

CHAPTER-I

INTRODUCTION

Background of the Study

The term 'Mathematics' is etymologically derived from an ancient Greek word 'Mathenian' which means to learn, whereas in Nepali, it is called 'Ganit', which means the science of calculation. History of mathematics reveals that mathematics is a creation of human being for the needs of solution of individual as well as social problems. Being human as the most sensible and curious creature, the development of mathematics became possible and applicable in every moment of their life. In course of development of mathematics, it has been defined differently. Mathematics in a very limited sense is the numerical representation and calculation of things related to human life and knowledge. People conceive that it enables them to solve the mathematical problems of daily life and logical thinking and reasoning through cultivation of habit of concentration and self-reliance.

So mathematics is an expression of human mind which brings out our thought very well. Its basic elements are logic and intuition, analysis and construction, generality and individuality. Though different tradition may emphasize different aspect, it is only the interplay of these antithetic forces and the struggle for their synthesis that constitute for their synthesis that constitute the life, usefulness and supreme value of mathematical science. (Lukas Jukobus Back).

According to oxford advanced learner's Dictionary, (7th edition), "mathematics is the science of number, quantity and space. According to dictionary of mathematics;" mathematics is a group of related subjects including algebra, geometry, trigonometry and calculus concerned with the study of numbers, quality shapes and space and their inter relationship, application, generalization and abstractions.

Mathematics is the study of topics such as quantity (numbers), structure, space and change by using the certain rules and symbols. Mathematicians seek out patterns and use them to formulate new conjectures. Mathematicians resolve the truth or falsity of conjectures by mathematical proof. When mathematical structures are good models of real phenomena, then mathematical reasoning can provide insight or predictions about nature.

Mathematics now is considered as social creation. Culture is the contributing factor for the development of mathematics. 'Culture refers' the fabric of ideas, ideals, belief, skills, tools, aesthetic objects, methods of thinking, customs or traditions (Ranjit, 2006). Although mathematics is considered as an 'universal language' the way of learning mathematics such as; Simple operations, Counting, estimating calculation, measuring etc. are culturally dependent and therefore are different. At an early stage, the learning of mathematics depends upon their cultural background. In this stage there is no difference between 'using mathematics' and 'doing mathematics'.

Before 1977, mathematics was taken as the separate subject from culture. Giving challenge to this European concept, Brazilian mathematician Ubiratan D' Ambrosio introduced the term 'ethno mathematics' in 1977 during a presentation for the American association for the advancement of science." Ethno mathematics is the mathematics which is practiced among identifiable cultural groups such as national tribe societies, labor groups, children of certain age brackets and professional classes" (D' Ambrosio, 1985).

The term 'ethno mathematics' is used to express the relationship between culture and mathematics (D' Ambrosio, 2001). It is new idea of studying mathematical representation from different cultural perspectives. Ethno mathematics is concerned by the connections that exist between the symbol, representational systems and imagery

(Vergabum 1998). It is apparent that the development of ethno mathematics has tried to transform the traditional concept of Euro-centered mono-representational system of mathematics to world centered multi-representational systems of mathematics (D' Ambrosio, 2001).

According to Dr. Shirley Lawrence, culture can determine the students' feeling towards participation in the classroom discussion initiating questions, acceptance of authority, memorization of facts, seeking innovative ways of understanding and many other aspects of classroom education. Ethno mathematics is the heart of instructional methodology.

National Foundation for Development of Indigenous Nationalities (NFDIN) was established in 2002 A.D. The main objectives of the NFDIN are to ensure the overall welfare of the 59 enlisted Indigenous nationalities those live across the country. The Antrim constitution of Nepal 2007 has been able to address some of the issues of Indigenous nationalities by defining the country as independent, secular, inclusive, democratic and federal. NFDIN has been empowering the enlisted 59 Indigenous communities for the promotion and preservation of the religion, linguistic, cultural and political rights. In this way it has been playing an important role for uplift the indigenous people through awareness programmers, human resource development and mother tongue language etc. Most of the countries of the word are multicultural, multilingual and multi-religious. Nepal is also a multicultural, multilingual and multi-religious country with 25 million of population 61 ethnic groups and 125 languages (Ranjit, B.R, 2006).

In Nepal, there are several communities with their own typical traditions and practices. According to Satya Mohan Joshi, "Every ethnic group has its own value and specialty. Study of different cultures helps to strengthen national unity and cooperation.

The education system of the country should include both the national and ethnic cultures.”

In Nepal there is not unique classification of caste and ethnic groups. According to CBS 1993, there are 59 caste/ethnic groups and some other. According to census 2011 A.D. there are 125 caste/ethnic groups and 123 languages with different cultural systems. According to other classification there are five castes: Khas, Kirant (Limbu, Yakha, Rai, Hayu, and Sunuwar) Langali (Magar, Thami, Chepang, Lepcha, Kusunda and Raji), Gangain (Newar, Tamang, Gurung and Tharu) and Angi (Some Himali and Teraili). According to Neupane, Govinda (1999), the common classification of castes of Nepalese is Khas, MangolKirant, Madheshi, Dalit and Newar. Among the many ethnic group of Nepal Sunuwar is also one of the ethnic groups who are being backward due to many factors in Nepalese society. They are backward in many respects like social, economic and educational basis. The present educational system of Nepal is not being able to provide the equal inclusive education to all ethnic group of Nepal though Nepal Government has managed the slogan 'Education for all'. In this context why the Sunuwar are being backward to achieve the good education? What is the achievement in education of Sunuwar in Nepal? What are the factors that effects on achievement of mathematics of Sunuwar students? To explore the answer of these questions I want to do the study on these questions that's why I have chosen the above topic. This is a case study so my case school is ' Shree Gokul Ganga H.S. School Rashnalu – 4 Ramechhap.' In this VDC there are 4 other schools studying great number of Sunuwar students but this is one of the schools where more number of Sunuwar students is reading than other school. This study basically conducted to find out the achievement of Sunuwar students in mathematics and to explore the factors affecting achievement of Sunuwar students in mathematics. According to schools' record in academic session 2072 there are 456 students altogether

and among them 213 are Sunuwar students which are 46.71% of total students. So that this study was conducted as case study.

The Rashnal V.D.C. of Ramechhap district is one of the multi-ethnic, multi-lingual and multi-cultural residential place where mostly living Sunuwar occupy about 60% of population. About the Sunuwar ethnic group of Nepal till now no any study and research has done to know their educational background, living status and so on. I am a person well known about their culture, tradition and social status. In Rashnal V.D.C there are more number of Sunuwar and at Shree Gokul Ganga H.S. School, Rashnal there are studying more Sunuwar students. So to identify their achievement in mathematics in school education and to find out the affecting factor for achieving low marks in maths this study is conducted on the given topic. That's why the researcher is motivated to carry out the research on Mathematics achievement of sunuwar students.

Introduction about the Sunuwar

The Kiranti-Koits (Indo-Aryan Nepali term 'Sunuwar') are one of the Mongoloid tribes (anthropologically: monogoloid stock) whose number is 95,254 according to census 2011 A.D. The term 'Koits' is autonym of the tribe, which is also the name of the mother tongue. Other terms like 'sunuwar (not to be confused with the terms sunar, sonar, swornakar), Mukhiya or Mukhia' are exonym of the tribe. There is another common teasing name (mainly given by outsiders) of the tribe coined from the mother tongue itself, e.g. 'Maarpaache', lexically Maar 'what' and patsaa 'to do' when the speakers ask themselves maar patsaa at the time of trouble or any other critical situation (CBS 2011).

They inhabit in the eastern hills of Nepal. They are autochthonous to the MolungKhola, LikhuKhola and KhimtiKhola ('Khola' Indo-Aryan Nepali etymon 'rivulet'). By administrative division they dwell in Okhaldhunga, Ramechhap and

Dolakha districts politically known as Wallo ('Near/Higher), Kirant (in the past and also in use among the Kirantis at present) after the fall of the Kirant Dynasty (ruling of about 1903 years and 8 months) at the ancient Nepal valley. Their migration later took place in several parts of the country in Jhapa, Ilam, Panchthar, Taplejung, Terathum, Sunsari, Sindhuli and other districts and abroad in Darjeeling, Sikkim, Dehradun, Bhutan and Hong Kong.

WalloKirant in the past was their Kipat or 'communal land'. The Sunuwar are the indigenous peoples of Nepal. They have their own mother tongue, religion, culture and social customs as their identity. (www.sunuwarsamejkh.org)

According to census 2011 formed in NPHC 2011, CBS there are 55712 Sunuwar people in Nepal, 26758 male and 28954 female which is 0.21% among 3.1% of Kirant of the total population. The literacy rate of Nepal is 65.9% in which the literacy rate of Sunuwar contribute only about 5.14% of their total population and about 45% are literate in Nepal which is comparatively less literacy rate than other ethnic group.

Sunuwar are one of the indigenous ethnic nationalities of Nepal. It is one of the bravest communities with its own ancient rich culture. The region that the sunuwar tribe inhabit are district of Ramechhap, Dolakha, Okhaldhunga, Udayapur, Ilam, Taplejung, Sindhuli, Kathmandu, Lalitpur, Bhaktapur and Jhapa. Sunuwar follows the Kirant religion with priest called Nasho. The social process of Sanskritization has drawn some southern Sunuwar population to develop a syncretism form of Hinduism. The Sunuwar are the poor peasants their main crops are millet, maize and rice. About one third of the cultivated land is irrigated and terraced. Today there are no more land reserves and animal husbandry is almost negligible. The main unit of production and consumption is the household almost always identical with the nuclear family. The Sunuwar have a

subsistence economy and money plays a secondary role their economy (Populations census, 2011).

The indigenous ethnic group consists of some special features which is remained in sunuwar people also. The indigenous nationalities are generally non-Hindu with their distinct identities regarding religious belief, social practice and cultural values. They have distinct characteristics as follows:

Characteristics of the Sunuwar as Indigenous Nationalities (janjatis)

-) A distinct collective identity
-) Own language, religion, tradition, culture and civilization
-) Own traditional egalitarian social structures
-) Traditional homeland and geographical area
-) Written or oral history
-) The feeling of 'we'
-) Living in Nepal from the time of immemorial
-) Has had no decisive role in the politics and government of modern Nepal and
-) Sunuwar are the indigenous or native people of Nepal.

Classification of Janjatis

Endangered Group: Kusunda, Bankariya, Raute, Surel, Hayu, Raji, Kisan, Lepcha, Meche and Kusbadiya.

Highly Marginalized Group: Majhi, Siyar, Lomi, Thudam, Dhanuk, Chepang, Satar, Jhangad, Thami, Bote, Danuwar and Barmo.

