

**LOW ACHIEVEMENT IN MATHEMATICS OF CHEPANG STUDENTS**

**A CASE STUDY**

**A**

**THESIS**

**BY**

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### Letter of Certificate

This is certify that **Mr. Hira Bahadur Gurung**, a student of academic year **2070/2071** with campus Roll Number **567**, Thesis Number **1234**, Exam Roll Number **280428** and TU Registration Number **9-2-241-456-2008** has completed this thesis for the period prescribed by the rules and regulations of Tribhuvan University, Kirtipur, Kathmandu, Nepal. This thesis entitled **Low Achievement in Mathematics of Chepang Students** has been prepared based on the results of his investigation. I hereby recommended and forwarded that his thesis be submitted for the evolution as the partial requirements to award the degree of Master of Education.

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(Assoc. Prof. Laxmi Narayan Yadav)

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## Letter of Approval

This thesis entitled **Low Achievement in Mathematics of Chepang Students** submitted by **Mr. Hira Bahadur Gurung** in partial fulfillment of the requirement for the Master's Degree in Education has been approved.

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### **Recommendation for Acceptance**

This is to certify that **Mr. Hira Bahadur Gurung** has completed his **M. Ed.** Thesis entitled **Low Achievement in Mathematics of Chepang Students** under my supervision during the period prescribed the rules and regulations of Tribhuvan University, Kirtipur, Kathmandu, Nepal. I recommend and forward his thesis to the Department of Mathematics Education to organize final viva-voce.

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(Mrs. Sarala Luitel)

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### **Declaration**

This thesis contains no material which has been accepted for the award of other degree in any institutions. To the best of knowledge and belief this thesis contains no martial previously published by any authors except due acknowledge has been made.

.....

Mr. Hira Bahadur Gurung

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Defense date: 6 Nov, 2017

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**Dedication**

To my respected parents:

Suk Bahadur Gurung and Bhakti Maya Gurung

## Acknowledgement

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.....  
Mr. Hira Bahadur Gurung

### **Abstract**

The object of this study was to find out the Causes of Low Achievement in Mathematics subject of Chepang Students at grade five. This was a case study of Chepang students which qualitative in nature. All the Chepang students including three boys and one girl from grade five of Shree Kabilas Higher Secondary School, Bharatpur Metropolitan-29 were taken in this study. The researcher selected two parents on the comparison of economic background as well as math teacher and principal as respondents in this study.

The researcher interviewed with case students who were low achiever in mathematics subject and also the interview was extended to their parents, math teacher and principal. Classroom observation was done by observing environmental aspect, behavior and cognitive aspects of case students in classroom. The researcher collected written documents from the school administration concern case students. Those collected information were analyzed in the conceptual frameworks on the basis of social cognitive theory and empirical literature.

This study showed that there were different causes of low achievement in mathematics subject of Chepangs students such as social context, peer, family, culture, self-efficiency, practices, expectation, attitude and thought which were belong to environmental, behavior and cognitive factors.

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## **Abbreviations**

CBS: Central Bureau of Statistic

CDC: Curriculum Development Center

DCRF: District Chepang Rights Forum

DEO: District Education Office

INGO: International Non-Government Organization

NECR: Nepal Education Commission Report

NFIN: Nepal Federation of Indigenous Nationalities

NGO: Non-Government Organization

PSC: Public Service Commission

SC: Social Cognitive

SLC: School Level Certificate

UN RHCO: United Nation Resident and Humanitarian Coordinator's Office

WVAF: World Vision Advocacy Forum

## Chapter I

### INTRODUCTION

#### Background of the Study

Mathematics is nearly as old as human itself. Since antiquity, mathematics has been fundamental to advance in science, engineering and philosophy. It has evolved from simple counting, measurement, and calculating and the systematic study of shape and motion of physical objects, through the application of observation, imagination and the logic, to the broad, complex and often abstract discipline we know today (Yadav et al., 2072).

Mathematics has been giving as significant place in the Nepalese school curriculum since the implementation of the Nepal educational system. The school education has categorized into three level as primary level (1-5), lower secondary level (6-8) and secondary level (9-10) in Nepal and mathematics is compulsory subject from grade one to ten (NECR-1992).

Nepal is multi-culture, multi-language and multi-religion country having 26,494,504 population, 125 ethnicity, 10 religious and 123 mother tongue languages. The total population of Chepang people in Nepal is 68,399 which are represents only 0.26% of total population of Nepal (Nepal Census, 2011)

Chepang people are the earliest known as inhabitants of Nepal and one of the most backward indigenous castes in Nepal. Nepal federation of indigenous nationalities has categorized Chepang casts as highly marginalized group among the 59 indigenous

communities (Bhattraï et al., 2016). Chepang people are living in the wildest imaginable state of nature and many of them still leading a primitive life. Although about 70.5% of Chepang people speaks their mother tongue belonging to the Tibeto-Burman family but they have no written script yet. Mass illiteracy, extreme poverty, primitive agriculture, lack of food, high incidence of malnutrition, landless and living in the vicinity of the dense forest in the isolated rugged Mahabharat range are the major problem faced by Chepang community. Their subsistence economy is based on forest resources. Chepang people are living a nomadic life, most of the cultivation land occupied by other communities so that they are living in sloped, arid and stony land. Chepang people have forced to live with almost no food every year (WVAF, 2009).

Most of Chepang people are living in village side and they are very simple, trustworthiness, lazy, ashamed habit, not interested to understand about outdoor, tolerant capacity, unmanaged residing such as living and feeding. Chepang people have their culture to product Jand and Rakshi mostly. In irrigation system, they have used exchange labor system in farming, manufacture, house building etc. During this period their children start to learn drink Jand and Rakshi. They are backward in education, health, sanitation and hygiene. Due to the poverty and vulnerability, they have no access to the resources. Chepang community have patriarchy system dominates the women but all women enjoy independent. The local elite class controls all nature and government sources.

Chepang community is backward in both economic and education. They have no cultivate land, have only arid land and farming mainly millet, corn and some vegetable only which is not enough for a year so they collects some food from the jungle to

overcome famine period. They keep few animals for both eat and sale and do labor works. Their wages and other incomes which are not enough to provide children' better educational fee and their life style do not support a culture of education as well. Chepang people are in scarcity, hard life and severe oppression by the local elite class.

The main religions of Chepang people are Hindu, Buddhist and Christian mostly. More than 98% of the Chepang people are residing in Chitwan, Makawanpur, Dhading and Gorkha districts. Recently there have been increasing rate of migration for the better opportunities. Now they are scattered to Tanahun, Lamjung, Banke, Bardiya, Kailali, Nawalparasi, and Bara districts (Adhikari, 2011).

Chitwan district is one of the main resident sites of Chepang in Nepal. Bharatpur Metropolitan-29 is located in Chitwan district. There is high diversity of Chepang people. There are total 556 Chepang populations where 271 are man and 285 are women in Bharatpur Metropolitan-29 (CBS, 2014). Most of the Chepang students are admitted in school but not all of them are regularly presents in school. The Chepang students are introduced as lower achiever in school education, especially in mathematics subject. According to annual exam report from primary schools in Bharatpur Metropolitan-29, Chepang students have very low achievement in mathematics subject and it is very poor achievement than other caste students. Most of Chepang students are failed in mathematics, their obtained marks in mathematics subject is shameful. This research is going to find out the causes of low achievement in mathematics subject of Chepang students at grade five.

## **Statement of the Problem**

Nepal is a multi-language, multi-culture and multi-ethnic country. Diverse ethnic groups are creating and enjoying diverse languages, cultural as well as social hierarchy. Specially, cast is an important determinant and to create hierarchy in society. Among the different casts, Chepang casts is belongs to the highly marginalized group. The background of Chepang people is very backward in economic, education, health, and sanitation. Also they are severe oppression by the local elite class.

