Chapter I

INTRODUCTION

Background of the Study

The word mathematics has been derived from an ancient Greek word mathematician in which means to learn so that mathematics is a process of learning. On the other hand Dictionary defines mathematics is a logical study of shape, arrangement, quantity and many related concepts (James and James, 2008). Also mathematics is important part of civilization. Every society has observed mathematics is basic needs of human civilization. Mathematics has started at the infancy level from the beginning of human civilization to the advance level of twenty first century. New discoveries in mathematics and mathematics education are still continuing. The other discipline like science, engineering, medicine and technology may be handicapped without mathematics and world cannot be smoothly run without it. Thus, importance of mathematics is realized due to it's role for the development of science and technology in one and other it has become a gatekeeper in life of the students for their career in future study (Pandit, 2012).

According to educational statistics (2059-2063) only 3.52 percent students are enrolments in optional mathematics nearly and about 73.3 percent students taking as a compulsory mathematics. Among them we see that most of boys students take optional mathematics in comparison of girls students.

According to Sharma (2011), more than 85 percent students selected non math subject. Also we see that in comparison of urban public school the girls students enrollment in rural public school in very low. Most of people say that girls are genetic

weak in mathematics. In every level of class, we see that the numbers of girls taking mathematics is lower than boys. There are a lot of reasons behind this as we know mathematics is a practical subject.It requires more practices but girls are not doing more practices at home they are engages in housework's. So in lack of practices, optional mathematics becomes complex subject for the girls.As a result most of girls students anxious about optional mathematics. They have a wrong concept in their mind that optional mathematics as a hard subject for example most of teachers teaches complex topic at the beginning of the class and they gave a lot of task to rote the formulas.There are many researches behind them that students do not get opportunity to understand about the optional mathematics and they consider that it's a complex subject. Thus, the present study promoted to investigate the low enrolment students in mathematics at secondary level.

There are many students who failed in optional mathematics. It shows that optional mathematics is so hard subject. Under performance of students may be the causes of leaning problems. Thus, mathematics teaching and learning process in Nepal appears very poor. Poor learning in mathematics has become a strong part of school leaving certificate. How can students feel mathematics an easy subject? How teacher makes student feel mathematics is an easy subject? Teacher should consider about these strategies of mathematics teaching. The problems related to mathematics learning might be related to the mathematics teacher. Some of problems in learning mathematics students might directly be related to the teacher academic background and classroom practice performance. The secondary school operated in Parsa district reading under crisis due to low enrollment of girls students in optional mathematics. The national rate of student's admission - which is major source of income to provide

teacher salary and allowance has trouble the school administration to operate regular classes in smooth manner.

Since, the time of establishment of Secondary Education Board in Nepal, mathematics has been teaching in almost all teaching disciplines. Among the different education systems secondary school's education evaluation board holds importance position today. After the establishment of high school education board in1989, It is faithfully involved in running high school system with the objective of preparing the students to meet the middle man power requirements in different fields. An understanding of mathematics is necessary for every human life. No matter what occupation a student choose in his life, one can't achieve complete and success without mathematical concepts skill and process. It certainly facilitates to study in other areas like business, agriculture. science, technology. To achieve mathematics objective, our national effort towards mathematic curriculum has been increased periodically (Pandit, 2012).

In Nepal, there are establishing so many secondary school, but we can see less inclusion of mathematics students in optional mathematics. It is become a great issues. Also the total no of optional mathematics students less than other that subject specially girls students are very less in comparison of boys students. We can see poor achievement of girls students in high school mathematics. So, the questions is raised in my mind that to know what are the main reasons to low enrollment of girls students in optional mathematics. That's why I am motivated to carry out this research.

Statement of the Problem

This study sought to investigate factors influencing low enrolment of girls in optional mathematics at secondary level in Parsa district.The trend in enrolment of

optional mathematics subject among the girls in secondary school has been low compared to overall enrollment of students in the secondary level.This study is related to the low participation and enrolment of girls students in optional mathematics. This research to carryout answer of following questions.

1. Why the enrolment of girls students is low in optional mathematics?
2. How can minimize low enrolment of girls students in optional mathematics at secondary level ?

Objective of the Statement

- To analyze the causes of low enrolment of girls students in optional mathematics.
- To explore the remedial ways of low enrolment of girls students in optional mathematics.

Significance of the Study

Mathematics is essential part of school curriculum. It has been taught all the students as a compulsory subject. Also, It has been taught as optional subject in grade IX. We have hardly find out the result among these issues in secondary level. In such situation, research on "causes of low enrolment of girls students in optional mathematics at secondary level". Each and every research has it’s own significance, likewise; the significance of the study will be as follows:

- This research tries to investigate the causes of low enrolment and difficulties in mathematics learning of the girls.

- It helps to modify the optional mathematics Curriculum according to the opinion of the secondary levels students and teachers.
- It pays attention of concerned averages to promote participation level in mathematics.
- It helps to improve mathematics achievements of girls students.

Delimitation of the Study

- This study is delimited to public school of Parsa district.
- This study involves only the grade ix students.
- The Study is delimited on qualitative research only.
- The Information was collected from the students, teacher and co-ordinators only.

Operational Definition of the Key terms

Enrollment: It refers to the student's registration in grade nine according to the optional subject. It indicates interaction, interpretation, co-operative learning, discussion of teacher with students and also student's participation in exam.

Causes : The term "causes'' is defined as the reason that affecting in low enrollment of students in optional mathematics.

Public school: The school that governed by Nepalese government.

Secondary level: school level at grade ix and x.

Factor : The term factor is defined as one of the several things that causes or influences some things ; e. g educational, school, economic etc

Student: Person who is studying, especially at a place of higher education.

Interest : It refers the quality that something has when it attracts somebody attention.

Self confidence: It is related to the student ability and skills of doing something.It is regarded as the basis of either to do progress or get success or not.

School environment : It is defined as a environment where all the necessities, interest, attitude of students and teachers are found.

Evaluation system: It is related all activities that is conducted by the higher secondary school to make decision about the students study.

Participation : It is related with the students attendance rate, activeness and motivation towards the contents.

Out of School Related Factors: It is associated with family background, self – confidence, influence of society, parent's attitude, interest, occupational goal etc;

Family background : It is related with the background of the family like graduation, economic status, facilities etc

Psychological environment: It is related with the mental feelings of students and teachers. It consists of the libraries, laboratories, curricular as well as extra- curricular activities.

School environment: It is defined as an environment where all the necessities attitude of students and teachers are found.

Chapter II

LITERATURE REVIEW

A literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of it's research. This chapter describes the review of the relevant literature relating the various aspects linked with enrollment of girls students in optional mathematics. This chapter includes the description of different literatures and theories. This chapter also includes the conceptual mapping which shows the process of the research and understanding. The main purpose of the study is to develop the theoretical framework, contribute the existing knowledge and explore the existing knowledge to the learner. This study is based on qualitative in case study approach. In such way doing this study I reviewed the literature by categorizing the empirical and theoretical literature.

Empirical Literature

Dhakal, (2006) did research on "the factor affecting the girls students attitude towards selecting optional mathematics'' at secondary level with objective to find the factor affecting the girls students attitude selecting optional mathematics at secondary level. Hundred students were selected from Syanja district who had offered the optional mathematics course. In secondary level this study concluded that nine variable were teaches behavior prior achievements level, job taking mission in future plans of further study parents support, social influence s, peer groups, self confidence and girl's interest to make positive attitude towards mathematics in context of Nepal.

Joshi (2010) did research on " Attitude of girls students towards optional mathematics at secondary level'' His main objectives were to find out the attitude of

secondary level girls students towards optional mathematics and compare the attitude of urban and rural girls towards optional mathematics. A set of opinionniare and interview were used tools for the data collecting t- test was applied to find out the of secondary level girls students towards optional mathematics and f- test was used to compare the attitude of urban and rural girls students. The sample size was taken as 60 girls students of Syanja district from urban and rural students. He found that there was a positive attitude towards optional mathematics and there is no significance difference between attitude of urban and rural girls students towards optional mathematics.

Sharma(2011) did research on "factors influencing of optional mathematics at grade ix with the main objective to find the choice of optional mathematics at grade ix students and to find out the students ratio in optional subject. The study was small scale survey type with the design both qualitative and quantitative. The students questionnaire form was the main instruments with students background and attitude scale. Hundred and twenty students (6o taken from optional math 60 taken from other optional subject), 8 was head teacher and 8 optional teachers of 8 public schools of Parsa district chi –square test were used to analyze the data by attitude scale and the data gained by interview and questionnaire related to student's background was analyze by quantitative way.

This study conclude that the choice of optional subject is product of family background students self desire and neighbouring factors concern with poor influences, social influences and school environment.