Marginalized Group: Sunuwar, Tharu, Tamang, Bhujel, Kumal, Koche, Gangai, Dhimal, Bhote, Darai, Tajpuriya, Pahari, Tapkegola, Dolpo, Fri, Mugali, Larke, Loppa, Dura and Balung.

Disadvantaged Group: Sherpa, Yakha, Gurung, Magar, Rai, Limbu, Chhaintan, Tangbe, Tingaule, Baragaule, Marphali, Chhantyal, Jirel, Byasi and Hyolmo.

Advantaged Group: Newar and Thakali.

According to the above characteristics and classification of indigenous people of Nepal Sunuwar is one of the indigenous people belonging to the marginalized group with their own language, dress, culture and social norms and values. They are polite, brave, friendly and helpful in nature. They are one of the generations of Kirant dynasty and defeated in many ways and so called high caste have exploited them and chased them and started to settle down in the different geographical region of Nepal mainly in hilly region. The main traditional occupation of Sunuwar is agriculture and cattle keeping. Sunuwar students are found far behind in educational fields. Sunuwar students seem to be comparatively poor in achievement in mathematics. This is why present study is focused to find out factors affecting achievement of Sunuwar students in mathematics.

Significance of the Study

The goal of teaching mathematics is to provide students an essential tool for the further study and for everyday life. In the modern world, mathematics is being increasingly used in sciences, technology, social sciences, management, education etc. Hence it has been considered as a queen and servant of all sciences. The mathematics teacher can teach mathematics by applying modern technical devices and more effective methods. Even then the performance of students is poor in mathematics. Various researches have been conducted to find out variables that are responsible to influence the achievement in mathematics. Similarly, a number of researches have been carried out to find the socio-economic conditions of Sunuwar but no such study has been made to find out the relationship between children's learning and the socio-cultural factors that may provide an understanding for children's schooling and learning mathematics as well. So

the significant of the study lies on identifying factors affecting Sunuwar students of remote area in mathematics in the respect of sociocultural factors, school related factors and students related factors. The significance of the study also lies on following aspects:

-) The importance of the study lies on exploring how the learning environment affects the learning of Sunuwar students.
-) The importance of the study lies on to explore the reason of low achievement of Sunuwar students in mathematics which could be helpful for teachers and stakeholders.

Statement of Problem

Education develops the human resources which are interpreted as a process of increasing the knowledge, skill and capabilities of all people in the country. In fact, in every working field people are using mathematical knowledge and skills to lead their life. But in the context of Nepal, all people do not get the chance of education and the educational achievement in general and mathematical achievement in particular, is poor due to problem like social, economic, cultural barriers. Some of them acquire knowledge from own construction. They build mental scheme by ethno- mathematic process. Their culture and custom may lead to their intuition and indirectly affects to them for learning mathematics. Students feel mathematics as the difficult subject. Sunuwar students have poor mathematic achievement and so it is necessary to find the cause of difficulty in learning Mathematics. So, the researcher intends to study “Factors affecting achievement of Sunuwar students in mathematics (A Case Study in Rashalu, Ramechhap). The study is aimed at addressing the following questions:

-) What are the major factors that affect the learning of Sunuwar students in mathematics?
-) What type of learning environment is provided to Sunuwar students?

Objectives of the Study

The Study was undertaken to attain the following objectives:

-) To find out the achievement of Sunuwar students in mathematics.
-) To explore the factors affecting achievement of Sunuwar students in mathematics.

Limitations of the Study

The study is delimited in the following aspects:.

-) This study is limited to Sunuwar students of Ramechhap district.
-) This study was conducted by taking only one school Shree Gokul Ganga Higher Secondary School of Rashnal VDC of Ramechhap district.
-) The students were selected from primary, lower secondary and secondary level.
-) The data of this study was generated through the interview, observation form and school record.
-) The study was limited within male and female Sunuwar students.

Definition of Related Terms

Achievement

Achievement measure of current capacity depending upon previously acquired skill information. It is used for assessing present knowledge and abilities. Achievement is defined in terms of the score obtained by the students on the school annual examination.

In this study the achievement mean the marks obtained by the Sunuwar students in mathematics.

Sunuwar

Sunuwar are the ancient and major indigenous groups of Nepal mainly living in mid hilly region along the Tama Koshi, Sun Koshi and Likhu River.

Factor

The term factor is defined as the one of several things that cause or influence achievement of mathematics. e.g. educational factor, economic factor, social factor, cultural factor etc.

Janajati

The group of people living in the same place from ancient time with their own language, religion and culture, custom and regarded as back-warded in different sense of modernity are called janajati.

Sunuwar Students: Students who are from Sunuwar culture

Affecting Factors: Causal factors that affect the achievement of sunuwar students in mathematics.

CHAPTER-II

REVIEW OF RELATED LITERATURE

A literature review is the process of locating, obtaining, reading and evaluating the interest which provides the knowledge of what has been established, known or studied and what has been attempted yet. The purpose is to develop some expertise in one area to see what the new contributions can be made and to get some idea for developing a research design. It is necessarily required to find out the gap in research and for further study which helps to expand the context and background of the research. In this chapter, the researcher tries to include the some review that has been reviewed by previous relevant researchers on related field. Two types of review of related literatures have been made: The review of theoretical literatures and the review of empirical literatures.

Theoretical literatures

Theoretical literatures are those literatures which provide theoretical knowledge and philosophical bases 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. So this chapter deals with the theoretical discussion which is needed to interpret and support the finding of the study. Different theories have been developed about the human development and their learning such as cognitive behaviorist theory, intellectual development theories, cultural discontinuity theories, everyday life theory. All theories support human situation and suggest them to promote human learning activities. Among different learning theories following theories were found to be more supportive for the present study taken by my study.

Social Cognitive Learning Theory

According to social cognitive learning theory (Schunk 1991) learning occurs in the social environment by observing others. The reciprocal interactions among persons 'behavior's and environment and the distinction between learning and performance are some of the features about learning and performance of behavior from this perspective. Learning and performance of learned behaviors are influenced by several factors. According to Schunk (1991, "These factors affect what individuals attend to how they process information, whether they perceive learning as useful and how they guess their capability for learning and performance."

According to Bandura (1986) "Human functioning is explained in terms of a model of triadic reciprocally in which behavior, cognition and other personal factors and environmental events operate as interacting determinates of each other. He also explained "Learning is largely an information processing activity in which information about the structure of behavior and about environmental events is transformed into symbolic representation that serves as guided for action."Environment refers to the factor that can affect a person's behavior. There are social and physical environment, social environment included family members, friends and colleagues. Physical environment is the size of a room, the ambient temperature or the availability of certain foods. Environment and situation provides the framework for understanding behavior. The situation refers to cognitive or mental representation of the environment that may affect person's behaviors.

The three factors; environment, people and behavior are constantly influencing each other. Behavior is not the simply result of environment and the persons, just as the environment is not simply the result of the person and behavior. The environment

provides models for behavior. Learning occurs when a person watches the action of another person and the reinforcements that the person receives.

Coleman, Hoffer and Kilgore's model of Students Achievement

Coleman, Hoffer and Kilgore proposed a general model of student's achievement which explains that the school sector may affects student's achievement. In their model student's achievement is influenced by the following six factors:

- a. Students own background
- b. Other students background
- c. Students own behavior
- d. Other student's behavior
- e. School types
- f. School policies

According to Coleman, Hoffer and Kilgere "School polices, such as level of homework, curriculum and disciplinary practices, indirectly affect a student's achievement by influencing that student's behavior."

Theory of Education Productivity

Wilbery (1994) proposed a theory of educational productivity which has theoretical foundation of Lewin (1968) formulation of behavior as a function of personality and environment. Welberges' theory requires optimization of nine factors to increase student's achievements of cognitive and affective outcomes (cited in Welberges', Fraser and Welch, 1986).

The nine productive factors of the student's variables are:

- a. Ability or prior achievement
- b. Age

- c. Quality of instructional experience and educationally stimulated psychological aspects
- d. Quality of instruction
- e. Motivation of self-concept; the instructional variables
- f. Home environment
- g. Classroom or school environment
- h. The peer group environment
- i. The mass media

These factors were classified into three general groups by Wilkins et.al (2004) as follows:

- a. Personal variables, such as prior achievement, age and motivation of self-concept,
- b. Instructional variables, such as amount or instruction and
- c. Environment variable, such as home, teacher, classroom, peers and media exposure.

Social Constructivism Learning Theory

Constructivism is basically a theory based on observation and scientific study about how people learn. It says that people construct their own understanding and knowledge of the world through experiencing the things and reflecting on those experiences. When we encounter some things new, we have to reconcile it with our previous ideas and experience may be changing what we believe or may be discouraging the new information as irrelevant.

Vygostky has developed “Socio-cultural Theory”. In this theory social and cultural contexts profoundly affect children’s cognition. Knowledge is being constructed in social situation of negotiations rather than being the reflection of the objective reality

which is termed as social constructivism. Social constructivism believes on the multiple constructivism of the world. According to the social constructivism as Vygostky say 3, knowledge is constructed in two ways in social context. Firstly, social interaction influences on the nature of knowledge that is constructed and process of the individual use to construct that knowledge. The knowledge constructed by child is not only through his own capacity but from also the context and interaction with others who are knowledgeable. Vygostky proposed that child's knowledge could be predicted if we could understand the social context.

Constructivism stands on its three axioms that are as follows:

- I. Learners learn knowledge from their active participation.
- II. Learners gain knowledge while reflecting on their own action.
- III. Learners gain knowledge when they try to convey their solution to others.

From above axioms Upadhyay (2001) took three terms:

Actions , reflection and scaffolding to describe three broad aspects of constructivism; psychological aspect philosophical aspect and anthropological aspect for psychological aspect Piaget stresses on the key word "action" through which he advocates that knowledge is gained. He said that the essential way of knowledge is not directly through out sense but primarily through our action. In short, action is considered as the prime source of knowledge. Philosophical aspects of constructivism are also called radical constructivism which is led by Glaser field who advocates that knowledge is personal, subjective and unique. And anthropological aspect, it is related to culture.

Teaching strategies using social constructivism as a reference include teaching in contexts that might be personally meaningful to students, negotiating taken as shared meanings with students, class discussion, small group collaboration and valuing meaningful activity over correct answers. However, Cobb (1994) contrasts the approach

of delivering mathematics as content against the technique of fostering the emergence of mathematical ideas from the collective practices of the classroom community. So from the concept of the above reviews of the theory, the researcher drew the following conceptual framework for the further study.

Cultural Difference and Discontinuity Theory

Ogbu (2000) delineates about the cultural difference and cultural discontinuity theory that deal with the problems in children's learning caused by the difference and discontinuity between the cultural of home and the school. Those children whose have cultures are much similar to the culture of the school can cope easily with the system that may result better learning achievement. Similarly, the children with unmatched or dissimilar home cultures with school cultures and who do not have enough attention in their learning they do not get much recognition of their cultures and they have to work achieving learning outcomes compared to the children with good matched.

