

CAUSES OF LOW PERFORMANCE OF STUDENTS IN MATHEMATICS

A

THESIS

BY

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FOR THE MASTER'S DEGREE IN MATHEMATICS EDUCATION**

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Letter of Certificate

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Letter of Approval

Thesis

By

Som Prakash Pokharel**Entitled****"Causes of Low Performance of Students in Mathematics"**

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Date: 30th June, 2019

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Dedication

This thesis is dedicated to my father **Mr. Shyam Prasad Pokharel**, mother **Mrs. Tika Maya Pokharel** and brother **Mr. Om Prakash Pokharel** who even in every difficult situation gave me a great span of their life for what I am now.

Declaration

I hereby declare that this Research entitled ‘Causes of Low Performance of Students in Mathematics’. A Study of Arughat Rural Municipality of Gorkha District has been prepared me under the closed guidance and supervision of Mr. Abatar Subedi as a guide in the partial fulfillment of the requirement for the degree of master in education at University campus, Department of Education, Tribhuvan University, and Kathmandu, Nepal. This research work has been entirely prepared by me under the closed guidance and supervision. The finding of this thesis have not been presented or submitted anywhere else for the any other purpose. I assure that no part of content of this thesis has been published in any.

Date: 30th June, 2019

.....

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Abstract

This study focused on the causes of low performance of students in mathematics in Gorkha district. This study has addressed the question: what are the causes of the low performance in mathematics? How can the student's performance in mathematics be improved? To answer this research questions, I selected the qualitative design with case study approach. This study was conducted with the sample of four students of grade X. The sample was chosen purposively according to the performance in mathematics and different family background of the case school. Direct interview with four low performer students in mathematics, classroom observation, respective teacher, head teacher and parents of the school were taken. Classroom was done regularly for thirty days during the teaching learning activities. Collected information was analyzed by using different theories to produce the information and draw conclusion on the study.

It is found that socio economics status was very poor, learning cultures was negative, parents and peer influences negative learning attitude and poor facilities classroom, management, traditional teaching methods, lack of reinforcement and feedback in classroom, qualification and training of teacher, irregularity of students, lack of teaching materials and poor interaction system are the main causes of low performance in mathematics. And further it was found that the remedial ways to maintain high performance in mathematics were: making teaching learning activities more interesting teaching mathematics through understanding the mathematical concept, improving school and home environment of the child.

Table of Contents

	Page no.
<i>Letter of Certificate</i>	i
<i>Letter of Approval</i>	ii
<i>Recommendation for Acceptance</i>	ii
<i>Copyright</i>	iv
<i>Dedication</i>	v
<i>Declaration</i>	vi
<i>Acknowledgements</i>	vii
<i>Abstract</i>	viii
<i>Table of content</i>	ix
<i>List of Abbreviation</i>	xi
 Chapters	
I. Introduction	1-8
Background of the Study	1
Statement of the Problem	6
Objectives of the Study	7
Significance of the study	7
Delimitation of the Study	8
Operational Definition of Related Terms	8
II. Review of Related Literatures	10-18
Empirical Literature	11
Theoretical Literatures	16
Conceptual Framework of the Study	18
III. Research Methods and Procedures	21-23

Design of the study	21
Selection of school	21
Selection of Respondents	22
Tools of Data Collection.	22
Data Collection Procedure	22
Data analysis and Interpretation	23
IV. Analysis of Data and Interpretation of Results	24-51
Introduction About Case School	24
General Introduction of Case Students	25
Learning Environment at Home	32
Learning Environment of School	35
Economic Status and Education of Parent's	39
Encourage, Motivation and participation in classroom	40
Teaching Method and Materials	44
Qualification of Teacher and Classroom Behavior	46
Relationship Between Teachers and Students	47
Physical Facilities of the School	49
Irregularity	50
School's Policies for Low Achiever Students	51
V. Finding, Conclusion and Implications	53-55
Findings of the Study	53
Conclusion	55
Implications	55
References	
Appendices	

List of Abbreviation

SEE	:	Secondary Education Examination
SLC	:	School Leaving Certificates
HSS	:	Higher Secondary School
NGO	:	Non-Governmental Organization
INGO	:	International Non-Governmental Organization
VDC	:	Village Development Committee
M.Ed.	:	Masters in Education
TU	:	Tribhuvan University

Chapter I

Introduction

Background of the study

Mathematics is the science of reasoning and computation. It is the science or study of number, quantities or shapes (James and James, 1986). Kitta (2004), define mathematics is the language that helps us to describe ideas and relationships drawn from the environment. Mathematics enables one to make the invisible to be visible, there by solving problem otherwise that would be impossible. Mathematics is the central part of the school curriculum not only in Nepal but also in the entire world. Every society has observed Mathematics as basic needs of human civilization. Mathematics has started at the infancy level from the beginning of human civilization to the advanced level at twenty first century. New discoveries in mathematics and mathematics education are still in the continuation. During the period its trends and nature had been changed still this is changing continuously and it can be predicted that it will never be stopped. Today, other disciplines such as science, engineering, medicine and technology may be handicapped without mathematics and the world cannot run smoothly without it. Thus, the importance of mathematics is realized due to its role for the development of science and technology in one hand and on the other it has become a gatekeeper the life of the students for their carrier choice in future study (Basnet, 2013).

Mathematics has been giving as significant place in the Nepalese school curriculum since the implementation of the Nepal educational system. The school education has categorize into two level as basic level (1-8), and secondary level (9-12) in Nepal and mathematics is compulsory subject from grade one to ten and additional subject from eleven and twelve (NECR-1992).

Mathematics is a way of thinking, a way of organizing, analyzing and synthesizing a body of data, languages, symbolism and body of knowledge in the area of science, with its own symbolism, terminology, contents, theorems and techniques. In general there are two branch of mathematics pure and applied. School mathematics for the twenty one century should focus on solving daily life problem of the society and the learners. Mathematics should be without comments. Mathematics has been accepted as an important component of formal education from ancient period to the present day. History shows that ancient people developed mathematics practically being obliged to solve day by day problem. Later on advanced from the mathematical structure, rules formulas, theories has been developed and used on solving social problems through empirical observation and experience. Now a day, every human discipline is interpreted in mathematical models. Therefore, there is a definite need of mathematics to everybody's daily life and also for the base for further studies (Yadav, 2072).

People have been using mathematics from the very beginning of human civilization. Human beings themselves created mathematics in the need for application to counting and measuring in relation to both of quantities as well as spatial objects. They invested arithmetic, algebra and devised to simplify and generalize computation. Mathematics as language is a basic tool of communication. Daily communication involves the frequent use and mathematical concepts and skill. It is considered as the fundamental concept of the literacy. Its learning helps students to understand and interpret the important quantitative aspects of living. Thus, the knowledge of various branches of mathematics was born to fill the needs of man and to introduce great ranges of its application.

On the other hand the term "Performance" is defined in Oxford Advanced Dictionary as the things done, successful especially with effort and skill.

"Achievement is the tool for evaluating the students which help to determine the quality of the student in their related areas. The popular and reliable evaluating tool for students is examination. There are different types of examination to scale student achievement in the different level. The level of students is determined by evaluation applying different tools of achievement (Oxford Dictionary, 2010).

The tools of achievement are examination such as oral, written, practical, etc. They can be the reliable means for the determination of achievement of students. Achievement is determined by different variables such as school related variable, student related variables, home environment, related variables, and so on. The school related variable refers to the learning environment at school, teaching activity and ability of the teacher, class size, instructional materials and so on. Similarly student related variables refer to the gender, age, duration of the study at home and so on. And last one is home environment variables that refer to family occupation, parent's education, mother tongue, learning environment at home and so on. All of these variables determined the student achievement. The achievement of child depends not only part played by teacher but also the parents awareness, students interest, previous knowledge, revising curriculum textbook, etc. (Bhattarai, 2017) .

Low of them are failed to reach the academic level due to different causes that affect mathematics achievement. Low achievement appears to be a common phenomenon in our schools and many students are suffering from low achievement in mathematics. In spite of an increased focus on education, a large proportion of people in many countries are still being denied its full benefits. In developing countries like Nepal it is essential that all its resources are fully utilized because a large number of

pupils suffer from poor achievement. It is the responsibility of every country to take the necessary steps to insure their students maximize their academic potential.

Realizing achievement is a concern for teachers, curriculum planners and administrators throughout most areas in Nepal. Most students have the desire to be successful in his/ her class however most of them are failed.

Moreover, many the potential of every individual child should be one of the main objectives of education. Achievement of an individual is an outcome of his mental and physical potential, besides the experience he has gained in the process of exploration and learning. In a study considering the factors of school achievement, it is possible to ignore those aspects in which individual differ from one another. The starting point may be academic achievement itself where wide raging variations occur from the points of non-performance to the point of outstanding achievement. If we consider a group of students, it is normal that a few students are found to be high achievers on the one hand, and a few are underachievers on the other, while a sizeable number of students usually appear as moderate achievers. The question arises why such a different in achievement appear when the school provide more or less uniform instructional and environmental facilities? Is this difference due to certain psychological factors? Does this difference depend upon inherent qualities? Is there any single factor or host of factor, which account for all difference in scholastic achievement? These questions often appear in the minds of educators, educationists and the psychologists but with hardly satisfactory answers. Various investigations have explored numerous factors which are found responsible for academic success and failure.

This study has been widely documented that the academic achievement of students is linked to a number of socio-cultural variables. Among the socio-cultural

variables associated with academic achievement are the educational and occupational attainment levels of parents, family income and composition, ethnic and language minority status and the absence of learning material in the home.

There are several factors that are responsible for the achievement in mathematics of the student. Those factors may be teacher education, teacher personality, home environment instructional materials, individual difference, peer group, parent's attitudes and socio-economic status etc. Academic achievement or Academic performance is the extent to which a student, teacher or institution has achieved their short or long term educational goal. However the students low academic achievement on the exam can be defined as : Low or weakness of the student's mark under the normal average in a study subject level as a result of a variety of reasons, including those related to the student himself or those related to family, social and academic environment (Marasinee, 2017).

