

Chapter- I

INTRODUCTION

Background of the Study

Learning achievement of mathematics is a major factors of students to make future career. Using mathematical knowledge is essential for different aspects such as science and technology, statistics, research, economics, finance. Therefore nobody can ignore the mathematics. Those student have good mathematical knowledge in the school levels; they may successes to solve behavioral problem of mathematics. All the field of science and technologies require mathematical knowledge. Science invention and technological developments are creating the problem in human life. So, better lifespan is impossible without mathematical concept. Also, the mathematical knowledge is involved in every moment of human life. The people who are illiterate also use mathematics in their daily lifespan.

Mathematics is a major subject not only in formal education but in our daily life span. In each and every moment of an individual, mathematics is used directly and indirectly. In this regard according to James, R.C. (2007) the term ‘mathematics’ may be defined as a number of ways. It is related to measurement, calculation, discovering relationship and dealing with the problem of space. Mathematics is the logical study of space arrangement quantity and many related concept. Mathematics is the way of thinking i.e. way of organizing, analyzing and synthesis of data. So, mathematics is a behavioural subject which solves the behavioural problem of human lifespan and it is guided the success of human being. And the subject of mathematics plays an important and major role in school level curriculum.

The present curriculum system of Nepal, mathematics has become a core subject in the secondary level, which has introduced from grade one to ten as

compulsory subject. And NESP has managed extra mathematics as elective subject in secondary level. The study of optional mathematics has been not taken only essential for practical life but also necessary part in the field of science and technology. There are two important aspects of mathematics instruction that should be followed during the construction of mathematics program. They are mathematical aspect and social aspect. The first is related to the understanding facts and principals of mathematics. The second part is related to the usefulness of mathematics in daily living. The balance of optional mathematics curriculum is the combination of both aspects.

As optional mathematics is very closely related with our practical life, this implies that it is not only subject for formal schooling but also related to every activity of human beings. So its areas are not bounded or limited but have been adding several new concepts with evaluation of human society. Optional mathematics is being the composition of different branches of mathematical concepts. It helps to solve the many problem of the human lifespan. Also optional mathematics is the most essential to develop the mathematical skills of students. So, optional mathematics has been taken as important for daily life of the human being. It is better to read optional mathematics in secondary level for development of mathematical skills qualitatively. Although different resources show less in number of students are enrollment in optional mathematics in the secondary level but in this research the researcher found more students are enrollment in optional mathematics. In this regard the student enrollment in optional mathematics in the school and pass percentage of optional mathematics in S.L.C are as follows.

Fig. 1 Result status of optional mathematics in S.L.C

Years	Number of students appeared in the exam	No of pass students	No of fail students	Pass percentage
2069	30	30	-	100%
2070	32	32	-	100%
2071	35	35	-	100%
2072	36	36	-	100%
2073	38	38	-	100%

Source: School administration.

The above table shows that the pass percentage of optional mathematics is 100% and number of students in optional mathematics are increasing year by year. This trend of enrollment in optional mathematics in secondary level indicates that the number of student in mathematics in higher study will be more in number in near future.

Although it is not seen in other school so it becomes essential to investigate the factors that motivate students in optional mathematics in secondary level.

Statement of the Problem

Mathematics has been taken as essential subject which helps us on our daily life. Mathematics education also help to make a proper future carrier of the students. In the present situation, students faced the mathematics subject as a difficult subject consequently students did not show interest in learning mathematics in secondary level. According to the data which is provided by Omega Higher Secondary School, the number of students in optional mathematics is increasing year by year and the result of optional mathematics is good .This had made the number of students in higher secondary level certainly more. This trend of enrollment in optional mathematics in secondary level indicates that the number of students in mathematics

in college will be more in near future .This also shows that the expert mathematics manpower will be more in upcoming days.

Mathematics are directly related to daily life problems, teaching vocational education, technical subjects. But in other secondary level school students enrollment in optional mathematics at secondary level is observed as low. So, the stakeholder should concern on this, the related authority should think and analyze this burning issue carefully and should concern on increasing students enrollment in optional mathematics. In this situation the researcher observed the opposite situation in Omega School as there are more students choose optional mathematics in school. So the curiosity of the researcher has created, how the students are motivated in selecting optional mathematics in this school. Therefore, the researcher is interested to select the research topic “Motivational factors for selecting optional mathematics at secondary level”.

The main queries of the researcher is focused as:

-) Why the students choose optional mathematics at secondary level?
-) How students, teacher, parents motivated the students to choose optional mathematics?

Objectives of the Study

The main objective of this study was as follow:

-) To find out the motivational factors for selecting optional mathematics in secondary level.

Significance of the Study

School levels are run under government of Nepal .Mathematics taught as compulsory subject at all school. Also mathematics is taken as optional subject in secondary level .The students are facing many problems in studying mathematics.

Similarly, students are facing many problems in selecting optional mathematics but the result of optional mathematics is satisfactory in S.L.C and the percentage of students taking optional mathematics in secondary school is decreasing gradually day by day .Instead of this Omega higher Secondary School has been increasing the students taking optional mathematics at secondary level year by year.

In this case study, the researcher's aims is to find out the motivational factors to select optional mathematics at secondary level .This study can find the main reasons how the students are motivated to select optional mathematics at secondary level, besides that the significance of this study would be fruitful for the following aspects

-) This study would be helpful to explain about the motivational factors of learning optional mathematics in secondary level.
-) This study would be helpful to curriculum designer to design the curriculum according to motivational factor's need and interest.
-) This study would be helpful teachers, policy makers and related agencies to motivate students in optional mathematics in secondary level.
-) This study would be helpful to signify a new of prime necessary of rethinking on the made of instruction of mathematics education in secondary level.
-) This study would be helpful for parents because it would make them aware of important of mathematics in their lifespan.

Delimitations of the Study

The study has following delimitation:

-) This study was limited to private school at Lalitpur district.
-) This study was conducted in only one secondary level school.
-) This study would be generalized in Kumaripati and not equally applicable for the other parts of Nepal.

Definition of the terms

-) **Enrollment:** Student enrollment at class ten from 2069 to 2073.
-) **Factors:** The terms factor is defined as one of the several things that motivated students in optional mathematics.
-) **Home environment:** The environment where all the requirement of students study room, study time, interest, and attitude are found.
-) **Physical facilities:** The facilities of school is taken as rooms, land area, practical room, laboratory etc.
-) **Assessment system:** The activities are conducted by the school to improve students learning in optional mathematics.
-) **Students:** It is related with the optional mathematics students of class ten.
-) **Teacher:** In this study, teacher means who teaches optional mathematics in secondary level.
-) **Motivation:** In this study, motivation means that teacher, parents' and school who motivates students in teaching learning activities of optional mathematics in secondary level.
-) **Prior Knowledge:** In this study prior knowledge means pre concept of mathematics in lower level.
-) **Teaching learning environment:** The activities are conducted in optional mathematics classroom.