Ogbu (2001) emphasizes learning not only as the product of the cultural and language differences but rather than the nature of the relation between the culture and language of minority/disadvantaged and dominant groups. The dominant group controls the school system through implementation of their curriculum and using their language as the only means of instruction. Regarding cultural difference, identity and school learning Ogbu has put the examples on the case of the United States of America (USA).

Ogbu (2000) has emphasized on two types of cultural differences i.e. the primary cultural difference of voluntary minorities and the secondary cultural difference of involuntary (caste like) minorities. As his study suggests involuntary minorities force more difficulties in school learning, participation and performance due to big gap between their cultures and mainstream culture.

However, he developed the theory of cultural differences on the case of USA; it might have implication to this study that is related to cultural discontinuity and learning difficulties in mathematics of Sunuwar ethnic group who also disadvantage group in terms of cultural discrimination, domination and backward from mainstream. Mainly the Sunuwar children hesitated to interact with the other children in the school as well as in the community due to the socio-cultural reasons. Such scenario hinders interaction and participation with other caste people that obstruct their learning. Similarly the Sunuwar children learn by observing and engaging in the works of their father, mother and elders at home. But they do not get opportunity in the school excepting listening which is the dominating activity during the day time at school.

Ogbu (2001) further more argues that discontinuity is also occurred in the area of language, thought and measurement. It happens mainly due to the difference between the teaching and learning strategies in the home i.e. community i.e. informal education and styles used in school i.e. formal education (Ogbu, 1981), argues that the primary and secondary cultural discontinuity also cause the difficulties in learning and he argues that the children from disadvantage caste tends to develop coping behavior and attitudes that are different to school culture that obstruct their learning. The theory of cultural discontinuity describes social structural but there are micro culture in every household that influencing children's learning. In this consideration everyday life theory is to consider finding out the children's home culture and their interpretation to it.

Learning not only as the product of the cultural and language differences but rather he insists on the nature of the relation between cultural and language of minority/disadvantage and dominant group. The dominant group controls the school system through implementing their curriculum, cultural difference identity and school

learning, he has put the examples which are best or the case of USA. He has identified the features differences mainly of three types of minority groups.

1. autonomous
2. voluntary
3. involuntary antonymous

According to Ogbu, (2002) autonomous minorities in number for examples: Jews and Amish in the US. They do not have the problem of the cultural differences and language since they have similar cultural and language to the minority American who have controlled the education system inn the US. Voluntary minorities are people who have migrated voluntarily expecting a better life, Opportunity and more political freedom in the US or in any other society.

Involuntary minorities are found as caste like minorities who were forcefully brought to the US or any other society against their will for slavery or forced labour in the time of colonization. However, he developed the theory of cultural differences on the case of the US, it might have implication to my study that is related to cultural discontinuity and learning difficulties in mathematics of Sunuwar children are also minorities in terms of population, culture of discrimination and domination. He argues that the gap between the minority cultures and the mainstream culture does not favor schooling learning of minority children who are socially and culturally disadvantaged (Ogbu 2000, 2001). In case of this study, the Sunuwar students as the marginalized majority cultures are also deprived due to the dominant mainstream cultures.

Ogbu (2000) has emphasized on two types of cultural differences that is the primary culture differences of voluntary minorities and secondary cultural difference involuntary minorities. As his study suggested involuntary minorities face more

difficulties in school learning, Participation and performance due to big gap between their cultures and mainstream culture.

As the present research question is considered, it is helpful in finding the learning difficulties which affect the achievement in mathematics and participation of Sunuwar students. Necessary information will be collected from the observation and in-depth interview of Sunuwar students' behavior in the classroom, on the playground, in community, inquiring the children and the parents about their cultural practices and performance carried out in depth study on the children and parents about their cultural aspects that contribute to their schooling. And how do they feel difficulties to learn mathematics at school and causes of difficulties and affecting factors will be investigated.

Empirical literatures

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 literary texts.

The empirical review of empirical literature used to be done for the following objectives:

-) To demonstrate good general knowledge of the chosen area of study;
-) To demonstrate comprehensive knowledge of a specific topic and or issue.
-) To conduct a critical review of relevant empirical research;
-) To demonstrate the ability to design and implement an empirical study;
-) To make some original contribution to knowledge or understanding in the area of study.

In this research the following empirical review of empirical literatures has been made.

Education department service centre (EDSC - 1997) studied on the "national achievement level of grade three students" with the objectives to develop culturally contextualize mathematics curriculum resource materials for the lower secondary school of Nepal in order to foster a culturally pluralistic society and improve student achievement and participation in mathematics at lower secondary level. This research design was quantitative in nature.

Ghimire (1997) conducted "a study on factors affecting teaching/learning mathematics at secondary level". The purpose of the study was to find out the factors affecting in learning mathematics of secondary students. School environment, family background, motivational factors/ physical facilities, interest of the learners and instructional materials were the factors which affects the achievements of students. Ninety students were taken as sample. To analyze the data, t-test was used.

Thapa (2001) conducted Study entitled, "learning strategy for out of school children of Dalit community". The objectives of the research was to find out the learning skill and ways of learning in daily life of untouchable children. Observation form was the main tools of data collection. There were contents which were not contextualized and there was the marked difference between society and classroom learning. Out of school classes, more emphasis was placed on theoretical aspect and less stress on practical matters. Even in the training materials, biological approaches were not included. The study drew some implication for the improvement of teaching and learning method of the out of school program curriculum.

Baral (2004) conducted "a case study of street children for learning mathematics." The main objective of this study was to investigate how the street children

learned mathematical skills. Different tools such as case study, observation and interview were applied to investigate their learning of mathematics skills and Vygotsk's social constructivism theory was applied to analyses the data. He concluded that street children of the Kathmandu valley had basic mathematical knowledge. The level of their skill was different according to the work where they involved in.

Gyawali (2006) conducted a study on "mathematics achievement of grade V students from Yadav and Chamar community". The purpose of the study was to compare the mathematics achievement of yadav and Chamar students. One hundred students with 70 boys and 30 girls were taken as sample. The researcher used achievement test of Yadav and Chamar students and found achievement of 21.82 and 25.04 respectively. The mean of Yadav student was significantly less than the mean of Chamar students at primary level which showed that Chamar students were better in achievement than Yadav students.

Faculty of information technology and quantities science university penology **(2007) conducted** "a case study of high failure rate mathematics course and its contributing factors on Sarawak diploma students Tang how even. The objectives of this study was to identify the high failure rate mathematics course offered to full time diploma students in Victim sorrows and to investigate the relevant factors that affects the students' performance of high failure rate mathematics course. The researcher adopted the expost facto research whereby the relationship and affects among the variables were studied as they occurred in natural setting (wireman - 1995). The population of the research consisted of all full time diploma students in Uitmsarawaksemester January may 2004 to semester January May 2007.

The reports of the final examination analysis for the high failure rate mathematics course from semester January - May (2004-2007) were obtained from the respective

needs of programmes. Lastly the study found that course mark subsequent result generated using the step wise method showed the best regression model of only significant predictors (PCOS) male 133 course mark was best predicted using model 3 with SPM additional mathematics and gender. SPM additional mathematics become more influential as compared to gender in determining its course mark over all SPM additional mathematics had the strongest influence on course mark as well as best predictor.

Bastola (2007) Conducted a study on the factor affecting the achievement of Dalit students in Kaski district. The purpose of the study was to describe the learning environment for Dalit students in the school and find the relationship between the teacher and Dalit students in the class. To identify the major factors those affect the mathematics achievement of Dalit students, he took 3 students, 3 parents and 3 teachers as sample. He used observation and interview schedule as tools. He found that poverty, housework load, expensive education, motivation and health of students were as the major factor affecting the achievement of the students.

Shahi (2009) conducted a research entitled “Factors Affecting Achievement of Dalit students in Mathematics as a Case Study in Doti district” with objectives to find the learning environment and affecting factors in mathematics achievement of Dalit students. It was a qualitative research in which he has used case study, observation and interview as data collection tools. As sample, he took six Dalit students and their parents and six peer groups. He has found that weak economic condition, social belief, tradition of the society, psychological factor, health problem, distance of school, family environment of the parents were the factors affecting the achievement of Dalit students.

Saritasand Akdemir (2009) Studied to identify factors affecting the mathematics achievement of students for better instructional design. In this study, Saritas

and Akdemir related students variables, contextual variables and design option that influence learning mathematics achievement. Their result highlighted the need to customize instruction to optimize the performance of each individual student. The findings indicated that instructional designer need to develop flexible teaching and learning based an awareness of student experience and background, subject matter and instructional communication and technology.

Bhatta (2010) studied causes of failure in mathematics in the SLC examination in an ineffective school of Sindhupalchok with the objective to identity the causes of failure in SLC examination the objective was to find out the effect of variable of low performance student in ineffective school of Sindhupalchock district. Mention the findings.

Sunuwar (2012) studied on the title “Basic Mathematical Concepts and Learning Process of Sunuwar Community in Ramechhap District”. With the objectives to find and explore the basic mathematical concept and learning process of Sunuwar community, and measurement system practiced by Sunuwar community. This was a case study. This study was conducted among the 9.71% Sunuwar population among the total population of Ramechhap using the primary sources as observation and interview and other related books, published and unpublished research document as secondary sources to collect the data. This study was able to find out the following findings. They are the number system of Sunuwar is base 20, the mathematical process is based on traditional practices and they use it through physical and they use it through physical object of environment in practical situation, to add and subtract they use small stones or grains of can etc, to multiply the number, they use the repetitive technique of addition, to divide the number, they decompose the numbers into groups and divide to each other and they measure the length by using hands and fingers and to measure the volume they use unit of

measurement like Chimti, Muthi, Chauthai, Pala, Mana, Pathi, Muri etc. and to measure the weight they use unit like Chhatak, Pau, Bisauli, Dharni, Kilo etc.

This study helped me to find out the practical mathematics of Sunuwar community and helped to conclude that the Sunuwar students are affected by the practical mathematical system by their parents which is making them difficult to learn formal mathematics.

Shrestha Radha Devi (2012) conducted a study on factors affecting on achievement of Newar students in mathematics with the objectives to explore the affecting factors that causes learning mathematics to Newar students. She was used observation and interview as tools to collect the data and found that home related, students related and school related factors that are affecting on achievement of Newar students.

Sapkota (2013) conducted a study on cause of failure in mathematics at a public school in Lalitpur district with the objective to find the cause of failure in mathematics at secondary level, identify the strategies taken in mathematics at secondary level, and identify the strategies taken by the school in improvement of mathematics achievement.