Mathematics is very important discipline in human daily life and assists various educational fields in upgrading level such as humanities, commerce, science and engineer etc. Moreover, the government of Nepal has preserved the provision for indigenous citizens to enter into the organs of government through public service commission (Constitution of Nepal, 2072). And for this, the candidate requires good knowledge in mathematics subject. The researcher had taught about three years at selected school and experienced that achievement in mathematics subject of Chepang students at primary level was not satisfactory and ashamed. It was very poor than other students which are shown by internal and annual result in school, although in the name of Chepang students several government and non-government organization launches lots of program but have not changed satisfactory in their achievement in mathematics subject. The present need is to make capable in mathematics subject for Chepang students from the primary level for their future batter carrier by which assists to change the better life style of Chepang

people. The study is fully concerned to find the causes of low achievement in mathematics subject of Chepang students at grade five. This research has been initiated.

### **Objective of the Study**

Each of the study have to be objective which gives to researcher about the clear vision study and lead researcher on the right path to get it on right time. The objective of this study was to find out the causes of low achievement in mathematics subject of Chepang students at grade five.

### **Research Questions**

On the basis of above objective, the following research questions can be mentioned:

- Why do Chepang student have less motivation in learning mathematics subject?
- Why do Chepang students have low achievement in mathematics subject comparing to other students?

### **Significance of the Study**

The subject mathematics is compulsory from grade one to ten in Nepal. The primary level which is the place that strongly assists to study for further higher level. The main purpose of mathematics subject is to fulfill mathematical knowledge, ability and meet achieve of mathematical object to each of students in classroom. Behind this, Chepang students were unable to get satisfactory achievement in mathematics subject. There was needed to study that what were the causes of low achievement in mathematics subject of Chepang students at grade five.

There were some significant of this study which are following as.

- This study assist to identify the various causes of low mathematics achievement of Chepang students at grade five and this could be to reduce those causes to improve their mathematics achievement.
- This study could be helpful for teacher, stakeholder, and curriculum designer to design teaching strategy and curriculum as adopting them.
- This study could provide the information about the educational, economic, cultural condition of Chepang community.
- This study could be important to various NGO and INGO who are concerned to help Chepang people and their educational sector.
- This study helps to know the achievement level in mathematics of Chepang students at grade V.

### **Delimitations of the Study**

The delamination of this study was following as:

- This study was conducted at Bharatpur Metropolitan – 29, Chitwan district only.
- This study was delimited at Shree Kabilas Higher Secondary School, Bharatpur Metropolitan – 29, Chitwan district.
- This study was taken all of the Chepang students in grade five; they were three Chepang boys and one Chepang girl.
- This study was taken parents of case students, mathematics teacher of grade five and principal.
- It may not be generalizable all.

## **Operational Definition of the Key Terms**

The key terms of this study were defined as below:

**Marginalized:** The term is defined as relegate to lower edge of social standing, as specific group who are socially, economically, and educationally back warded. In case of my study, Chepang students were from the highly marginalized group.

**Chepang:** The Chepang term is defined as the one of caste among the total 125 casts in Nepal who has categorized in highly marginalized group by government of Nepal.

**Achievement:** The term achievement is defined as the total obtained marks in mathematics subject by the case students in grade four. The respondent students A, B, C and C had got the total marks 17, 15, 19 and 14 respectively in grade four.

**Low:** In this study the term low refers the total obtained marks by respondent students which were lower than 20 in class IV but other higher score was 53 in class IV in academic year 2072.

**Social context:** This term refers that mathematics classroom and social environment or periphery of respondent students which were affected in learning mathematics subject.

**Family:** The term family refers members consisted father, mother, sisters and brothers of case students where father and mother were illiterate and also another members (Brothers and sisters) were living separated and reading lower grade.

**Friend:** The terms friends refers the person who were classmate or family related homogeneous person of respondent students in their community.

**Culture:** This term culture refers that culture of respondent students consists their customs, mathematical activities and daily activities in their village periphery.

**Practice:** This term refers that amount of mathematics homework or activity done by respondent students as well as cultural practice of respondent students concerned mathematics subject which were very low and still traditional.

**Skill:** This term refers that ability to do something well by hands. Respondent students were very poor in writing skill of mathematics subject such as writing numbers, letters, and drawing.

**Self-efficiency:** This terms refers that the degree of pre-knowledge of mathematics subject. In this research, case students were failed for one or two times in previous classes and very poor marks obtained in mathematics subject.

**Expectation:** This term expectation refers that parents and mathematics teacher's strong belief in mathematics progress towards respondent students. They have negative expectation towards respondent students.

**Thought:** This term thought refers that idea or opinion of parents of case students towards mathematics.

**Attitude:** The term attitude refers that behaviors and activities of case students towards mathematics and mathematics learning.

## Chapter II

### REVIEW OF RELATED LITERATURE

This chapter described the review of the relevant literature related the various aspect linked with causes of low achievement in mathematics of Chepang students. This chapter included the description of the different literatures and the theory. Review of related literatures contained the description of the different studies done by different persons under different topics which are related to the study and the theoretical literature described the theory which was applicable for this study. Also this chapter has included conceptual framework based on theory to describe the causes of low achievement in mathematics subject of Chepang students.

#### **Empirical Literature**

Empirical literature is the experience of previous literature which is the brief summary of the previous researcher and writing of recognized experts provided evidence that the research was familiar with what was already known. Effective research must be based upon past knowledge that provides useful suggestion for significant investigation. This chapter reviewed several previous research related low achievement given as below:

Paudel, A. (2015), did research on “*The causes of low achievement in mathematics*” which was studied in grade eight students in Lamjung district. The objects of this research were to find out the causes of low achievement in mathematics of grade eight students, and identify the strategies taken by school and teacher to improving mathematics achievement. The researcher has used qualitative research method which

was descriptive in nature. Among of qualitative research, the researcher did case study with eight students to meet the objects, who have got low achievement in mathematics of Surya Jyoti School.

Most of the parents were illiterate and so they did not encourage children to send school and instead of this encourage, their parents encouraged in working to earn money. Parents' financial condition was not strongly enough to send children school every day and afford for their higher better education. Both parents and students exposed the negative attitude towards learning mathematics such as mathematics is hard subject and is for intelligence, not useful in daily life. Teacher taught with poor learning culture in school doesn't concerned new lesson with previous lesson and motivate. There was no additional mathematical support class running, lack of practice book, school and classroom environment were not harmonious. There was various causes related family background, financial, teaching strategy, environment and management factors to get low achievement in mathematics subject.

Adhikari, C. (2011), did research on "*Impact of education on Chepang children*". Where studied varies impacts on Chepang students in education. The objects of this study were to find out present situation of Chepang education, identify affecting factors of Chepang education, analyze the impact of education on Chepang children and provide the recommendation for improving of educational status of Chcepang. For this study qualitative research design has followed.

They have no enough income sources other than khoriya cultivation and local labor works which was unable to survive their daily life expenses. Most of Chepang

people were illiterate and not conscious about family planning so they have big family. Parents were not involving in children's education. Usually Chepang students were not high attendance, school environment, and social climate of school was not adopted for Chepang students. They were almost dependency on elite class in social and negative concept with daughter towards education. Parents' occupation which was motivated their children in society, and cultural, parents and students attitude were poor in motivation. Usually Chepang students get married very early then drop out the class early. Thus, there were various impacts such as home, motivational, social level, culture, parents' background on Chepang education.

