy and book inside the book and they got ready for another

period. Before teacher leave the classroom, she again asked all the students that did they understood the theorem. And less number of students said yes and many said just yes in a very small voice. She would not complete the task that she was trying to do in that class.

This episode related to classroom observation depicts the condition of the students- teacher participation in teaching learning process, it seems that there was no proper interaction between and students. It was purely lecture based teaching process where teacher is more active than the students. She did not use any types of teaching materials except marker and board. There is no participation of the students in the whole learning process. It is clearly seen that the teacher did not provide proper care to each students in learning process.

Local Cultural Feast and Festivals

Culture may be defined as the beliefs, values, and behavior and material object shared by a particular group of people. Culture is a way of life that a number of people have in common (Yadav,2019). Our culture affects virtually every aspects of our lives. Cultural diversity is the result of geographical location, religious beliefs and lifestyles.

“I must spent much more time in feast and festivals to celebrate it than my brothers due to which I could not attain my regular classes in festivals time.

Normally, I miss three days of school in festivals, previous, festival day and following day of the festival.” (Girl’s view)

“Students don’t prefer to come school on the feast and festivals. The most of girl students were absent on that and following day”. (Teacher’s view)

“Our school is community school and it is located at the central part of Patan/Patan Museum. So, feast and festival effects on the school and we need to close our classes on that day”. (Head teacher’s view)

“On the days of feast and festivals both the girls and boys are affected by these festivals but the girls are more affected by these because they must be involved until and unless the feast and festivals are over. That interfere in their study than boys”. (Parent’s View)

From the above all responses, it came to know that not only household work but also feast and festivals are female oriented as a result they must spent much time in festivals than boys. They are disturbed on that day and cannot go to school, fail to do homework and so on. In the respect of local feast and festivals, all the parents and teachers accepted that the feast and festivals effect on their children’s mathematic learning. In conclusion, feast, festivals and culture effect on learning mathematics.

Episode-II

Another episode of mathematics class observation was done during the research. I did it same as last time. I sat at the back bench, teacher entered, students greet her and teacher wrote the topics on the board for the day.

i) Area of a path running outside a rectangle

ii) Area of path running inside a rectangle

At first, teacher wrote the formula on the board as

Area of path running outside a rectangle = $2d(l + b + 2d)$ and drew a figure on the board elaborating the concept of area of path outside rectangle. After she started the solving the problem using formula. Again students started to copy copy the solutions. One student had some difficult and asked a question to the teacher and teacher replied that “first do what I am teaching and then I will answer question.” The

student sat quietly and did not asked any question again. At the end of the class time, teacher gave homework from text book like do the questions of Exercise 12.2, question number 3 to 8. And after that she left the classroom without answering the question of the student.

In this episode of classroom observation, it is clearly seen that teacher uses only talk and chalk method of teaching and learning activities. In solving problems, teacher just drew the diagram and solve the given problem using formula. Teacher did not elaborate the process of obtaining formula. When students raised any problem, teacher did not give priority in making students understand the solution, she just let the students to copy the solution and follow the same process. During this all observation, some of students did not give any attention to the teacher and at some condition, teacher did not provide individual care to the students. In this all observation, it is clearly seen that teacher gave focus on product than the process due to which students get confused in other problems regardless of the problems that they practiced.

Mathematics Learning Environment of Girl students at Home and School

“Learning environment” as the social, physical, psychological contexts in which learning occurs and which affect students achievement and attitudes (Yadav cited as Fraser, 2010). Learning environment typically include four components: an enabling context, resources, a set of tools and scaffolds (Yadav as cited by Hannafin, land and Oliver, 1999). Learning environment includes the learning culture reflected in the classroom activities within the school premise. The rule and regulation, relationship among teachers students, administrations and overall physical condition of the school and their interaction are the culture of the school and these are

ultimately the teaching and learning environment of the school. Classroom practice plays the main role for the improvement of students learning habits. Classroom practices include the interaction between teachers and students.