Achievement is the tools for evaluating the students which help to determine the quality of the students in their related area. The popular and reliable evaluating tool for students is examination. There are different types of examinations to scale student's achievement in different level. Achievement is determined by different variables such as school related variables, students related variables and home environment related variables and so on. The school related variables refers to the learning environment at school, teaching activity and ability of teacher, classroom size instructional materials, school policy and so on (pantha, 2006) . Similarly the student related variables refers to the gender, age, durations of the study at home and so on. At last one is other important factor is home environment related variables that refers to family occupations, parents education, mother tongue, learning environment at home and so on. All of these variables determine the student achievement. The

achievement of child depends not only part played by teacher but also the parents awareness, student interest, previous knowledge, revising curriculum textbook, family support, economic status of students, members of family etc. have been made to uplift the achievement and performance level of students (p.2, Mahat, 2017) .

Basic level school is the beginning phase of the child education which becomes foundation for them to reinforce their future education plan. Without being good foundation of basics level educational children progress in secondary level of result. It has its own significance to know about the consequence of the exam of secondary level. As the result of mathematics analysis of the previous years of Shree Bhawani Secondary School Arughat Rural Municipality-2 Manbu Gorkha this is remote area of Gorkha district. In the context of Nepal so many students are failing in Mathematics. For this problem various district are also affected. So the researcher could choose a one case school of Gorkha District. This lies in the North part of the District. The name of the case school is Bhawani Secondary School which is located in Arughat Rural Municipality -2 Manbu. Most of the students have poor performance in mathematics. They have been number reason for failure in mathematics. To find out the main reason behind low performance in mathematics in my school, I have done this study.

Statement of the Problem

This study was concern with "Causes of low performance of students in mathematics." The problem of this study is mainly related with the causes of low performance in mathematics of Students. There are number of reasons behind the low performance in mathematics rather than other subjects. Most of the students are failed in Mathematics than the other subjects. On the record of SEE result in this school was 30% of students are failed. All most of 90% of these students are failed in

mathematics. These data of school there are Most of the researchers was compared the achievement of mathematics on the basis of ethnicity, social background, economic background, and parent education and they have also found these kind of things directly effects on learning. The students are taught under the proper guidance of teacher but also the students obtain low marks in mathematics. Last but not least, mathematics is a significant subject in human life though most of the students think it is difficult subject in comparison to other subjects.

The following are the research question of this study.

- What are the probable causes of low performance in mathematics?
- How can we improve the performance in mathematics?

Objectives of the Study

Each of the study have to be objectives which gives to researcher about the clear vision study and lead researcher on the right path to get it on right time. The objectives of the study were follows:

- To find out the causes of low performance in mathematics;
- To identify the strategies taken by school to improve mathematics performance of students.

Significance of the study

The study was significant for the reason that it was help to determine the factor for low performance in mathematics of students, which helps to improve the mathematics teaching learning process and to reduce the failure in mathematics of students. This study was providing the appropriate information about the difficulties of students in learning mathematics. There are several studies on mathematics achievement since few years and that have contributed to view of poor mathematics performance. Some significances of the study are given below.

- The study was helps to explore the causes of low performance in mathematics of students at secondary level, which was valuable things for teacher, researcher, curriculum designer and other stakeholder related to mathematics education.
- The study was helps to make learning environment more effectives.
- The study was helps to improve the low performance of students in mathematics.
- The study was be useful for the various NGO, INGO and local governance it will be help for construct the policy of such students.

Delimitation of the Study

Among the public school of Gorkha district the researcher was choose one sample school with their convenience and the study result was only base on mathematics classroom. So, the result of this study is no more generalize.

Delimitation of this study has been listed as follows:

- This study was limited only one school of Gorkha district.
- This study was conducted in Shree Bhawani Higher Secondary School Arughat Rural Municipality-2, Manbu of Gorkha district.
- This study was based on secondary level.
- This study was limited on only January 2019 to July 2019.
- Only one school and four case students were selected.
- This study was based on qualitative research.
- This study was limited only purposive sample.

Operational Definition of Related Terms

Some of the terms which are used in this study are defined in the following

paragraphs. In particular defined terms are:

Performance. "Performance" is defined in Oxford Advanced Dictionary as the things done, successful especially with effort and skill. In this study performance means as a score obtained by the students in the mathematics examination of SEE level, activities of mathematics classroom, participation of mathematics assignment of Shree Bhawani Higher Secondary ward no. 2 Manbu of Gorkha district.

Low performance. In this study low performance refers to the inactive activity of mathematics classroom, participation of mathematics assignment or mark below forty obtained by the students of Shree Bhawani Higher Secondary ward no. 2 Manbu of Gorkha district.

Physical Facilities. In this study physical facilities means physical infrastructure of Shree Bhawani Secondary School like as school building, desk, bench, toilet, water tap, science lap, computer lap, furnished classroom, manageable library, and availability of reference books of sample school.

Encourage and Motivation. In this study encourage and motivation means teacher strategies to improve the student performance and the increase the interest level towards the mathematics. Motivation and encourage is a kinds of tools which is attraction by students towards the mathematics.

Causes. In this study causes is defined as the reasons that are affecting the achievement of students such as practice, environment, teaching learning strategies and motivation.

Prior knowledge. In this study prior knowledge means previous knowledge is related to the topic or subject.

Chapter II

Review of Related Literatures

A literature review is a description of the literature relevant to a particular field of topic. Every piece of ongoing research needs to be connected with the work which has been done already. The review of literature is needed to attain an overall relevance and purpose. It tells the reader about aspects that have already established or concluded by other researcher. It is link between the research proposed and the studies already done. A careful review of the research journals, books, dissertations, these and other sources of information on the problem to be investigated is one of the important steps in the planning of any research studies. It is also important to highlight different in opinions, contradiction evidence and the different explanations given for their conclusions (Dahal, 2011).

A research review is a body of text that aims to review the critical points of current knowledge including substantive finding as well as theoretical and methodological contributions to a particular topic. Literature reviews are secondary sources and as such, do not report any new or original experimental work.

A literature review usually precedes a research proposal and results section. Its ultimate goal is to bring the reader up to date with current literature on a topic and forms the basis for another goal, such as future research that may be needed in the area. A familiarity with the literature in any problem area helps the students to discover what is already know, what other have attempted to find out. Review of literature is an exacting task, calling for a deep insight and clear prospective of the overall field. The main purpose of review of related literature is to find out what works have been done the area of the research problem under study and what has not been done in the field of the research study being undertaken. The review of related

literature helps to make the concepts clear for the study and also directed to analyzed and interpret the data. The present chapter attempts to review the research studies and literature in the domain of causes of low achievement in mathematics with reference. Also the purpose and question addressed in his study. It helps the researcher to know the work carried out in the area of his/ her research project. Some review of related literature is given below.

Empirical Literature

Empirical literatures are those literatures which are authentic knowledge from empirical research. This literature provides methodology and procedure in related topic. The empirical study of literature is an interdisciplinary field of research which includes the psychology, Sociology, Philosophy the contextual study of literature and the history of reading literacy texts.

Hughes, (1999) studies on the most important conclusion from qualitative research on the factors related to achievement in school are that (a) teacher are critical resources; (b) The composition of the student body matters; (c) School make a difference and (d) Physical facilities, class size, curriculum, instructional strategies and other resources influences students learning indirectly through their effect on the behavior of teacher and students.

Similarly, Pantha (2006) concluded a research on " Parents occupation and their children achievement in mathematics". The result of this research showed that the student level of achievement differs according to their parents occupation among four different occupational groups. It was found that children of job holder ,businessman, farmer and other children have high achievement level accordingly. The result also showed that the students who got high facilities have high achievement level in mathematics.

Also, Bohara (2009), studies on " Factor affecting achievement of dalit students in mathematics at lower secondary level (A case study in Daijee VDC, Kanchanpur district)" he had used semi structured face to face interview with mathematics teacher, case respondents, their guardians and classroom observation from to collect primary data for only one case school of the kanchanpur district . His study concluded that illiteracy, ignorance, poverty, prior knowledge, motivation for study at home, parental support, quality of teacher, class size, student teacher interaction, social belief, social tradition, family occupation, childhood marriage, working in upper caste family, attendance where affected the mathematics achievement of Dalit students.

Moreover, Bajracharya (2010) is her study "Factor affecting student related variables and mathematics achievement" concluded that the finding of the study ,out of fine student related independent variables , standardized coefficient's are used to compare the contribution of independent variables whereas unstandardized coefficient are used for constructing a regression equation.

The researcher found that the above empirical research, the performance of students are depends on so many factors. Some of these factors are occupation of parents, parents education, economics status of parents, facilities of child to provide their parents etc. Occupation is indirectly connect to their students education as well as performance of mathematics. Educated parents provides sufficient time and materials for math practicing of their children. So their performance is highly improve than other.

Dahal, (2011), did a research on "Causes of low achievement in mathematics of Magar students" (A case study in Kaski district). The objective of that study was to explore the cause that brings low achievement in mathematics and to identify the

strategies taken by school in improving mathematics achievement of magar students. He collected the data from interview, observation, field documents. His study was based on qualitative research approach. This study shows that most of the magar parents were illiteracy and they use their children as a means of earning to support their family, teacher centered method, household work, motivation, the teacher used to give homework daily but students were facing the problem in daily of checking the copies and language were the causes of low achievement in mathematics of Magar students.

Similarly, Poudel (2015), conducted a research on " Causes of low achievement in mathematics". The result of his research showed that achievement of students is always affected by different variables such as schools learning environment, facilities at home and so on. Teacher's belief about the nature and purposes of mathematics and how students learn have a powerful effect on the practice of teaching. Although the schools seems to have sufficient physical infrastructure and qualified teachers but the teacher seems to be unable to maintaining individual differences and promote show learners in teaching learning activities. Classroom practice was the main causes of low achievement in mathematics at schools. New policies of school seems to have better educational attainment if the total school family cooperate each other and support from own area.