Kandel, D. (2015) did research on "*Adversities encountered in learning mathematics by Chepang children at primary level*", in which studied about difficulties faced in learning mathematics by Chepang students at primary level. And has determined two objectives were to explore the adversities faced by Chepang children in mathematics classroom at primary level and what are the major factors affecting learning mathematics by Chepang children. The researcher has used qualitative research with ethnography approach. Four Chepang students and three mathematics teacher from Shree Kali Devi Lower Secondary School, Naubisa-1, Dhading and three guardians were selected as sample for this study.

Chepang students are one of the indigenous tribe, who were backward socially, lingual, politically, And culturally. They were ashamed habit, very simple, tolerance, trustworthiness and some of the Chepang students could not speak both Nepali and English language smoothly. Chepang students speak their own language since childhood so they cannot interaction well with teacher. He found that home environment, school

environment, classroom management, language, school administration and problem related socio-economy, lack of motivation, household work, parents' education, and economic so many problems were there in learning mathematics for Chepang students. They were homeless, and haven't a piece of land in the name of properties. They have not the facilities of employment, easy access to education, health etc. Therefore, Chepang students were facing many difficulties in learning mathematics in primary level.

In conclusion, many educational programs have brought Chepang children to school but achievement was very low, not satisfactory. Behind this, there were many causes, impacts and advertise for Chepang students. Their home environment, illiterate parents, lack of motivation and stationary, ethnic discrimination, irregular in class, far school and economic problem etc. were the main adversities in their learning.

Sharma, D.P. (2011), "*Understanding the Chepang and shifting cultivation*" was article to understand and perception of Chepang people on the practice of Khoriya cultivation. This was a case of Chepang people from the ruler village of central Nepal. The indigenous people have special and intimate relation to the land and their territories. Chepang people are belongs to indigenous group which was strongly relationship with land, called Khoriya. Chepang people were shifting cultivation Khoriya was characterized as one of the primitive and traditional mode of agriculture practice. The Khoriya cultivation was important component of Chepang daily life. Although Chepang value system, ancestral history and identity were strongly attached to the Khoriya cultivation. Khoriya cultivation was significant of Chepang ethnic identity. Therefore, Chepang' social, cultural, and economic life can be understand by knowing Khoriya cultivation.

Lamichhane, K. (2015), did research on “*Gender impacts of new livelihood: A study of Chepang Community in Central Hill of Nepal*”. The main objective of this study was to trace out the continuity and changes in traditional gender norms and practices in relation to migration and changing livelihoods in indigenous Chepang community of Raksirang village.

Chepang livelihoods were threatened due to the government restriction on access to forest and lack of proper land for agriculture then Chepang were workless. So that migration of Chepang men was only option to urban area which could survival their life by working. Chepang men were working as cheap labor in market where they highly exploited, meanwhile Chepang women were enough tasks to do in household periphery. Due to the absences of Chepang men in the community, Chepang women rise up as household and community leader as well. Social decision making power was shifted to women, they were being free from the control of elderly members in various personal and family matters, and involvement in planned development projects have empowered and provided more income generating opportunity. Thus, due to the new livelihood of Chepang people have impact on gender and their duty and responsibilities.

This shows that Chepan men were obligated to displace from village to urban area to work and women needed to handle all house periphery work and social work and meeting so that they were unable to take care of children and help them learning in mathematics.

UN RCHCO (2012), has studied on “*Chepangs’ struggle for survival: views from Makawanpur and Chitwan district*”. This was field bulletin prepared by brief field study

and used secondary data from Chitwan and Makawanpur districts. This field Bulletin looked at the challenges of the Chepang community to sustain their traditional way of living in a rapidly changing Nepali society. In Chepang community, there were most of pre-primary schools available so for further study they needed to walk hours to attend primary and secondary school. There were not accesses to university level study so education was just dream for them. There was weak legal framework and non-implementation of relevant legislation for Chepang community. Chepang people were originality nomadic, most of cultivation land was occupied by elite class of society so that Chepang people have no enough cultivation land, even have that was degraded and slope terrain. There only could product millet and maize which was not enough for year so they were moving to urban area to work as labor but was discriminated in wages. There were many organizations working for Chepang students that were development activity and highly relief-oriented rather than building capacity and empowering them. Thus, Chepang people were just struggling to survive in society.

In the conclusion, Chepang people were highly marginalized and semi-nomadic group as well. It has been only few decades since Chepang community was connected to the outer world and survived by traditional hunting, gathering and marginal agriculture. So they have only have a bit mount of land that was not cultivation having slope landed. Production of maize and millet was not enough for a year so most of Chepang men were migrated to urban area to work as labor and women have responsibility to doing all household and community task. Everyday Chepang people were busy doing struggle and struggle just for survive in society, so they were not concerned with their children in learning mathematics.

## **Theoretical Literature**

Learning theories are conceptual framework describing how information is absorbed, processed, retained during learning. Cognitive, emotional, and environmental influences, as well as prior experience, all play a part in how understanding is acquired or changed and knowledge and skill retained. There are many learning theories which can be used to understand mathematical influences components by that students get lower achievement such as behaviorism learning theory, cognitive leaning theory, constructivism learning theory, social learning theories, and so many others. The researcher has used social cognitive theory to understand the causes of low achievement in mathematics subject of Chepang students at grade five.

### **Social Cognitive Theory**

One of the most influences learning theories, the Social Cognitive Theory (SCT), was formulated by Albert Bandura. Social Cognitive Theory is originally called Social Learning Theory. And it had developed by Albert Bandura during his research at Stanford University from 1953-2010. Bandura's SC Theory posits that learning occurs in the social context with interaction and influence of the cognitive, behavior and environment factors. The theory has often been called a bridge between behaviorist and cognitive learning theories because they encompass the attention, memory and motivation. It is also placed a heavy focus on cognitive concepts. His Social Cognitive theory has influenced many areas of inquiry: education, health sciences, social policy and psychotherapy among others (Nabavi, 2012).

Albert Bandura's Social Cognitive theory holds that behavior is learned from the environment through the process of observation. Albert Bandura discovered the importance of behavioral model when he was working with a patient with snake phobia. He found that the patient's observation of former patients handling a snake was effective therapy so that his theory suggests that people learn from one another through imitation, observation and modeling. Bandura does not suggest that three factors make equal contribution to learn or determine learning. The influence of behavior, environment and cognitive depends on which factor is strongly at any particular moment, some may be stronger than others (Google Search, 2017).

Social cognitive theory argues that a person's capabilities can organize and execute the course of action required to manage a perspective situation (Bandura, 1989). Thus every person needed actual ability to perform through the essential knowledge and skills. In order to successfully perform, a person must know what to do and how to do it.

Social cognitive theory says that reinforcement and punishment determines the person's learning. This refers to a response to a person's behavior that affects the likelihood of continuing or discontinuing the behavior and both can be positive and negative (Google search, 2017).