“Our school has not good environment for the learning mathematics and it is also girls school.” (Students view)

“In my teaching method, I have used children centered strategies and I have provided learning environment in study.” (Teacher’s view)

“I don’t like mathematics subject because my home environment is not good for studying”. (Student’s view)

“I have to work everyday so I cannot manage my time to check the homework of my children and my educational background is not good enough to help them doing homework in home.” (Parent’s view)

“Most of the students do not do their homework and they are doing their homework at class time.” (Teacher’s view)

From the above responses, school is situated in peaceful environment and is far from pollution and is located at Patan Darbar Square. The teacher encourages students to practice more problems. At home, the teaching learning activities of girls are not favor because they are busy in the household activities.

According to social cognitive theory, environment impacts in learning. Environment refers to the factors that can affect a person’s learning. There are social and physical environment. Social environment includes teachers, physical environment is the size of room, physical setting in classroom and school (Yadav, 2019). In this study, the physical and social environment of students was satisfactory in school only. These learning was enhanced when they have appropriate environment.

Hence, from the observed class and interview, the mostly used problem solving method is used in teaching of mathematics. The student centered method was also used. These activities indicated that the learning in classroom environment was good. Teacher can take report for individual student because number of student in class is low. The mathematics learning environment of school was good. According to this method, in the teaching and learning mathematics, it could be concluded that mathematics teacher was well trained and experienced. The mathematics learning environment of girl are not good at homes. So, most of the girl students not like mathematics subject. Similarly, one of the researcher Chatvat (1013) also concludes that home environment and classroom environment affect in learning mathematics (cited as Yadav 2019). In the same way, my research has also shown that home environment, girls' work load and school environment are obstacles in learning mathematics for girls.

Chapter V

FINDING, CONCLUSION AND IMPLICATIONS

This chapter describes the major finding drawn from the analysis and interpretation and discussion result from the collected information. This chapter deals with summary, finding, conclusion and recommendation.

Findings

The case study was mainly focused on to find obstacles in learning mathematics. To achieve the objectives of study, researcher conducted interview, observation and school record analysis on which, interview was for students, their parents and their mathematics teachers as well as classroom observation was also done. The researcher analyzed and interpreted data on the basis of literature review and conceptual understanding of the study. The findings of this research are listed below.

- Students are from different social, cultural, economic and family background. These are the major factors affecting the leaning process of students.
- Their parents are not educated and they don't help in their academic improvement.
- Student have poor background of basis level on mathematics. So, there is a problem on learning mathematics.
- School administration is irresponsible to provide the necessary equipment for teacher and students.
- Most of the teacher aren't applying their skill and knowledge, which was provided by different teacher professional development training in the classroom.

- Students are not laborious to learning mathematics and they don't actively participate in classroom activities.
- To address the students' needs school administration should manage the remedial classes for mathematics and teachers should divide the group of students according to their capacity and treat each individually.
- Teacher should understand the psychology of student and encourage student to learn mathematics.
- School administration should manage the parents meeting for the study of their children.
- Teachers mostly used deductive method which focuses on formulae and memorizing it and students are also habituated to it.
- Students do not show any interaction with teachers and they only copy what teachers wrote on the board.
- Student's self feeling mathematics learning is so difficult so they don't have interest.
- Their parents do not care what they are doing. So, they are in love relation and not interested in study.
- Students need to spend more time at home during festivals as they have different works at home.

Conclusion

There were different values in our society. The duties and responsibilities that sons and daughters are different. Daughters were involved in the household works and they did not get chance to study where as boys were involved in outside works. Girls think that mathematics subject is hard subject and wish that this subject does not include in course. Learning environment at school was good but at home was not good. Educated parents were more serious about their children's education than

uneducated parents. Most of the parents were labor and they have not knowledge about importance of mathematics. They think mathematics is just addition, subtraction, multiplication and division and it is used just in calculation. So, they said that there is no value of teaching mathematics to girls. Because girls handle their family. So, girls should taught these values and knowledge about household works. These believes of parents create the difference between the boys and girls in learning mathematics. Daughters get marriage so they are property of others. Due to social causes girls lack interest in learning mathematics. Parent's occupation and economic status, parent's view towards girls, local cultural values, feast, festivals, students absent, interaction in classroom with teachers and peers, students workload at home are the major obstacles in learning mathematics for girls.