Also, Bhatt (2015), studies on the topic "Causes of low participation of Dalit girls in Mathematics" This study is concerned with girl's participation in learning mathematics. The research derived from his field work in Shree Purna Higher Secondary school in Kanchanpur district. Comparing other students with Dalit girls students there were many factors Dalit girl's students in mathematics learning. One of them was caste discrimination. The Dalit are known as low caste in the society.

They are discriminated in every aspect. They are not allowed to involve in social programs, temples, water sources as well as sitting on the same bench of other caste students. So, the Dalit girls feeling dominance in school and do not like to go to study.

On the other hand, it was their culture that determines their schooling age, occupation, marriage and so on. In other words, Dalit girl students were strictly tied with their cultures boundaries due to which they were obliged to do the things that their cultural permits them to do.

Their economics status was not strong enough to carry on their future education and as a result they were compelled to break their education. As they did not match to other students, they were given less emphasis for leaving and participation. Their experience and everyday lives were seemed to be ignored by school practices through they had in weeded enthusiasm in learning mathematics. So, poor economic status, caste dominance and cultural discontinuity were the main factors that created the poor participation in mathematics learning.

Moreover, Bhattra (2016), has study in " Causes of low achievement of Tharu students in Mathematics" (A case study in Kailali district) with the objectives of studying to find the personal factor that causes the low achievement of Tharu students in mathematics, to find the role of home and school related factors for low achievement of Tharu students in mathematics and to analyzed the role of home and school related factors for low achievement students. The researcher concluded that the low achievement in mathematics of Tharu students from the sample school, analyzing with the themes and related document. It becomes the focal point that has affected the everyday life of Tharu students. Comparing to other students of Tharu students, there were many factors that affect mathematics achievement of Tharu

students. Although the school seems to have qualified teacher but the teacher seems to be unable to maintain indifference and promote slow learner in teaching learning activities. Teacher's classroom behavior, illiterate parents, language, economic status, interest of learners, assessment technique, teacher students relation, culture they followed, learning environment at home, less participation in learning activities were the main causes bringing the low achievement in mathematics of Tharu students.

To resolve the failure rate in mathematics new policies of the school seems to have better educational attainment if the total school family cooperate each other and support from own area. At last, it can be said that there should be the provision of teaching mathematics to the students of primary in their mother tongue as well as in Nepali language. So, the language problem of them can be solved. Also there can be another provision of Tharu teachers in primary level to minimize the language problem.

Finally, Mahta (2017), did a research on "Causes of failure in Mathematics of Santal student" (A case study in Morang district).The objectives at this study to explore the causes that bring failure in mathematics and to identify the strategies taken by school in improving mathematics students of Santhal students. It is conclude that the language plays vital role in mathematics learning. Due to the lack of proper understanding of language, that creates the difficulty in learning mathematics. Their economic status is not enough to carry their future education and as a result they compelled to break their education. They are given less emphasis for learning and participation. The learning environment plays vital role in better performance in learning mathematics. Due to the lack of proper environment at home and school, that creates the difficulties in learning mathematics. To upgrade economic condition, government should employ their parents. To create learning environment at home

awareness their parents by organizing some programs and at least there should be the provision of teaching mathematics to the students of primary level in their mother tongue as well as in Nepali language. So, the language problem of them can be solved. Also there can be another provision of santhal teacher in primary level to minimize the language problem.

Since from above review, there have been many researches on achievement study of different students group, factor affecting learning mathematics and causes that affect mathematics achievement. From which the researcher has found that there are many factors such as culture, physical facility, home environment, teaching learning process, motivation, teacher behavior, economic, parents educations, teacher training and interaction are the influencing factor in learning mathematics. To find out the main reason behind low achievement in mathematics in my school, I have done this study.

Theoretical Literatures

Theoretical literatures are those literatures which provide theoretical knowledge and philosophical based for research. In qualitative research there are so many theoretical ideas and principles which are used to make the research meaningful and they guide the researcher for the analysis and interpretation over the study area. The theoretical discussion needed the interactive finding of the study. Many theories about learning and development of children such as cognitive, behaviorist, humanist, social constructivism of which constructivism is one of the theory to analyze and interpret the data of mathematics of resolve the problem. To analysis and find the suitable solution in the area of failure in mathematics; constructivism become one of the possible theory to solve the problem on the topic of "Causes of Failure of Dalit students in mathematics". Every child learns from society from social contract with

home, family and universe. According to them, knowledge can be constructed from society. This kind of thought is given by constructivism.

Constructivism Theory. Constructivism says that learning as construction or knowledge can be constructed through active participation. Constructivism is related to educational theory to deal with the problem of mathematics. It helps to find out the problem of low performance in mathematics. It is a theory based on observation and scientific study to deal with the problem of learning. The theories that learners knowledge construct are provisional (Vygotsky 1978).

The term constructivism refers to the idea that learners construct knowledge for themselves—each learner individually constructs meaning as he or she learns. Constructing meaning is learning; there is no other kind. The principle of constructivism, increasingly influential in the organization of classroom and curricula in school, can be applied to learning and knowledge but conflict with traditional museum practices. We need to reflect on our practice in order to apply these ideas to our work. According to constructivism principle of learning are learning is an active process in which learners learner uses sensory input and constructs meaning out of it, the crucial action of constructing meaning is mental ; it happen in the mind, learning involves languages : the language we use influences learning, learning is a social activity, learning is contextual , one needs knowledge to learn, it takes time to learn: learning is not instantaneous, motivation is a key component in learning and knowledge is constructed rather received.

This study mainly related related with the Vygotskys theory of constructivist approach to remaining mathematics. Vygotsky (1978) states every function in the child cultural developments appears twice first on the social level later on the individual level. First between people intra psychology. This applies equally to

voluntary attention to logical memory and to the formation of concepts. The objectives of Vygotsky theory are follows:

- To motivate learner for learning.
- To emphasize on previous knowledge capacity for learning.
- To emphasize on cooperative learning.

The idea that any theory, schema or model that one constructs about any topic is provisional follows from the idea that learning is personally constructed and that cognition is an adaptive process. Thus, if one constructs an idea to make sense of one's world, then a new experience may result in a need to change one's theory. In view of learning through constructivism we can say, knowledge construction is an iterative process through learning. Constructivism asserts on forming the understanding and knowledge of the world through experience things. When we encourage something our mind perceives the things and reconcile with preexisting ideas. It means our mind becomes an active creator to reach and act with present surroundings in the similar way constructivist ideas of learning can point towards a number of different teaching practices. It encourages the student to involve themselves actively and use techniques of learner centered, group work discussion, learning by doing, use outside tools to be more practical and gain high achievement in mathematics rather than classroom it focuses on real life learning environment, social interaction and use of complex ideas shared with others outside of classroom easily.

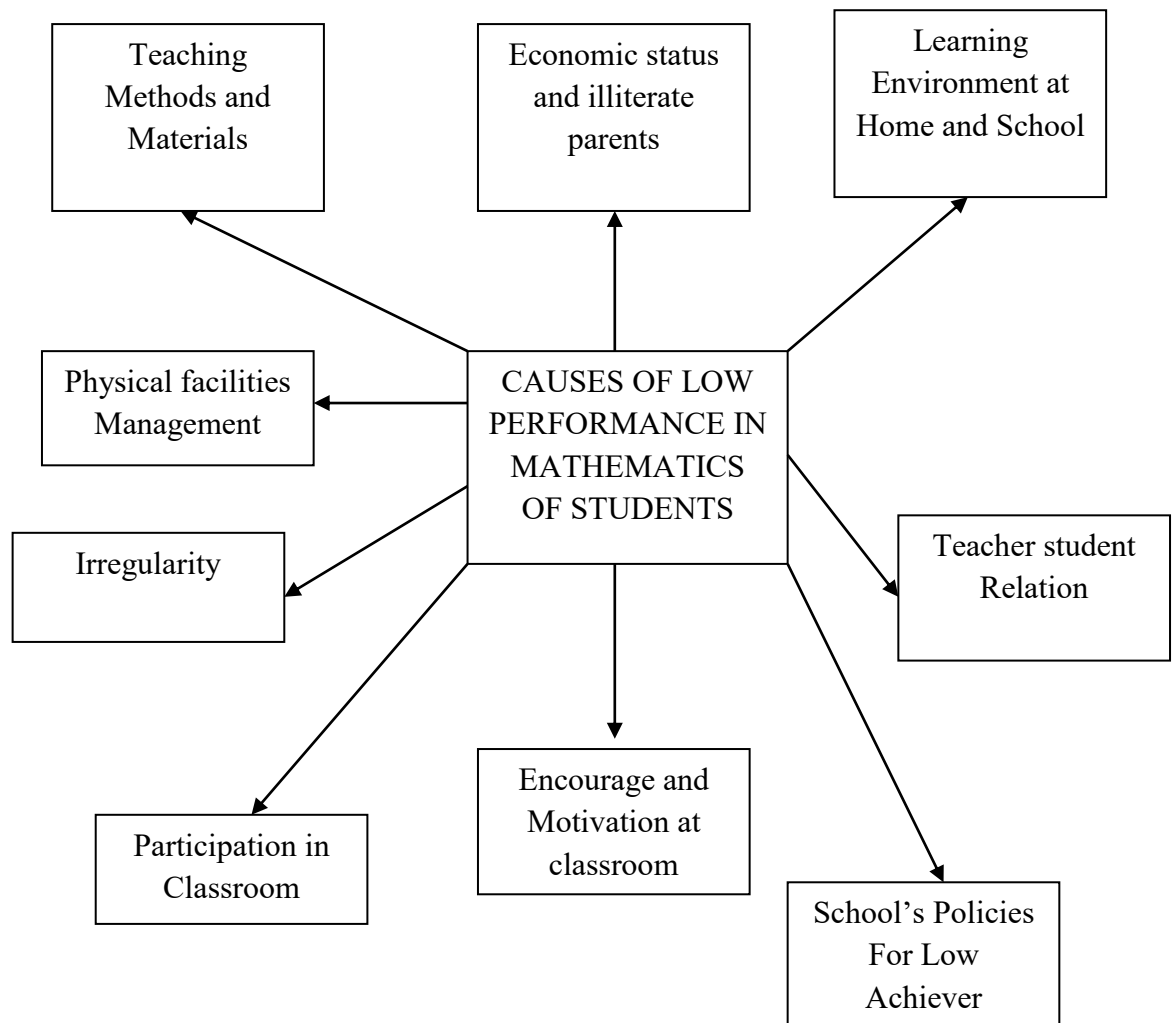
Conceptual Framework of the Study

A conceptual framework is made to find out the causes of low performance of students in mathematics. In the above related literature have been already described and theoretical perspective the following theoretical model has been constructed for the failure of students in mathematics learning which was the framework for this case

study.