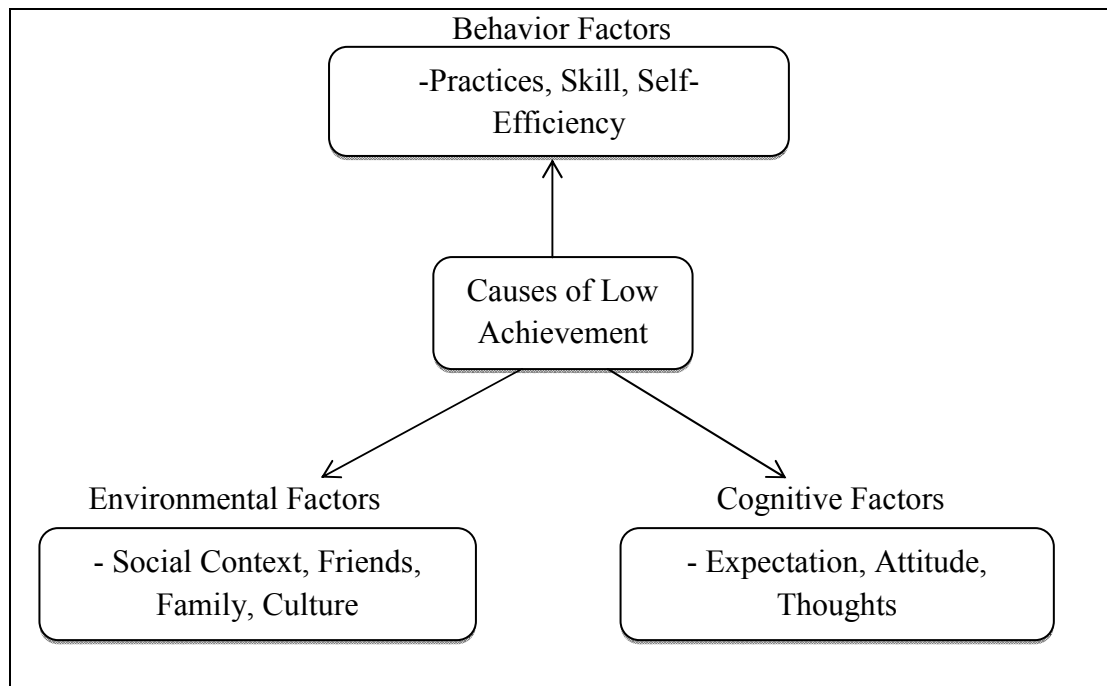
Social Cognitive theory combines Cognitive Learning theory and behavioral Learning theory. Albert Bandura integrated these two theories and came up with four requirements for learning (environment), retention (cognitive), reproduction (cognitive) and motivation (Both). This integrative approach to learning is called Social Cognitive Theory. Albert Bandura is noted as one of the exponents of theory of cognitive learning

and observational learning. Social Cognitive theory explains human learning from the point of cognitive, behavioral and environment influences (Bandura, 2002).

Bandura's SC Theory posits that learning is determined by various factors related learners' environment, cognitive and behavior. Learning can be fertile whenever acquired well those factors and supported, otherwise learning becomes worse and then learners gets low achievement in mathematics subject. Chepang people are belongs to highly marginalized group so they are back warded in environment, behavior and cognitive aspect so this is one of the relevant theories to understand the cause of low achievement in mathematics subject.

### Conceptual Framework

To meet the object, the conceptual framework has constructed as following under the Bandura's SC theory.



**Figure: 2.1 Conceptual Framework**

Learning as a permanent change in behavior potentiality that occurs as a result of reinforced practices (Kimble, 1961 cited in Bhattarai, 2071). Bandura's SC Theory argues that a person's behavior, environment and cognitive (is called personal factors) factors play important roles in learning. In this study, cognitive denotes the various mental processes of teacher, case students and their parents towards mathematics subject that occur in individual such as expectation, attitude and thoughts. Environment is any factor physically external to the individual that can impact one's learning in mathematics. The environment comprised of social factors such as social context, family, peer and culture of case students and behavior factors denotes in which the individual reacts to various inputs from their capacities and environment such as practice, skill and self-efficiency.

## **Chapter III**

### **METHODS AND PROCEDURES**

Research methodology is the most important aspect of research work.

Authenticity and reliability of any research depends upon the tools and methods used for data collection. Hence, the primary purpose of this chapter is to discuss about the framework for the research method, design, respondent, tools and way of analysis of obtained data.

#### **Design of the Study**

For this research, qualitative research method was followed which descriptive in nature. Among the various qualitative methods, the researcher has followed case study design. This case study was conducted in qualitative research method in which verbal data were provided by the naturalistic inquiry in sense of natural setting. Chepang students were specific unit in community and introduced as low achiever an especially in mathematics subject so that the researcher has selected Chepang students as case to meet the object of this study.

#### **Respondents of the Study**

In this research, Shree Kabilas Higher Secondary School (Public school), at Bharatpur Metropolitan – 29, Jugedi in Chitwan district was selected because this school represented more number of Chepang students in this area and it means there was hug residential area of Chepang people around this school and also most of Chepang students comes to admit in this school so that the researcher selected this school for the study. In

this research, the researcher took all the Chepang students from grade V who were very low achievement in mathematics subject as a case students and they were three boys and one girl and also taken their representative parents, math teacher and principal as respondents by purposive sampling method because qualitative data from those respondents were helped to meet the object of this study.

### **Tools for the Data Collection**

Research tool is the most important part for data collection in the study. On the basis of data collection technique we can study and analyze every aspect of the study. To collect the data, the researcher has used following tools:

#### **Documents**

Document concerned case students such as result sheet, attendance register, mathematics homework note and scholarship record from school were received for this study.

#### **Interview Schedules**

On the basis of objective, the researcher had developed the interview schedule in semi-structured form for case students (APPENDIX-1) and their parents (APPENDIX-2) as well, and corresponding mathematics teacher (APPENDIX-3) and principal (APPENDIX-4) from sample School. The interview is the most ubiquitous method of obtaining information from concerned people and this interview gives great values in interpreting result because an interview is the instrument used to find out feelings, thoughts and intensions of them (Adhikari, 2011). During the interview, the researcher

had dig nugget of information out of a subject's pure experience, unpolluted by any leading questions. The researcher collected supplementary information, in its pure context, personal characteristics, view and environment. Interviews were used to gather information from students, parents, math teacher and principal.

### **Classroom Observational Form**

The researcher prepared classroom observation form (APPENDIX-5) to collect influences information in learning mathematics of Chepang students. For this, the researcher had involved directly in the teaching mathematics subject classroom for one week regular at grade V.

### **Standardization of Tools**

To make standardized research tools, the researcher has developed classroom observation form on the basis of Classroom Observation Form used for teaching practice Central Department of Education, Tribhuvan University. Moreover, interview schedules were developed which was guided by the discussion with supervisor, thesis of Chandra Adhikari, 2011 and the Bandura's SC theory.

### **Data Collection Procedure**

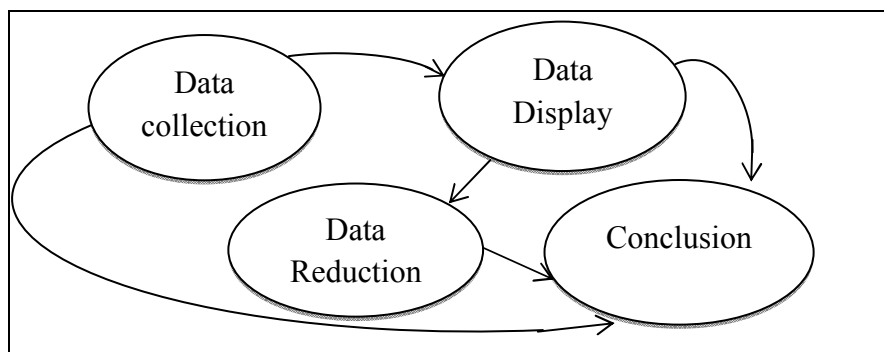
The researcher was involved him-self in the data collection. This research was based on case study design in qualitative research method. To meet the object, exam marks sheet, mathematics homework note, and attendance record of Chepang students from selected school were collected. The researcher visited respondent individually where the respondent were students, their parents, mathematics teacher and principal

using interview schedule. For this, the researcher accessed the setting then gained their trust and established the rapport. The researcher asked the questions based on interview schedules and kept the written record of verbal data. The researcher used pen and paper to keep record. The researcher observed directly teaching mathematics class in grade V for continue one week with observation form at Shree Kabilas Higher Secondary school. Thus researcher collected data by natural inquiry and observation in natural setting under the pre-determined tools.