Recommendations

According to the findings and conclusion provided by the study, the recommendation for the improvement of learning mathematics on gender are as follows:

- This study was limited to only for class nine. A similar study can done in other classes.
- A similar study can be done as a survey type.
- In the process of teaching mathematics, teaching materials should be used.
- Girl students should be encouraged to be involved in active participation in classroom activities.
- Parents should avoid negative attitudes to their daughters and carefully monitor their children's math progress.
- Students should practice math everyday.
- The teacher should be positive and supportive in teaching.

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Appendix-I

Classroom Observation Form

Name of Teacher:

Date:

Subject:

Gender:

Lesson:

Time:

Attendance	Topic	Teaching material	Teaching method	Teaching Interaction	Use of ICT	Class work	Homework
No. of girls students	What is the name of topic	What materials is used this topic? Is this material is appropriate in this topic?	Which method is used in this topic? [discussion, problem solve, demonstration method] Is this method effective for students in learning mathematics	How is the interaction taken between girl students and teacher?	Does the teacher use ICT in classroom?	Does math teacher gives class work or not?	Does math teacher give homework or not? Does he/she check the homework?

Appendix-II

Interview schedule with students

Name:

Date:

Roll No.:

Address:

Age:

The interviewing with the students was taken on the basis of following topics.

Related to internal influences

- Do you know what does teacher teach you?
- Does your teacher give you pressure in the class?
- Can you solve any problem in the class?
- How long time do you spend to read?
- Why don't you do your homework?
- Why the most of the girl students fail in the mathematics?
- Is your family educate?
- Does your parents provide all things all the things that you need?
- What are the main income sources of your family?

Related to Society influences

- How does your society think about your study?
- Does your neighbors promote you in study?
- Can you solve mathematical problems as boys?

Related to school influences

- Why you did not reply the answer when your teachers ask?
- How do you feel math teacher's teaching methodology?
- Does interaction takes place in the mathematics classroom?

- Does math teacher give class work or only solve the problem in the classroom?
- Does your teacher give homework?
- Does your teacher check your assignments constantly?
- Does your teacher provide constructive feedback on your work?
- Do you follow the feedback given by your teachers?

Appendix-III

Interviews schedule with math teacher

Name:

Date:

Age:

Qualification:

Address:

The interview with math teacher was taken on the basis of following topics.

Related internal influences

- What is performance of respondent A in the classroom?
- Do you give the pressure to students in the classroom?
- What is the problem that students can not solve the problem?
- Do you correct the assignments of students on time?
- Do you provide them constructive feedback?
- Do you look forward for follow up?

Related to society influences

- Does society affect in student's study?
- Why they do not change traditional perception?
- Are girls are incapable as compared to boys in solving mathematical problem?

Related to school influences

- Why students do not reply the answer to the questions that you ask?
- Do you use teaching learning materials and other ICT tools in teaching and learning activities?
- Can you maintain the discipline in the classroom?

Appendix-IV

Interview schedules with parents.

Name:

Date:

Age:

Occupation:

Qualification:

The interviews with the parents were taken on the basis of following topics.

Related to internal influence

- Why she does not know to solve the problem?
- Why she does not practice at home?
- Why she cannot relate the concept with the problem while solving mathematical problem?

Related to family influence

- Why she can not manage time for study in home?
- Does your economic condition affects in her study?
- Why don't you provide all the required materials which she needed?

Related to societal influence

- Does society think negatively about her study?
- Do you think that your daughter have less capacity than other boys in solving mathematical problems?
- Do your society help or promote girl's education?

Related to school influence

- In your view, why do your daughter in not participating in the classroom activities?
- Is the teachers using ICT tools in teaching and learning activities?
- Is the teachers check the assignments of the students on time?
- Is the teachers provide constructive feedback to the students work?