The researcher constructed the conceptual framework on the topic Causes of low performance of students in mathematics. Researcher on the basis of research objectives and above empirical research about related research and collect the main points from related documents and related topic researcher construct this conceptual framework:

Figure 1: Conceptual framework of causes of low performance of students in mathematics



Source: Dahal, 2011

Researcher developed this conceptual framework collect the various types of variable which is affected by low performance in mathematics. Researcher developed interview schedule and interview form which collect the data were required the researcher. Researcher collect the data according to objectives of study and related to above framework and analyze to obtained data.

This study describes about the factors affecting the study of poorest achiever students from classroom to his home environment. The learning environment of school, teacher student relationship, behavior of teacher, encourage and motivation at classroom, qualities of teacher determine any educational achievement of the students in the classroom. Outside the classroom, the physical facilities and management of school, behavior of school towards the students play the vital role for their academic progress and learning environment. Also, the learning environment of students at home, condition of parent education and financial status, support and encouragement from the society and self-interest of the students are other major factors for determining the educational success.

These above studies and theories helped the researcher to research about this topic. These theories clearly guided the researcher. After studying these theories, researcher prepared tools of observation and interview guidelines. The main aim of researcher was to find out the causes of failure in mathematics of secondary level of Shree Bhawani Higher Secondary School Gorkha, which causes were reflecting in these theories. These variables play crucial role for students to fail or pass. Therefore, the researcher wanted to followed this conceptual framework.

Chapter III

Research Methods and Procedures

Research method is a plan, which determines how to complete the research systematically. This chapter describes the design of the study, selection of study area, site selection, selection of sample school, and selection of case respondent, instrument for data collection procedure and data analysis and interpretation.

Design of the Study

Research design is the conceptual structure, strategy of the logical, systematic plan and direction of the research. It had been a way through which a researcher collect data, interpret and analyze it. This was a case study to find causes of low performance of students in mathematics at secondary level of Shree Bhawani Higher Secondary School of Gorkha district. This is a research of qualitative as well as descriptive nature.

Selection of school

The study depends upon the causes of low performance of students in mathematics. The researcher had a case study of those four key students attempting socio-economic background, personal habit, family education and relation of mathematics teacher other students with them. So, the researcher selected only one public school of Gorkha district purposively to achieve the objective of this study. The researcher selected Shree Bhawani Higher Secondary School Arughat Gaupalika-2, which is located in eastern part of Gorkha district. Researcher selected this school because this school had so many problems of low achiever students in mathematics which can be easily seen through the result of Secondary level examination. So this school is very suitable for this topic.

Selection of Respondents

The respondents of the case study are low achiever students, their parents, mathematics teacher's as well as head teacher of the particular school. The respondents are selected purposively to find out the case of low performer students in mathematics. Only four of low performer students from case school were selected according to on the basis of different family background and performance in mathematics of case chosen are the basis of purposive sampling methods.

Tools of Data Collection.

To collect the primary and secondary data for this study the following tools were used such as School document, Class Observation Form, Interview Guidelines.

School document. Teacher profiles, record of students, mark ledger, attendance, additional supports provided to the students and other related documents were studied.

Classroom observation form. Altogether four direct observations form were filled up where 30 classroom were observed very smoothly. Collect the information about the teacher student's interactions, teaching learning activities, and classroom management with note keeping techniques. These were the good enough sources to collect.

Interview guideline. Semi-structure interview guideline was being prepared. This guideline was used to take interview from students, head teacher, math teacher and parents which was prepared on the basis of theoretical literature related to this study and objectives.

Data Collection Procedure

At first researcher visited schools and established relationship with teacher, students and parents. Then the researcher collected the data and information by using

interview schedule and classroom observation form to collect qualitative data. The researcher kept the records of school such as mark ledger of school students, teacher's profile, physical facilities and other relevant documents.

The classroom was observed by mathematics teacher and students were entirely focused for 30 days. The researcher kept the record of behavior and activities of both teacher and students during teaching and learning activities. Head teacher, maths teacher and sample students as well as their parents were interviewed. All the answers were noted during the course of interview, focus point of interview on mathematics achievement, schools facilities, vision of school towards low achieve students, policy that were adopted by school for low achiever and so on.

Data Analysis and Interpretation

This is qualitative research hence the major part of data analysis is based on descriptive. This information was collected from the observation and interview by questioning present status of school facilities, teacher's classroom behavior, economic status and illiterate parents, Learning environment at school and home, management of physical facilities, classroom participation, encouragement and motivation at classroom, interest of students, qualification and training teacher and teacher students relation and uses of methodology and teaching materials. Then the researcher explained the data and their perspectives according to the respondent's responses. The collected information from class observation, interview and school's records was categorized and then different themes were made. These themes were considered as a code and similar code versions of the respondents which was collected together and explained in their perspective. Finally the summary and conclusion was drawn and required recommendation was stated.

Chapter IV

Analysis of Data and Interpretation of Result

This chapter dealt with the analysis and interpretation of the collected information. The researcher minutely studied the school's documents such as teacher profiles, mark ledgers, attendance as well as the records of the sampled students. Also, the researcher had observed mathematics class of grade X being the participant with mathematics teacher regularly for 30 days during teaching learning activities. Then the classroom observation note was prepared on the basis of the class observation. Every activities and behaviors of the students and teachers were carefully observed and noted the school environment and other details were obtained by observing school environment and interviewing with the head teacher, subject teacher as well as document analysis of the school. The home environment and other details were obtained by taking interview with their parents and analyzed in the descriptive manner. The response of the respondents during the face to face interview were carefully noted. There was no limitation for respondents and their responses. They were able to express freely whatever they have in their mind. The data were analyzed with the help of collected information from observation, interview and school record.

Introduction About Case School

The researcher selected sample school "Shree Bhawani Secondary School" which was established in 2018 B.S. The surrounding places of the school is fully occupied with cultural diversities. Ghale, Karki, Gurung, Neupane, Adhikari, etc. are the local residents of this area. Mostly, the parents of the case students are engaged in agriculture as well as labor. They are also engaged in other activities like fishing, playing bow and arrow, hunting, etc. Economically, they are poor in the communities. Some even have difficulty to join hand and mouth. Initially, at the time of

establishment there was no building but now the school has eight separate permanent buildings and a playground with average 900 students.

This study was qualitative in nature so that used descriptive method for analysis. The researcher attempted to calculate the study by describing and analyzing the information acquired in research process. The collected information were analyzed and described in their perspective under the following headings.

- General Introduction of Case Students
- Causes of Low Performance
 - Learning Environment at home and school
 - Economic status and education of parents
 - Encourage, motivation and participation in classroom
 - Teaching Methods and Materials
 - Qualification of Teacher and Classroom Behavior
 - Relationship Between Teachers and Students
 - Physical facilities of school
 - Irregularity
 - School's Policies for low achiever students

General Introduction of Case Students

In this research, the researcher took all of the four low performance students from grade X by the purposive sampling method whose performance in mathematics subject was very low so that they were known as case study in this research. In this topic, the researcher introduced all case students according to their individual interview and written documents which were the symbol by Respondent students A, Respondent student B, Respondent student C, and Respondent student D. The general introduction of case students which are in below:

Respondent Students A. Respondents student A was 20 years old studying at grade ten B students. He failed once at grade VIII. His father's and mother's name was Dhanlal Ghale and Langma Ghale respectively. He spoke Ghale language with his family, relatives and friends. His parents were uneducated. Economically very poor, it was hard to maintain money for his study. There were five members in his family among them two younger sisters were there who were studying at grade two and one at own village school. There was one cow, three oxen and ten goats at his home.

Dharche rural municipality-1, Dovan was hilly area and which was about one hour far from school so that he should walk for about forty-five minutes to one hours every day to go school. His father had no regular job and did trivial local labor work such as construction, farming, collecting woods etc. and sometimes go out to do for the construction work for certain duration then seldom back to home. There were various kinds of animals such as cows, oxen and goats, and trivial housework such as cooking, grassing animals, feed water to animals, bring water, caring of younger sister, farming etc. at home. Sometimes his mom also do some trivial works in village so that mom couldn't do all of house work herself, he should help his mom doing many housework and sometimes out of house work also. Jaad and wine were produced at his home and his both dad and mom drunk both jaad and wine. Also drug the tobacco and smoking. There was no electricity at all because one pole was broken the line was disturbed whole month. There was not comfortable environment and place to practis and write homework of mathematics subject at home.

Mathematics subject was hardest subject for him because he couldn't understand clearly but he understand little bit at class and he had not enough any time to practice's at home so he forget at all. He feels that mathematics subject was very

difficult at English medium. According to register, he got 18 out of 100 marks in mathematics at grade ten. His present days were 167 days in academic years 2075 (Source: School document).