### **Data Analysis Procedure**

In this research, the data analysis procedure was done by under the conceptual framework. The researcher collected verbal data through the natural inquiry on the basis of pre-determined tools which were bulky, dispersed and voluminous. Collected data from case students were displayed individually but data from documents and classroom observation were directly analyzed in conceptual framework. Displayed data were reduced by comparison-contrast each other and then conclude on the conceptual framework. The summary of the data analysis procedures of this study is given in the figure below:

**Figure 3.1: A summary of the Data Analysis Procedure**



**Ethical Consideration**

Concerned Person is the main source of qualitative data and so the researcher should consider the ethical aspect while dealing with respondent person (Peshal, 2072). During this qualitative research, the researcher considered and respected the ethical aspects such as their freedom, secret, social, cultural, gender, and personal right. The researcher was explained the truth information about study to respondents, and gained consent from respondent. And the researcher was clearly exposed the conclusion of study. All the activity was done by transparently.

## **Chapter IV**

### **ANALYSIS AND INTERPRETATION OF DATA**

This was case study of Chepang students which is qualitative in nature. This chapter deals with the analyzed and interpreted of collected information derived from the case study. This study was mainly focused to find out the causes of low achievement in mathematics subject of Chepang students at grade five in Shree Kabilas Higher Secondary School, Bharatpur Metropolitan-29, Chitwan. The researcher used different tools for this study such as interview schedules with case students (Appendix-I), their parents (Appendix-II), math teacher (Appendix-III), principal (Appendix-IV) and classroom observation (Appendix-V) and documents concerned case students. The description method was mainly used in this study because this was qualitative research. From the collected natural data, the researcher used conceptual framework to analyze and interpretation under the theory and empirical literature.

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

- General Introduction of Case Students
- Causes of Low Achievement
  - Environment Factors
  - Behavior Factors
  - Cognitive Factors

## **General Introduction of Case Students**

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

### **Respondent Student A**

Bir Bahadur Chepang was twelve years old studying at grade V. He failed two times in grade III and V respectively. He lives in Bharatpur Metropolitan-29, at Tandrang. His father and mother's name was Suk Bahadur Chepang and Santa Maya Chepang respectively and they both were illiterate. His father studied at grade two and mom at grade one only. There were five members in his family; they were two younger sisters who studying at grade one in Tandrang and another one in grade two in his same school. There was one cow, three oxen and ten goats at his home and have about eight-nine Katha khoriya land.

Tandrang was hilly area and which was about one hour far from school so that he should walk for about forty five minutes to 1 hour every day to go school with his younger sister and other friends. He feels very tired every day by going and coming to school every day. His father has no regular job and do trivial local labor work such as construction, farming, collect woods etc. and sometime go out to do construction work

for certain duration then seldom back to home. There were various kinds of animals such as cows, oxen and goats, and trivial housework such as cooking, grazing animals, feed water to animals, bring water, caring of younger sisters, farming etc. at home. Sometimes his mom also do some trivial works in village so that mom cannot do all of house work herself, He should help to mom doing many house works. Most interesting thing was that when dad and mom were not at home then he should do all housework such as cooking, care of younger sisters and feed water to animals. Doing many trivial work and distance of school, sometimes he couldn't go to school. There was about four-five kathha land as a name of property and products maize and millet only. Jaad and wine were produced at his home and his both dad and mom drunk both Jaad, and wine. Also drug the tobacco and smoking. There was no electricity supply at his home, and home was like a hut having one floor and one separated room and usually he writes homework on the outer ceiling of home so that it seemed that there was not comfort place, time and environment to practice and write homework of math subject at home.

Math subject was hardest subject for him because he couldn't understand anything. According to register, he got 18 out of 40 mark in written exam of math subject which is total obtained mark in I, II and III terminal exams at grade V, even he got the total 40 marks where 22 marks was added by continuous assessment system. He was presented in class was 167 days in academic year 2073.

He was very naive, ashamed and less talkative. He did not understand all the process of mathematics solution in classroom but never asked to teacher because he felt ashamed, frighten among the 62 students and teacher. Teacher gives the homework regularly but on the basis of his homework note of math; he did only few homework of

each exercise, uncompleted and also did not do homework checking. His hand writing was poor and ugly. He was student of grade V but sill basic four operation of mathematics knowledge was very poor. He didn't take any math tuition class in village and school and his dad and mom never helped him to do homework and didn't care son was doing homework or not. Because of his both dad and mom were illiterate and also two sisters were younger than him so that there was nobody at home to guide him mathematics subject at home. He lost the mathematics text book before the second term examination then didn't have book until final exam but sometime he lend mathematics text book form classmate. He did not make a mathematics note copy well and having one was very chaotic. He did not have geometry box but compass, scale, protector and only pen, pencil and eraser was not there. His dad and mom never bring mathematic practices book for him. His mom and dad, most of things buy themselves like kitchen things, copy, and pen, pencil everything but he buys seldom. He has only few friends in village, they were his relatives. He can have other friends to go school.

### **Respondent Student B**

Surya Kumar Chepang was eleven years old studying at grade V and had failed in class two and four respectively. His home was located in Bharatpur Metropolitan-29, at Bharlang and it was about thirty-five minutes far from school by foot. His dad and mom name were Dil Bahadur Chepang and Jaal Maya Chepang respectively. His dad studied at grade three and mom did not go to school. There were five members in her family including dad and mom and were two elder brothers who studied at grade four and nine respectively. And younger sister was studying at grade four. They have about six-seven

Kattha khoriya land as property, products maize and millet only. There were fifteen goats, five-six hens, one cow and one couple of ox at his home.

His father works at hospital as cleaner in the city and back to home in holidays. His elder brother dropped out class at grade four many years ago who now working as vehicle helper and another brother studying at grade nine in other place helped by organization who was handicapped. So he never got help to write math homework from family members at home. There was only little amount of Khoriya land as their property having no land certificate, and products maize and millet only and little vegetable which was enough for about two-three months only. But his parent likes to make Jaad and wine used by produced crop so almost all of days they should buy food everything. His bro has no income now; there was only income of dad but it's cheaper and he used big amount of salary buying wine, tobacco and smoking. And sometimes his mom does trivial wages local work, and collects woods to sell. In his home, there were various kinds of work such as cooking, farming, Jaad and wine production, bring water, feeding water to animals, cut grass, collect vegetable and underground food etc. He and his sister should do all of such work and especially during absence of mom, he has more work loaded. And when he becomes free then always go to play outside with his Chepang friend (Respondent C). His home was having two floors; first floor was separated into two partitions where one was opened. There was no any bed, and other things were very few. He always writes or read on outer ceiling of house. His home and around environment seemed very congested and dirty as well.

According to register, he got 17 out of 40 marks in written exam of math subject which is total obtained mark in I, II and III terminal exams at grade V, even he got the

total 40 marks where 23 marks was added by continuous assessment system. He was presented in class 149 days in grade five. The math teacher gives homework regularly but on the basis of his mathematics homework note book, he just attempted few homework of each exercise, there was low homework checking and did not correction and feedback of error homework. Even he was student of class V; his hand writing of number was very weak, still he cannot write 6 in Hindu Arabic. His writing skill of number was very weak, was confusing of writing letter n and h, m and n etc. Mathematics was his hardest subject because he couldn't understand clearly. He couldn't understand all the process of teaching mathematics in classroom but usually did not ask even not understand as well, because he feels shy and frighten. There was no mathematics tuition class either at school or village, he never have got such supported class so sometimes he writes homework in classroom by the help of classmate. He did not have geometry box because he lost almost all of its parts. And he did not buy graph paper and used normal copy to draw graph by pen.