Jenkins (1970) did a research on " causes of low enrollment of math students in upper –level sciences courses" with the main objective to identify and find the

results of low enrolment for black students in upper level science course in terms of students interest, difficulties, students views, intentions and worthwhile of science courses. This is survey type study of seven hundred and forty nine enrollments in science courses students both and white of "Palatka South High School.After the analysis of collected data this study found that it is primarily the capable students. This study concluded that the causes of low enrolment of math students in supper level science are students interests, difficulties, worth wholeness and student's intentions.

Rayamajhi (2011) did research in "Causes of low participation on of girls of rural community in optional mathematics".This is a case study type of research.She concluded that the lack of parents supports, influence of society, peer group affected, school environment, less confidence, parent and girls interest etc are the main causes of low participation of girls education.

Dahal (2011) did a research on "causes of low achievements in mathematics of Magar students" (A case study in Kaski district). The objectives of this study to explore the causes that bring low achievements, field document. Finally he concluded that parent illiterate, langue's is the one of the obstacle for student, teaching methods, school environment, gender bias are the main cases of low achievement.

Ghimire (2012) studied on "A study on factor affecting teaching learning mathematics at secondary level" with the objectives to study the factors affecting learning of school in terms of the following : school environment, family background. Physical facilities, Interest of learners, for the study were administrate to the sample of students and t-test was applied to concluded the following results.Home environment affects more to the subject of rural areas of affected than boys. The

students of urban area were more interested in the study of mathematics and the girls pays more attention for the study. The students of Kathmandu were more motivated to study mathematics than that to Arghakhachi and Chitwan.

Budha (2010) did research on "Factor influencing the students participation in optional mathematics" he concluded that, Economic status of parents poor prior achievement, student's own interest, negative thinking towards mathematics are main factor of students participation in optional mathematics.

Van de Wale (1992) looks at the change in enrollment between 1978 and 1987. She finds that the increases in enrollment during the period was due to the standards of living increases among households, efficient, public spending that benefited the poor, especially public spending on primary education, and an improving test for education.Sparrow (2001) confirm that spending on primary education is proper. However, public spending on education is not proper simply because secondary education is attended mostly by children from non poor households.

Fennema and Sherman (1977) brought the idea of attitudes about mathematics by different genders to the public's enrollment in the late 1970's with their much referenced study.This study suggested that a barrier and the lack of ability by females, was the explanation for the difference in achievements in mathematics.Some of the barriers faced by females do not know advanced mathematics and the general belief that cannot do well in mathematics. This study helped to shape how future educators looked at research on gender.

Theoretical Literature

The theoretical framework guides and integrates the research study. It is platform of research programe. It helps to the researcher, how investigate in the area Even though no consensus prevails among the learning theories, psychologists and educators on how children learn and on the most effective methods for promoting learning, a careful study of learning models and theories are very important in order to develop learners understanding of the phenomenon on holistic perspective. Teaching and learning approaches propounded by Ausubel, Bruner, Dines, Skemps, Gagne, Piaget and Skinner in the context of teaching and learning of mathematics are the theoretical theories. Here researchers discusses about cognitive, constructivism and Skemps theory in brief.

Skemp Theory

Skimp is mathematics psychologist. According to his theory, the principle of mathematics learning is the interaction between mathematics and psychology. The psychology of the students plays vital role in teaching mathematics.To Skemp, teaching is not a joke whatever we guess, it is an art for those who are interested to gain more experience from teaching field. According to Skemp, mathematics is a creative and logical subject. Every teacher of mathematics and learner gain the knowledge of mathematics after studying it. His learning theory is process oriented. He studied on the principle of "what is understanding? How to promote the learning performance? How to teach mathematics content effectively? So, to teach in effectively, teachers themselves should be familiar with psychological aspects such as interest, ability and motivation factors of learners. According to Skemps six factors (the formation of symbol s, different kinds of imagery and interpersonal and

emotional factors) affect to the learning mathematics. If we properly use these factors in mathematics teaching then students can easily understand the mathematical concept and they can develop understanding capacity.This theory helps to the teachers to know about the students psychology and gives so.How many instruction likes content? How can effectively taught from which manner students should be taught meaningful, quality of education, participation, students interest, attitudes etc? If teachers have well knowledge about student psychology, their intellectual level and subject matter, then students will achieve quality education.As a result, students enjoy on mathematics from which enrollment rate can be increased on mathematics subject (Paul Earnest 1987).

Vygotskian Theory

The social constructivism theory believe on formation of knowledge through active construction and reconstruction of theory and practice. The child needs some mediators like parents or uplift his /her knowledge from the knowledge that exist with his/her parents.This assessing process is known as "Zone of proximal development (ZPD)''. It means that in Vegotskian 's theory a range of tasks about the child can't yet handle along but can with the help of more skilled parents. Social constructivism aligned with Vygotskian theory, views mathematics as a social construction and a cultural product and direct their criticism at radical constructivism pointing out the fact that it does not entail a theory of teaching at alone being the theory of discovery, problem solving and investigational teaching.

Social constructivist emphasize the interdependence of social of individual process in the co – instruction of knowledge grows out of a community composed of individual mathematician. James A, Telse mentions that mathematical knowledge is a

product of the social nature of the mathematical community. This view point is similar to social cognitive learning theory, according to which learning occur in social environment by observing others.

This theory states that to develop interpersonal power of students. there is require d a good academic factors. Also, the Vygotskian theory stated that ordinary part of process of knowledge construction requires peer group. Students need some mediators like parents or peer or more knowledge person to increase his/her knowledge from the knowledge that entitled with his/her. According with this theory active participation is required for developing knowledge onwards (Ramji Prasad Pandit and Loknath Bhattarai...).

Cognitivism

Cognitive theories are emphasis on recogcization perception, organization of knowledge learning with understanding goal setting, organizational perception and divergent thinking principles.Perceptual phenomena area to be studied directly and without further analysis.The basis assumption of knowledge in the individual knower's cognitive structures but not a basket of facts. An individual structure and mental represent of the world play a central role in individual 's perceptions. Thoughts and action, learning involves making connection between new knowledge to knowledge they have already developed. The work of Jean Piaget presents the most comprehensive view of this theory according to whom, overall development follows the four stages, concrete operational stage and formal operational stage, Cognitive s stages taken as maturation process in the sense that development in a continuous and is based on previous growth, the operation is sequential and successive.The stages are hierarchical and they form an order of increasingly sophisticated and integrated

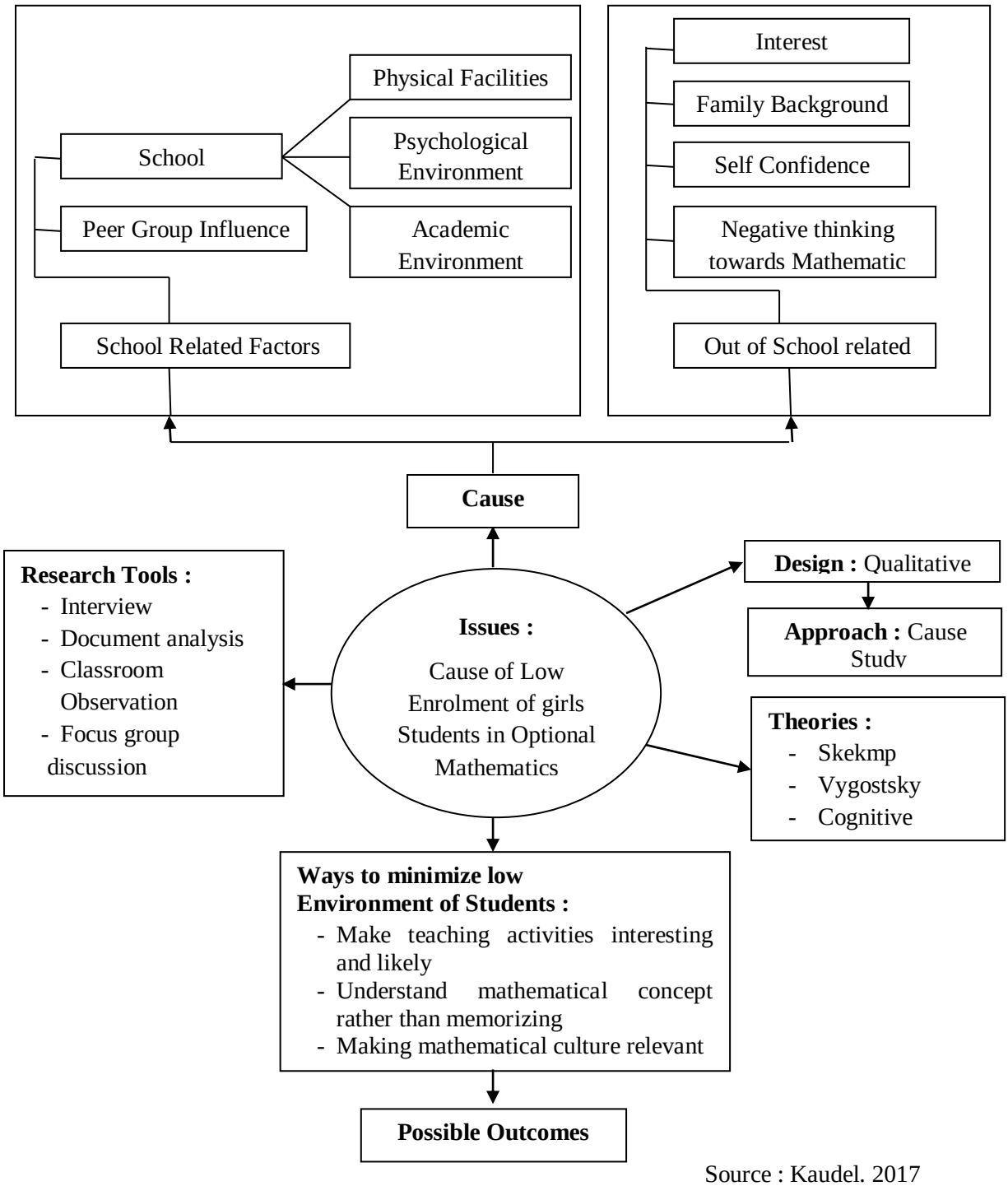
mental operation. Environmental experiences are crux to the Piagets cognitive theory, Since Piaget learning theory focus on the four points (the importance of readiness, motivation for cognitive activities, awareness for cognitive level of learner and emphasize on intelligence as an action).So the educationist, curriculum, Piaget said that the role of peers are not necessary but can stimulate thinking, raise questions. Students motivated towards learning with active participation. Also, Piaget said that teacher become able to assess the child's present level, their strength and weakness. This theory said that the teacher must know about cognitive level, degree of interest, motivation and readiness of the learner then provide tools such as learning process of mathematics.