He was very naïve, ashamed and less talkative students at class. He did not understand all the process of mathematics solutions in classroom but never asked to teacher because he felt ashamed, frighten among the 45 students and teacher. Teacher used to give the homework regularly but on the basis of this homework note of math he did only few homework of each exercise, uncompleted and also did not do homework checking. His handwriting was very poor and ugly. He was students of grade ten but he didn't have basic mathematical knowledge of class nine. He didn't take any math tuition class at school because his family economic status is very low. There was nobody at home to guide him mathematics subject at home. He didn't make a mathematics note copy well prepared but only one copy which was done in classroom. He didn't have even a geometry box but had only compass, scale protector dotepen. His dad and mom never bring mathematics practices book for him. He has few friends in his village, they were his relatives. He has other friends to go school.

Respondent Student B . Respondent student B was eighteen years old studying at grade ten B and had failed in class six and eight respectively. His home was located in Gandaki zone Gorkha district Dharche Rural Municipality 06, Kashigau. It was about three hours far from school so he took rental room near to school. His dad and mom's names were Virlal Gurung and Man Maya Gurung respectively. His dad and mom both did not go to school so his parents are uneducated. There were nine members in his family including parents and one elder brothers who studied at grade six and leave the study and now working his own village. And three younger sister was studying at own village school. They have about

five-six ropani khoriya land as property but there is not fertile for crop, products maize and millet only. There were fifteen goats, six hens, five cows and one couple of ox at his home.

His father works at construction near by his village and back to home in sometimes. His elder brother dropped out from school at class six. So, he never got help to write math homework from family members at home. There was only little amount of Khoriya land as their property having no land certificate, and products maize only and little vegetable which was enough for about two-three months only. His father mother and elder brother all are drink Jaad and wine most of the days so they quarrel and not a good environment for studying mathematics. His mom make wine at own house and they had to buy everything for their needed food. His brother had no income now; there was only income of dad but it's cheaper and he used big amount of salary buying wine, tobacco and smoking. And sometimes his mom did trivial wages local work, and collects wood to make wine. In his home, there were various kinds of work such as cooking, farming, Jaad and wine production, bringing water, feeding water to the animals, cut grass and collect vegetables etc. He went to home at every Friday then he and his sister should do all such works and especially during the absence of mother, he had more work loaded so he did not come at his room three-four days because he had to have self-manage mint of the money which he need. And when he becomes free then always go to play outside with his friends. His home was very small there is no any sufficient space for studying. There was no bed, and other things were very few. He always read at his house only. His home and surrounding environment seemed very congested and dirty as well.

According to register, he got 17 out of 100 marks in written examination of Math subject which is total obtained mark in I, II and III terminal examinations at

grade X. He was present in class 149 days in grade ten (Source: School document).

The mathematics teacher used to homework regularly but on the basis of his mathematics homework notebook, he just attempted few homework of each exercise, there was sometimes homework checking and not did have any correction and feedback of error homework. Even he was a student at class X; his hand writing was very poor, still he cannot write in Hindu Arabic. His writing skill of number was very weak, was confusion frequently get of writing letter n and h, and m and n etc.

Mathematics was his hardest subject because he couldn't understand clearly. He couldn't understand all the process if teaching mathematics in classroom but usually did not raise any questions even if he did not understand well because he felt shy and frightened. There was no mathematic tuition class either at school or village, he never had got such supported class so sometimes he writes homework in classroom by the help of classmate. He did not have geometry box because he lost almost all of its parts. And he did not buy graph paper and used normal copy to draw graph by pen.

Respondent Student C. Respondent student C was nineteen years old girl studying at grade ten B. She lives in Gandaki zone Gorkha District Dharche Rural Municipality-01, Dovan where about one hours far from school. She failed two times at grade two and grade eight. Her dad's name was Hari Lal Gurung who studied at grade III and mother's name Dhani Gurung who did not go to class. There were four members in her family, her elderly brother and sister got married and living separated nowadays and another elder sister was reading at grade eight. There was about three-four Ropani Khoriya land as their property nearby home and production maize and millet. There were one a pair of ox and about ten-twelve goats at her home. Her father was jobless, it means did not have regular job. Her dad and mom doing trivial local labor works such as construction, farming collect stone and sand and collect woods to

sell. In the past her dad was Riksha Driver (3 Wheeler, non-fuel vehicle) in the city and seldom back home. Both dad and mom drank too much wine, smoking then quarreled often so her sister dropped out for four years and now is continuing the class ahead. Her elder sister had lived at relative's home for study so there was nobody home to guide writing math homework.

Her home was located far from the school area at their community almost all are uneducated, there were only three Gurung home near by her home. Most of the time she played with friend at village and school with Respondent D. Her home was one very small traditional having two rooms only and where kitchen is located in front part of house. Sometimes she does homework in classroom during leisure time by the help of friend, copy from them. There was no mathematic tuition class and group study with friends in his community. Sometimes both dad and mom went for working so during those days he should do more house works. Everyday she act many house works such as cooking, cutting grass, bring water, farming, gazing goat, search vegetables etc. Co-operate with sister. Her mom produced Jaad and wine at home and most of the time buy from the market, drunk at hotel then back to home.

According to register, she got the 16 out of 100 marks in written examination of mathematics subject which is the total marks obtained in I, II, and III terminal exams at grade X. She was present to class 152 days in academic years 2075(Source: School document).

She did not make single and fair note copy of math subject, written math, Nepali and English homework together in one copy. She did not complete all the mathematics homework, and attempted the few questions of each exercise. She doesn't understand all the process of teaching mathematics subject in classroom and usually she didn't ask even not understand because she felt shy and frightened so

which show that she did not like math subject and math was hardest subject for her. Usually her parent's didn't give money for tiffin and to buy maths materials such as geometry box, graph, pencil, copy, etc.

Respondent Student D. Respondent Student D was eighteen years old girl studying at grade ten B who failed at two times at grade four and grade seven. Her home was located in Arughat Rural Municipality-02, which was about forty-fifteen minutes far from school. Her dad and mother were Krishna B.K. and Rushila B.K. respectively. Her dad and mom studied grade five and one respectively. Nowadays her dad was working in Malaysia since 1.5 years ago, mother at resort in the morning and evening shift cook helper and cleaner, elder sister was working at primary school as helper and her two brothers studying in grade two and three respectively. There was a pair of ox and about five six goats at her home. And they had seven-eight ropani khoriya land nearby home.

Her school was very far from home; it almost took forty-fifty minutes from school and always goes to school on foot with friends. Because of distance she tries and not interested to go to school as well. So she and her sister should do co-operate doing many trivial housework such as farming work, grazing animals, bring water, cut grass and wood, cooking, care younger sister etc. and sometimes she became late to go to school by doing such trivial housework. Her mom was illiterate and sister studied at grade four so nobody at home to guide to write mathematic homework and she hadn't taken any mathematics tuition class either at school or village. Her mom provides enough money to buy educational materials such as copy geometry box, pen and pencils etc. but never bought other mathematical practice books. She did not know what is a graph copy? She wants to write homework at home but because of much work she could take enough time to do and she dropped out writing homework

because she couldn't do anymore ahead.

According to register, he got 16 out of 100 marks in written exam of mathematics subject which is total obtained mark in I, II and III terminal examinations at grade X. He was present in class 151 days in academic years 2075.

Mathematics teacher used to give homework regularly but on the basis of her homework copy, she just attempted just a few questions of each exercise and some were checked and most are not checked and even wrong, those were given tick sign. There was not correction and feedback of wrong answering. There was homework written of another subject too. Her writing skill of both Nepali and English, number and mathematical sign were very poor. His homework book was very dirty and roughly. Mathematics was hardest subject for her the English, Science, etc. She couldn't understand all the process of teaching mathematic in classroom. She did not ask to teacher even couldn't understand.

Causes of low performance in mathematics of case Students was explored with the help of class observation, interview with students, mathematics teacher, parents, head teacher, and school documents analysis. The data collected through different tools was categorized and analyzed with the help of conceptual framework the following headings.

Learning Environment at Home

Home is the first school of every child so the home plays the vital role on learning mathematics. A family education and parents or seniors behavior affects achievement in learning mathematics. The researcher found that case students was busy on household work, care of younger children, care of cattle, cutting grass etc. in the evening and morning. But in the night there was so many days shortage of light which was disrobed for study. It forced to sleep those students who were weak in

mathematics. The one aspect which affects the learning of students was the work they have to do in their home. It was not a new case to do simple work in home in our content. But if students doesn't get be time to study on home because of the overload of household work, it hampers in the study.

"My father and mother both go to work out in the field and that time I also have to contribute my family by working in the field, sometime by carrying goods. So I don't get any time to study at home " (students)

"The children do help in the household work because we need their hand at our work sometime we ask them to stay at home to finish the work and go to work for other people which help to us to join hand and mouth. " (Parents)

"Parents are illiterate and they are not aware of the children's study and they have many economic problems so his/her child doing local work at village which manage money." (Teacher)

From the observation researcher found that the learning environment of mathematics was not better for the case students at home also, they had no time to study, mathematics at home because they had to do most of the house works before gone to school and after come from school they busy in the household works in put time of the school. Their parents did not manage tuition and coaching classes, all required materials for the study mathematics and they did not discuss about their learning ' progress report with their math teacher. Their parents treated unequally to son and daughter because their parents were not well educated. Educated parents also can't give the time to the daughter for study mathematics. Parents did not force to the daughter for go to school regularly.

Researcher found that because of economic condition of family a lot of

students are very low they were busy to make money for the home-And the culture of the family also disturbed to their child in study. Female had inferior place in their society. There was low role and opportunity for girls in society.

About the home environment of the students the mathematics teacher said that, "because the parents should not pay to more money in government school so they did not interest to participate in school and like now is their study, they did not care about their study, how they can learn, what school should be do etc. If parents want to give nice education then they admitted to the students in private school but parents did not want to give nice education to their child which are focused students. Very few of the parents meet me and . consult about their child's mathematics learning."