### **Respondent Student C**

Sandip Chepang was twelve years old boy study at grade five. He lives in Bharatpur Metropolitan-29, at Bharlang where about thirty minutes far from school. He failed two times at grade two and grade four. His dad's name was Lok Bahadur Chepang who studied at grade III and mother's name was Indra Kumari Chepang who did not go to class. There were six members in his family, his elder brother and sister got married and living separated now a days and another elder sister was reading at grade six. There was about six-seven Kattha Khoriya land as their property nearby home and production maize and millet. There were one couple of ox and about ten-twelve goats at his home.

His father was jobless, it means did not have regular job. His dad and mom doing trivial local labor works such as construction, farming collect stone and sand and collect woods to sell. In the past his dad was Riksha driver (3 wheeler, non-fuel vehicle) in the city and seldom back to home. Both dad and mom drunk too much wine, smoking then quarreled often so his sister drop out class for four years and now is continue the class ahead. His elder sister had lived at relatives home for study so there was nobody at home to guide writing math homework. His home was located little far from dense area of other community, there was only three Chepang home nearby his home, he most of time plays with friend Respondent B. His home was one floor having two room separated where kitchen and store room are attached and usually he writes the homework on the outer celling of home. And sometimes he does homework in classroom during leisure time by the help of friend, copy from them. There was no mathematics tuition class and group study with friends in his community. Sometimes both dad and mom go to work so during those days he should do more house works. Every day he act many house works such as cooking, cut grass, bring water, farming, gazing goat, search vegetables etc. co-operate with sister. Her mom product Jaad and wine at home and most of time buy from market, drink at hotel then back to home.

According to register, he got the 16 out of 40 mark in written exam of math subject which is total obtained mark in I, II and III terminal exams at grade V, even he got the total 40 marks where 24 marks was added by continuous assessment system. He was presented in class 152 days in grade five.

He did not make single and fair note copy of math subject, written Math, Nepali and English homework together in one copy. He did not complete all the

mathematics homework, and attempted the few questions of each exercise. He doesn't understand all the process of teaching mathematics subject in classroom and usually he didn't ask even not understand because he feel shy and frighten so that he do not like math subject and math was hardest subject for him. Usually his parents don't give money for tiffin food and to buy math materials such as geometry box, graph, pencil, copy, etc.

### **Respondent Student D**

Sanjita Chepang was twelve years old girl studying at grade five who failed in grade three. Her home was located in Bharatpur metropolitan-29, at Patalebaas which was about forty minutes-fifteen minutes far from school. Her dad and mother name was Buddhi Sing Chepang and Sanu Maya Chepang respectively. Her dad and mom studied at grade five and one respectively. Now a day her dad was working in Malaysia since 1.5 years ago, mother works at resort in the morning and evening shift as cook helper and cleaner, elder sister was working at primary school as helper and her two brothers studying in grade two and three respectively. There was one couple of ox and about five-six goats at her home. And they have seven-eight Katha Khoriya land nearby home.

Her school was far from home; it is almost forty minutes-fifty minutes from school and always goes to school by foot with friends. Because of distance she tires and not interested to go school as well. Her mom works at resort as kitchen cleaner and helper and should go there twice a time a day so mom has no time to do housework, so she and her sister should do co-operate doing many trivial housework such as farming work, grazing animals, bring water, cut grass and woods, cooking, care younger sister etc. and sometimes she became late to go school by doing such trivial housework. Her mom was

illiterate and sister also studied at grade four so nobody at home to guide to write mathematic homework and she hasn't taken any mathematics tuition class either at school or village. Her mom provides enough money to buy educational materials such as copy, geometry box, pen and pencil etc. but never buys other mathematical practice books. She did not know what is the graph copy. She wants to write homework at home but because of much work she cannot take enough time to do and she drop out writing homework because she cannot do anymore ahead.

According to register, he got 16 out of 40 marks in written exam of math subject which is total obtained mark in I, II and III terminal exams at grade IV, even he got the total 40 marks where 23 marks was added by continuous assessment system. He was presented in class 151 days in grade five.

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

### **Causes of Low Achievement in Mathematics of Chepang Students**

The researcher collected thousands verbal data doing direct interviewed with respondents and classroom observation on the natural inquiry and documents of students

also analyzed to find out the causes of low achievement in mathematics subject of Chepang students at grade five. And those all data were acquired from Index-I, Index-II, Index-III, Index-IV and Index-V. Collected all the verbal data were separated in conceptual framework by comparison-contrast each other of data. Thus collected bulky, dispersed and voluminous data were analyzed and interpreted in the following theme separately.

### **Environment Factors**

Each human being takes birth in social environment and acts each and every activity there. Environment factors are one of the most important components which determines growth and development of human being. Chepang community is belongs to highly marginalized group and they have their own culture, social context, family and friends different than others.

Almost all Chepang parents were illiterate, their fathers were studied at most grades five and most of mom did not go to school. We have slogan that “*Educated mother makes her family educated*” so that there is no higher educated son and daughter at home and in their social context. Most of their children drop out school at grade five-six then goes to find job which is lower level and only few member were getting higher classes but married early and then living separated. There was no educated person at home to guide them to write homework of math subject; their family educational background was very weak.

*“I did not go to school so i cannot identify the letter and numbers of mathematics subject, how can i help to write mathematics homework. And my husband and elder son and daughter are not at home”.*

-Parent

In the thesis of Lamichhane on Gender impact of new livelihood: A study of Chepang community in central hill of Nepal has found that Chepang men's were migrated to urban area to do work and women were enough tasks to do household periphery. Thus most of time parents were not at home to do either guide to write mathematics homework or control and care of children.

Their parents have no idea to buy modern mathematical materials; they just give money to buy traditional materials such as copy, pen and pencil, geometry box, graph copy and which are even they do not have enough because their parents do not give enough money to buy at right time. Also they do not do durability of those materials, lost or broken early and doesn't bring regular in classroom so they cannot use in acquired topic and class at right time. They do not have taken any tuition class in neither village nor school.

*“We have not conducted mathematics tuition class or special course of matematics subject for Chepang students because their parents did not demand, and also we haven't conducted tuition class under the level V”.*

- Principal

There were many numbers of students in classroom, the total students were 62 and about 48-50 students in average were present everyday so classroom environment was noisy, there was not mathematical picture and creation of students on the walls and seat planning was tied as well. There was no group working, participation, interaction,

motivation and encouragement activities for Chepang students in classroom in learning mathematics. And homework checking of mathematics subject, error analysis, feedback and correction of mathematics homework of Chepang students were not effective and regular so there was not inclusive teaching and harmonious classroom environment which was seen by classroom observation.

In the thesis of Adhikari, C. has found that Chepang students did interact each other and with teacher without hesitation in classroom thus over all classroom climate was not adopted for them in learning mathematics. Thus from the above paragraph and Adhikari, the mathematical classroom environmental, climate and teaching strategies were not inclusive for Chepang students in learning mathematics. Thus there was not harmonious school and classroom environment in mathematics learning for Chepang students.

Most of Chepang residential area is nearby forest which is far from school and dense residential area of other casts. They should walk by foot about thirty minutes-one hour to go school daily.