Conceptual Framework of the Study

This study based on different kinds of theories, the Skemp theory states that psychological environment, quality of instruction, teachers knowledge about the subject matter are the factors that influenced education of students. Also, the theory of Vygotsky is mentioned that academic environment, peer group influence, quality of instruction, student's participation parents attitude and

The impact of social aspect are the main factors that influenced education of students. The Piaget theory also states that lack of mathematics lab, evaluation system, Interest of students participation in teaching learning process and intellectual power of students play are affected their education. From the above review of literature related to this theories, the researcher constructed to the following frame work which was considered the conceptual framework for this study.

Flow chart for Low enrollment of girls students in optional mathematics



Source : Kaudel. 2017

Generally students doesn't choose optional mathematics by their own interest, poor prior achievements and negative thinking towards mathematics. These terms are taken as students self related factors. There are several factors related to students does n't choose optional mathematics like, school environment, teacher's behavior, trends of society, these factors are taken as neighboring factors. Finally the research

conclude that the girls students low enrollment in mathematics is the by product of family related, students self related and neighboring factors. It is conclude that the school environment is very essential for low enrollment of girls students in optional mathematics.

Research Gap

According to Academic perspective the I find out the existing knowledge gap in the field of knowledge world. I have applied review of previous resources to indentify knowledge gaps. I found different resources on issues related to enrollment of students in mathematics but these resources are different than my research. They had not discussed in this area. Most of researches related this topic were quantity design approach and they were analyzed with chi - square test, t- test and f test etc. While I reviewed the previous researches like Mathematics Anxiety, Low enrollment of Students in Mathematics, Attitude Of Students towards Optional Mathematics etc, It was found that there were less participations of students in mathematics classes, students were afraid to take mathematics subject as well as optional mathematics, students poor prior achievements in mathematics, teacher centered teaching method used in classroom, less participation of girls students in mathematics and so on but there was not mentioned what are the real reasons behind this facts and how can minimize these facts. I mean to say the previous research did n't mention why especially girls participation or enrollment is low in optional mathematics classes? Also, How can minimize the low enrollment of girls student in optional mathematics? So, I found gap between reviewed literature and my title of study. Thus, to full fill the gap, I would like to study on this topic. I believe that the topic is suitable for carryout a research.

Chapter III

METHODS AND PROCEDURES

In this chapter, I discuss the various aspects of the study like answering the questions, explaining the design, study area, sample, sampling process, tools, data collection process, and data analysis was used while addressed the research questions.

Research Design

The research design depends upon the research question. The research design has been considered a “blueprint “for the research, dealing with at least four problems: what question to study, what data are relevant, what data to collect and how to analyze the results (Patton, 1990). The research design of this study was qualitative with case study approach. According to Patton (1990), qualitative research accepts that people know themselves best and describe, interpret and talk about their own environment. Qualitative research involves the studies and collection of a varities of empirical materials and personal experiences. Likewise, simply case study is a process or record of research in which detail information is given to the development of particular person, group or period of times. I completed my research with the case study of grade IX students of Shree Babulal Hansbahani secondary school.

Study Size

This study is qualitative in nature, It does not seek for representative of large population. Such qualitative study only seeks for analytic or theoretical generalization (Blaxter,1996).Keeping this in mind, I focused my study in Parsa district including rural school. The research site of my study was Shree Babulal Hansbahani secondary school.

Sample of the Study

This Study was qualitative in nature. So, the Sample is not large. Hence, the sample size of the inquiry depends upon the researcher that what does she/he want to know, with the purpose of inquiry, what can be the credibility of the study and what can be done with available time and resources in the rural area of the Parsa district. So, the total sample students of this study are 15 students,1 optional mathematics teacher and 1 head teachers was the sample of the study.

Tools for Data Collection

Data collection is one of the most important tools for the study. Each aspect of the study is analyze and study on the basis of data collection techniques. There are many tools for the qualitative research to get the information from the participation about their experiences, ideas, and believes. The needed data were collected from primary and secondary sources. Primary data are main sources of this research. To collect primary data class observation, interview and focus group discussion were the main instruments of this survey study. They are described consequently in the following ways.

Interview Guideline

The Interview guideline is the tool for method of data collection. Qualitative research seeks natural setting data. So, Interview stands one of the prime source of data collection tools. It performs depth understanding and indentifies key information for the solution. Interview such highly purposefully task that goes beyond more conversation (Andersin,1998) In this study, In this study, the interview was held to subject teacher, head teacher, parents, member of SMC and students of the sampled

school. Interview schedule was managed with the support of thesis supervisor. The interview was hold related to difficulties in optional mathematics, teachers role in selecting optional subject, school provision in optional mathematic guidelines and career counseling.

Classroom Observation Guideline

It is a field work. The main idea behind it is to collect real information by creating good environment. I mentioned the daily notes on classroom observation of the sample school. Observations also enable me to look a fresh at every day behaviour that otherwise might be taken for granted expected to go unnoticed. Observation class had been observed directly and indirectly. A classroom observation is a formal or informal observation of teaching while it is taking place in classroom or other learning environment. One month class observation of class nine students had been conducted and relevant data are collected for further data analysis.

Focus Group Discussion

A focus group discussion is a good way to gather people from similar background or experience to discuss specific topic. The group of participants is guided by moderator (group facilator) who introduces topics for discussion and helps the group to participant. In the study, focus group dicussion was make among those students who studied sample school. A focus group dicusssion was hold among a group of 8 and 10 students to answer the both research question.

Quality Standard

It is necessary to maintain quality standard after completing the construction of research tools. Checking and triangulation have been applied for quality standard.

Also to maintain the quality standard Guba and Lincoln (1998) suggests the following criteria. So, I followed these criteria to mentioned the quality standard in my research.

Transferability

Transferability is used in terms of the concept of external validity. This criteria shows the applicability of finding in one context.(where the research is done) to the contexts (where the interpretation might be transferred). To maintain the transferability I explained mathematical practices that found in different community students. I tried to capture most of scenario by using deep description of observations, interviews, and my meaningful making(Acharya, 2017).

Credibility

This is used in terms of the concept of the internal validity. It helps the researcher to establish the confidence in the 'truth' of their finding. The credibility of their research : prolonged engagement, president observation triangulation, peer describing, negative case analysis, progressive, subjectivity checks and member checking. To maintain the research I tried to spend as much as time for observation and engaging with different people with their work (Aharya, 2017).

Conformability

The another quality standard is conformability, which shows the quality of the result produced by an inquiry in terms of how well they are supported by information (member) who are involved in the study and by the events that are independent of inquiry. I am also a part of mathematics students so, to maintained conformability, before concluding the information, I got those information myself many times and

sometimes I confirmed those information to my other students before concluding as well (Achary, 2017).