Chemjong (Limbu) (2013) has studied on ethno mathematics entitled on “Basic Mathematical concept practiced by Limbu community” in Dhankuta district. The major objective of this study was to identify the numerals used by Limbu community, to find out the basic concepts and process of measurement system practiced by Limbu community, to explore the geometrical concepts for making domestic goods and to explore the relationship between the mathematics practiced by Limbu community and the formal mathematics.

In this study, non-participant observation note, interview and photograph of the Limbu community and their hand made goods as well as goods used by them were used

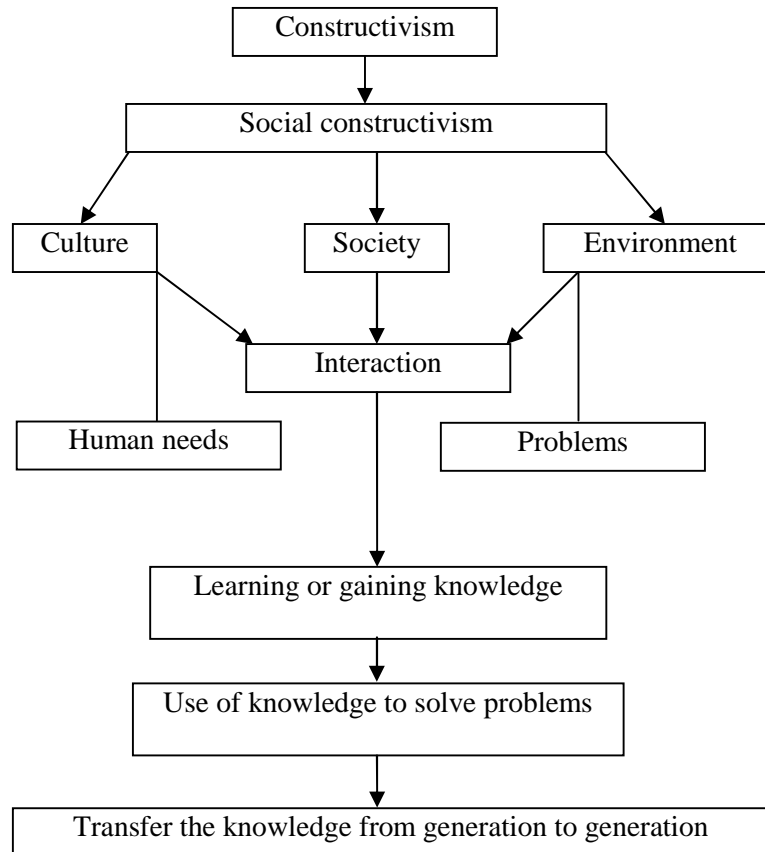
as the tools of data collection, then steps of grounded theory was followed to establish the reliability of the tools but for the validity it was not found any theory and steps to valid the test.

The study was summarized by finding the Limbu's own script numbers of notation developed by the king Sirijangha (19th century) called Kirantis script. Also it was found that the number system of Limbu community is base 10 as das ex, das due, das tin etc. and they can't in their daily life using base 20 to can't their age, money etc. The beam balance (tulo) is the main instrument for the weight and other scale of weight are pau, sher, bisauli, dharni etc. This study helped me to find out the measurement system and mathematical concept of Kiranti people because Sunuwar ethnic community also a part of Kirant.

Joshi (2013) did his study on “Learning difficulties of Byasi Sauka students in mathematics”. It was the case study done one the Byasi Sauka a Janajati who lives in Byasi of Darchula district. The study was done with the objectives to identify the learning difficulties in mathematics of Byasi Sauka children, to identify the causes of learning difficulties of Byasi Sauka children in mathematics at Primary level. The study was conducted with the help of In-depth interview schedule, Observation form and Document analysis as tools of data collection.

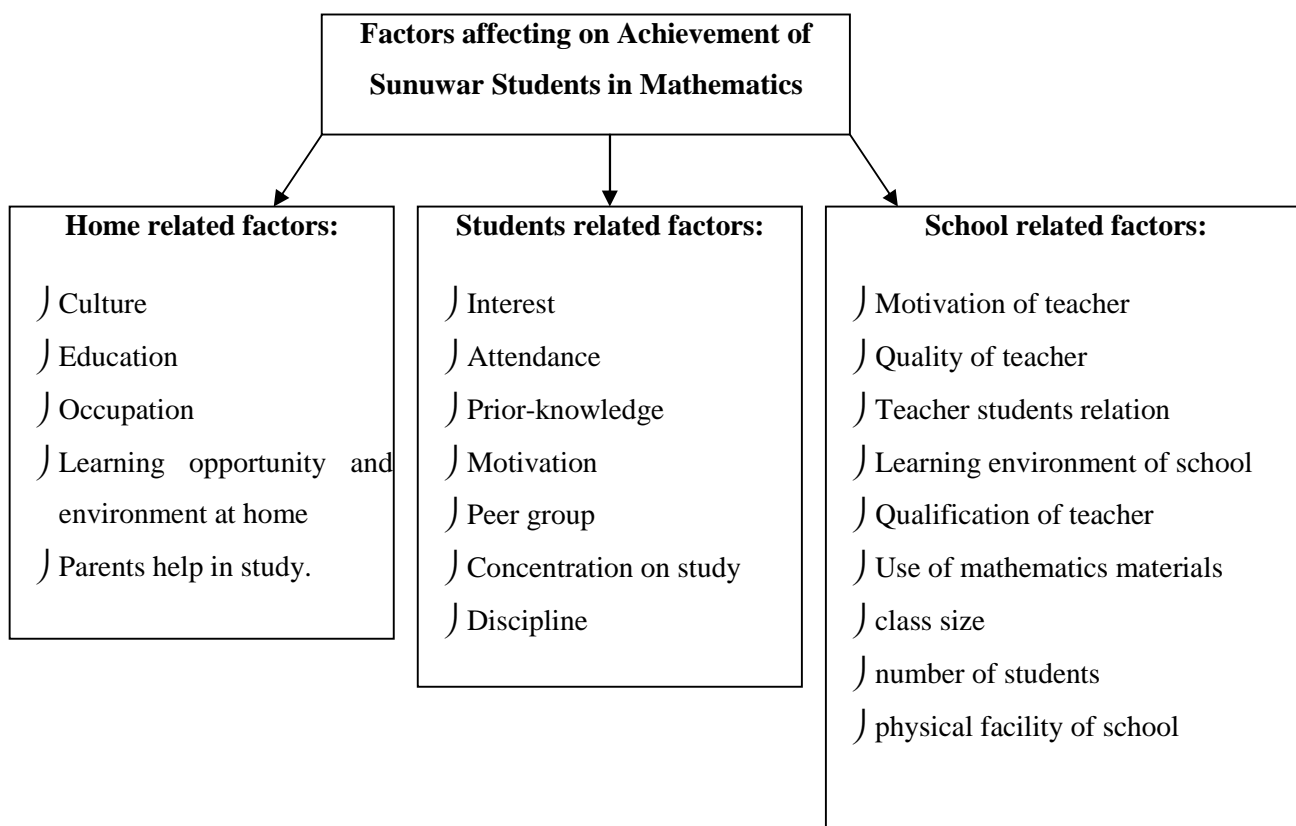
For the analysis of the data JohnU.Ogbu's theory of cultural discontinuity was used and researcher found the difficulties related to understanding, verbal association and calculation, regularity while learning mathematics by Byasi Sauka student. In mathematics class, socio-economic environment and attitude of students and parents towards the learning school mathematics and role of teachers, parents and household work making difficult to them and teaching learning strategy, school environment for learning mathematics are also making difficult to learn mathematics properly.

Conceptual Framework for the Study: By reviewing the above theoretical review of literature following conceptual framework was developed



This conceptual framework was formed according to review of above literatures.

But this case study related to the factor affecting on achievement of Sunuwar students in mathematics in school education which is based on the theory of constructivism for learning. Social constructivism assumes more collaboration of learning environment which proposed the effective learning procedures to develop the new knowledge for Sunuwar students which indicates in a framework for this study. By reviewing the above empirical and theoretical literature following conceptual framework is accumulated about the factors affecting on achievements of Sunuwar students in mathematics.



Source: Shrestha Radha Devi (2012), A thesis on Newar students

Among the above related factors following factors were studied:

Home related factors

-) Social belief and social tradition
-) Parents' education

Students related factors

-) Interest
-) Motivation

School related factors

-) Language
-) Learning environment of school

CHAPTER-III

METHODS AND PROCEDURES

This chapter includes the method and procedure of the study carried in this study. It describes the design of the study, selection of case respondents, population of the study, sample of the study, tools, data collection procedure and data analysis procedures.

Design of the Study

This study intends to find out the achievement level of Sunuwar students in mathematics and factors affecting their achievement in mathematics. It was a case study and it was primarily based on qualitative descriptive research design.

Selection of case and respondents

Since, the Ramechhap district lies in the central development region of Nepal and the Rashnal VDC lies in Ramechhap district. This village consists of more Sunuwar population in comparison of other ethnic population. So the case of the study was considered as Shree Gokul Ganga H.S. School which is situated at the central part of the village and the respondents were all Sunuwar students of primary, lower secondary and secondary level of the school for observation and 20 Sunuwar students for interview selected purposively where more number of Sunuwar students are studying than other caste students.

Procedure of selection of respondents sample

This is qualitative inquiry, so the sample size in this study is not fixed. According to Anderson, there are no rules for sample size in qualitative inquiry (Anderson et.al. 2001). Patton (1990) has mentioned that main difference between qualitative and quantitative research lie on the sampling approaches. So the sample size of this inquiry depends upon what the researcher wants to know, what is the purpose of research, what can be the credibility of the study and what can be done with available time and

resources. So the researcher's respondents of this case study were Sunuwar students, their guardians and mathematics teacher of the case school, Shree Gokul Ganga Higher secondary school, Rasnal-4, Ramechhap. This school is chosen for the study because Rashnal VDC is the most populated VDC of Sunuwar and the school is the most populated sunuwar students of the district. Since the researcher wanted to find out the factor affecting achievements of Sunuwar students in mathematics by taking the sample consisting of primary, lower secondary and secondary level students from the case school they were selected as respondents in the following ways. Interview and observation were the main tools to collect data besides the data from school ledgers. Twenty Sunuwar students were selected purposively from primary, lower secondary and secondary level from the case school. Out of 20 students 6 were from primary, 7 were from lower secondary and 7 from secondary levels. The students consisted of both boys and girls representatives of their classes.

Tools for Data Collection

The main tools for the collection of data were interview schedule and observation form although the data were taken from school records. Since the interview of respondents and observation of classroom teaching were the main tools for the collection of data, they have been considered separately for their construction and conduction for data collection in the following Para. Data was collected from case school, written documents and previous research. But the primary data was collected from target students, guardians and teachers through interview, interaction, observation, recorded data (secondary data) from the school and focus group discussion. The following techniques were applied in this study.