"In my family no seniors are school education. They can't teach and motivate me to do mathematics and can't favor me to create the home environment for practice." (Students)

"I give much time to household work. I haven't enough time to practice mathematics at home and sometimes I was ready to study mathematics when was my mother and father are quarreled to take wine and jaad." (students)

"Our parents are illiterate they could not read and write. So our parents could not support and guidance at home for mathematics learning".(Students view of illiterate parents)

"Although our parents are literate , but they cannot give time for us because of busy schedule from 10am-4pm on their job in NGOs, INGOs and government office".(students view of literate parents)

"They are busy on their work (official or farming), so they cannot manage time for us and there is lack of guidance on mathematical activities. They

are limited to facilitate only books, tuition classes, fees and advice, which are not sufficient for us".(Mixed types of view)

"Educating children especially daughter of no use since they have to do the household works after marriage and sometimes they are free from household work but they dint study mathematics but they only playing game or reading Nepali story book ." (parents)

"They go to work to earn money that hampers their study. If they come at school they are very tired to work in the morning at home so they cannot study as well." (Teacher)

Above response shows that case students haven't enough time to do exercise of mathematics at home and repeat the chapter which are teach in class. Thorndike (1874-1949) emphasis on the law of exercise, recall, recognition, relearning and reconstruction but home environment of student is not good for do exercise, recall, recognition, relearning, reconstruction. They haven't enough time to do practice at home because of household problems.

Vygotsky (1978) the constructivism theory also elaborated that the opportunity to learn mathematics at home play vital role in mathematics achievement. Researcher concluded that the lack of sufficient time for mathematics learning at home of case students was one of the causes for the low performance in mathematics. Due to poor economic condition of case students cannot manage their time at home for mathematics learning.

Learning Environment of School

School is the second home of any child' school is the totality of the educational atmosphere. The teacher, student and parents are the components of the school. School environment reflects belief and tradition of the school community

delineating the relation among parents, students and teachers, scholarship to the student, dominance of lower caste, Extra class provided are the major aspects of school environment. Researcher found that school did not manage all the teaching materials for learning mathematics. There was library but not develop the reading habit of a student. Teacher did not Suggestive to motivate students to study mathematics. There was remaining no any strike rule to coming regular in school and teach regular in class. And there was no rule of punishment and reward for the regular and non-regular for the students. There was no rule for supervision of class regularly and solve the school problems. There was no environment to the help each other in study mathematics. School did not give the chance to discuss with the senior students with the teacher and with peer group discussion. Case students were not economically strong which they could not afford their study easily. There was difference between their home culture and school culture. So their school culture and home culture could not be matched each other due to which they feel themselves as anteriority complex company other students. So the case students were weak in mathematics learning. Although, they were not provided with extra classes activities their learning was also hampered by the language problem. Their home language and school language was not matched. So they were poor on mathematics.

"The parents of case students towards their children of school found more lower, most of the parents leave the whole responsibility of their children to the school" (Math teacher and Headmaster).

When researcher asked to head teacher, "How is your school environment and classroom environment?" then head teacher said that, "Environment of our school is very good. All physical facilities are available in the school. School is located in the peace and beautiful place where no out sounds are coming to disturb and no pollution

is here. But have an appropriate building with a lot of classroom, bench desk, a library and a lot of teaching materials. We should manage them recently, Classroom environment is little bit poor of mathematics class. There was no extra class provide to students. So the mathematics achievement of our school's is not satisfactory. We solve this problem very soon."

Above response shows that the policy of the school was not good for low achiever and low performance students. Head teacher could not make the school environment is good for learning mathematics. Sharma (2005) has recommended that the head teacher should be the man of task oriented in order to make the school effective. School leadership should be handled over to such person. The head teacher should work in school such a way to make the teacher task oriented being regular in the school and taking care of the problem of the teacher in academic and social needs. The head teacher was the instructional leader of school. He had to provide classroom support, administration, teaching observation as the central figure of school. But in a case school such type of work not be seen.

Thus, it is concluded that because of negative thinking of students and parents about the government school, there were no body tried to made effective teaching learning environment at school and no one interested to make a good classroom environment which was direct related and effect to achievement of mathematics. Good school environment is not enough for good achievement, a good classroom environment is also necessary to get better achievement especially in mathematics.

The following response was obtained, when asked which language is appropriate for medium of teaching. (*Respondent Students*)

Classroom Environment. The classroom environment includes the two important aspects. The first is physical environment; it includes the location of

room, arrangement of desks, benches, chairs, position of whiteboard, facility of ventilation etc. Another is psychological; it refers to the relationship of students and teachers to each other. As the researcher went into the classroom with math teacher, every student said good morning sir. Then every student took their seats. After that at the beginning of the lesson the teacher explained the required topic but did not check for the understanding of the students. The teacher frequently showed high level of interest in the lesson, and tried to start the lesson by connecting the students with their previous class. The teacher explained required topic of the lesson but not its objectives before introducing the lesson on that class it can be seen that beside textbook not any other teaching materials were used during teaching learning activities.

Also researcher observed the physical environment of the class and found that the desk and benches were kept in two rows and sufficient for students. The classroom was clean and well swept. It was well ventilated but there were no chair for teachers. The white board was in front of students. There were 45 students and 3 were absent on the day.

The researcher asked the question about the classroom management and its environment to the mathematics teacher and students. The received versions by the researcher are following:

"There were good management in each classroom. In our school, the students are from different cultural background, caste and socio-economic status. Mainly, students from middle and low socio-economic status are studying here. The grade X students with different cognitive level could be found easily. Many of the students had poor base on mathematics an poor language skills." -Math teacher.

"Our class had facilities. But here is lack of inverter during load shedding period at morning classes. Many of we are from middle and low economic status, so there are not necessary materials with us and some noise in the class."

Thus from the direct observation and view of Mathematics teacher and students, the classroom management and its environment had major effect on achievement of students in mathematics.

Economic Status and Education of Parent's

The students passed their most of the times in the home. The children learnt many things from their parents. If the parents were literate, moral and have good characters, their children also follow the same behavior. If the parents have bad behavior and they are illiterates, their children's learn that behavior from parents. There is not only the role of teacher in learning process but also of the parents awareness, education, their way of handling and guiding the family members, culture, economy and environment. Most of the people were uneducated and their economic condition was very low.' They could not fulfill the need of the family. Due to case students did not do their mathematics homework regularly and become weak in mathematics. The parent stented the basic knowledge of life, practical aspects, skillful concepts, right vision, appropriate norms and values to their children. If the parents have good education. They too tried their best to enable their children academically. So they could live easily in society and inspire them to the right use of life's every potentiality and opportunity.

When I asked about their parents education, the following responses were obtained:

"Our parents are illiterate they could not read and write. So our parents cannot provide guidance at home to mathematics learning". (Students view)

"I am helpless for our child because I have no education so I can't help them": (Parent's view)

"The parents are illiterate. They do not give the guidance to them for learning mathematics. Their children do not complete the homework regularly. Due to this reason they become weak in mathematics subject as well as other subject." (Teacher's view)

The above mentioned view manifested that due to illiterate parents of case students was not getting expected achievement in mathematics. The parents did not guide them in house and always avoided to take responsibility to provide educational environment in the home. The above view also showed case students did not do homework regularly in mathematics, Due to lack of sufficient time, at home for mathematics, Practice and lack of guidance of parents they become weak in mathematics.

The constructivism theory elaborated that the students had high achievement in mathematics if there is good educational guidance otherwise the achievement would be low.

Encourage, Motivation and participation in classroom

Encouragement is a factor of school and home environment. However, it inspired the students to learn something which are out of interest or matter of interest for the students. The students get less encouragement by the parents to go to school. However, the weak students in mathematics had no extra to create interest to learn mathematics. On other hand they got no positive environment to learn mathematics in

the house. The school offered a little bit encouragement in the class which is not sufficient for learning. The teacher or parents didn't do anything for encouragements for the failure students.

Motivation is the foundation of learning which encourages make and excite the person to learn from inner self. It activated the person to learn positive thing. Motivation becomes one of the prominent factors to learn mathematics' which bring high achievement in mathematics.

The researcher found that the parents were uneducated and did not have knowledge to suggest or encourage students to learn mathematics of case students was not afford to create curiosity to learn mathematics. Constructivist theory elaborates encouragement and motivation which is the basic component to enhance the progress in students to learn mathematics but there were lack of encouragement and motivation which cause low performance in mathematics.

Participation in classroom. Participation means engagement of student and teacher in the teaching learning activities to achieve the goals of the contents it is most influencing factor for influencing students result in mathematics. If there is not any participation between student and teacher we can't expect better result of the student. There should be active participation between student and teacher for effective teaching learning activity.

The second important aspects of student failure are student participation in classroom. The extent to which students are asked to homework has a positive associated with school performance implying that the higher amount of homework is the greater achievement in SEE only 25% of the students are exposed to homework in their school and this percentage is much lower for public student. Homework is the regular characteristics in lower secondary level student with better performance while

homework is rare event in this school. Student participation in classroom is the important variable for the success and failure of student in mathematics. All the students were from remote area and they had to work hard at home. Only 20% of the students are active participation in classroom teaching. The responses of the student and teacher are mentioned as below.

"I don't like to discuss about mathematical problem in classroom because I am very weak in mathematics. I do not have enough time in my home for mathematics practice. I should do various work in my home such as carrying water, cutting grass etc." (Low Performance Student)

"Most students are poor in mathematics. They are not studious and labor. Every time they are engaged in playing and side talk, they don't correct even a simple mathematical problem" (Math Teacher)

From the above views, it is concluded that most of the students felt mathematics as hard subject. Burden of household works, due study and unethical activities in classroom are the main cause of low performance.

The following responses were obtained when research asked math teacher about the interest area of the students. Students' attitude towards mathematics is another difficulty. It is seen that mathematics teacher is unable to develop positive attitude towards mathematics.