Dependability

This concept is used in terms of reliability. This is also the another quality standard for judging the quality standard and shows the consistency of the inquiry process used over time. I tried to present the logic to maintain it, for selecting people and events to observe, interview and include in the study. Also, I will try to maintain credibility and transferability to ensure dependability standard (Acharya, 2017).

Data Collection Procedures

Data collection procedure is a techniques or process to collect data to full fill the research objective. The primary and secondary data are necessary for reliable and valid output. I visited the sample schools, consulted head teachers and subject teacher school, clarified them about the objective of the study and took permission for administration for classroom observation to the student of grade IX. In this research data are collected by conducting interview, classroom observation, FGD. Before collecting data collecting procedures, I prepared interview schedule for teachers, Students and member of SMC. After that I went to school without providing pre-information to them. In this school at first I give short introduction about study and purpose of my visit. The purpose of study was building good relationship with information's and gather preliminary information about school profile. According to my request, the time schedule for classroom observation, interview and interaction was agreed for school. Teachers and other information agreed to generate in depth interview about low enrollment of girls students in optional mathematics. The interview was conducted 15 non optional mathematics subject students, 1 subject

teacher, 1 headmaster of Shree Babulal Hansbahani Secondary School. The focus group discussion hold among the students and students. The classroom was observed being participated with mathematics teacher and mathematics students for ten days. The different information about the school such as past results, physical facilities, resources, students records were collected by fields notes.

Procedure of Data Analysis and Interpretation

Qualitative data analysis plays particular attention on the context and meaning. The collected information at first was categorized according to the category of the respondents and then different them according to given in the text of the interview note. The data analysis and interpretation was based on development framework of conceptual understanding. The data analysis included creation of field's text consisting of field notes and finally public text. The different stages of data were confessional, realistic, impressionistic, examining, categorizing, tabulating or otherwise recombining the evidence to address the initial proposition of a study. When I started to analyze the field information, I tried to understand the whole information in the form of the themes. First of all I tried to put the information in to number of categories. While I developed the themes, I read a number of research books, articles, research reports and other relevant materials. I read deeply many theories, thesis and reports and finally triangulate them. In this way, I analyzed the data by triangulating the thesis report, theories linked with provide data.

Chapter IV

ANALYSIS AND INTERPRETATION

This research is related to the causes of low enrolment of girl's students in optional mathematics in community school. To fulfill the objective of the study the I selected Shree Babulal Hansbahani Secondary school. The objective of the study is to analyze causes of low enrolment of girls students in optional mathematics at secondary level and to minimize the low enrollment of girls students in optional mathematics. The qualitative information was collected for answering the research question related to students enrollment in optional mathematics. I reached the sample school and necessary information was taken during the discussion. Different episodes of classroom were observed and taken interview with my participants and carried FGD between students and students, teachers and teachers, parents and parents. The interpretation of analyze data was done by using different theoretical perspectives as explained literature review of section.

The Case of the study is the secondary school namely Babulal Hansbahani secondary school chorni, Parsa where enrolment rate of optional mathematics subjective students has been decreasing. It was established in B.S 2043. All the teachers are trained but not experienced. About 60% teachers are permanent in status. Among 18 teachers in school 15 teachers are male and 3 teachers are female. All level mathematics subjects are taught by well trained teachers however they are unexperienced. According to the Headmaster, most of teachers were trained and qualified. We provided the training according to our rule and regulation. All the teacher said that we share our new technique of teaching to each other and giving equality to all subject. For this, this chapter is organized in two section. Section I

discussed the causes of low enrollment of girls students in optional mathematics and section II ways to minimize low enrollment rate of girls student in optional mathematics at secondary level students.

Section I:

Causes of low Enrolment of Girls Students in optional Mathematics.

In this section I deal with the causes of low enrollment of girls students in optional mathematics at secondary level. For this, I observed class of IX students and took interview with the students. After, completing the class room observation, interview and focus group discussion were taken with the students. I found many causes of low enrollment of girls students in optional mathematics. I categorized the causes of low enrollment of girls students in mainly two parts.

- School Related Factors on enrolment of girls students in optional mathematics.
- Out of school related factors on enrollment of girls students in optional mathematics.

School Related Factors in the low Enrolment of Girls Students in Optional Mathematics

School related factors are played vital role to encouraged the students for enrolment in school either students are girls or boys. Students own words school environment made teaching meaningful and purposefully, That aspects which influenced either directly or indirectly like as physical facility, psychological environment, academic environment, peer influence, technique of assessment, attitude towards low enrolment of girls students are below.

School Environment

School environment is the one of the aspect of school related factor. It is concerned with how the teachers were taught, what type of facilities were exists, what type of students intentionally were. So, here environment defines detailed of physical facilities, physical environment and academic environment. It is an environment where all the necessities, interest, attitude of students, teacher are found. It was divided in to three parts (physical, academic, psychology).

Physical Facility of the School

The physical facilities plays important role in the quality of school and learner achievement. The involvement of good facilities such as school building, adequate benches and desks in grade rooms, availability of drinking water, toilet epically for girls and other facilities affect the poor of quality schooling and enrolment rate of students. They supports to create a good school environment. The secondary school had one concrete building with 10 rooms 01 library, staffrooms and administrative rooms. It has also separate boys and girls toilet and drinking water was also available in the school. The following are the view of psychology facilities of the school.

"*The classroom of the buildings is old. The windows and door are not attractive for the students that feel them much comfortable. Also there is now available building on the ground. We have the long term plan for the promotion of physical infrastructure as School."* (SMC)

While analyze the view of school management committee, they said that the students had been increasing from the school to high school. The chair man of SMC said that up to now there had sufficient building for students but it is being

community school and reputed school year to year, enrollment rate is increasing in the secondary level school and besides the mathematics subject, enrollment rate is going to up lift on the other subjects. So SMC had make a long term plan for the promotion of physical facilities mainly infrastructure of school. School Headmaster also claimed that their school had good physical facilities than all of the other high school in the district. Parents views were seen same like as school management committee. One of them, educated parents said that the high school had insufficient physical facilities of mathematics subject likes as a problem of reference and textbook in library, not enough materials related to mathematics and no mathematics lab room. The thesis of Raymaijhi (2011) study about the relation between physical facilities and mathematics subject. She claimed that most of school had not sufficient physical facilities on the mathematics subjects. So, students were weak in on it. As a result enrollment rate of its affected. So it can be concluded that the high school has not enough of physical facilities related to mathematics subject. In this line other respondent replied that:

"*This is one of the old school of this district. I have been teaching as H. M last six year but there is no proper office, staff rooms and proper hand pipe etc. Although the physical facilities of this secondary school are better than Community School."* (H. M)

From the view of Headmaster he said that physical facilities were enough while compared to another high compared to another high schools. He said that it was old school as well as of being nearer to district education office, so it was given to priority in the district. In this line the other respondent replied that

"*I don't think that the available physical facilities are enough for students that make students comfortable in classroom because the door and windows of classroom*

are in the condition of crisis and there isn't appropriate desk benches in optional mathematics class. So, in my opinion this is also one of the reason of low enrollment of students in optional mathematics " (Educated parents)

According to view of headmaster he said that physical facilities were enough in the comparison of other school. While analyze the view of SMC they that the enrollment had been decreasing in optional mathematics. They also said that they had a long plan for the promotion of the physical facilities mainly infrastructures of the school. Parents views have seen like as school management committee. One of them educated parents view as like the Headmaster. The thesis of Raymajhi (2011) studied about the relation between physical facilities and mathematics subject, she claimed that most of the secondary had not sufficient physical facilities on mathematics subject. So, students were weak on it. As a result, enrollment rate or its affect. So, it can be concluded that this secondary School has not enough facilities related to the mathematics subject. The research stated that there were not enough facilities for the mathematics subject. The researcher Raymajhi (2011) and Joshi (2011) said that physical facilities are basic need of schools to attract the students.

During this research the I achieve that because of insufficient facilities there were less no of students in optional mathematics. Optional mathematics is the complex in the comparison of other subject from the view of optional mathematics students as well as observation tools. Auja (2011) said that physical facilities are the determinants of effective and quality education and absence of students enrolment directly affected. The researcher saw no enough sufficient physical facilities in optional mathematics subject and enrollment directly affected.The researcher saw no enough sufficient physical facilities in optional mathematics subject and enrollment

becoming decreasing.whatever the view of Headmaster, parents.SMC and students after observation the researcher arrive the conclusion that secondary school has not math lab, no sufficient book, lack the mathematics teacher and instructional materials.