Chapter-II

REVIEW OF THE RELATED LITERATURES

Every significant study must be firmly based on relevant thinking and research must have deep knowledge of already established theories and researches which one closely related to the problems chosen by him or her. A view of related literature provides the knowledge of what has been established, known or studied and what has not been attempted yet. A literature review is the process of locating, obtaining, reading and evaluating the interest. This chapter deals with the review of the related literature in this study mainly literature includes previous thesis, book journal and internet.

Empirical Review of the Literature

International Reviews

James Tiffir Jr. (2007), on his research paper “Increasing motivation in mathematics classroom”. This research consists of details pertaining to the epistemological beliefs of both students and teachers in the domain of mathematics. The findings indicate that the knowledge beliefs of a student directly impact their motivation in the classroom. The research further says that the classroom environment and the teacher are the most influential factors in generating and changing a student's beliefs. High quality teaching will be outlined as defined by the literature. This will be looked at from the perspective of generating availing epistemological beliefs and generating motivation. Further, research will be reported that details the value of learning opportunities inside and outside of the classroom and their potential to increase motivation.

Maria de Lourdesh Mata (2012), on this research paper” Attitudes towards mathematics. Effects of individual, motivational and social support factors.” This

paper aims to understand how certain different but interrelated variables such as background, motivation, and social support could lead to an explanation of student attitudes towards math and to an understanding of the defining characteristics of these attitudes in the school environment. Participants consisted of 1719 Portuguese students, from fifth-to-twelfth grade. The study utilizes an adaptation of the “Intrinsic Motivation Inventory” assessing main determinants of intrinsic motivation. One section of the questionnaire- “In my Math Class”- also assesses student perceptions of teacher and peer support as well as student attitudes. The results revealed that, in general, students held positive attitudes towards mathematics and also highlighted the main effects of grade and math achievement on these attitudes. No gender effect was identified although the girls showed a continuous decline in attitudes the further they progressed in school. A hierarchical analysis using structural equation modeling showed that motivation-related variables are the main predictors of attitudes towards mathematics and that teachers and the social support of peers are also highly significant in understanding these attitudes.

Kjersti Waage (2014), on this research paper “Motivation for learning mathematics in terms of needs and goals” This article suggests a framework for analyzing students’ motivation for learning mathematics. In the present paper, motivation is defined as a potential to direct behavior. This potential is structured through needs and goals. The author examines students’ motivation in terms of needs and goals, and the emphasis is on the psychological needs for competence and autonomy. It could also contribute to increased insight into relations between different aspects of instructional designs and the students’ motivation for learning mathematic.

National Reviews

Ghimire (1997), Did a research entitled “A Study on Factors Affecting Teaching Learning Mathematics at Secondary Level” with the objectives to study the factors affecting in learning of mathematics in secondary level in term of social environment, family background, motivational factors, physical facilities, interest of the learners, instructional materials. He concluded that environment of the school in both rural and urban areas affect more to the subject of rural areas and girls are affected more than boys. He also found that motivation, student’s interest, instructional methodology and materials also affected on the teaching and learning mathematics.

Subedi (2007), Did a researcher on the topic “The Enrollment of Girls Students in Primary Level.” The main objectives of this study were to identify girls’ student enrollment rate, regularity and loss promotion rate with the involvement of women. This study was done in Rukum district. He used observation, interview and questionnaire review as the researcher tools. This study concluded that the enrollment of girls’ students is more in women teachers’ involvement school than non-involvement of women teacher.

Regmi (2009), did a research on the topic “Girls participation during optional mathematics classroom of secondary level in Jajorkot District”. The main objective of this study was to identify the factors affecting girls’ participation in learning optional mathematics at secondary level. He was used class observation form, interview, and questionnaire as a data collection tools. His studies found that girl’s participation during optional mathematics class is affected by so many factors such an illiterate parents, low economic status and social norms.

Yadav (2012), did the research on the topic “causes of students’ low enrollment in optional mathematics in community school.” The main objectives of this study were to find the cause of low enrollment in optional mathematics. It was a qualitative research, He used observation note and school document as a research tools. He had conducted face to face interview with students, head teacher, mathematics teacher and parents and observed the classroom reality. He found that the cause of low enrollment in optional mathematics were knowledge, gender and support of family, weak status of parents in education and economic status.

Joshi (2014), did research on “Students enrollment trends in major mathematics in Kailali district”. Its objectives were to find the causes of low enrollment trends in higher secondary level. He was used questionnaire and interview as data collection tools .His studies found that the major causes were political traditional thought, economical condition, exam oriented teaching activities and lack of internal evaluation system.

In national review the researcher didn’t get positive attitude towards optional mathematics and didn’t get any thesis related to motivation towards optional mathematics but in international reviews the researcher had found the different views on motivation towards mathematics which are given below

Kjersti Waege (2014), identify student motivation depend on their potential to needs and goal. It depend on teacher and mathematics classroom. His emphasis was on the psychological needs for competence and autonomy. Maria le Lourdes (2012) identify that there is no gender effect in mathematics classroom. Participations of boys and girls were effective. And the social support of peers and teachers highly significant in understanding mathematics and which helped to motivate the students in optional mathematics. Tiffir Jr. James. (2007) talks about epistemological beliefs of

both teacher and student in the domain of mathematics .He said classroom environment and the teacher are most important factors in changing students' beliefs towards mathematics and learning opportunities inside and outside classroom which increases motivation towards mathematics. Regmi (2009) found less girls participation in optional mathematics classroom. Similarly Yadav (2012) found causes of low enrollment in optional mathematics were knowledge, gender and support, education of parents and economic status. Joshi(2014) identified the major causes of low enrollment in mathematics were political thought, economic condition, exam oriented teaching activities and lack of internal evaluating system but I have found that good enrollment rate in optional mathematics student in Omega higher secondary school .

By the above thesis, the different researcher has found different variables on the enrollment trends and motivation in optional mathematics in secondary level, So these variables are not fixed which affects and motivate student's enrollment in optional mathematics at secondary level.

Theoretical Review of the Study

It is the qualitative types of research, so we need to establish the research finding in a valid way. Being the qualitative nature of the study, it is more useful to use cognitive learning theories to get the actual results. It is difficult to conduct the research on low enrollment of optional mathematics in secondary level, for the research it will be difficult to use experimental as well as statistical approach. The main factor promoting enrollment in secondary optional mathematics are supposed to the social causes and verbal response here Ausubel's Theory of meaningful verbal learning has been taken as a social theories. The brief introduction about the theory is explained below:

Ausubel's Theory of Meaningful Verbal Learning

According to the Ausubel's teaching would be done according to need and interest of the students in meaningful way. The teacher must help students to build linkage between the own structure and structure of the discipline being taught for the meaningful learning. The students would have the knowledge of pre-mathematical structure and verbal association in other hand, literature method helps in associating pre-knowledge and the structure of mathematics.