*“There is school conducted from level I-III only in Tandrang so for further study we should send either Shyauli or Jugedi and both are almost equal distance”.* - Mother

This clearly shows that they do not have convenient access in primary school; it is obligated for them to walk minutes to get access of primary education. In the empirical literature UN RHCO has shown that Chepang people have still not easy access to primary school. There were various kinds of work in Chepang's home such as cooking, cutting grass, collect woods, farming, bring water, grazing animals, product Jaad and wine etc.

and all of them should be done by children, specially absence of mom at home they have high pressure of housework. Thus they did not have enough time to do task of mathematics subject because of distance school and high working pressure at home,.

Chepang people were economically very poor, they did not have enough income source other than Khoriya cultivation and local labor work which was unable to survive their daily life expense and even few were economically little bit strong but they did not have any idea and conscious to promote children's mathematical support, in despite of this they were engaging doing much trivial housework. Most of Chepang parents were just focusing to find local labor job to survive daily life, and spent big amount of wages to buy wine, tobacco, and smoking rather than children's educational expenses as well as they were not conscious.

There was alcoholic culture in Chepang community, and lack of instability of income Chepang people became economically poor and cannot provided educational expenses such as mathematical tuition class, mathematical materials and tiffin food. Chepang students were not openly interacting with other casts, so they are happy, enjoy and interacting in their community members. They are still following their tradition and culture activity such as early marry, fishing, working, search vegetable and underground food, hunting birds etc. so they likes to do those activities with friends rather than practicing mathematics at home.

Chepang life style was very simple, daily life activity things were very low at their home. Every society has their own ethno mathematics concept or practice, likewise there was some mathematical concepts have practiced in their community. They use

Haat, Bitta measurements unit to build home and its parts window, door, chair etc. also they use Mana, Pathi, Daalo, Gilaas etc. measurement scale to measure and exchange maize, millet, crops etc. they use Gilaas, Bottle, Bodko measurement unit to measure Jaad and wine in their daily life in spite of kg, gram, cm, liter, meter etc. but there was no match between SI unit and their social measurement system. Measurement unit of SI system such as kg, gram, liter, meter, cm etc. are mostly used in grade four and five.

Thus environmental factors were important factor in learning mathematics which obviously determined their learning mathematics. On the basis of collected data, environmental factors of Chepang community were not effective in learning mathematics so that they were getting low achievement in mathematics subject.

### **Behavior Factors**

Effective learning is the outcomes of combination between understanding and practices. Practice makes perfect in mathematics but Chepang students have lack of practicing in math subject and also nobody to guide them at home thus Chepang students did not practice math at home, at least they did not complete the writing mathematics homework. It seemed there was not systematic rule and regulation in classroom and home to change their behavior in practicing mathematics so that Chepang students most of time did not write mathematics homework at home. Thus they were getting low achievement in mathematics subject.

*“Do you do mathematics homework or go to cut grass or work on farm or collect vegetable? But he chooses to work”.*

- Parent

This shows that Chepang students preferred to do their cultural practice rather than doing mathematics homework at home. There were no any tuition class neither village nor school, Chepang students never got together to do group work of mathematics homework in village neither daily nor before the exam. According to the social cognitive theory as mentioned in theoretical review, people learns from observation of others or model so there were no other persons at home or in Chepang community who can be model to inspire them to study and practice of mathematics subject. Thus there was no group study or tuition at home and in village and also their friends always wants to play or do traditional activity rather than study so that they cannot observe or model each other to inspire to do math homework every day.

Also they did not make fair and completed note book of mathematics so that they were unable to do self-practice of mathematics subject before the exam. It seemed their both practice and learning mathematics was totally limited in classroom only. Because of lack of practices, they were very weak in skill to write mathematical numbers, symbols and letters. Their hand writing of mathematical numbers, letter and symbols were very dirty and chaotic such as confusing in writing n and h, + and  $\times$ , m and n, and  $\{ \}$ ,  $( )$ ,  $[ ]$  etc. They are still cannot writing questions on copy clearly. Their handwriting was seemed level of grade two-three which was lack of practicing since the beginning level which cannot developed their skill in mathematics subject.

All of the respondent Chepang students had failed in previous classes at least one or two times. Also their total obtained marks in mathematics were very low and higher marks were added to get pass mark in grade four. Even they were grade V; they were

unable to do fundamental operation such as multiplication, addition, subtraction and division.

*“Mathematics is a kind of subject which one topic/exercise helps to understand further topic/exercise. Irregularity of their class attendance they are unsuccessful to understand one by another mathematics subject matter so most of topic they do not have completed”.*

- Math Teacher

Usually, Chepang students were misses many classes so that they did not complete many chapter of mathematics subject and were not reviewed as well so obviously they were not introduced many part of mathematics subject. The respondent student D did not know what is the graph paper. Here, Social cognitive theory says that student needed self-efficiency to organize and execute mathematical knowledge and to create and develop their skill and perception but Chepang students were poor in self-efficiency so that they got low achievement in mathematics subject.

Thus behavior factors such as practice, skill and self-efficiency are the important factors in learning mathematics which determined achievement in mathematics. On the basis of data, Chepang students were very poor in behaviors factors so that they were got low achievement in mathematics subject.

### **Cognitive Factors**

Cognitive factors refer to characteristics of the person that affect performance and learning. There are cognitive factors of various persons such as students, parents and teachers which can determine their learning mathematics.

Chepang students did not understand all the process of teaching math in classroom and there was not reinforcement and punishment in mathematics class which was shown by classroom observation. Social cognitive theory argue that reinforcement and punishment plays important role in person' learning thus shortages of punishment and reinforcement Chepang students were not motivated to complete homework and actively interacting in mathematics classroom.

*“In our childhood period, we did not get chance to go to school but now a days we should force them to go school, they do not interested in studying”.* - Mother

Parents of Chepang students are regretting now that they did not get opportunity to go school in their childhood. In the present, they have understood the value of education and their children ' education. Parents of Chepang students have expected better education of children but they cannot play significant role in children' learning in mathematics, still doing careless in their learning. Parents were illiterate even they are poor and high work pressure so they cannot guide in writing math homework, manage tuition class, and provide mathematical materials. Most of Chepang students were very weak in mathematic since the previous class. The math teacher was disappointed with Chepang students so that teacher has lower expectation towards Chepang students so that math teacher was not aggressive in the part of the questioning, homework checking and participation in classroom.

*“Chepang students never ask whatever understands or not mathematics problems, when I asked them have you understood or not then they do not response, just head dawn”.* -Math Teacher

Chepang students were showing different attitude at home and in classroom. In the empirical literature, Kandel, K has shown that Chepang students were less talkative, ashamed, very simple, not interested in interacts which was their adversities in learning thus from the above statements and empirical literature shows that they were ashamed, low talkative and less interact in classroom, they never ask to teacher even doesn't understand so that it seemed their performance in classroom was very low but they were very naughty, lie and mischief at home and village and do not obey parents and do whatever they want. After finish housework then they goes out to play even mom request to stay at home to do homework.

*“I do not like math subject, it is hardest subject for me because I do understand nothing in classroom”.* - Student

Chepang students are very poor from previous classes. Even they are five classes now, their efficiency of hand writing and recognition was very poor. And even they are not able to do general addition, subtraction, division and multiplication. It makes them mathematics is hard and harder class by class and developing negative thought towards mathematics.

*“They are very poor in mathematical fundamental skill and efficiency so it is very difficulties to teach them at this level because we should teach them previous classes knowledge which is not possible”.* - Math Teacher

Chepang students are very weak in math even they are grade V still cannot write numbers and words clear and perfect. Teacher asks question often but do not response, never do homework because they are very poor in math and also high irregularity in class

so teachers were disappointed and tried to deal with them. Thus expectation of teacher towards students was decreasing, doing careless in homework checking, questioning etc.