From the mentioned above, the physical facilities seem to be affected for every student. Students want to study in sound environment which is possible from physical facilities. It seems as a necessary part for the school education but no sufficient. Also the study of Raymajhi (2011) and Joshi (2011) shows that the same result to motivate the students there should be good physical facilities. Hence, physical facilities are one of the causes of the low enrollment of optional mathematics such as : The physical facilities help to create good environment so physical facilities is the causes of students enrollment rate. Thus, the above of physical facilities are determinant of effective and quality education and absence of it's students enrollment directly affected.

Influence of Psychological Environment on the Enrollment of Students in Optional Mathematics

Generally, in the school environment students age, their sex, family environment were the major factors that determine psychological environment. Most of the students of this secondary school were seen psychological weak. So, it's affect on enrollment rate. While observing the secondary it was found that there was a positive environment towards the students. They had concluded that conduct in interaction program among students, teacher, parent and headmaster. In this regard one of the teacher said that :

"*Mathematics is practical subject. It is depend on practices but the girls students didn't proper time for the practice of mathematics subject because of heavy*

work at home. They are psychologically affected by their parents at home. So, psychological impact is one of greatest reasons for low enrollment in area of Mathematics education at high school. " (Optional math teacher.)

The view of optional mathematics teacher shows that Psychological environment play vital role for enrollment of girls students in optional mathematics. According to a bove view of teacher because of load of works at home the girls students did n't get time for practice of mathematics subject. It means psychological factors affect the girls to choose optional mathematics for study. It means to says that girls got psychological pressure at home for different works so that they did not select optional subject as mathematics.

"*There should be good psychological environment in secondary school. So, that students can learn better. However, psychological environment in our school is a little bit weak because most of the students afraid of optional mathematics subject*". (H.M.)

Generally, one of most reason that the girls enrollment in optional mathematics is mathematics anxiety. Anxiety means nervous or worried about something. Moreover, It is a feeling of emotional tension about something. Mathematics anxiety in one which means fear from mathematics. As a result mathematics learning which emphasizes less participation on mathematics learning and does not motivate the students for the further study in mathematics (Subedi, 2010). From the opinion of Headmaster and mathematics teacher most of secondary level students worried about optional mathematics because they are fear from the mathematics. A lot of students are low confidence in achievement mathematics. As a result, the enrollment rate shows decreasing especially in mathematics left the

optional mathematics subject to study popular subject likes science, engineering, medicine etc. So, rest of the students is averages and poor students economically and mentally. They have already been anxiety been and hence psychology weak in mathematics. So, they have negative attitude towards the mathematics.

"Regarding the optional mathematics students they often frightened they think that mathematics is psychology very complex subject. The psychology environment of secondary level school is not bad but sometimes mathematics teacher give awareness of negative message to prevent bad message."

" It is taken as hard subject"

" It is taken as subject of science in our Society."

(Math Students)

"Most of mathematics students claimed isn't had subject but it is made as hard subject. They advocate of it's because they believe that they are good in it and they are confidence in using mathematics work in daily life. Some respondent claimed that they like mathematics because they like solving the problem of mathematics. They thought that mathematics is the logical in nature and it has the power of certainly such as getting the right answers. Although some of them might find mathematics problems difficult to solve. they take these type of problems as mental challenge. They find the great satisfaction especially when they obtain the right answers of solutions to problems.

The following views are the mental feeling of without mathematics students:

" I just wasn't very good at it when I was at school"

" I don't have natural talent for it"

" I didn't study it because I didn't understand it for the time"

" I was taught badly so I find I don't really understand it " (without math - ematics students)

Contrary to those who claimed to like mathematics, people who expressed a dislike of mathematics talent to feel that they lack the ability to learn mathematics and thus they are not good at it. They also tended to compare themselves with others and commonly believe that mathematics is only for clever ones. Many students who had not taken optional mathematics found difficult to understand and some found mathematics confusing. They appeared to believe that they couldn't understand or would become confused because they weren't taught mathematics properly. According to skemp theory, teachers should have child psychology, sufficient knowledge about content for effective teaching. This raises the issue of great importance of mathematics teacher for those who reluctant it much more than for those who willing it. Success of every work depends the sound of environment of psychology.

Psychology is one of the important part of teaching learning mathematics education. Interaction between psychological and mathematics play important role and should be attracted to the students in mathematics subject. From the above view it is conclude that psychological environment impact the enrollment of the students. The researcher saw that the environment of this school is not bad in the comparison of other school in Parsa district but psychology environment is the environment is the issue that directly affect the students. The psychological environment is greater reason for low enrollment of girls students in optional mathematics. Thus above view

analyze and interpret that the causes of low mathematics anxiety affect the low enrollment in optional math and the psychological environment is the prevailing issue that directly affects the students.

Academic Environment

Academic environment mainly deals with learning education achievement, problems for extra activities, educational quality, students participation and motivation etc of secondary level school. Academic environment to provide stimulating and welcoming environment. Academic environment of school depends upon many factors such as child teaching method in friendly way, absence of sex and drugs abuse, discipline comfortable sitting arrangements in grade room, safety, violence free peaceful environment, provision of continues assessment system highly pass rate and friendly medium of instruction. These provision helps to enhance the students enrollment by creating good academic environment of school (Kushiyat, 2011). This study especially measured the activities. How the teacher and student did the education goal obtain. For this, the researcher discussed about the academic environment to the students, parents and teachers.

Interaction Between Student and Student (peer group)

It is also called peer Group discussion peer group defined as the number of students living, playing, studying together with in the period of pre -school to secondary school. Theoretically, It is assumed that the peer group influences as the causes of low enrollment of girls students in optional mathematics. Their discussion heavily depend upon their friends. Most of the students feel it as hard subject. So other students discouraged to take it. Therefore, we can show low enrollment. The principle also justified that girls students in mathematics related to mathematics

subject that did not use to share the problems related mathematics to the boys and vice - versa, As a result, there was seen that low enrollment of girls students in optional mathematics. However, some of the students rejected this view and said that if they able to study optional mathematics then they would taken to mathematics as they liked.

" I am poor in mathematics but my friend said that you select optional mathematics then together join tuition grade. He promised me that he would help me while I am teaching optional mathematics. He recommended me to select optional mathematics." (Other Optional Subject Students)

" *My closed friend advised me if you select optional mathematics then you have two mathematics subject how to prepare in SLC examination. Also, you focus mathematics subject. In this way your mathematics will be better and you will get good marks in optional mathematics."* (Optional mathematics Students)

These view focused on the thought that without much encouragement and motivation from their peer group, they didn't take decision of new matter. Thus, the result show that peers can also the low enrollment in optional mathematics. This influence could be either positive in the form of encouragement or negative as it might discrete the students with mathematics.

Interaction Between Teacher and Student and quality of Educational Instruction

Student and teacher interaction plays main role for positive enrollment of girls students in optional mathematics.

Episode- 1

It was grade room observation in six period of secondary school grade IX in optional mathematics subject only 12 students present in the which 8 boys and 4 girls. The teacher entered in the classroom and write the topic in the blackboard. The topic was transformation and sub topic was rotation. He started the topic with lecture method together with several concept concerned with rotation. He did not try to test the cognitive level of students. He wrote the problems and solve them and clarified each step; but students was shown less participation, no one asked question about the problems. After the students were given whole exercise by the teacher. From observed grade the researcher found that there was no eagerness of asking question of students about the question. The teaching method was teacher centered. There is shown insufficient discussion with students but not properly interaction with teacher.

The above episode shows that there was no effective teaching mainly, teacher centered method was used by teacher that makes the students passive towards the learning. Lack of pre knowledge of students in district level examination, they couldn't ask question of related topic with the teacher. Hence quality is the one of important causes of low enrollment of girls student in optional mathematics. The researcher found that lack of quality interaction between students and teacher. Teacher interaction impacts student to select the subject in the schools in the future.

According to Vygostky's social constructivism, teacher provides for problem and he is inquiry based learning activities. The role of the teacher is a facilitar not provider as well as increased active participation of students on learning. Self - study, interaction between other is required for students learning. Similarly piaget's cognitive learning theory states that the teacher must know cognitive level, degree of interest,

motivation, laboratory method and discovery method appropriate for teaching learning process. The classroom environment creates such a way that every student construct the knowledge from their own practices and own pace. The researcher found that quality of instruction impact the students to select the subject in the future.

Episode -2

It was tenth class observation where 6 students were present. The teacher started the topic tri- gonometry. He didn't check the pre -knowledge but repeated the class activity as a summary. Then he done the problem of tri - gonometry and described one by one. As a same process, the researcher found that there were no regular attendance of students. The researcher didn't used teaching material besides teacher centered method. There is shown less interaction between teacher and students, students often showed passive. Because of many response, they didn't ask about the problems, whether they understood or not. Finally the researcher found that quality of instruction affects enrolment rate.