Ausubel's theory has focused as meaningful learning. For this, the student's oriented teaching learning process should be used in classroom. There should be used different teaching method for different learning to develop clear concept in difficult verbal problems. There should be use concrete teaching materials. There should be care on the basic knowledge of students by the teacher before teaching in classroom. When these comes obstacle in that mental structure and learning structure, then it becomes difficulty in learning. Ausubel's has focused on motivation and readiness of students, when the students will not ready for learning mentally, physically and psychologically there come difficulties in learning. Ausubel's has developed a theory as meaningful verbal learning that contains a rational of expository teaching and shown how lecture types session can made more meaningfully in any discipline .According to him if a student has positive attitude to learn certain task. He/she is likely to learn in meaningful a way. Therefore for meaningful learning, the learner should be required positive attitude toward content and materials. According to Ausubel's mathematics instruction should be as following.

The learner may possess the necessary level of meaningful learning of some mathematical concepts to occur. It means , those students in junior high school who are still in Piaget's stage of concrete operations may not be able to learn highly

abstract mathematical principle and concept without concurrent concrete example of the principles and concepts. Before teaching, teachers should be motivated to attempt to learn mathematics in meaningful way. Poorly motivated students may not learn mathematics in meaningful way.

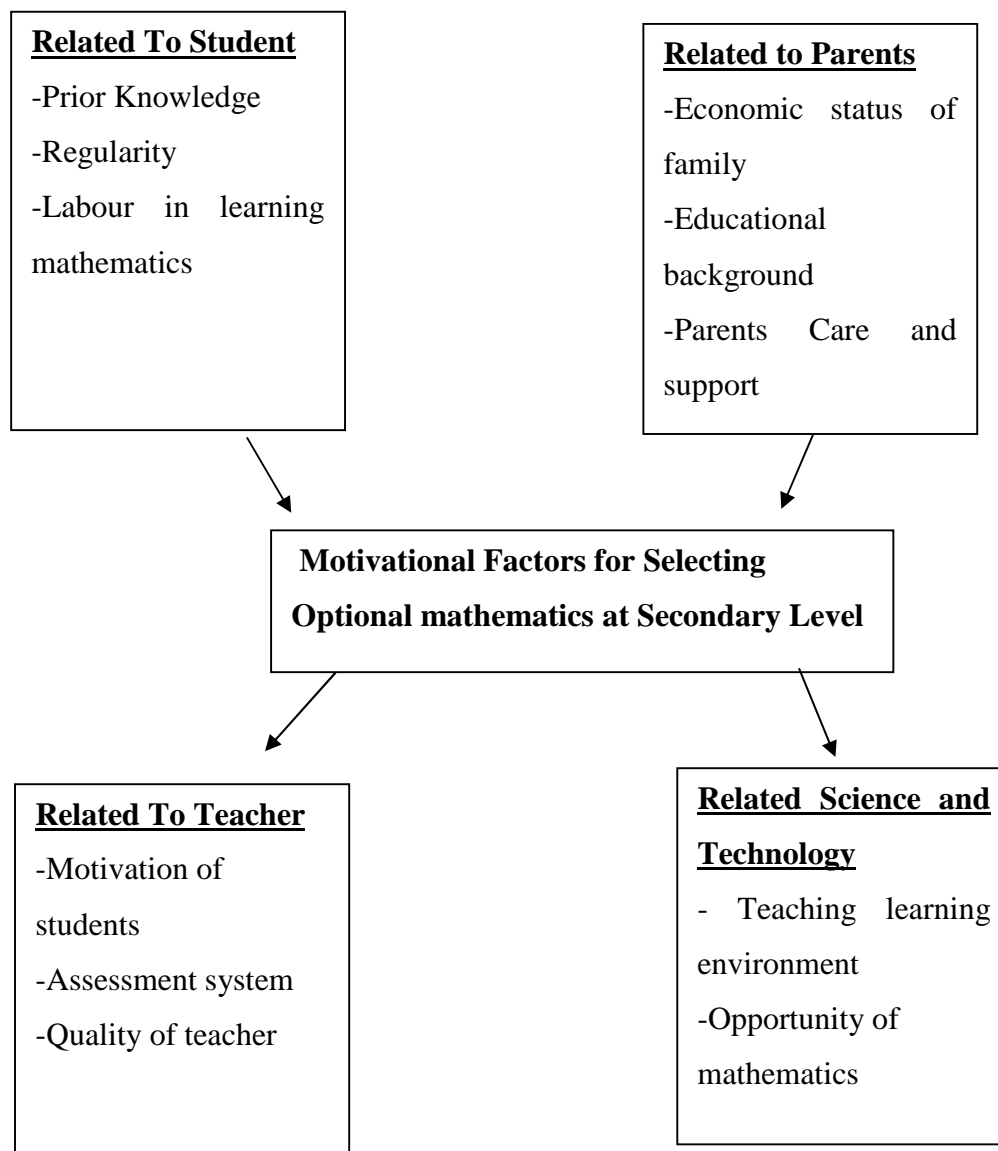
Teaching materials should be determine the steps that to sequential structure. Before the teaching, the teacher should check students understanding capacity and relating new mathematical concept and principle to previously learned mathematical structures, the student can learn assimilate new material into older cognitive structures. It means; linking previous learned concepts to new mathematical contents.

Conceptual Framework of the Study

A conceptual framework is a theoretical structure of assumptions principals and rules that holds together the ideas comprising a broad concept. Generally a conceptual framework is presented either in graphical or narrative forms. Which shows the relation between the variables and bring clarity and focus to see and organize the research question more clearly.

The theoretical approaches and the review of literature related to study mentioned above have provide a wide range of knowledge needed to adopt and appropriate theories to analyze and interpret the findings. Here, Ausubel's theory of learning meaningful verbal learning would be very helpful to analyze motivational factors. Where the theory has linkage between the own structure and structure of discipline being taught for the meaningful learning.

Review of above mentioned literature gave some conceptual understanding about the students motivational factors in optional mathematics at secondary level.



Source: Regmi (2009) and Joshi (2014)

Related to student: It is the kind of factor for motivation of students in optional mathematics. Students practice mathematics more and meaningful way if the subject matter is interesting, which effects in motivation. In this research, students related factor includes, prior knowledge, regularity and students labor in learning mathematics

Related to parents: It is the motivational factor of students in optional mathematics. Parents play great role for the students for their learning. The education of child's

does not depend on only the part played by teacher but also depends on the parents. In this research parents related factors are educational background of parents, economic status of parents and parents care and support.

Related to teacher: Teacher is the key factor of motivation towards optional mathematics. Teacher can direct students in positive way to learn mathematics. Student's education depends on the role of teacher in teaching learning activities. In this research teacher related factors are motivation, assessment system and quality of teacher.

Related science and technology: Science and technology factor is the important aspect of student's motivation in selecting optional mathematics. In twenty fifth century students can learn more things about mathematics from it. If they uses in proper way they can have meaningful learning in mathematic. In this research, the research emphasized on teaching learning environment and opportunity of mathematics.