Observation Form

For the purpose of collecting primary data, the observation method is commonly used. It has become a scientific tool and the method of data collection for the research. It is systematically planned and recorded and is subjected to check on validity and reliability. Under this method, the information is sought by the way investigators with his/her own direct observations without asking from respondent. The classroom observation form was developed by the researcher to observe classroom interactions between teachers and students and among students. The classroom observation form was developed on the following basis as shown in appendix-I. One observation form was developed and photocopied to make more as required. Altogether nine classes were observed in consecutive three days three periods per day in primary, lower secondary and secondary level classes respectively. The teaching activities of teacher and students, their interaction were noted down by the researcher in the observation form as information for collecting data.

Interview Schedule

Interview is also the method which is the most commonly used to collect Primary data. It is the means to express internal thought, interest, concept and thinking of a person. It is a tool to find out experience, internal thought of person according to their acting, looking and facial expression.

Interview was also the main tool for the data collection as mentioned already. Although the interviews with students and teachers have been given much importance and guidelines have been developed for them as mentioned in appendices -II and IV. Interview guidelines were also developed for guardians as given in appendix –III. The interview guidelines were developed on the following basis. The guidelines for students were made to assess students' views, their thinking about mathematics, mathematical

practices, teachers' role and their interest in mathematics. Altogether 3 interview forms were developed for students, teacher and parents. They were photocopied to make multiple numbers as required numbers. The first day interview was conducted for six primary students, the second day for seven lower secondary students and the third day for seven secondary students. The responses and answer of the students were noted by researcher on note copy as information and views on mathematics for collecting data. The interview with Head teacher, subject teacher and guardians were taken in fourth day on the basis of interview guidelines.

Focus group discussion with Guardians and Teachers

The focus group discussion was held among students, selected guardians and mathematics teacher including head master of the case school. It was conducted after the classroom observation and interview at tiffin time of school and discussion was conducted for 30 minutes. The information obtained from it was noted on note book by researcher for the data interpretation.

Reliability and Validity of the Tools

The data for the study was collected from the secondary sources involving the researcher himself from recorded data of school i.e.; marks obtained by the students of three final and a half yearly examination from the school marks ledger and primary data was collected from classroom observation interview guidelines. So the data are reliable for analysis. The tools for the study were made valid piloting and consulting with experts and other researchers.

Data Collection Procedure

Since interviews and classroom observations were the main means of data collection, the information from interviews and classroom observations were obtained as follows. More than this the marks obtained by Sunuwar students in final and half-yearly

examination were also taken so as to find position of Sunuwar students in mathematics in comparison to overall achievements.

The information from interviews was obtained as follows:

-) Primary students feel mathematics as easy and interesting subject. They enjoy while practicing maths at school and home. Lower secondary students feel mathematics as not so difficult and not so easy subject if they understood while teaching in classroom. It needs more extra time to practice but they do not get extra time at home due to home related work as they have to help their parents. Similarly the secondary level students feel mathematics as very much difficult subject. If they do not read tuition class of mathematics it is impossible to pass.
-) The Head teacher feels that students are pore in mathematics due to lack of trained and skilful subject teacher. The subject teacher responded that there is lacking the teaching materials and labour of students at home. Parents responded that their children could not do better in mathematics in higher classes as they used achieve in lower class due to lack of time to practice at home and could not read extra class due to poverty and illiterate.

The information from classroom observation was obtained as follows:

-) Teachers' presentation and behaviour on students.
-) Language
-) Prior knowledge
-) Teaching method
-) Use of teaching materials
-) Classroom size and number of students
-) Desks, benches and white board
-) Students interaction (Students' participation)

) Homework and classwork

The researcher had visited the area of the study to collect information. Researcher had informed them that after observing their class work and home work and find the cause of their difficulty on mathematics. The researcher had taken the record of obtained marks of three final and a half yearly examinations recorded in school's marks ledger and had found out the achievement of maths of Sunuwar students and other ethnic group students. And researcher had conducted interview with certain questions related to their difficulty on learning mathematics and personal background. The researcher had studied of those selected Sunuwar students, discusses with their parents, subject teacher and head teacher for 7 days and also had taken the interview with focus group. During this time the researcher had observed students carefully how they learn and what difficulty they feel on learning mathematics. For this study purpose, the researcher has prepared the individual student record of all Sunuwar and other students studying at grades, primary, lower secondary and secondary level. Then the researcher had analyzed those files based on the criteria.

The researcher had conducted the interview among the respondent students, respective guardians, a peer group and selected teacher and conduct focus group discussion among the respondent guardians, teacher to find out the learning environment provided to Sunuwar students. The main factors that are affecting the achievements in mathematics of Sunuwar students are their negative attitudes towards mathematics, uneducated parents and poverty, management of effective class with student centered teaching method using modern teaching technology and materials as students' related factors, home related factors and school related factors.

Analysis and Interpretation of Data

The researcher had used the data collection form for the observation and interview. An observation form and set of questionnaire for interview were made and data were collected for analysis with the guideline of research guide. The collected data were categorized according to the category of the respondents and their different code was given in the text of interview and observation notes. To maintain the validity and reliability of the result of the study triangulation was adopted. The data was analyzed and interpreted by using the frame work that the researcher had developed in literature review. The data collected from interview, classroom observation and school record were analyzed by grouping the similar information in descriptive method.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

Data analysis is a crucial part of any kind of study. In any study after collecting required information, the processing of the data is done to arrive at the conclusion. The collected data may not give any particular basis to make decision or it may be large and may not be in desirable and simplified form. So, to understand the data and to enable the investigator to interpret, to draw conclusion and make generalizations the process of data analysis is carried out.

After completing the data collection procedure the collected data are analyzed with the help of defined procedures to meet the determined objectives of the study. Data analysis may be defined as the surgical operation of the collected data.

This study was related to the qualitative study. The main focus of the study was to find out *Factors Affecting in mathematics of Sunuwar students* in learning mathematics. This chapter deals with the analysis and interpretation of the collected information derived from the case study. The researcher had used different observation procedure in this study. The researcher had observed the students' behavior and activities into the classroom. The case students' home environment and their behavior were evaluated by the researcher with help of interview guidelines. The researcher took interview with the case students, subject teacher and head teacher.

The collected information was analyzed under the following headings:

1. Analysis based on interview(interview with students and teachers)
2. Analysis based on classroom observation
3. Analysis based on home, school and students related factors

Analysis based on interview

In this topic the researcher had introduced the case students as respondent Grouping according to their common or similar views, factors that effect on achievement of mathematics, home and school related factors, condition of home environment and family status and culture, social values. The researcher had taken 6 students from primary, 7 students from lower secondary and 7 students from secondary level. The interview was conducted on the basis of interview guideline given in appendix –II for Sunuwar students. The researcher had analyzed the data obtained by the interview with 4 guardians, subject teacher and head teacher on the basis of interview guideline shown in appendix- III, appendix-IV and appendix –V in combine form.

Analysis of the data based on information obtained from primary students

Respondents A, B, C, D, E and F (Uttam Sunuwar, Tara Sunuwar, Anil Sunuwar, Kabita Sunuwar, Ambar Sunuwar and Pratikshya Sunuwar)

Uttam , Tara and Anil are 10 years, 9years and 8 years old students respectively of primary level of grade IV. They were born at BurkeTole,Rashnalu-3, and Ramechhap district. Nowadays, they live in the same place where they were born and it takes about 30 to 45 minutes to reach at school. Kabita, Ambar and Pratikshya are of 10 years old students of grade V. There are 6 members in their family and they all belonged to Hindu by religion. In comparison with other Sunuwar families, their family is small. Their fathers use to go to field for agricultural work and mothers, brothers and sisters also help to father for work at field. When they are free they gather with other people and drink local alcohol, their fathers are general literate but mothers are illiterate. There is nobody in their family to help them for the study. So when they feel difficult while they are practicing mathematics and reading other subjects there is nobody to ask as support in

study. They are achieving good marks in mathematics. The math teacher behaves them as guardian and loves them while teaching. Mathematics teacher teaching in classes IV and V is female teacher and she teaches effectively in the class so the students of these classes understand mathematics properly. They like mathematics to practice and also they feel quite easy to do homework of mathematics. There is less number of students in primary level comparison with lower secondary and secondary level. There are 25 students in grade IV and 30 students in grade V. They have good peer group in the class and good relationship with all students and teacher. School has provided them academic good environment to learn and also for the extra activities. They do not want to miss the school but sometimes they miss due to household work.

It seems their families are poor in economic condition. Before going to school they become busy in household works and at other leisure time at home with other friends they can be found busy in playing football. Their parents are careless about their study. They feel mathematics as a difficult subject. They never can complete their mathematics homework.

When the researchers went to the school, he found the teachers' behaviors were not different between sunuwar and other students. According to school register they were frequently absent because they must do work with their parents at school day also to earn some extra income to fulfill home need.

When researcher observed their house the researcher found the poor economic condition of family. When researcher asked their father about their study they said, *"We are backward caste and we have a problem of food and some clothes. So, sometimes their children engage in laborious work and household work. Nobody can help to solve their mathematics problem and homework so they never complete the homework."*

From the above statements, it can be concluded that they have enough household works. Hence, they reach at school quite late every day and also they usually become absent in the classroom because of poor economic condition and lack of educational awareness of the family.

After school, they used to get engaged in study. The researcher just talked about learning difficulties in mathematics with them. They told, *'we have not enough time for doing practice the mathematics. So, we think lack of time and household work, I feel difficulty in mathematics.'*

Analysis of the data based on information obtained from lower secondary students

Respondents G, H, I, J, K, L and M (Dinesh Sunuwar, Arun Sunuwar, Manish Sunuwar, Hira Maya Sunuwar, Sajan Sunuwar, Sangita Sunuwar and Man Bahadur Sunuwar)

Dinesh and Arun are of 11 years old boy students studying in grade VI, Manish and Hira Maya are students of 12 years old studying in lower secondary level of class VII and Sajan, Sangita and Man Bahadur are students of 13 years old studying in grade VIII. They live at Rashnal-4 Patle, Ramechhap near from the school. They have 5 members in their family. They are father, mother with one sister and one elder brother. Their father and elder brother have gone to foreign country to earn money and mothers work in house. At leisure time they must help their mother so they have not enough time to practice mathematics at home. So, their study depended upon the school.