From there above episode, it is clearly said that there was no regular attendance of students. Mathematics is hard subject in one side, presence rate is unsatisfactory to the other side so that the students were dismotivated to learning activities. The researcher when ask about the reason of absence, they said that there weren't understand the subject matter and hence there was no solution of rote learning to pass in exam. Also the teacher didn't use any instructional materials for teaching leaning process. The teacher was actively providing contents but students were writing the something. Lack of contents, sufficient knowledge there were no two way communication in instruction. So students self level was not good.

Joshi (2011) stated that lack of motivation and quality education students were descriptive regular class. From his views it said that if achievement level was not good, students wouldn't take the math subjects. According to the learning theory of Skemp's, teacher should teach in meaningful ways to the students to in the classroom.

So, the researcher had drown the conclusion that it is difficult to solve the problems by remembering and rote learning method Since in mathematics there are so many symbols, facts, procedure that can understand by listening but can be interlized through visualization and distinguish various concepts. According to Piaget's, in sensory motor period children learn through visualization as well as playing. Teacher should teach according to the age of students. Thus, the researcher concluded that quality of instruction is another causes of low enrollment.

Focus Group Discussion

Focus group discussion is a typical way to gather people from similar background or experience to discuss or interpret specific topic. In this study, I conducted a Focus Group Discussion (FGD) with the students at Babulal Hansbahani Secondary School comprising of 8 students of class 9 as my research participants. The discussion were open- ended, they were guided by theme under investigation. During FGD, I found that the main causes of low enrollment of girls students in optional mathematics are De-contextualization of mathematics teaching activities, Role of teacher, Teaching mathematics through memorization without giving meaningful concept, school environment, assessment system etc, In this line Norwood (1994) focus that enrollment of students in mathematics did not be appear to have single cause, but it has infect the result of many factors such as poor prior knowledge of students, poor coping skills, negative attitudes of students to mathematics, impact of

peer group, teacher attitude and emphasis on learning math through drill without understanding. The feelings of happiness towards mathematics problems and lack of confidence of the subject matter and lack motivation of students towards mathematics were the reasons of low enrollment of girls students in optional mathematics

Interaction between Teacher and Teacher

From the discussion between teacher and teacher and teacher the researcher found the following views;

" Most of students select optional mathematics in secondary level from the parents advice. Their parents think if their children take optional mathematics then their mathematics will be better which is good for higher studies in future. As a result they get opportunity to study engineering."(H.M)

The above views of H.M shows the feelings student's parents. They focused family affect to choose optional mathematic subject in Grade IX. The researcher saw most of the students of that community school had poor family background. Raymajhi (2011) also stated that parentel death influenced the enrollment rate of students and also stated that good family background is required for the study in mathematics. Having uneducated parents are unable to understand about the mathematics important. Most families have ignorant about choosing subject of their child.

So, it is concluded that the uneducated and poor family status the parents had not provided the essential material related to mathematics to their children. So that they advice to select another subject. Hence family background and parents supports impact the enrollment of optional mathematics such as : most of the parents are not

concerned to the importance of mathematics, the family background, economic states of family, job are importance of choose in optional subject.

Out of School Related Factor

School is a mini -society of community. So, either directly or indirectly there are so many that affect the students interest, students needs, attitude, achievement etc. Here, some factors are directly affected the students teaching learning activities are described. Such factors are self confidence, family background, influence of peers, influence of society negative thinking towards mathematics.

Influence of Student's (Self) Related Factors on Enrollment of Students in Optional Mathematics

The term students related to factors include students own interest, poor peer achievement. Most of Nepalese students are involved on their choice of optional subject at higher level of education. However, in the secondary level there is direct influence of the students own interest on their choice of optional subject mostly. The information from depth interview of low enrollment of students in optional mathematics by student's self related factors follows.

"I *want to study higher level science so I select optional mathematics. My aim is to become an engineer which isn't possible to study without study mathematics 10 + 2 level so that I take optional mathematics at secondary level school."* (Optional mathematics Student)

From the above view of mathematics students the researcher found that mathematics base of students is not good. So, the students do not accept to take optional mathematics as optional subject. Most of students were interested on

mathematics but they feel that it is difficult to learn. Hence the researcher found that the causes of low enrollment of students in optional mathematics are as follow:

- Most of students were interested Optional mathematics but they feel that it is difficult to learn.
- The students had not taken mathematics because of weak performance.
- The students has not taken optional mathematics because of poor prior achievement.

Negative Thinking Towards Mathematics

The negative thinking towards mathematics is also important factor of low enrollment in mathematics. The some student review are support this factors:

"Some of my friends said me optional mathematics is very hard subject not to select it.Our senior students also say that optional mathematics is complex subject. Also, the result of our school is low in optional mathematics. So, I did n't select optional mathematics " (non Optional math student)

The view of students claimed that Optional mathematics has very long problems and many more formulas. So, most of students had negative thinking towards mathematics. It also peer groups were played significance role as primary factors of low enrollment.

"*All the mathematics teachers should have encouraged students from the root of the school life but they shouldn't do such type of activities in classroom rather than focus on tuition class. So, most of students are negative attitude towards it. "* (Math students)

Students who claimed to dislikes mathematics said that the number of students increasing those subject that is popularized and motivated the students, parents as well as society. So, the teacher should have motivated the students towards mathematics subject giving the importance of mathematics in daily life. Mathematics teacher taught well in tuition class than real class. Most of students have economic problem then could not attend tuition classes. As a result makes slower learner. Therefore, by product of these problems students make negative thinking towards mathematics.

According to learning theory of skemp, teacher should have more knowledge in the content, to teach effective. Also well trained teacher s are always developed the clear concept of mathematics and they would have avoid the many negative thinking towards mathematics. The mathematics teacher should have knowledge of psychology from which they create good environment and should developed positive thinking towards mathematics. According to study of Joshi (2011) concludes that attitudes causes learning difficulty in mathematics at secondary level and Chap Sam (2002) reflected that attitude is one of the main causes of low enrollment of girls students in optional mathematics. He said that people who have positive attitude towards mathematics subject motivated students towards mathematics subject and people who have negative attitude towards mathematics subject dismotivated the students towards mathematics subject.

Family Background

Family background is one of the aspect of out of school related factor. Each and every family has directly influence on their child's learning. Most of the families who are poor in knowledge have poor attitude towards the Mathematics education. Nepali society has been divided into different family background. Students who were

from the uneducated families definitely poor family background. They have not provided any guidance from their parents so they feel uneasy and unpleasant. Those students who have no parents, faced many problems in the teaching and learning time. Most of the students used to study private by showing their low enrollment condition.

The views of my participants are as follows.

" *Mathematics is hard subject. Due to the money problem we are unable to send to their tuition class to improve achievement. So, I guidance my children's to take another optional subject instead of optional mathematics* " (Parents)

" Most of the students come from poor family background. They are also being uneducated. They spent most of their time to do work at home. As a result they have no enough time to hard study. So, they didn't select optional mathematics" (Headmaster)

The views of Head master and parents are correlated. They focused on the economic condition affect the mathematics subject. In the society mathematics is taken as a complex subject because the result old SLC are not satisfactory on mathematics related subject. So some of the students of willing to read mathematics subject left the subject by showing family and economic caused. The headmaster said that educated families send their children in private school or town areas where the quality and technical education provided. So, they show less interest on teaching and learning mathematics at secondary level. This is also a trend that's why it is an issue.

Influence of Society

Society plays important in education. So it is one of the factor of out of school related factor that caused low enrollment. People have different attitude in the society.

If the majority of the society doesn't encourage the students, then their participation becomes less in education. They show little interest in learning. Ultimately, their participation in mathematics learning is very low. Also, students of high class families of society go to the expensive high school. There is high quality and get high quality education where as a middle as a low class students get less quality then them. So, condificence level are also seen low then of high class students. As a result, they can't do better in their learning that causes low enroll.

"*Our society has no idea whatever the subject is good or not. There are not literature people in the society. They also don't know which subject is much scope in future life. They insist their child to take other subject*." (parents)

From the above views the negative views about mathematics such as mathematics is difficult and boring most people hate optional mathematics. Therefore they actually hold appositive from these social views that they like mathematics as optional subject and they also find mathematics interesting.

According to Rayamajhi (2011), the educational enrollment rates depend upon that society. According to Vygostioan social constructivism social interaction plays an important role in concept formation. Therefore students didn't develop their clear concept only from the self study. If one can't develop the proper concept of concept of content they can't generalize it because generalization concepts cultivates only meaningful understanding. According to Piaget's theory one can get experience by interaction of each person with object in his or her environment and logical mathematical experienced by mental actions. Also Sam (2002) journal 15 clarified that society has direct impress to the education especially in mathematics education.