Chapter III

RESEARCH METHODOLOGY AND PROCEDURE

Research methodology is a scientific approach, which determines how the research becomes systematic and complete. Research methodology does not mean only collecting information but also means the use of appropriate research method. It describes the methods and process applied to the entire aspects of the study. These chapters will mainly concerns with the study of Motivational factors for selecting optional mathematics at secondary level.

Research Design

This is the case study of qualitative design where motivational factors for selecting optional mathematics in secondary level is my case. The researcher tried to explore, various types of motivational factors through interview schedule, observation note and document review. Case study is a comprehensive study of social unit –be that unit person, a group, a social institutional district or community.

Sample of the Study

Lalitpur district lies in the central development region of Nepal .There are 18 VDC's and four municipalities where around six hundred secondary schools are situated and the research field area was in Omega Higher Secondary School, Kumaripati. The researcher had used purposive sampling procedure. The sample size in the study would not be fixed. There was no any rule for sample size in qualitative inquiry. Though the sample size is not needed to fix for the preliminary assumptions the field visit provided the picture of sample size and structures. The researcher has selected all students of class ten which are divided into five groups and all they have selected optional mathematics .Also researcher has selected optional mathematics

teacher, principal and parents for the active participation to fulfill the objectives of the research work successfully. Also the classroom observation was been done.

Tools of Data Collection

Primary data would be used for the case study but some sort of secondary data would be used for the analysis. The following tools are used to collect primary data.

Interview Guidelines

Preparation of the interview is critical step in procedure of the data collection. Interviewers must have clear concept of just what information they need. They must clearly outline the best sequence of questions and simulating comments that were systematically bring out the desired responses. Researcher constructed four interview guidelines for principal (See Appendix-A), interview guidelines for optional mathematics teacher (See Appendix-B), interview guidelines for students (See Appendix-C) and interview guideline for parents (See Appendix –D)

Observation Note

Observation means to watch over it from the every point of view. So there are many kind of number of techniques that can be used to collect information and observation is one of them. Being an observer, the researcher observed the activities of sample students in their classroom and observed the interaction between students and teacher, teaching learning activities in the classroom. Observation note were prepared on the basis of observation for the fulfillment of objectives, discussion with supervisor and by the help of others prepared observation note related to this study. (See Appendix-E)

Document Review

Different information about the school such as previous results of class IX and S.L.C, physical facilities, resources, student's records, and teachers' demography were considered as secondary sources of data.

Reliability and Validity of Tools

The validity of research depends on the reliability of the tools which are used during the research. The researcher made the different interview schedules on the basis of different related thesis and the modified it according to the advice of supervisor .Cross triangulation methods gave an accurate and reliable result of the case study. Triangulation was done in order to ascertain; cross validation, reliability of data and sufficiency of data. So, the validity of the tools determined from different interviews of students, teacher, parents and principal, observation note and document review. It means combining the collected data with different response of students, mathematics teacher, principal and parents at different situation and different condition of condition of school. And it mentioned the internal validity of this case study.

Data Collection Procedure

The researcher has followed the following procedure to collect the data. At first the researchers meet the principal to explain in detail about the purpose of the visit and took permission to visit school regularly for class observation till one month. After observing the class, the researcher had taken an interview of all students of class ten which were divided into five groups. Also researcher had taken interview along with optional mathematics teacher, principal and parents to find out the motivational factors to select optional mathematics. The researcher recorded the students as well as teacher behavior and activities in the classroom on the observation notes. Also the

researcher used school documents and the researcher would give analytical description of the obtained information.

Data Analysis and Interpretation Procedure

The data analysis and interpretation in the process of systematic searching and arranging the information from the interview guideline, document analysis and observation note. This chapter deals with the analysis and interpretation of the collected information to find out the motivational factors to select optional mathematics at secondary level. The collected data are tabulated and analyzed for attainment of objectives.

The collected information obtained from observation form and interview guidelines were based on the conceptual framework emerged from the review of literature. Theoretically it is assumed that variables such as related to students, related to teachers, related to parents and related to science and technology. The collected information analyzed and interpreted by triangulation method.

Chapter –IV

ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the information collected from case study. The researcher has conducted open ended interview schedule. The interview was taken with principal, students, teacher and parents. The information with the respondents are carefully listed and noted properly. Direct, observations are done in classroom. The classroom behavior of student and teacher were carefully observed and noted. The collected information at first categorized according to the response of respondent and then different themes have been prepared according to different views and expression. Then the researcher analyzed the data according to triangulation form of different data collection source and different themes.

Situation of School

Lalitpur district is one of the educated district of Nepal. Omega school is situated in the heart of the city kumaripati which is in Lalitpur and it was established in 2044B.S. It has been a reputable center in the academic arena for all aspiring student. Since the inception, Omega has always strived to produce competent. Self-confidence and responsible citizens for tomorrow. Omega has implemented a system of education that is practical and dynamic.

The experienced, dedicated and competent teachers at Omega nurture the individual potential of each students by encouraging intellectual integrity and social responsibility. They believe that a teacher is a friend, philosopher, facilitator, guide and occasionally a guardian too, helping the students mentally agile, morally upright. This learning center of excellence has been running the classes from play group to

grade XII in the secondary level and 4 years Bachelor's level program, BBS under the Name of Ojashwi College at Kumaripati in the University level.

The physical facilities of any school play great role in the achievement of students. Omega school can comparatively be considered as prosperous school in physical infrastructures. There is a good facility of toilets for boys, girls and staffs. A large library and different subject's lab are well managed in the school. Similarly enough spacious playground for almost games, well managed bicycle stands, motorcycle stands, surrounded flower garden, attractive gate with large concrete boundary. Out of 60 rooms 42 are using for teaching purpose 18 are for official purpose including library and different Labs. Currently the school, has 42 computers, 2 laptops, 2 digital cameras, 2 invertor, 2 projectors and 5 ICT board which are most necessary to impact modern education.

Motivational Factors to Select Optional Mathematics at Secondary Level

The data given by the school clearly shows that the high number of students of enroll in optional mathematics in secondary level. Hence this research work fundamentally focus to find out the factors of such motivation in optional mathematics in secondary level. The researcher had done several activities like one month class observation, studied of family background of students, taken several of interviews with parents, student, mathematics teacher and principal along with relevant literature review.

Student Related Factors

Student's related factor is the main factor of research. This is one of the important aspects of motivation in optional mathematics in secondary level. Student's practices mathematics more and meaningful way if the subject matter is interesting. So, teaching learning activities are depending on need and interest of students. Hence

students play vital role in teaching learning activities. Hence student related factors includes prior knowledge of student, regularity and student labor in learning mathematics. Thus the collected information were analyzed on the basis of following sub-headings

Prior Knowledge of Students

Prior knowledge means the basic knowledge obtained knowledge. It is important potential factors to determine the future plan of students. The basic knowledge of mathematics in lower secondary level is the key factors. Which determine students' performance in the further study. Mathematics pre-knowledge is the infrastructure as well as all round development of students in the mathematics sectors. Those students who have sufficient prior knowledge only learn and get success in the further level.