Their fathers are simply literate but mothers are not literate. But mothers are good housewife. Three students of grade VIII Sajan, Sangita and Man Bahadur are candidate Of D.L.E which is going to be conducting from first week of Chaitra but they are not prepared well. Still they are feeling difficult to pass the exam of mathematics. Mathematics is being difficult as the level of classes increase. They used to get good

marks while they were in up to grade V. They were good students of mathematics in primary level but their level of mathematics going on decreasing as they reach in higher classes. They have good peer group and good relationship with all friends in the school. There is not any type of discrimination in the school by caste, gender, religion and class among the students and teachers. The teacher behaves equally to all students in the class while teaching and teaches in easy way. They all understand the mathematics in the class and the learn discussing with teacher. The school has provided quite good environment to learn the mathematics and other all subjects. There is good classroom with enough furniture but in lower secondary level large numbers of students are there which is being difficult to control, to check homework and classwork while teaching. The sections are not separated due to lack of classroom. Some word pronounced by mathematics teacher is being difficult to understand because he is teacher from Terai region. Mathematics is being hard due to lack of time to practice at home and they are unable to read extra class due to poverty. Those who achieve good marks in mathematics they read one hour tuition with teacher.

All societies have their ethno-mathematics. Their society and family also use their own ethno-mathematics. They used to say for pathi, mana, bitta, haat as measuring units in spite of kg.,litter, meter etc. They use to these units in house and community.

They had not enough time for study and their mathematics was not good enough. At night they had the problem of light for study while load shedding is occurring. There was frequent problem of load scheduling. They often present in the classroom except when they fall sick and when there is emergency work at home. Their parents could not give attention in their study because of their occupation, poverty, lack of education, awareness and many other problems. Sangita hates English and mathematics. She is an intelligent girl but her economic condition is very poor. She has shortage of food and

clothes. Her mother is a good house wife and works as labor in others' field. She is illiterate so she can't help her in study.

When the researcher observed the school activities, he found that they were interested in subject like Nepali but not English and mathematics. The government of Nepal is giving scholarship to the Janajati students but no any other opportunities have been given by the school administration for their study. He did not get good family environment to study. It is the main problem that they are economically weak.

Their mothers said, *"We are economically poor because of lack of knowledge and education. We have not capacity to give full time for their study." And said "we have a problem of food and clothes, we can't give attention to study. It is the main problem of economically weak"*.

This statement tells that most of the Sunuwar parents are poor and backward which plays the main role for low achievement of Sunuwar students.

Analysis of the data based on information obtained from secondary students

Respondents N, O, P, Q, R, S and T (Nisha Sunuwar, Dil Bahadur Sunuwar, Rabin Sunuwar ,Ashok Sunuwar, Amrita Sunuwar, Shanti Maya Sunuwar and Janak Sunuwar)

Nisha Sunuwar, Dil Bahadur Sunuwar, Rabin Sunuwar and Ashok Sunuwar are the students of 14 years old of secondary level of grade IX. Their house is located at Bhimsenthan, Rashnal-9, Ramechhap and their houses are 1 hour far from school. There are 7 members in their family. There are their father and mother, two sister and two brothers. The distance between their houses and school is 3.5 km. In comparison to other Sunuwar students their family seems little bit strong. Their fathers can read and write Nepali very well but mothers are illiterate.

Nepali is best subject for Nisha because there are many stories and poem. Her aim of life is to be a good poet of the nation. Sometimes she participates in poetry competition and she awarded by SANTONA prize. They all have a good environment to the study at home. Their father went to Sikkim (INDIA). They are living with her mothers. When the researcher observed the class equally, the researcher felt that relation with other students in the classroom was positive.

About their study in mathematics the teacher told, "*they always do homework except in especial condition. They practice at home whatever they learn in school*". The school did not provide special opportunity for the backward children. But little scholarship was distributed by the government of Nepal to the janajati students. Therefore school environment for Sunuwar student was normal. About the difficulties in learning mathematics, they said, "*There are so many difficulties in learning mathematics such as divide, calculation and simplify. This is all because of the lack of practice time, poor economic condition, unfavorable social environment, etc. They think away from their parents is the main reason of feeling difficulties in learning mathematics. If they do not labor hard, mathematics is the major obstacle in their study*".

They are poor in mathematics but they always follow the rules and regulations of the school. They reach school in time wearing school uniform. They have good environment to study. When they returned home from the school they do some house work. They used to play game with their friends. About their study one of the mothers told, "*We are Sunuwar; I did not get a chance to go school. Therefore, I am illiterate. So I cannot understand about their children's' study. Nish sometimes does not get time to do her homework due to the poor economic condition for our family. Here I am working hard; sometimes Nisha also goes to work as laborer. It has been very hard to buy her pen and copy*".

Similarly Amrita, Shanti Maya and Janak are students of 15 years old studying in grade X. They are from Rashnalu-6, Darkha which takes 45 minutes to reach at school. They have 6 members in their family. They always go to school because they do not want to miss the classes of mathematics, English and science. These are hard subject and they are reading extra tuition classes for these three subject. Among this mathematics is most difficult subject for them because it needs more time to practice. They learn mathematics by asking their peer and teacher in extra time too but also they get less mark than other subject. In school there is good environment to learn and good skillful teacher to teach. Good communication is there among the parents, teacher and students. School provides good opportunity to read and write by managing all teacher and required materials. In addition school has to emphasis to use modern technology as teaching materials along with local material. The Sunuwar students are being disturbed to their study by some unnecessary cultures of Sunuwar.

In comparison to other Sunuwar family, their families are very small and happy. They have own field for farming. Their fathers and mothers can read and write properly as they both are literate and they have shop (Kirana Pasal) as their regular income source. So, they have a good position in the society and mother also very skillful women for making Marcha (medicine which is used to make jand) and Jand (alcohol made by cooking millet, maize, wheat and rice) to sell as local wine in their small hotel. Other villager came to brought, Mercha and Jand in their shop. Sometimes they also work as shopkeeper.

In this case, they are not poor in the society but they don't have any knowledge to give enough time for studying their children. So they were not active in studying. Amrita said *"The teachers behave me as they do with other students. I study only at home in the evening. Mathematics is a hard subject for me. Our math teacher is good but sometimes*

he does not understand our feeling. He does not check our homework and classwork properly." In remaining time "She played with her friends. Sometimes she helped her parents in selling goods and other household works."

Mathematics teacher asked about her study then he said that," She is a very weak student in mathematics. She failed in mathematics in grade VIII though she promoted to grade IX. She does not do homework. Other three students are also of same category. Main problem is that students do not read at their home. I use teaching materials while teaching. But the use of modern technology is very far from us so we could not use lack of knowledge of use and technical goods."

These statements say that they have very little time for the study and they do not want practice mathematics. As a result they are very poor in mathematics. Moreover, they are not awareness of about their study.

From the above statement it can be conclude that the economic condition of their home is very poor. Their involvement in supporting the family members and social environment are the things that make the poor in studying mathematics.

Analysis based on classroom observation

The researcher made the classroom observation on the basis of guidelines of observation form (appendix- I). The observations were done in the grades 4, 5,7,8,9 and 10. In total nine classes were observed in the three consecutive days. First to give a picture of classroom observation, Episode-I, Episode-II and Episode-III are given below, which is transcribed by the researcher to present classroom situation of teaching and learning.

Episode-I

Analysis of the data based on information obtained in the first day classroom

observation:

In the first day of classroom observation in grade four, seven and ten in the first, second and third period of 40 minutes in 2072/11/02 researcher did observation as follows. The researcher already entered in the classroom to observe and notice students in the room. Then mathematics teacher entered the classroom with teaching materials. All students stand up and said good morning sir but researcher found that Sunuwar students couldn't say good morning sir. Then the teacher told them sit down. Then teacher opened the text book and asked the question to the students, Do you finished the homework that given you yesterday? If the teacher got the answered ' yes' he went to another chapter/exercise if the teacher got the answer 'no' then he did that problem on board. He didn't check the homework. The students of class four were more interactive then class seven and ten.

The teacher had solved a problem on the board without review of this problem. All the students were busy to write the solution of the problem on the board. After some times, he asked with the students, "did you understood the lesson or not". Then some students said 'yes' and some students said 'no'. The students, who said answer 'no' they were from Sunuwar students. Then among them one of the Sunuwar student stood up and asked with teacher by own language (mixed language) but teacher did not understand his language. All students, who said answer 'yes' they started to laugh then teacher kept the class silent. And teacher asked that student, what do you say? Please clarify in Nepali language. After this, he couldn't clarify his problem and sat down. Then other Sunuwar student doesn't try again to asked teacher about their mathematics problems on the board.

The above activities into the mathematics classroom the researcher saw that Sunuwar students used their own mother tongue at school and classroom. But mathematics teacher used Nepali language at class. There were only 17 Sunuwar students in this classroom out of thirty students in grade IV. The class room size was enough for 30 students and the desks and benches were sufficient. In one set of desk and bench there were sitting 4 students. Similarly in class VII, 29 Sunuwar students among 82 students and in class X, 48 sunuwar students among 112 students. In class X there were two sections but in other classes no sections. There was very vast gap between teachers, other caste students and Sunuwar students in communication. The researcher thought that there was cultural difference in language, which is related to John Ogbu theory. It is the main problem for teaching mathematics to Sunuwar students. Moreover, it is concluded that from above activities there is discontinuity in language. So researcher concluded that language affecting factor.

Episode-2

Analysis of the data based on information obtained in the second day classroom observation:

In 2072/11/03 the mathematics teacher entered in the classes V, VIII and IX classroom in the fourth, fifth and sixth period with daily using teaching instruments. The researcher also entered with mathematics teacher and researcher sat on the behind of desk. As similar daily routine teacher opened the book and started to write a problem from the book on the board without any concept. The researcher seen that all the students were busy to write the solution from the board. Sometimes teacher asked do you understand. After this question, some students said 'yes' and some 'no. but Sunuwar students were not responding about teachers' question. They were writing something on their paper. Again teacher gave a problem to the students from exercise book for

practice. It could be seen that all the students were engaged to solve the problem, most of the students checked their class work but researcher's respondents could not solve. Other hand, teacher did not motivate them to solve that problem. Researcher found that the hand writing of the students was very poor which could not be understood what they had written on their exercise book. Teacher was not using any kinds of modern instructional technology to make his teaching effective. Students were seemed feeling lazy in the classroom to read.

By observing all the activities the researcher found that there is not motivation towards respondents' students. The above discussion also indicates that the mathematics teacher neglects the problem of Sunuwar students as well as other students. So, motivation also affected to learn mathematics. There was discontinuity between upper caste students and Sunuwar students. Moreover, from the above activities, it is concluded that all of the Sunuwar parents were illiterate. They were from backward condition. If the parents were literate then obviously they motivate to their children for their study. So, the researcher noted that parents' education affected mathematics achievement of Sunuwar students. The researcher found the students of class five were quite interested, interactive and enjoying with mathematics teacher while teaching learning process was going on in the class.