So, it is said that society also another causes of low enrollment in mathematics education.

From the above expression and learning theory Vygostsky said that society remains as key factor in the area of educational enrollment. From the response it is said that girls students were not motivated in selecting optional mathematics. So, it is concluded that gender discrimination as prevailing issues in our society, was the main cause of low enrollment of girls students in optional mathematics. Hence the researcher concluded that society is one of the causes that impact should n't enrollment of girls students in optional mathematics.

Interests

Interest is one of that quality that attracts somebody attention or makes then want to know more about it. The researcher included mainly students and parents interest in his study. Parents expectations also effect students selecting optional mathematics in leaning period. Also, students interest was one of the great factor to select optional mathematics for their further study. These factors directly showed effect on students interest that caused low achievement in their study. To foster educational quality, students required motivation as well as rein formation but these factors influenced to their study directly and indirectly.

" *In our high school, achievement level of mathematics subject is very low. Nobody got good marks in optional mathematics and our parents also suggest to select other optional subject. So, I am reluctant to select it."* (Students)

The majority of the students focused this subject views that, " I think the interest came more from myself and I can't explain why. Thus the data shows,

students who advocate mathematics believed that they have positive view about mathematics were more because of their self interest and self motivate rather than external factors such as mathematics teachers or parents.

In the research time m the researcher saw by the effect of interest, affect both the parents and students. Specially, in the research these parents showed less interest towards education of their children who were as students. On the other hand, these types of children go t less family support. Also, existing condition of society, economic condition and psychology environment of society affected the students interest towards basically in mathematics or optional mathematics subject. Also, Raymajhi (2011) concluded that interest affected to the enrollment rate. She founded in her study, if there was different interest between parents and students, the whole study would be affected. From the Pieget's point of view, there is given significance education, accordance with interest otherwise it would be harmful. As mentioned above, there is shown interest was one of the important aspect to select the subject. Students can do better at any field when they are interested. But interest is affected by many factors. Social factors, economical factors, psychological factors parents perspective are the main factors that impact the students interest. So, interest is taken as causes of low enrollment of girls students in optional mathematics.

According to learning theory of Piaget as stated in this research that without interest can't be success. However every success depend upon their interest, attitude and skills. First of all, students must be readiness which is by product of interest. According to Piaget's cognitive view, learning can be meaningful as well as effective any taught by interest of students. Mathematics subject is very hard subject so that students were not interested in it. Also, parents should be interested to make

successful to their children study. Contemporary society needs and trends of society helped to take a decision to parents (Pandit, 2012). Thus, it can be concluded that interested is also one of most important aspect to reduce enrollment of optional mathematics subject.

Section II: Ways to Minimize The Enrollment Rate of Girls Student in Optional Mathematics.

This section focus on ways to explore the enrollment rate girls students in optional mathematics. For this the researcher took interview with mathematics teacher and students of grade IX students, school co- ordinator and conducted the FGD with students and making themes for answering the second research question which presented below:

Make Teaching Interesting and Lively

To explore the enrollment rate of girls students we apply different teaching learning approaches. To make our teaching more meaningful by reducing mathematics anxiety. In this issue my teacher participant A said:

"*I trust that where there is reflection there is a perfection. It makes teaching and learning process lively and interesting then it can explore the enrollment rate of students in optional mathematics. To explore the enrollment of students by using students centered techquines that can be used in teaching. Which will make mathematics learning interesting and effective. As a result we can explore the enrollment rate of students.*

It makes me to recall as to how to be a good teacher, a good way to teach and control class. We sometimes forget that our students are same level in the classroom.

The reflection would serve as guidelines in future meaningful and lively clearly explore the enrollment rate of student

In the same line I asked my student participation, Akash said.

"*Our teacher in the teaching process don't linkage with subject matter to the students daily life activities. If the teacher teaching mathematics linking with students daily life then mathematic become interesting and explore the enrollment of students in optional mathematics."*

Also about this issue the school co- cordinator replied,

"*In my openion, the enrollment of girls students can be explore by students teaching mathematics through contextualizing, providing local examples."*

From the view of school co - ordinator the found that the enrollment rate of girls student can be explore by teaching mathematics contextualizing and providing local examples. This made me to realize that every mathematics teacher can relate mathematics with their local context. If the teacher relates mathematics with our local context then we can get conceptual understanding of mathematics easily so it helps to explore the enrollment of girls students in optional mathematics.

Understand the Mathematical Concept Rather Than Memorizing

Low enrollment of girls students in optional mathematics is a major problem that studens facing today. The mathematics teacher especially needs to understand the causes of low enrollment and ways to explore enrollment of students in optional mathematics. There are many ways of exploring enrollment of students in optional mathematics including eagerness to attempt the mathematic problems, fearless of

taking advance mathematics classes, usually active when in mathematics class. The main causes of low enrollment of girls student in mathematics is the teacher himself. It had been shown that students tend to interlize their instructor's interest and eagerness for teaching optional math. If the teacher has bad attitude about mathematics', there should be low enrollment of students. In this line I asked my teacher participant B. he replied,

"*Many optional mathematics teacher teach mathematics by memorizing formula. By the help of formula teacher solved the problems which is given in the textbook. Also said that solve the remaining problems likewise in similar way but instead of this we teach mathematics by making concept clear so that explore the enrollment of girls students in optional mathematics*."

From the above view of teacher the researcher found that mathematics subject becomes different for memorizing different formulae. In this line (Schwarz, 2000) claims that teacher can take many steps to explore enrollment of mathematics students reviewing basic mathematics skills, by making sure students understand the mathematical language and by providing a support system for their students. In this issue I asked my student participant Radh and she said,

"*My mathematics teacher teaches through practicing on note book, thinking about steps and remembering the answer. We couldn't give meaning of real life. Rote memorization is our teaching techniques instead of this it should n' t be better to mathematics meaningful then understanding of the concept clearly."*

From the above view of participant the researcher found that understanding of concept is essential in teaching. Students usually memorize through rote-memorization but do not conceptually understand because humans interpret their

world based on the concept that makes their own understanding of the world. In order to release their preconceptions as students, they find a more satisfying concept.

Making Mathematics Culturally Relevant

In Our context, mathematics is taken complex subject because of teaching and learning practice. Culturally relevant teaching is using the cultural characteristics, experiences and perspectives of ethnically diverse students as conduct for teaching them more effectively the researcher asked his participant teacher C how can explore the enrollment rate of girls students in optional mathematics ? In this issue he replied,

"*I agree with statement that mathematics can never be cultural free. Mathematics and culture are strongly relevant. If we relevant mathematics with students daily life then the students feel that mathematics is our self and do our self. Then explore the enrollment rate of students."*

From the above view, it was concluded that mathematics is culturally relevant and it is not cultural free subject. In this line Gay (200) defined five elements of culturally relevant mathematics as : developing a knowledge base about cultural diversity, including ethnic and cultural diversity content in the curriculum, demonstrating caring and building learning communities, communicating with ethnically diverse students and responding to ethnic diversity in the delivery of instruction.

Positive Role of Teacher

Teacher's role one of important factor to carryout responsibility in changing and shaping student's behavior in school. The teacher can help to explore the enrollment rate of students in optional mathematics. The teacher must be excited

about teaching mathematics and believe that there is reason for his students to learn mathematics. If the teacher is not motivated to teach mathematics subject then no one expect his students to learn it. If the teacher is not happy about teaching optional math or he / she does not enjoy being in the classroom, then students are less likely to be motivated to learn mathematics. As a result there will be less enrollment of students in optional mathematics. In this regard, the school co - ordinator said,

"*If the teacher plays positive role to motivate the students to lean mathematics easily. The teacher help the students to think critically and directly wrong about the response of the students. The teacher emphasized the process rather than product. Flexibility in mathematics classes can help to explore the enrollment of students in mathematics."*

From the above view, the researcher found that teacher needs to encourage his / her student to think critically. It is important that teacher emphasize the process, not right or wrong answers. In this line Schwartz (200) correct answer are important,getting the students to think critically is even more important. Students of mathematics also need to realize that it is more than just computations. Flexibility in mathematics classes can help facilitate co-operation, reduce stress and create positive attitudes. In this issue another participant Rajesh, said.

"*I think child is just like curd form of clay. It can be made what we want. So to explore the enrollment of students the role of teacher is crucial. If the teacher encourage students to learn mathematics then the students learn mathematics well. Teacher helps students to better understand that help to explore the enrollment."*

From the above view, the researcher concluded that teacher plays main role to explore the enrollment of students. A better understanding of mathematics is to make

mathematics beautifully. In this regard Upadhay (2070) claims that explore enrollment of students in mathematics we teach mathematics linking mathematical concept with students daily life and use student centered teaching methods.