One of the student said "*I had enjoyed on Algebra and Arithmetic hence I choose optional mathematics to pursue my career*".

It means that students has good in content of mathematics .They enjoyed in mathematics class which reinforced to select optional mathematics.

Another student said "*I had studied trigonometry of optional mathematics in grade 8, which was our extra mathematics. I fell trigonometry and algebra same so I choose optional mathematics*"

By this view it can be generalized that students were known about the topics of optional mathematics and they compared optional mathematics with compulsory Mathematics.

Next student said "*I had won first prize in Quick mathematics game for two times in lower secondary level so I select optional mathematics.*"

By this views it can be easily said that students they were participated in different activities of mathematics which motivated them to select optional mathematics. Which showed that prior knowledge of mathematics is important for selecting optional mathematics. By Behavioral theory of motivation reward is key factor of motivation, here it was found that student were participated in different activities and they were rewarded, Students with new concept only learn mathematics meaningfully. Those student who had good learning in lower secondary level they can only learn optional mathematics in secondary level. By the analysis of above different views of students, it can be easily said that prior knowledge of students towards certain subject largely determine its future selection for study. So it can be said that student they had prior knowledge of mathematics structure which motivated to select optional mathematics in secondary level.

Regularity of Students

Regularity is one of the key factors of student related factor. Regular student only can achieve good knowledge in mathematics. Regular student cannot miss any lesson which helps to create new knowledge about mathematics. The attendance record was well maintained by the school. In during the observation and interview students were founded regular.

One of the student said "*I regularly attend the classes so I understand course contents of mathematics easily*".

It showed that regular students only can understand course content easily. Regularity of student motivates the students to practice mathematics more. Yadav (2012), had found students homework was the key factors that students were absent in classroom but here i found student regular in their mathematics class and they were cared at home and students were happy to come school.

For this supported view of student *"My father is a teacher. He helps me doing homework of mathematics, so I am regular in mathematics class."*

Another supported view of student towards regularity is given as *"Our mathematics teacher teaches well and don't want to miss mathematics class so, I attend the class regular."* "Students were satisfied with mathematics teaching learning activities. This helped them to attain the class regularly.

In the line discussion principal said *"mathematics is more complex subject to understand than other subject if anybody being absent due to sickness or urgent works then we have maintain the extra class after a school for a hours and they will be engaged and if without reason student being absent there is a fine system, so students are regular"*. Here I found that students were regular in class by the rule of school as well as good teaching learning activities of mathematics.

It was indicated that without good attendance record of students, they are not able to study. This situation directly influenced in their final results. So student's regularity is one of the key points of motivational factor to select optional mathematics in secondary level.

Students Labour in Learning Mathematics

Student's labour in learning mathematics is the one of the important factor related to students. Mathematics is needed practice which has different theory and several formulas. So, learning of mathematics, student should be manage extra time for practice. Generally, mathematics achievements determine students' labour. Students' labour in learning mathematics gives reinforcement to practice more mathematics then student feel it easy.

One of the student said *"After finishing my homework, regular I practice mathematics for an hour from practice book and summit it to mathematics teacher"*.

Some of the student said *"Last year we practice topic wise question each day which was given by our optional mathematics teacher .which helped me in final exam"*.

It means students are labours. They are enjoying in mathematics practice. They don't want any lesson of mathematics at home to practice so they have given extra time for optional mathematics.

Another supported views of mathematics teacher *"I have made five groups and regular they are getting five task for home and it rotated for five days to each group. So it helps me teaching mathematics"* and principal said *"Students they have to submit their extra work to me every Friday. So I see that they have done more practice in mathematics"*.

By observing above view it can be said that teachers are serious about the study of mathematics and teacher is also active which helped to change the felling of mathematics in positive way .And by the rule students are in good position which helps to motivate them to select optional mathematics .

Most of the parent said *"I have given him/her a study room separate and his/her work is only studying. He/she studied well at home."*

It means students are not engaged in household work. They have got separate room they don't have the work except reading. Which helped the student to practice more at home and obviously they feel mathematics easy and they motivated in optional mathematics.

From the above views of mathematics teacher, principal and parent indicated that mostly students were engaged in teaching learning activities. School teacher and parents had given sufficient time for students to practice mathematics. It had been seen that students were enjoying in mathematics. Hence students' labour is most important factor in student's motivation in learning mathematics in secondary level.

Parent's Related Factors

Parents related factors are the one of the important aspect of student motivation. Parents role are playing important in their children education. In parents, the mother is a first teacher of child .So parents play great role for education of their children. Almost children depend on their parent's status. The first school of children is home so home environment affects the directly on achievements of children, which determine the mathematics learning of children. In this section researcher emphasized to study on educational background of parents, economical condition of parents and care & support of parents.

Educational Background of Parents

Educational background of parents is one and important aspect of parent's related factor which play a role for selecting optional mathematics. The education of child does not depend only on the part played by teacher but also depends on the parent's awareness, interest and knowledge about handling and guiding their children at home. Parents can introduce and teach fundamental knowledge and skills, attitudes and values to their children. Educated parents usually make effort to maintain their social life, relatively higher social status. Privileged and access to different opportunity by enhancing the education of their family members. The educational background of the parents has been found educated.

In the line discussion, the following views of student were stated here. Some student says "*Father and mother are educated. Parents can support me to learn mathematics. So, I can learn more mathematics and I selected optional mathematics*".

The supported view of principal regarding above response is given as "*Most of our students of our school are from well-educated family. They know the real value of*

education. Obviously this condition had direct or indirect impact in the children study performance. So, they select optional mathematics".

The supported views of parents regarding above response is given as *"I am a teacher, I know what optional mathematics is and what other subject is? And I can support in children learning."*

The above views of students, teacher and parents indicated that all most parents are educated .Students can get support from their family to learn. Parent's attitude is positive towards mathematics and they know the importance of mathematics .Therefore student can decide whether to study optional mathematics or not. From the last views of parents it can be said that they are motivating their children directly and indirectly towards mathematics.