Episode-3

Analysis of the data based on information obtained in the third day classroom observation:

In 2072/11/04 in the classes X in the second period, in the class IX in the sixth period and in the class VIII in the fifth period mathematics teacher entered the classroom with teaching materials. The researcher also entered with mathematics teacher in the classroom. The entire student stood up and said morning sir. Teacher said

good morning and asked to sit down. Then teacher opened the book and wrote the title Angles and Parallel Lines chapter. Then he asked that did you have geometry box. Some students said 'yes' but Sunuwar students were silent in the classroom. Then teacher said you cannot construct the mathematical figure without geometry box. These students were listening to the teacher by nodding. After the teacher said that bring geometry box tomorrow. Then teacher started to construct various types of angles triangle by using geometrical instrument. But most of Sunuwar students were constructing that figure roughly by pen. Nobody provided geometrical instrument for practice in the classroom.

From above activities researcher saw that Sunuwar students were from poor economic condition they had a problem of joining hand to mouth. So, they can't afford for study. The researcher concluded that if respondent student had geometrical instrument, then they do better performance. Hence, economic condition was obstacle for study.

Analysis based on the home, school and students related factors:

The home related factors, school related factors and students related factors were also the factors that affect the achievement on mathematics. The researcher analyses those factors as mentioned after conceptual framework obtained by review of theoretical literatures are as follows:

Analysis based on home related factors

The researcher has pointed out two factors as home related factors which play major role for affecting on achievement of mathematics of Sunuwar students. They are described below:

Social belief and social tradition

Social Belief

Sunuwar are socially dominated. Belief of our society is that Sunuwar are the people for social service. The researcher asked the question about social belief to Mr. Tek Bhadur Sunuwar then he said that *"the upper caste people think we are as servant. They dominate us in social activities"*. When the researcher asked this question to another Sunuwar people then he said that *"we are dominated by upper caste people every time. They think we are the people to serve the upper caste people in the society"*. Also asked students about above question then they said:

"Upper caste people behave us like servant wherever they meet in classroom and they talk with us". (Student's view)

"Sometime when we coming in school then other students say 'U Sunuwar maar pache chituwa aayo..... ', so we feel dominated at school". (Student's view)

"Upper caste students always dominate Sunuwar students at every time. So, they are absent in school". (Teacher's view)

The above view shows that Sunuwar students are dominated by upper caste people. According to Ogbu, it is the cultural difference and discontinuity between home and school that obstruct learning mathematics for learning mathematics there is mostly good environment at school and home. So, this kind of thinking affects the Sunuwar students learning in mathematics.

Social Tradition

Sunuwar is backward community. So, in our society, it is thought that Sunuwar are the servant of the upper class people. The upper class people also think that Sunuwar people should have only manual works such as plugging, farming and housing etc. The

researcher asked some questions about their position in society then they gave following response:

"We must work in the home of upper caste people. The society thinks that the Sunuwar must not study."(Parent's view)

"I teach children how to get help to make local wine and sell for feeding. And who plough in other's fields". (Parent's view)

"I teach children how to solve the problem of feeding". (Parent's view)

After the analyzing these above statements given by the respondents' parents, the researcher concluded that most of the parents teach children how to solve the behavioral problems and who helps them in their daily works like farming, carrying loads and selling goods at shop.

"It is only selling and buying of book keeping nothing else". (Student's view)

"Mathematics is very difficult in school level but it is affected by our own culture".
(Student's view)

From the above responses the researcher concluded that mathematics is used in every aspect of life in their daily activities but their school mathematics is affected by their own socio-culture factors. Sunuwar education is useless. Such kind of traditional concept affects the Sunuwar students' performance. So, social tradition is one of the major obstacles of the society for them. Sunuwar students are getting good educational opportunity but in the backward community they are not conscious about their education as developed community.

The researcher interviewed with case students, parents and mathematics teacher to analyze and describe the factors affecting mathematics achievement of Sunuwar students with the help of interview guideline. The researcher categorized interview process on three episodes.

Parent's Education

Parent's education plays vital role in making educated family and literature country. It is also said that parents are first teacher of children. Most of the Sunuwar parents are illiterate and they are not aware of impact of education in their future. They could not give any attention to their children's education. Even they are careless in making the study environment at home. They could not help their children to create suitable family environment for their children's study. They could not help their children in their subject matter. They were not interested in their children's education. They never told their children to study at home.

One of the Sunuwar parents said that *"what to do by studying person like them"*. The Sunuwar parent, Mr. Regan Kumar Sunuwar said that *"they could not be able to give higher education to their children so what they would do only passing S.L.C. they could not get job. So they seemed to be confused from education"*.

"I have no answer when some people ask me the possibility of getting job after my study". (Student's view)

The above view shows that the Sunuwar students are not sure for their future by studying. When the parents were asking *"how does their education affect their children's education?"* then they said:

"I do not think about their study". (Parent's view)

"I am helpless, leave them to themselves". (Parent's view)

"Only I tell them to study at home but I could not help their study". (Parent's view)

From the above responses we can say that all the Sunuwar parents were illiterate. They are in backward condition because of the lack of education. This shows that parent's education affect to their children's education.

Analysis based on school related factors

The researcher has pointed out two factors as school related factors which play major role for affecting on achievement of mathematics of Sunuwar students. They are described below:

Language

Language is most important for good communication. There are spoken four types of languages. Among them sunuwar language lies in Bhot-Barmeli language and Sociologist Dr. Do Bahadur Bista categories Sunuwar Language is Indo-European. In the class, the teacher didn't use Sunuwar language. So, they felt difficulty to understand. They did not understand simple idea about mathematics in Nepali language class.

"I never understand anything, what the teacher says in Nepali while teaching us".

(Student's view)

"Our parents at home frequently speak Sunuwar language but they do not use Nepali. So, we must speak Sunuwar language at home but teacher always teach us in Nepali Language. If teacher taught us in our language, it would be easier for us to understand the mathematics solution". (Students View)

The above view shows that Sunuwar students do not understand Nepali language while the teacher teaches in Nepali. The students were forced to speak Nepali as their second language. So the use of Nepali language in teaching mathematics is one of the main problems to the understanding of mathematics.

"Our curriculum is in Nepali language. So, we are forced to use Nepali language in classroom teaching. The students from other culture are unable to understand mathematics properly". (Teachers view)

"Sunuwar Students have language problems .They cannot speak Nepali correctly. They speak mixed Nepali and Sunuwar language which is difficult for us in understands". (Teachers view)

The use of second language is imposing difficulty to Sunuwar students in learning mathematics and it also avoids the use of ethno mathematics. So if they were taught in their mother tongue, they would learn very fast and their study would improve. Their main demand with government to study in school from own mother tongue up to primary school.

Environment

The family environment directly effects on their education. In the respondents family there is no one educated. In such situation, who would help on their study? It seemed that they were not interested in study because they could not see any one studying in their neighborhood and even at home.

They always see the people in their society spending their leisure time talking to each other and making local wine called Jand in their culture and enjoying by drinking it. It is found that there is no one in the family to create the suitable environment for their study.

"I have not separate room to study. It is difficult to concentrate the mind in the study sitting among all members in the same room". (Student's view)

"There is no good environment at school and home". (Student's view)

"They could not prepare the lesson. So, they failed in the school". (Teacher's view)

"We are not creating a good environment for their study". (Parent's view)

"Now a day we are trying to motivate Sunuwar and other janajati students on mathematics teaching". (Teacher's view)

The above views show that nobody helps Sunuwar students in their home. They fail mainly in mathematics so the family environment is one of the responsible factors affecting on the study of Sunuwar students.

Analysis based on student related factors

The researcher has pointed out two factors as school related factors which play major role for affecting on achievement of mathematics of Sunuwar students. They are described below:

Motivation

Motivation is another factor which plays important role in the learning of the children. According to the respondent's guardian, they need motivation to encourage the Sunuwar students of study. In the school, there is not special program for Sunuwar students. Fee should be discounted for Sunuwar students in every program conducted in the school such as tuition, coaching etc. but the school takes generally to the Sunuwar students.

"Motivation in learning however neither they receive from home nor we have to give them". (Teacher's view)

The above view shows that nobody motivates and gives any suggestion to the Sunuwar students for better performance in their learning. Even there was not any special program for Sunuwar students to promote their performance. So, their performance was going back. Researcher did not find any motivational programs through school side to encourage the learning of Sunuwar.

Workload

Sunuwar are very poor and from backward community. They have the problem of running their daily life properly. To conduct the daily life they have to work on upper castes' person who has enough land. On the other hand they also work their own works

such as carrying loads and farming. Because of the household workload they could not directly involve in productive works.

"I think I could do better in mathematics but I have no leisure time to guide them". (Parent's view)

"Usually, I go to India to earn money when I am at home I suggest them to do homework of mathematics first". (Parent's view)

From the above response, researcher concluded that most of the parents wanted to make better their children in mathematics but they were almost illiterate.

"At first, I help my parent and after that I do my homework" (Student's view)

From the above response, the researcher concluded that most of the Sunuwar students had not helping hands for their study.

Sunuwar female have more workload at home then male. According to them they have to help their parents in cooking, washing clothes, cleaning pots, cutting grass and farming, take care of small baby etc. sometimes they have to go the others' laborious works to earn money. So, they have to be absent in school, one of the Sunuwar students said that if he was absent at school, next day they could not understand anything in the class.

"My sister helps my mother to make Marcha and Jand and I feed to pigs in the morning then we go to school.(Student's view)

"We are backward caste and we have a problem of food and clothes. So, we engage to laborious work". (Parents' view)

The above view shows that Sunuwar student should help their parents for work. According to them, they could not get enough time to practice mathematics problem. Mathematics is hard subject so they need enough time to practice. But due to lack time for practicing mathematics they could not revise at home what they have learned at

school. So their performance in mathematics is not good. Hence, household workload is another main factor that affects their achievement in mathematics. The teacher also remarked in the same way as: *"They do not practice at home and says to me the report about their household work"*. (Teacher's view)

"They do not get time to study in home because of workload". (Teacher's view)

Ways of addressing the factors affecting Mathematics achievement of Sunuwar students

Here the researcher explored that the factor that affects the Mathematics achievement of Sunuwar students by analysis and interpretation of data through in mainly three topics:

- 1. Analysis on the basis of interview information**
- 2. Analysis on the basis of observation information**
- 3. Analysis based on home, school and students related factors**

Here, the researcher tried to find the ways of addressing the factor affecting mathematics achievement of Sunuwar students.

) Language is imposing difficulty to Sunuwar students in learning Mathematics.

CERID (1990) found that the children who learn mathematics in mother tongue at school performed better on mathematical concept. So, if they were taught in their mother tongue, they would learn very fast and their study would be improved.

) It was found that economic condition of Sunuwar family is very poor. They faced many problems by poor economic status. But government of Nepal has not provided scholarship to Sunuwar students. It would be better of their study of Mathematics achievement if their economic status is made good.