Instead of interview of the participants the researcher concluded that FGD with to deal with the research question having a theme of minimize the mathematics and explore the enrollment of students in optional mathematics. For this the researcher conduct a Focus Group Discussion (FGD) with the students of Babulal Hansbahani secondary school comprising 8 students of class IX as research participants. The discussion were open - ended, they were guided by the theme under investigation. During FGD, the researcher found that the main remedial ways to minimize the low enrollment of girls students in optional mathematics are : making teaching interesting, making mathematics culturally responsive. Learning mathematics through meaningful way. In this regard Upadhaya (2070) said that enrollment rate of students be explore by using concrete teaching materials.

Making Continuous Assessment System

Providing necessary information for decision for making is evaluation. According to Thorndike and Hagen, Evaluation is the complete process of identifying the objectives an aspect of education. Many educationist suggested that frequent evaluation is necessary towards examination. The value of evaluation in mathematics learning is liberating in that they provide teacher with the authority to make on going and situated judgement about achieving result from their teaching. In this line, my participant said that:

"Many drawbacks can be found from evaluation and improve should be done immediately. Also, by continuous evaluation system, students will be better in final exam." (parents)

From the above views the parents focus that teacher should check the homework of students for improving and gaining feedback in teaching and learning activities. Most of mathematics students insisted on various types of evaluation system from which they realized to their owns drawbacks and get a chance to improve it. Also, parents said that evaluation is one of the main factor of educational sectors about the quality of school and a way of attracting students. So that continuous assessment is a factor that attracts students in enrollment in optional mathematics.

Here, assessment system is related with the enrollment by the researcher. Most of parents justified on the advantage of good evaluation that those school whose enrollment are increasing. They also stated that evaluation system and achievement level of government school were decreasing. From this point of view, the researcher said that the continuous assessment attracted the parents that help parents to choose the students an optional mathematics. From the observed data, the researcher saw that internal evaluation was effective in that secondary school. Teacher were careless to check homework and class work of optional math subject. That activities of teachers dismotivated to the students towards learning mathematics. So continuous assessment such as attendance, daily homework, class work, unit test, class test, monthly test etc improves learning achievement of mathematics students. As a result it occurs to obtain highest mark in final exam and students attractive to learn optional mathematics. Hence the researcher concluded that continuous assessment system helps to introduce the enrollment rate of girls students in optional mathematics.

Chapter - V

FINDINGS, CONCLUSIONS AND IMPLICATIONS

This chapter explains the major findings from the analysis and interpretation and discussion result from the collected data. Conclusion is described from the result of interpretation of data. The chapter closes with implication of the study.

Findings

The purpose of the study is to find the causes of low enrollment of girls students in mathematics and explore the enrollment rate of students in optional mathematics. The major findings were grouped according to the theme derived from the objective of the study.

Causes of Low Enrollment of Mathematics Students

The causes of low enrollment of mathematics students were as follows:

- Teacher memorized the students without contextualization.
- Teacher teaches the students with lack of confident and practices without understanding.
- De-contextualized mathematics teaching is provided to the students.
- The environment of classroom being fearful.
- Lack of teaching materials in the classroom while teaching the contents.
- Using Teacher centered method instead of students centered method.
- Poor prior achievements in mathematics subject.

- Influence of society and students own interest.

Ways to Minimized The Low Enrollment of Girls Students in Optional Mathematics

The ways to minimize the low enrollment of girls students in mathematics were found as follow:

- Making teaching - learning activities interesting and lively.
- Teacher must helps the students to understand the mathematics concept rather than memorizing.
- Making mathematics education culturally relevant and contextualized.
- Teacher should play positive role and providing the subject matters in the classroom.
- Continuous assessment system must be applied in classroom teaching.
- Providing good physical facilities.
- Organizing different programmes related to mathematic to motivate students towards mathematics.

Conclusions

From the study I found that enrollment of students in mathematics be less through fearful environment, teaching memorization without contextualizing, lack of confident and practices without understanding, de- contextualized mathematics teaching, negative thinking towards mathematics, Influence of peer group, role of the teacher, poor prior knowledge of students Influence of society, family background, and students own interest etc. on the other hand I drawn that the ways to minimize

low enrollment of girls students that are making teaching learning activities interesting, understanding the mathematics clearly, making mathematics culturally relevant, using contextualization content, standing teacher as a fascinator in classroom, using continuous assessment system in classroom, using students centered method in classroom providing good facilities and giving parents support etc. The more method the teacher is able to used, the more likely that they become successful with the highest percentage of students. If students motivated toward mathematics and convinced with teacher properly. They can learn mathematics by their own efforts. Also they can be actively participated in learning mathematics and it produces better result and obviously minimize the low enrollment rate of students in optional mathematics.

Implications

This study helps to improve the pedagogy of the teachers. Also, it helps the students and teachers to improve in their field. Teachers have special position, power, prestigious, value and ethic in the society because of enhancing the knowledge. To keep these things as power, prestige, value and ethics in society teachers have to more skill to minimize low enrollment of students in optional mathematics and making mathematics interesting in the direction of this research.

Thus, this study is applicable to textbook writer, curriculum planner, police maker and myself to improve my professional development, and intuitions to implement attractive program and so on. So, the implications of the study are listed as follows.

- It helps myself to develop professional of teaching.

- It also helps the teacher to improve their teaching strategies.
- It helps the curriculum designer to prepare the curriculum according to need of the students.
- It helps the educationist and policy maker to make the policy.
- It helps the programme co- ordinator of non government or government organization.

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Appendix - A

Classroom Observation Guideline

Name : ..... Date : .....

Qualification : ..... Address: .....

- Classroom Environment.
- Response of the teacher to the students.
- Eagerness of students in subject matter.
- Active participation of students in classroom.
- Students attitude to the mathematics.
- Students behaviour in the classroom.
- Interaction between teacher and student in classoom.
- Dealing with subject matter by the teacher in the classroom.
- Encourage or discourage by the teacher in the classroom.
- Students participation in mathematical task.

Appendix - B

Interview Format for Head master

Name: ..... Date: .....

Qualification : ..... Address: .....

The Interview for the headmaster can be taken on the following main themes.

- Professional development of mathematics teacher.
- Learning environment in the school.
- Interaction leadership.
- Students opportunity for learning with teacher.
- Supervisor and evaluation of teachers.
- Assessment system.
- Main causes of less participant of girls students in optional mathematics.
- The condition of school facilities, number of teacher, teacher qualification, number of students, community participation.

Appendix - C

Interview format for mathematics Teacher

Name :..... Date: .....

Qualification: ..... Address: .....

Sex: ..... Age : .....

Experience : ..... Caste: .....

The view of mathematics teacher was taken on the basis of following themes.

- Teaching methods and materials.
- Relation with the students.
- Motivation to learn mathematics in different level of students in a class.
- Learning habit of students.
- Problem in teaching mathematics.
- participation of your students in solving mathematics problems.
- view towards mathematics.
- Interest of student's towards mathematics.
- Causses of low enrollment of girls students in optional mathematics.
- Ways to explore enrollment rate of girls studente is optional mathematics.

Appendix - D

Interview Fomat For Students

Name of the student : .....

Age: .....

Sex: .....

Class : .....

Position in class : .....

Caste: .....

The interview for students can be taken on the following main themes.

- Family background.
- Feeling and Interest of mathematics.
- Homework and class work.
    - School Environment .
- View towards mathematics teacher and school.
- Participation in mathematics programes.
- parents support in learning optional mathematics subject.
- Ways to explore enrollment of students in optional mathematics.

Appendix -D

Interview Guideline for member of SMC

Name : ..... Date : .....

Adress: .....

The interview for school co-ordinator can be taken on the following main thems.

- View towards optional math.
- view towars students in your school.
- Participation in mathematical programes.
- Your stutents and teacher feelings easy or difficult towards mathematics.
- Way to make teaching mathematics easy.
- Ways to explore enrollment of girls students in optional mathematics.

Appendix - E

FGD Guideline for students

Place : ..... Date: .....

The FGD for students , teachers can be taken of the following main themes.

- View towards school environment .
- View towards mathematics teacher.
- View towards optional mathematics.
- Main causes of low enrollment of students in optional mathematics.
- Understanding mathematical problems be comfortable or uncomfortable.
- Ways to explore enrollment rate of girls students in optional mathematics.

Appendix - F

Interview Guideline for Parents

Name: ..... Address: .....

Place: ..... Date : .....

The interview guideline for parents can be taken for the following themes.

- Psychological environment
- Physical facilities
- Parents support in learning
- Social influences
- Self confidence
- Economic condition
- Peer group influence
- Attitudes towards mathematics
- Interest
- Policy for increasing enrollment rate of study in mathematics
- Popularization
- Future of math