Economic Status of Parents

Economic status of parents is one and important aspect of parent's factor in selecting optional mathematics .Economic status of parents is determining their children education. Many literature shows that the economic status of the parents directly affects the child's learning. The different views on this problem are as follows:

One of the student says *"My father is an engineer, he has managed home tuition for me .So, it helps me solving mathematical problem".*

Another supported views of mathematics teacher regarding this is given as *"All the students are taking extra classes for 12 months and they are paying good amount of money per month for me and one of the parent says " My child is not bounded in household work and he has sufficient time to learn mathematics. I want to teach him engineering in Pulchok Campus so I forced him in optional mathematics and he is doing well ".*

In the above review related literature also indicated that situation. Those parents who have good economic condition, most of their children's education is good because they can manage tutor in home as much as possible. In this study the researcher founded that the economic condition of most of families has well and it was found that all they were sitting in Kumaripati. Which is the key market of Lalitpur district. All they have own home land. So, they can effort each and every thing related to teaching learning activities

Parents Care and Supports

Parents care and supports is one and important aspect of parents related factor in selecting optional mathematics. Parents who play supportive role to their children's learning and it is helpful for improvement of student's achievement and changing behavior. Parent's active support can play a vital role at all stages of education. Parent's role constructs and defines the belief about which subject is very useful and which one you select. Also other different activities of student depend on guidance of the parents. Most of the parents were educated so. It directly affects the subject chosen of students. In the line discussion, following sample interviews were sited.

One of the student said *"My father is a teacher; I have support in my home to learn optional mathematics "*. One of the parents said *"In our family all the members are educated they care and support learning mathematics at home "*. Another student said *"My family economic condition is good. I can take extra class for optional mathematics and my family support in mathematics .So, I choose optional mathematics as optional subject."* Another view of principal regarding the problem *"The children are not busy in others work at home they are supported and cared by their parents and most of the parents are educated."*

These above views represented the real situation of students. Most of the parents were educated. They can care and support their children in learning mathematics. The children of educated families are supported to learn mathematics .consequently, students motivated to select optional mathematics at secondary level. In this regard, Ausubel argue that students learning achievement depend on their need and interest. The researcher concluded that those students who could take care and support from their families, they enrolled in optional mathematics in secondary level. Hence one of the cause of motivation toward optional mathematics is family support and care.

Teacher Related Factors

Teacher is a leader of society. Teacher is a person who provides education for students individually and motivate for teaching learning activities. Parents hand over their children to teacher for study. Teacher should direct student in positive way to learn mathematics. The children education depends on the role of teacher in teaching learning activities. Positive attitude of teacher create positive directions for the students for learning mathematics. In this study teacher related factor refers motivation, assessment system and quality of teacher.

Motivation of Students

Motivation is an aspect of encouraging mathematics in the classroom and such motivation defers from individual to individual. Fundamentally the process of motivation starts from stimulation followed by and educational reaction that leads to a specific behavior and response. In the class room if a student behavior is regarded as desirable and is rewarded the positive reinforcement stimulates the student to repeat the desirable behavior conversely if a student behavior is regarded as undesirable and

individual receives a response with a negative meaning, the result is demotivation. In the line discussion, following views of students were stated here.

One of the student said "*Our teacher often gives examples of senior students and encouraged us to do so in mathematics which helps me to select optional mathematics*".

Another student said "*I was known importance of mathematics from motivational class which was held in class eight so, I select optional mathematics in grade Nine.*"

Another supported view of optional mathematics teacher is "*I have involved the students in different activities like as quick math, puzzles and so on. And I have given prize to the topper student from my side.*" And principal said "*We had provided counseling and motivation to study optional mathematics and we had provisions of different scholarship to students ranking 1st, 2nd and 3rd in board exams.*"

On the basis of the above mentioned views of student's, Teacher and principal it can be said that students have positive towards optional mathematics. School administration motivated students towards optional mathematics. Students had positive feelings in mathematics. Consequently they were enrolled in optional mathematics. In this regard Asubel's theory argues that students should be motivated to learn mathematics in meaningful way which was founded by above mentioned view so, we can say that students were motivated in optional mathematics.

Assessment System:

Assessment system is one and important aspect of teacher related factor which effect on enrollment of student in optional mathematics. Education assessment is the process measureable terms, knowledge, skills, attitude and beliefs. Assessment system measures the student's achievement. Effective and continuous assessment system

increase the learning capacity of student .Without continuous assessment system couldn't finds out fault and weakness of students. In line with discussion, the following views were stated.

One of the student said *"I am interested to do homework of mathematics because I feel that easy to solve mathematics problem regularly.* "Another student said *"Our mathematics teacher check homework regularly so i do at first mathematics homework."* On this same problem view of mathematics teacher is *"I have maintain 10 marks for practical of mathematics so student they summit me homework on time."* And principal said *"In our school all the teachers are fulltime. They have extra time to check homework in school which helps us to enroll students in optional mathematic s classroom"*. In the same way one of the parents said *"My child interested to do mathematics homework at first then he used to do other subjects homework."*

On the basis of above mentioned views students are doing assessment regularly. Students are interested to do homework. Homework of mathematics is checked daily. That's why, students' achievement in mathematics is good in the school. Joshi (2014) argue that lack of students' assessment system had guided achievement in optional mathematics less instead of this in this research researcher found regular assessment is done which had helped in achievement in optional mathematics. Consequently students are motivated to select optional mathematics class IX. Hence, one of the factors to select optional mathematics in secondary level is assessment system.

Quality of Teacher

The teacher were qualified, trained and experienced of the school. Among them also researcher found that science and mathematics teacher more active in teaching learning activities. They have used lesson plan. They were making

mathematics laboratory. I had seen so many teaching and learning materials which was made by them. As we know without using teaching material, students cannot pay attention in studying and without teaching material the teachers cannot give the clear concept about the abstract topic. In the line discussion, the following views were stated.

One of the students said". *Our teacher uses teaching materials in course of teaching which makes us easy to understand.*" another student said" *I feel easy to find area, volume of solids because our class has made different solids and handover to our mathematics teacher.*" Another supported view of mathematics teacher regarding this is given as "*Mainly we focus on activities, other things student they learn themselves*". Another supported view of principal was "*The main quality of teacher is to teach by understanding student's psychology which helps to students to create new ideas about mathematics and our teacher they use regular lessonplans.*"

Parents send their children to school thinking of quality education, they can achieve. During the observation, researcher had found that the quality of teacher is determined by the factors like lesson plan, use of educational material and students centered learning methodologies which were clearly found. Hence quality of teacher is main aspect of motivation of students.

Science and Technology Related Factor

Science and technology factor is one important aspect of student motivation in selecting optional mathematics .In twenty first century, Students they can get more information from internet. They can distinguish good things and bad things from YouTube tube and they will be known the scope of mathematics. Students can search interested subjects in YouTube which helps to motivate them in optional mathematics.

Here, Science and technology factor is related with educational atmosphere in school and opportunity of mathematics. Teaching learning environment indicated that environment inside of classroom. Opportunity of mathematics indicated about the scope of mathematics which helps to solve economic problem. In this section, the researcher emphasized on teaching learning environment and opportunity of mathematics which motivates to select optional mathematics in secondary level. Thus the collected data were analyzed and interpreted on the following Headings

Teaching Learning Environment in Class

Teaching learning environment is one and important aspect of environment factors, It refers to how and where students gain a mathematical knowledge and how they change their behavior. The rule and regulation, relationship between teacher and students, teacher and administration and overall physical condition of the school and their interaction in the culture of the school and ultimately the teaching and learning environment of the school helps to build up the educational status of student.