"They are more interested on games like football, volleyball etc." (Teacher)

"Along with games, they are found interested in watching the T. V. serial also." (Teacher)

On the basis of teachers' observation on the interest of the students, it is concluded that these children are more interested on more entertainment activities rather than academic. They want to show their physical strength by playing games.

But they show little interest in their study. Spending much more time on TV and extra activities hinders the students learning. Most of the students are nowadays connected with social media and they spend time on these instead reading at home.

All the respondent teachers agree that children are influence by the decision of their peer groups especially in choosing optional subject in grade X. They choose the same subject as their peers choose. The above responses show that the role of the students was passive and class was totally delimited by the teacher. Social constructivism demands that the learners should play an active role in learning process. It also emphasis on more student-centered approach in classroom but the case school hasn't adopted this approach classroom teaching.

Episode I

Grade X was selected for observation time period was ten a.m. After the researcher entered the class, the students stood up and said "Good morning sir"

The researcher told them to sit down. It was noticed that the school environment was respectable to the teacher. There were 48 students in a class. The desk, benches were sufficient for them. The white board was on the proper place on the other hand the teacher started teaching mathematics without even warm up the reviewed the previous lesson wrote some problems from the text book and solved the problems on the white board letters were very small which could not be seen by the last benches. Usually, teachers opened the textbook and asked the homework but only 25% students raised their hands. Then he collected the homework and writes the topics which is "construction of triangles which is equal to area of parallelogram" of grade X and explained the basic rule and property of triangle and parallelogram after writing on white board. Teacher wrote one problem related to construction of triangle

and parallelogram, but there were no construction materials. All students were engaged in copying the white board and asked the questions to the students, do you understand? If no, he repeated the above process again and gave another problem and observed their activities and did not any directions for this problem. he just looked the mistake if the students on their copy. If he did get mistake only 20% correct the problems and no one asked the question, he again came to the white board and did the problem by the above process. Lastly, teacher exited from the classroom to tell that solve the problems of exercise with carrying the homework of students.

The above views of students and teacher indicate that there was a lack of active participation in students. Most of the students were weak in mathematics because of various problems. Students were not interested in mathematics and their concentration is only playing and talking which was serious problem of school.

Above observation proved that there was no active participation and discussion between students and teacher in classroom, means that students are very weak in mathematics. He evaluated the student's performance by giving class work and homework. Similarly, the researcher observed the other four episode of classroom observation and founds that the same activity of teacher and students. There was no alternative method teaching used by the teacher in the classroom. he was using same teaching learning approach for all observation. There wasn't active participation of teacher and students in the classroom. So, there is a debt between teacher's views and behavior. He stated that he was using student centered approach.

Teaching Method and Materials

It played a great role in the achievement of students. It included all the functions that are used inside classroom to achieve the goal of lesson. Usually, the

teacher used teacher-directed structure practice with students. He did not use any relevant teaching materials during teaching learning activities. He was trying to participate students in discussion but limited number of students were participating on discussion. The teacher was always using questioning techniques to every student to find out the level of understanding of students.

They felt mathematics was less interesting than other subject. They did not go to school regularly. They did not complete homework given by math teacher because they could solve the all of problem of mathematics and they did not have enough time to study mathematics. It is difficult to ask the problem with teacher which has not been understood. Students did not keep on practice of already taught mathematics problems.

Views of students about teaching learning process are as followings:

"I am not interested in mathematics. It is a matter of my headache because of poor mathematics background. Our teacher never provide clear concept on each topic, so we are weak in mathematics."

The above responses were showed that because of bad teaching learning process, students didn't have any interest in subject mathematics. Teacher didn't use discovery method or problem solving method etc. Bruner's theory emphasized that students can learn from guided discovery learning, problem based learning. Discovery learning believes that it is best for learners to discover facts and relationship for themselves. But in case school these learning method didn't use in classroom teaching of mathematics. Mathematics teacher was always followed by traditional lecture and one way questioning method.

Social construction explain that motivation is the key component for learning which makes classroom more interesting and encouraging. Teacher should become a

facilitator in the classroom and should provide positive reinforcement. The positive reinforcement is always emphasizing in good learning. But the case school hasn't adopted this approach in classroom teaching of mathematics.

Thus it is concluded that teaching-learning process of school was the major aspects for betterment of student achievement. Teacher should pay attention to improve the condition of teaching and learning environment otherwise student's progress tends to zero or don't progress the lazy students. Thus traditional classroom environment during teaching learning activates was also a responsible factor for low performance students in mathematics.

Qualification of Teacher and Classroom Behavior

The experienced teacher can make his students understood. A trained teacher can use rightly and appropriately the teaching materials and makes the teaching learning easy and interesting. Mathematics is a practical subject. So the use of teaching materials is necessary in the study of this subject. But lack of appropriate method, the teaching learning process cannot be effective in mathematics in mathematics teaching. If the student is interested in mathematics then he/she gives enough time to the study mathematics and ultimately gets good achievement in this subject. But if the students take as a hard subject they can not solve the problem and they don't take the more time for this subject. Teacher was not trained on motivation students with different ability and he did teach regularly in class but don't take assessment or class test. He solved some question in the board and gone to the new topic so students are not clear about those topics and they don't solve other questions. Students also did not curious and active while learning mathematics, they did not enjoy while solving mathematics problems.

Views of students about teaching learning process are as followings:

"Teacher gives focus only to talent students. I'm not satisfied with the teaching method that our math teacher is used.

"I can't understand what teacher teaches us. Classroom is very noisy so I can't listen what teacher said. Discipline cannot found in mathematics class."

The above responses were showed that because of not trained teachers teaching learning process was very traditional and focus only the talent students. students didn't have any interest in subject mathematics. Teacher didn't use discovery method or problem solving method etc. Bruner's theory emphasized that students can learn from guided discovery learning, problem based learning method did not used by teacher because teacher was not trained. Discovery learning believes that it is best for learners to discover facts and relationship for themselves. But in case school these learning method didn't use in classroom teaching of mathematics. Mathematics teacher was always followed by traditional lecture and one way questioning method.

Relationship Between Teachers and Students

Among the teacher, students and learning environment in classroom teacher is the main agent for curriculum implementation. Students perceive most behaviors of teacher and impressed to teaches, so the role of teacher in classroom are to guide student, create and facilitate the learning environment encourage, motivate, example to achieve the objectives of curriculum. The roles of students are to do the activities promoted by school curriculum and task by teacher as performer in classroom.

Classroom observation of particular school of the activities of students and teachers in a classroom practice is presented below.

Episode-II

The teacher entered the class room with daily uses materials chalk, duster and textbook. All the students stand up and said good morning sir then teacher replied

good morning and sit down please. Teacher wrote the topic “Construction of parallelogram equal to the area of triangle”, he described about the topic after then did not revised the previous lesson and did not warm up the students he wrote the problem for current lesson and continuously solve that problem. Teacher asked to the students do they have any trouble to understand in any steps of solution? One student raised question then teacher again explain the above solution. After that, teacher gave a problem to students. Also teacher was giving hints at solving the problem. Similarly, more two problems gave to students. When students make mistake teacher correct it in his copy in classroom. I looked not all students had solve that questions. When bell was rang, teacher gave assignment to students and come out the classroom.

The above classroom observation shows that teacher is not active and not well prepared about topic. The class is mostly teacher centered. Teacher used lecture practice method in classroom teaching. Teacher did not use whiteboard frequently. Students are not submit their work frequently. The mistake of students did not solve in white board. Less involvements of students in classroom practice. Students did not ask question frequently with teacher. Teacher evaluates students by giving class work and home work only.

From the above classroom observation, we found that the teachers and students relationship is not bad because at their were respectable environment. Almost students are not active participation on classroom learning so they were not fully positive for mathematics learning and did not support for classroom learning activities. Teacher was also not focus the low performer students in classroom teaching activities. He did not support for poor learning students. Hence the relation between teacher and students were not so bad not so good for mathematics learning. Both are not fully support to each other classroom learning activities.

Physical Facilities of the School

Generally the physical facilities of school played a great role in the achievement of students. The classroom is considered as a heart and the school as the nucleus of the educational system. The school is located within the area of 7 ropanies and the rest 8 ropanies jungle area and open ground down side of the school area.

The school has eight buildings precisely building first of two floors having ten rooms, building second of two floors having six rooms, building third of two floors having six rooms, building four of two floors having six-rooms, which was made by the help of Indian Embassy, building five of two floor having four rooms was namely called old hostel building, building six having two floor having seven having single floor having 14 rooms, was also made by the help of Welfare and namely called boys hostel and building eight of single floor having 6 rooms. There is one office room, one staff room, one science lab two rooms are used, one library, 18 classroom, six roomed toilets separated for boys and girls. It is compound by stoned wall as well as wire fence. It has sufficient playground volleyball ground and small football ground. There are twenty-eight teachers, one administrative staff, two helper and sweeper. There were Students in which boys and girls Among +2 classes only 145 students in which 65 boys and 85 girls. Again among +2 classes, total students in mathematics at +2 level are 12, Being the study was focused on class X and precisely on the class 10th students, the total number of the students on class 10th class were 113 in which 55 boys and 58 were girls (Source: School document).

The researcher asked the question about the physical facilities of the school to the mathematics teacher and students. The received versions by the researcher were following : "The physical facilities of our school are satisfactory. But our school hasn't math lab and proper library

for students, proper hall for seminar, workshop. Thus we are going to build one another building for hall, one building for math lab and library. We have a long-term plan for the promotion of physical infrastructure and new trends in teaching learning process at school” - Math Teacher

"Our school has not proper library, so we cannot get sufficient reading materials. Also there is lack of math lab, so we are far from practical knowledge of mathematics. There are not sufficient teaching materials for mathematics, so we are facing only the parrot learning." Students view

Thus from direct observation of the school, students view and teachers view, researcher found that there were sufficient building for class room but there were no modern facilities for library, math lab, seminar hall etc, which affected to extra learning activities for the students. Consequently the achievement of students is affected. Thus physical facility related to school environment is causing variable for high failure rate in mathematics at higher secondary level.