-)] Family size also affected to achieve Mathematical concept for Sunuwar students. It is easy to small family inspires to teach and learn mathematics on the comparison of large family.
-)] Social tradition related with culture from age to age. Sunuwar have their own culture. They used their ethno- mathematics at home. So, it would be managed to learning mathematics by using ethno-mathematics at school also.
-)] Social belief affects the Mathematics achievement of Sunuwar students. There was a contradiction between upper caste and lower caste. Upper caste people always dominated to lower castes people. So, we need to behave equally in education for all casts.
-)] Most of the Sunuwar parents were illiterate. If they were literate, their children would be made their mathematical concept good. So, adult education should be provided to Sunuwar parents to solve the four simple operations (addition, subtraction, multiplication and division) easily.
-)] Mathematics subject is a most important for human life. Mathematics subject need a more practice and related instrument. Today's education system becomes very expansive with its features. So, school need to provide related instrument and proper education to upgrade Mathematics knowledge for Sunuwar students.
-)] Work load is also affected factor for Mathematics achievement. Sunuwar parents have not rest time and leisure time. All of their children engage in some work. But it would be better if they give more time for practicing Mathematics.
-)] Without motivation no one can do anything. Most of the Sunuwar students were motivation less. So, if Sunuwar students got motivation, then they do better performance in Mathematics.

-) The difference of home and school environment creates many obstacles in learning. There was no learning process success in these discontinuities. So, home and school environment was favour to studying and school facilities and other teaching materials should be provided for better achievement in Mathematics to make good concept.
-) The school must provide the modern instructional technology to make today's learning meaningful. The government of Nepal should appoint skilful trained teacher according to the number of students.

CHAPTER - V

SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter includes the summary of the whole study. It also includes findings derived from the analysis and interpretation of previous chapter and finally recommends of how these findings can be used in the academic field.

Summary of the Study

This study was concerned with the exploring the factors affecting mathematics achievement of Sunuwar students as a case study at Rashnal V.D.C. in Ramechhap. This study is descriptive in nature. This research was conducted within short period of time.

Teaching learning process has becomes a great issue in different levels of education. From primary to higher level of education different factors directly or indirectly affects the student's achievement. Mathematics is the queen of all sciences. This slogan identifies the popularities of mathematics. Mathematics like a language as a basic tool of communication because every human discipline such as chemistry, physics, social science, economic, engineering, psychology, etc. are integrated as a mathematics model. The twenty first century is said to be that of computer based information technology which is based on mathematics and logical thinking.

The main target of this case study entitled "Factors Affecting Mathematics Achievement of sunuwar at Ramechhap District" was to identify the factor affecting low achievement of Sunuwar students in mathematics. To achieve this target, various activities like classroom observation and interview guidelines to teacher, students and parents were conducted. To investigate the factor affecting mathematics achievement of Sunuwar students, the population of the study was taken students who were studying at primary, lower secondary and secondary level in academic year 2072at Rashnal V.D.C.

of Ramechhap district. The sample of the study was taken from Shree Gokul Ganga higher secondary school, Rashnal-4; Ramechhap. Sunuwar students (12 boys and 8 girls) were taken for the case study for in depth interview. The tools were observation, interview and written document to analyze and interpret the data. The researcher categorized the collected information according to their respected categories and different themes were considered as a code. Then the similar code versions of the respondent were collected together and explained in their perspectives. Triangulation design was adopted to maintain the validity and reliability of the information. The data analyzed were interpreted by using the framework that the researcher developed during literature review.

Findings

This study was a research study to find the factors affecting the achievement of Sunuwar students in mathematics at Ramechhap district. The major findings of the study were as follows:

-) Economic factor imposes major obstacles as one of the factors affecting Sunuwar students in mathematics achievement.
-) Culture, society, students' interest are also major obstacles on achievement of Sunuwar students in mathematics.
-) Social factor are also major obstacles on achievement of Sunuwar students in mathematics.
-) Educational awareness, lack of motivation is main cause of low achievements.
-) The mathematics teacher's behaviour is not different for Sunuwar students and others researcher found the teacher's as normal but Sunuwar students are not motivated mathematics class.
-) Lack of parent teacher conference has also been a problem in this school.

-) Most of the parents have many children. So, they cannot manage the extra fees for mathematics tuition classes and other materials.
-) The Sunuwar students do not get opportunity to learn mathematics at home.
-) They do not get encouragement and motivation at home and school.
-) Sunuwar students and their teacher's relation do not seem to be dependent and co-operative to each other.
-) Sunuwar community adopts the occupation of agriculture, which is far from the educational background.
-) Teacher is behaving equally to all students.
-) Sunuwar students are backward in every aspect.
-) Home environment directly affect the achievement of mathematics.
-) Extra classes for mathematics are not conducted in the school.
-) The traditional culture is affecting the achievement of Sunuwar students in mathematics.
-) Lack of continuous assessment in school like class test, unit test, week test and monthly test student's achievement is being less.
-) Lack use of modern teaching methodology with modern instructional technology the learning mathematics is being burden for the students which causes for low achievement of mathematics.

Conclusion

Teaching learning process has become a great issue in different level of education. From primary to higher level of education different factors directly or indirectly affect the student's achievement. Regarding this conclusion that the researcher from his field works in Shree Gokul Ganga Higher Secondary School, Rashnalu-4, and Ramechhap came into this conclusion that sunuwar students are very low quality in the

school. They are frequently absent in class. According to the mathematics teacher, Sunuwar students have low achievement behind their cause of failure in mathematics, according to the related theories, documents and interviews, conclusions regarding the cause of low achievement are as follows:

-) Negative school culture.
-) Negative home culture.
-) Low parents' education.
-) Weak economic condition.
-) Lack of learning opportunity at home.
-) Social belief.
-) Social tradition.
-) Less motivation.
-) Not good attitudes of teachers.
-) Lack of educational environment.
-) Careless learner.
-) Low learning facilities in school.
-) As a whole the school environment was not good for their study.
-) Lack use of modern instructional technology.
-) Lack of enough assessment.
-) Lack of teacher, parents and students interaction.
-) Lack of skilful trained enough number of subject teacher.

Recommendation for the Further Study in this Study

In this study "factors affecting mathematics achievement of sunuwar students at Rashnalu in Ramechhap", from home environment to school environment, personal factors to school factors, classroom factors to behavioral factors, home related factors to school related factors have been found as affecting factors in achievement in mathematics achievement of Sunuwar students. Sunuwar parents do not take much interest in how their children are learning. They should be aware to enhance the education to their children. To raise the mathematics achievement of Sunuwar student different awareness programmed and opportunity should be made available to them. Anyway, this research is not complete in itself and there are some limitations. However, after analyzing, conclusion and implication of the study the researcher has made the following recommendations for future study to validate the present study's finding:

-) This study was done only in Ramechhap district at Shree Gokul Ganga Higher Secondary School lying at Rashnalu V.D.C. as a case study. For the generalization of the result of study similar study should be done in a wider scope and large sample.
-) Parent's awareness programs are advisable to be conducted.
-) The government should provide more scholarship to the Sunuwar students up to higher education.
-) Teacher should play vital role in bridging the gap between the interpersonal relation among them and Sunuwar children. They should create homely environment to Sunuwar students and should understand their feelings and behaviours.
-) This study was limited to the Sunuwar students of the case school with the certain objectives. Hence the finding may not be more generalized. But the

research will help the further research for those researchers who want to do study on the similar ethnographic topic as guidelines.

-) To improve the achievement of Sunuwar students there should be conducted the teacher parent interactions periodically on teaching learning process in the school.
-) Teacher must emphasize to use meaningful teaching strategies with the use of modern instructional technology. And school administration should help to promote the use of such teaching strategies.
-) Periodically regular assessment system should be applied to improve the achievement of students.
-) The curriculum of mathematics should be made relevant to the everyday need of multi- ethnic groups.
-) Additional promotional extra classes should be managed for the slow learners by the school as special support to make the effective learning.
-) The teacher must be cooperative and should behave friendly to the students in the school.

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APPENDICES

APPENDIX-I (Observation form)

Observation date:..... **Class:**.....

In the class activities of teacher and students was observed under the following guidelines:

1. Response to the questions asked by the teacher.
2. Participation in class discussion.
3. Encouragement and motivation of teacher to students.
4. Participation on class work and homework.
5. Involvement on group work.
6. Guidance and feedback of teacher.
7. Teaching methods used.
8. Teaching behavior of teacher to Sunuwar and other students.
9. Interaction between teacher and Sunuwar students.
10. Relationship between Sunuwar and Non Sunuwar students.
11. Difficulties faced by students
12. Number of students in the class.....size of class, condition of black/white board, sitting arrangement and condition of furniture.

The observation of Sunuwar students was taken on the basis of following main topic

And noted in details every day.

- Peer behaviour towards children.
- Main area of interest in learning.
- Teacher's behaviour towards the children.
- Main interesting things in learning mathematics.
- Main factors that affects the learning mathematics.

APPENDIX-III**Interview Guideline for Guardians**

Name:

Address:

Occupation:

Caste:

Qualification:

Occupation:

Topics

1. Guardian's view about Sunuwar.
2. Learning environment provided at home.
3. View about the improvement of the learning of the student.
4. View about the education of Sunuwar and his own children.
5. Things to be improved.

APPENIDX- IV

Interview Guideline for subject Teacher

Name of the teacher:	Sex:
Qualification:	Ethnicity:
Working Period:	Temporary/ Permanent:
Teaching experience:	Training:
Originality:	

The interview with the mathematics teacher was taken on the basis of following main guidelines:

Topics

1. View of math teacher towards the achievement of Sunuwar students.
2. Opportunity provided in classroom to Sunuwar Students by the teacher.
3. Interest of Sunuwar students in math learning.
4. Difference between learning behavior of Sunuwar and non Sunuwar students.
5. Relationship between teacher and students.
6. Efforts being made by teacher to improve the achievement of Sunuwar students.
7. Interest of guardians about the achievement of Sunuwar students.
8. Participation of Sunuwar students on math class work and home work.
9. Teaching problems/ difficulty faced by teacher in class.
10. Factors affecting in learning mathematics of Sunuwar students.
11. Teaching strategies followed by the teacher.
12. Problems of teaching of case students.
13. Teacher, parents and students interaction about teaching learning process.
14. Types of assessment used and times of assessment taken in a month/ academic year.

APPENDIX- V**Interview guideline for the head teacher**

Name:	Address:
Sex:	Qualification:
Ethnicity:	Training:
Experience:	Level:

The interview with the head teacher was taken on the basis of following guidelines:

1. Learning environment in the school.
2. Communication between parents and teacher.
3. Professional development of mathematics teacher.
4. Guidance for mathematics teacher.
5. Instructional leadership.
6. Opportunities for students to learn with teacher.
7. Policy of the school.
8. Use of technology in teaching.
9. Teacher's parents interaction.
10. Teacher students' interaction.