The more important things for the better performance in the students is the classroom practice. Classroom practice is the main aspect for the improvement of student learning habit. Classroom practice includes the intersection between teacher and students, student tasks on time, strategies used for teaching and the impact of classroom management for the mentioned topic.

Here, out of several classroom study done by researcher about classroom reality, one of them of class x is mentioned here.

The researcher enters in classroom and resided at the last bench while the students were present in the classroom. In the class time, the mathematics teacher also enters in the classroom. All the student stand up and said “good morning sir” and teacher replied “good morning and sit down “. Teacher moves around the class

and asked about homework and class representor collect the homework .After that teacher provides next day's task in paper to every student then he wrote topic on the board trigonometric. Ex.4.2. He compared trigonometric identities with algebra and he simplify as algebraic process and compared with trigonometry. Student were enjoying the solution of trigonometry then student copy the solution .Teacher provides class work to each group and student did the work. There were five groups of student in the classroom. It was maintained by teacher. At last teacher said to student to turn that page which l given then he provides homework by choosing the question of that paper. Then after teaching full time teacher left the class and researcher also left out from the class.

From the observation of classroom mentioned above it can be said that the teacher had used teacher centered and as well as discussion method to teach the topic. The teacher had divided classroom in 5 groups it showed that teacher focused student properly. The observation showed that the teacher had used his daily lesson plan. So that he was able to finish his lesson on time. Classroom management is the aspect of learning environment which includes the physical setting as well as rules, regulation and discipline. There were sufficient desks and benches in the classroom and classroom is well managed and students were enjoying teaching it showed that students were motivated.

In the line discussion, the following views of students stated here related to teaching learning environment. Some students say" *Our teacher teaches mathematics in interesting way so we select optional mathematics "*.

Another supported views of principal towards teaching learning environment in classroom as given "*Our school has good study environment. All teachers are well trained with good subjective knowledge and hence they are performing good in class"*

and mathematics teacher says " *we can able to teach in the classroom with student central teaching methodologies and technical methods due to small number of students and sufficient required materials .*"

On the basis of above mentioned views of these respondents, mathematics teacher addressed students need and interest in the classroom. There is friendly environment. School has less number of students in the classroom. So, teacher can use student's oriented teaching in the classroom as their choice. In this argument Yadav, (2012) argue that student enrollment in optional mathematics depend on teacher attitude, teaching learning environment and physical structure of school. Which school has applied so students are motivating to select optional mathematics Ausubel's argue that learning cannot meaningful by applying the explorative and problem solving methods only. For meaningful learning the student them self-prepared. However, this matter can found in this study. Hence, one of the causes of students' motivation in selecting optional mathematics in secondary level is teaching learning environment.

Opportunity of Mathematics

Opportunity of mathematics is one of the factors that motivate to study optional mathematics. In the context of Nepal they are so many people educated and they are job less due to the selection of good subject in school and college level .Mathematics is opportunist subject. No one can be jobless. Students of mathematics can create new things in mind, which helps to do new things to improve economic condition so mathematics is known as service subject. Educated people they know the value of mathematics in daily life so they force their child to study optional mathematics in school level. During observation researcher had found good thinking and educated level of parents. They were found guiding their children in learning

mathematics. On the basis of these situations the researcher concerned with students, mathematics teacher, principal and parents. In the line discussion, the following views of students were sated here related to opportunity of mathematics.

Some student says" *Mathematics is important subject to study higher level education without optional mathematics it will be difficult to study Science faculty*".

Another student said that "*I search theorem of geometry in internet which helps to me to learn mathematics at home*".

By the above view it can be said they know the ground reality of mathematics and they are known about the market opportunity of mathematics. Student are serious about higher studies.

Another supported views of mathematics teacher towards opportunity of mathematics as given "*If students couldn't show good performance in higher studied, they can teach and survive their life as me* "

In the context of Nepal most of the people have bad concern towards teaching in school even by this statement it can be said easily teaching is the last option and another things is that students cannot be jobless at least he can teach and survive their life.

Similarly, the supported views of parents towards opportunity of mathematics is given as "*One of the mathematics teacher who lived in my house I saw him busy in teaching tuition classes and he earned around one lakhs in a month by seeing this I forced my child in selecting optional mathematics*".

From the above view of parents it can be said that parents are known about the opportunity of mathematics in our society. So mathematics is service subject .another supported view of parents was "*we are serious about our child learning, we support*

our child's in learning mathematics. So, I prescribe him to enroll in optional mathematics."

From the above mentioned views of student, parents and teacher it can be said that mathematics plays vital role in our society. They are well known about the role of mathematics in higher studies. Mathematical minds crates new things in mind and gets solution. Students they are getting knowledge from internet also which helps them to build their concrete mind. Hence opportunity of mathematics is also the motivational factor to select optional mathematics.

CHAPTER –V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the summary of the research, major findings conclusion of research suggestion and recommendation for the further study. The first section reveals the summary, the next section list out the major findings and the last section gives the conclusion derived on the basis of research analysis and finally list out his present suggestion and recommendation for the further study

Summary of the Study

This was the case study of students of secondary level of boarding school. The main purpose of the study was to find out the motivational factors for selecting optional mathematics. For this researcher had selected Omega Higher Secondary School as a case school which is in Kumaripati, Lalitpur. The major tools for this study were class observation note, interview guidelines and school documents. The respondent of the study were students of class ten, parents and teachers of that school. In this research the researcher has analyzed the motivational factors related prior knowledge of student, regularity, labour of students ,economic status of family, educational background, parents care and support ,motivation of students, quality of teacher , teaching learning environment and opportunity of mathematics and relationship between teacher and students, parents and principal.

Major finding:

On the basis of data analysis and interpretation of the result, the summaries of major finding are as follows:

Related to Students

-) Students are not busy in household works and they have more opportunity for study optional mathematics so they are good in optional mathematics.

) To increase the motivation towards student's school has provisioned monetary and non-monetary prizes for different garners with different ranked students in mathematical activities.

) Students are regular in their mathematics classroom and they are engaged morning to evening in school which helped them to motivate in optional mathematics.

Related to Parents

) Most of the parents have managed home tuition for mathematics and science which helped to the students to study optional mathematics in secondary level.

) Most of the parents are educated they have decided what they want to make their child in upcoming future so they motivated the students in optional mathematics.

) Students have got good support and inspiration from their parents.

Related to Teacher

) In the school to show outstanding result in S.L.C examination they motivated all the students in optional mathematics.

) The teacher are well qualified, trained and experience so it helped to select optional mathematics.

) School has made the student weapon of advertisement for admission and there was a completion between the different schools which made them to enroll in optional mathematics.

Related to Science and Technology

) Exam system of school is well managed and they have focused on continuous evaluation system.