Irregularity

Irregularity was one of the main problems of students in mathematics learning. They were compelled to go their school after the completion of their household work was their family concept. To approach the school was their second priority because their first priority was to manage food to survive their lives. For which they have to be engaged in working on the river bank getting fishes and working at other house. It shows that they were usually irregular in their school. The data provided by the school can be presented as below:

Respondents	Average attendance in month
A	20 days
B	18 days
C	12 days
D	15 days

(Source: Students attendance in register of school)

The above mentioned data presents that, their irregularity in school was very high. Due to this their achievement was very poor in learning mathematics and it was concluded that there were vast irregularity of the case students in the class which justifies that there were great problem in mathematics learning. The study also showed that many students were unable to go to school regularly which was far from their interest. The low economic condition, workload at home, language and fear of punishment from teacher they feel quite difficult and afraid to go to school. Therefore, such irregularity creates the great obstacle in learning mathematics so many students have low achievement.

School's Policies for Low Achiever Students

A school administrator is an educational leader who has responsibility of developing, communicating and implementation school policies. He promotes the success of all students by facilitating the development, articulation, implementation and stewardship of a vision of learning that was shared and supported by the school community. The another important task of school administrator was to promote success of students by collaborating with families and community members, responding to diverse community interests and needs, mobilizing community representative and acting with integrity and fairness.

School's policies plays great role in the improvement of school. A critical

study of all aspects such as administration, community relation, students' performance, staffs relation etc. and development of operational policies can reduce all the problem that may be observed at school. The following were some of the reprehensive responses of head teacher, mathematics teacher and management committee. 'What type of strategies can be managed by school for failure students to improve achievements?

"I am planning to manage one separate class for grade X especially for failure students." (Head teacher)

"The school is providing extra class in the evening for failure students in mathematics only class ten." (Members of management committee)

"We are now planning to take internal test at least twice a month from this year.(Math teacher)

"The school is providing extra class in the evening for low performance students but the number of the class is same as regular class so the school should manage us in at least two sections measuring the level of students from last years."(Students)

The above views indicated that a lot of improvements have done from this year and the process of improvement is still continuing. The result of reforms couldn't be more analyzed due to the beginning of the implementation. But the vision of school were clearly defined among teachers, parents, students and communities.

In short the research declared that the major causes of low performance in mathematics were irregularity of student, home environment, lack of economic condition, reinforcement in classroom, teaching learning environment, supervision and directly affect the result of the student in mathematics.

Chapter V

Findings, Conclusions and Implications

This chapter deals with the major findings of the research, conclusion and recommended for further study. The first section list the major findings, the next section, conclusion derived in the basis of research analysis and finally presents recommendation for further study.

Findings of the Study

This case study was mainly focused related the factor that causes of low performance of students in mathematics at grade ten. Financial condition was not strong enough to send their children at school and can't afford them in their further education. Most of the parents are illiterate and their children are usually used as means of earning money for their simple, livelihood. Most of the students have not enough time for home study and to do exercise practice of mathematics at home because of household works and domestic problems. Because of non-educated parents, culture of the home is also not good for study. This is major causes of low performance of case students in mathematics.

The following points were observed while conducting this study which are the major findings of the research.

- Teaching style was traditional. Lack of student-oriented teaching learning environment is causing to making the student's learning poor.
- Mathematics was considered as a difficult subject by the students. The students of mathematics had negative attitude to their teacher as well as math subject. This situation is causing to make failure in mathematics.
- School policy hasn't concerned about mathematics learning. There weren't extra classes of mathematics for failure students. There was a library but

almost students are not used properly and insufficient learning materials in school which are causes of failure in mathematics.

- There was not providing the sufficient extra class for low performance students and failure students they provides only one or two months for whole class not a low performer.
- Most of the parents are not serious about his/her child education because they aren't aware for education.
- Almost of parents spends their money smoking tobacco, drinking wine and playing cards.
- English language version is another prime causes of the low performance of students in mathematics.
- There was no any positive environment for reading, writing and good future because all most people are spend their valuable time making jaad ,wine and cultural activities.
- The class teacher was not a strict at case student so some students are not came in school regularly.
- Besides the learning, the case students participate more in house hold work and cultural activities.
- Case student do not get encouragement and motivation at home and school.
- By the economic condition and lack of positive concept about education of their parents, they are irregular in the school.
- There is discrimination concept between son and daughter.
- Most of the people of Case student's community passed their time in unnecessary deeds like drinking alcohol, playing cards, carom board etc.

Conclusion

From the above finding it is concluded that the language played vital role in mathematics learning. Due to the lack of proper understanding of language, that creates the difficulty in learning mathematics. Their economic status are not enough to carry their future education and as a result they compelled to break their education. They are given less emphasis for learning and participation. The learning environment played vital role in better performance in learning mathematics. Due to the lack of proper environment at home and school, that creates the difficulties in learning mathematics.

To upgrade economic condition, government should employ their parents. To create learning environment at home awareness their parents by organizing some programs and at last there should be the provision of teaching mathematics to the students of secondary level in Nepali language. So, the language problem of them can be solved. Also, there can be another provision of local teacher in that level to minimize the language problem.

Implications

This was a case of a school. So the results could not be more generalized as a situation. It is due to lack of time and resources. Thus, similar researches should be done in large schools district wise.

From the above finding and conclusions, the researcher would like to suggest some recommendation for the improvement of mathematics achievement of the school. Some of them are as follows:

- A similar type of study can be conducted at different levels and in different subjects.
- The school should manage the physical facilities to improve the quality

education.

- Student centered teaching learning methods and techniques should be emphasized.
- Continuous Assessment System should be implemented to improve the student's achievement of mathematics.
- School should manage extra- class for failure students in mathematics.

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Appendix - A

Individual Student Record

Name :-

Class:-

Roll. No:-

Age:-

Address :-

Date:-

.....Zone.....District.....VDC/MP.....

.....Ward No.....Village

Name of School:-

Girl/boy:-

Hobby :-

Religion:-

Position in previous class:-

Number of family member:

Father's Name:-

Education :-

Occupation:-

Mother's Name:-

Education :-

Occupation:-

Interested subject:-

Aim of life:-

(Source:Dahal,2011)

Appendix -B

CLASSROOM OBSERVATION FORM

School's Name:..... Date:.....

Teacher's Name: Class.....

Total No. of Students: Address:.....

The researchers will observe the classroom under the following criteria.

Classroom Management and environment:

- Classroom structure and environment
- Space of instructional materials
- Cleanliness
- Seat planning of students

Student's activities in classroom

- Following direction of teachers
- Availability of textbooks , copies and other materials
- Medium or language of conversation
- Completion of class work and homework assignment
- Participation in classroom discussion
- Conversation and misbehavior with student and teachers
- Students co-operation
- Sharing problem in classroom with other students and teachers
- Regularity of students

Teacher's activities in classroom

- Regularity and Punctuality
- Classroom Entrance

- Revision of Course
- Voice Command
- Politeness
- Use of Re-enforcement
- Use of Instructional Materials
- Encourage of Students
- Classroom Discussion Method
- Interaction with Students
- Level of Motivation
- Regularity in Homework Checking
- Class work assigning
- Providing Extra Class for Weak Students
- Providing feedback sufficiently or no..

Evaluation Procedures:

- Assigning class work
- Class work checking
- Homework assigning

Appendix-C

Interview Guidelines for Students

School's Name:..... Date:

Student's Name: Class:

Total No. of Students: Address:

The researcher will ask the respondent students to give information about the following topics and sub-topics

Classroom management

- Classroom (size, light, sound....)
- Seat planning
- Space of instructional materials
- Co-operation of students

Students Interview guidelines

- Co-operation of teacher and students
- Class work and homework (regularly, on time.....)
- Interest on mathematics
- Behavior of students towards teacher and students
- Participation
- View on mathematics problem
- Family support
- Regularity in school
- Family income sources
- Teaching methods
- View of students for low performance

- View of students of the policy for low performance students
- Causes of low performance of students

Appendix-D

Interview Guideline for Mathematics Teachers

School's Name:..... Address:

Teacher's Name: Class:

The researcher will take an interview with teachers to gather information under the following topics and sub-topics:

Classroom management:

- Classroom (cleanness, size, light, sound, sitting,)
- White board (size, space,)
- Manage of instructional materials

Teachers interview guidelines

- Teachers students relations
- Uses of instructional materials
- Teaching methods
- Participation of classwork and homework
- Views of students on English language
- Encourage and motivation of low performance students
- Facility provided by school
- Extra class for low performance students
- Problems of low performance students
- Causes of low performance in mathematics
- Relationship with guardians
- Teaching learning environment in mathematics in school

Appendix-E

Interview Guideline for Head teachers

School's Name:..... Address:

Head teacher's Name: Class:

Head teachers interview guidelines

- Behavior of student
- Duty about mathematics teacher
- Result about mathematics
- Perception of student towards mathematics and mathematics teacher
- Policy of school which improve the mathematics result
- Economic policy for extra class
- Regularity of student
- Relation between parents and school
- Teaching materials and their uses of mathematics teaching
- Support of teacher staff and parents for learning
- Economic status of school
- Strategy for improving low performance students
- Role of school management committee
- Schools facilities

Appendix-F

Interview Guideline for Parents

School's Name:..... Date:.....

Address: Occupation:.....

Parent's Name: Class:

Interview guidelines for parents

- View about your child behavior
- View about school and their policy
- View about mathematics teachers
- View about administration and teacher
- View about cost of education
- Expectation from school
- View towards school facilities and policy
- Student behavior at home
- Occupation and income sources
- Obstacles of your child for learning
- Guideline of mathematics learning
- School and home environment