-) Number of students are in small sizes which helped school to teach in scientific way with different teaching approaches.
-) Students they are getting knowledge from internet which helped them to build concrete mind.

Conclusion of the Study

From the above stated findings of the study it can be concluded that the future plan successful of school is linkage with the motivation towards optional mathematics. Student's interest and positive feeling, pre-knowledge about the mathematics motivates the students to select optional mathematics. Positive explanation about mathematics from teacher's side, parent's side and other person enhance the students to enroll in optional mathematics. If students has good parents care and support, awareness about mathematics similarly students get support and inspiration from their parents which motivates them to select optional mathematics

Continuous assessment system improves students learning mathematics. Regular follow up problem oriented teaching of school and subject teacher enhance students to select optional mathematics. Time to time counseling classes towards mathematics helps to know the importance of optional mathematics in future. Those students who knows about the opportunity of mathematics in future and importance of optional mathematics in higher studies in lower secondary level, they can motivate in optional mathematics in secondary level too.

Recommendations

This is the case study of motivational factors to select optional mathematics in secondary level .In this research, the researcher found that many factors had responsible for motivation in optional mathematics. There is not only one and fixed factors that motivated the students in optional mathematics. This researcher itself is

not a complete. From the above finding and conclusion the researcher would like to suggest some recommendation for the improvement of motivation in optional mathematics are pointed as follow:

-) Government of Nepal should supply the essential teaching materials and should encourage the school administration to purchases such teaching materials.
-) Mathematics teachers should search the suitable methodology which motivate and arises the interest in mathematics of the students.
-) Mathematics teacher should become resource person for the students. It means they have competent in mathematics and should be good performers. School should focus students in extracurricular activities related to mathematics.
-) Stakeholder should be counseling in positive way to motivate students in optional mathematics.
-) Teacher should must to teach according to child's psychology.

Recommendation for the further uses

The findings and conclusion drawn from the study cannot be generalized in all the schools of Nepal. Because of this study was limited only one school. The following are some of the issues not answered and needed to be further studied to validate the result of the study further.

-) A similar study can be done by survey type.
-) A similar study can be done in government school
-) This similar study can be done in other subjects also.

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Appendix-A

Interview Guidelines for principal

School Name & location

.....

Name.....

Religion.....

Teaching subject.....

Teaching Experience.....

Experience

Open ended questions for interview:

Related To Student

Prior Knowledge

-) Does the school has any provision to check pre –knowledge?
-) How do you assure that all students can learn optional mathematics?

Regularity

-) What are the main factors, where students attain school regularly? Is there any provision for if any student remains absent?

Labour in learning Mathematics

-) How do you attract students to be more labourious?
-) How are the students in optional mathematics in your school?

Related To Parents

Educational background

-) What do you think about the effect of parent’s education to their child?
-) Do you have parents profile of your all students?

Economic Status of family

-) Are all the students are payable in your school?
-) Do you have any provision for scholarship for talent students?

Parents Care and Support

) Are the students busy in household work?

Related To Teacher

Motivation of Students

) Does your school provides counseling and motivational classes for learning mathematics?

Assessment System

) What plans conduct the school for continues assessment?

) What is the system of examinations of your school?

Quality of Teacher

) Do all the teacher uses lesson plans?

) Are you satisfied with the teaching of your teacher?

Related to Science and Technology

Teaching learning environment

) What is the provision of training for teacher in your school for mathematics?

) Which method you focused on teaching mathematics mostly

Parents Care and Support

-) Are you taking any home tuition in your student's home?
-) How you know your students has care and support at home?

Related To Teacher

Motivation of Students

-) How you motivate your student in mathematics classroom?
-) Does your school conduct the motivational classes for optional mathematics?

Assessment System

-) What is your qualification?
-) Is any practical marks in mathematics?

Quality of Teacher

-) How you teach in mathematical class?
-) What about you're teaching experience?

Related to Science and Technology

Teaching learning environment

-) Which teaching methods you allow mostly in you mathematics class?

Opportunity of mathematics

-) What are the opportunity of optional mathematics in further steps of life?
-) How you feel being a mathematics teacher?

Related To Parents

Educational background

) How does your parents support in learning mathematics?

Economic Status of family

) What is your father's job?

) How much is your family monthly income?

Parents Care and Support

) How your parents help you in learning optional mathematics at home?

) Are you taking tuition classes at home?

Related To Teacher

Motivation of Students

) How your teacher motivated you in optional mathematics?

) Did your school conduct the motivational classes in lower level for optional mathematics?

Assessment System

) Does your mathematics teacher correct your copy on time?

) How many examination you attempt up to now in class ten?

Quality of Teacher

) Did you make any mathematical objects in class?

) Does your teacher use teaching materials in classroom?

Related to Science and Technology

Teaching learning environment

) Which teaching methods your teacher allow mostly in mathematics class?

) How you feel mathematics class?

Opportunity of mathematics

) Do you know the role of optional mathematics in higher level study and what are they.

Appendix-D

Interview guidelines for Parents

Name.....

Address: Permanent.....

Age..... Gender..... Caste/Ethnicity

Qualification..... Occupation.....

Name of his/her child (student)

Date..... Time.....

Open ended questions for interview:

Related To Student

Prior Knowledge

-) How your child's motivated in optional mathematics?
-) How you assure that your child's have pre knowledge in mathematics?

Regularity

-) Does your child is regular in school?

Labour in learning Mathematics

-) How many hours yours child's practice mathematics at home?
-) Does your child busy at household's work?

Related To Parents

Educational background

-) What about your qualification?
-) How you help on learning optional mathematics at home?

Economic Status of family

-) Does your child busy at house hold's work?
-) What is your aim that your child's should be?

Parents Care and Support

-) How you support your child's at home
-) How many children's do you have and what is the qualification?

Related To Teacher

Motivation of Students

-) How you motivates your child in learning optional mathematics?

Assessment System

-) Which subject homework your child do at first?
-) How the achievement of your child in learning mathematics?

Quality of Teacher

-) How are the teachers of school in teaching mathematics?
-) Are you satisfied with the teaching learning activities of school?

Related to Science and Technology

Opportunity of mathematics

-) Do you know the market value of mathematics?
-) Why you focused your child in optional mathematics

Appendix-E

CLASS OBSERVATION NOTE

Name of teacher:

Class: Topic: Period: Time:.....

Total Number of students: Male: Female:

Observed Items	Yes/No
<p>I. Entering Phase...</p> <ol style="list-style-type: none">1) The availability and quality of furniture, chalkboard.2) Motivation provided3) Review/preview provided4) Teacher presentation of lesson	
<p>II. Relating to new concept...</p> <ol style="list-style-type: none">1) Materials presented2) Students participation in the class3) Opportunities provided for questioning to students?4) Many examples provided to concepts	
<p>III. Conclusion phase.....</p> <ol style="list-style-type: none">1) Summarization of unit2) The quality of classwork and homework3) Checking the achievement of objectives4) Appropriate feedback provided	