Thus, cognitive factors of students towards mathematics and cognitive factors towards of parents and teacher towards students are most important in learning mathematics which determines the achievement in mathematics. From the above analysis, cognitive factors were very poor so that Chepang students were getting low achievement in mathematics subject.

## **Chapter V**

### **SUMMARY, FINDING, CONCLUSION AND RECOMMENDATIONS**

This chapter deals with the summary, finding and conclusion from the various study and research of previous chapters and recommendation for future study.

#### **Summary and Finding of the Study**

The object of this study was to find out the causes of low achievement in mathematics of Chepang students at grade five. Mathematics is very useful discipline in human life activity as both formally and informally. In present situation, human society cannot be far from mathematics concept, practice and knowledge but achievement in mathematics of Chepang students was very lower, it was shameful. Moreover, the Government of Nepal has categorized Chepang people were in high marginalized group so there must be typically various causes to be lower achievement in mathematics so this study was fully concerned to find out the causes of low achievement in mathematics of Chepang students at grade five. To be a familiar and assist this case study, 6 empirical literatures have reviewed and Bandura's Social Cognitive theory has used for this study and developed conceptual frameworks under this theory. The researcher used case study design under the qualitative research method. In this case study, Shree Kabilas Higher Secondary School at Bharatpur Metropolitan-29, Jugedi, Chitwan district was selected and all of the Chepang students at grade five, their parents, math teacher and principal were selected as respondents by purposive sampling methods. Different types of tools were used such as documents concerned case students, interview schedule and classroom observation in this research and those tools were valid. The researcher has

collected typical verbal data in the natural setting used by those tools, the researcher has done directly field visit; face to face discussed and interviewed with respondents. From the collected thousands verbal data were analyzed and interpreted under the conceptual framework. During the research field work, ethical aspects with respondents have truly done. After the analysis and interpretation of the data, the researcher has found out the following causes as major finding of the study.

- Chepangs students were very weak in mathematical fundamental skill and knowledge which doesn't help their learning mathematics.
- Almost all of parents of Chepang students were illiterate they are highly two-three class studied and also there was no math tuition class joined either at home or school so nobody there to guide children's mathematical homework.
- Chepang students have bi-attitude, shown different behavior at home and school. They were very ashamed and low talkative at school but very naughty and mischief at home and in their community. They do not obey parents.
- Chepang students were engaging every day doing trivial housework, alcoholic family and chaotic home environment so they did not have enough time, peace place to do practice and write homework of mathematics at home.
- There was no group task activity, participation, interaction, encourage and motivational activity in learning mathematics in classroom for Chepang

students. There was traditional teaching method in math class which did not adopt Chepang students.

- Mathematics was hardest subject for Chepang students thus they have increased negative thought towards math subject so do not want to do read, practice and homework of math.
- Chepang students have not enough mathematical materials and even they bought but did not durability of them. Their mathematics note copies were dirty and broken and uncompleted so that they did not have fair note homework copy. They did not review or prepare before exam.

### **Conclusion of the Study**

Doing the research and its finding, the researcher obtained the conclusion but it may not be ubiquitous because this case study was conducted under the delimitation. Chepang community was belonged to highly marginalized group and backwatered economically, educationally and civilized. Mathematical skill and knowledge is fundamental aspect in every human life but they were very poor in Mathematical skill and knowledge. Chepang community is still not friendly interacting in out of their community. it seemed they are semi-nomadic, both dad and mom come out to find work and back to lunch time or evening so all of the house work responsibility should done by children themselves. Most of Chepang parents were illiterate; mostly father studied at grade two-three and mother grade one-two or did no join class. Some parents have developed educational awareness, when they have free time, cannot help to write children's homework to do. And their parents doesn't care much more children's

activates whatever do homework or not, stay at home or not. Their learning mathematics was limited in school only.

Chepang students were very weak in mathematics skill and knowledge since the beginning class which made them weak in mathematics level by level classes. They did not have enough mathematical materials in required time and security of them. They did not make fair math homework copy, and homework was not completed so they couldn't review or prepared before exam. There was discriminated of math teacher with poor students included Chepang students. There was no special provision for special students from the side of math teacher and school administration. There was dilute system of homework checking, analysis and remedial treatment on error of homework. Also many students were in class that couldn't conduct group work, homework checking and personal interaction in mathematics classroom thus there were so many causes concerned environment, behavior and cognitive factors to get very low achievement in mathematics.

### **Recommendation for Students' Study Improvement**

This was a case study related to low achievement in mathematics of Chepang students at Bharatpur metropolitan-29, in Chitwan district. From the conclusion of this study, the recommendation to parents and school administration for students' study improvement are as following.

- There should be support to Chepang parents for their children' mathematics tuition class in village because most of parents are illiterate and Chepang students do group work.

- There should be special provision for Chepang students from the side of teacher and school administration. There should be regular homework checking, error analysis and its remedial treatment, punishment, reward and significant feedback. There should be regular meeting, discussion and awareness program with parents.

### **Recommendation for Further Study**

There should be research in the title “Causes of Low Achievement in Mathematics of Dalit Students”.

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## APPENDIX - 1

### Talkative Schedule for Student's Interview

Name:

Date:

Class:

Roll No.:

Address:

Gender:

1. General information: name, age, class.
2. Do you have brothers or sisters? How many? How old they are? Do they go to school?
3. How far is your school from home? How do you go?
4. What is your parents' occupation and education? Do they drink Jaad, wine, tobacco and smoking?
5. Do the teachers give you some math homework? What kind of tasks? Do you do it regular?
6. Do you have enough time to do it? Do you have a place at home for doing it?
7. Do you understand learning math in class? Do you ask to teacher if do not understand?
7. Do your parents help you to do it if you do not understand something mathematics?
8. Do they check if you do your homework regular?

9. What is your favorite subject at school? And which is not?
11. Do you help your parents at home? How? What do you do?
12. Do you have to stay at home with your younger brothers or sisters?
13. Do you want to go to school? Why?
14. Do you sometimes miss classes? How often? Why?
15. Do you bring your younger brother or sister to school?
16. Do you have enough copy, pen/pencil, eraser, and bag? Do your parents provide those things regular?
17. How many times did you fail in previous class? Do you make math note copy?
18. Do you have friends in village? Who are? Are they your castes or other?
19. Does your mom give you money for tiffin food and regular?

## APPENDIX - 2

### Talkative Schedule for Parent's Interview

Name:

Age:

Qualification:

Occupation:

Name of his/her child:

Address:

Sex:

1. General information: name, age, occupation. (Husband and Wife)
2. How many children do you have? How old are they? Do all of them go school?
3. Do your children help at home? What do they do?
4. Do they sometimes miss classes? Why?
5. Do your children get math homework at school? Do they do it at home?
6. What do they do after back from school and holiday?
7. Do you check children have homework or not? And checked by teacher or not?
8. Do they have time to do it? Do they have place at home to do it?
9. Do you want your children to go to school? Why?
10. Do you help them if they do not understand something? Or do you send your son/daughter math tuition class in village?

12. Did you go to school? Can you read and write? Can you help your children to write math homework?
13. Do you send your son/daughter to buy goods? Can they buy themselves?
14. What kind of measurement unit/scale do you use at home/community?
15. Do you give son/daughter money for tiffin food every day?

### APPENDIX - 3

#### Talkative Schedule for Math Teacher's Interview

Name:

Date:

Qualification:

Sex:

Experience:

Age:

Address:

1. General information: name, age, position.
2. How long have you been working as a teacher?
3. Do you know the Chepang students in your class? Did they pass the math subject in each exam?
4. Do they come to class regularly? Is absence of them registered?
5. Do they do homework regular? Do you check their homework regular?
6. Do they bring math books, exercise copy, geometry box, pencil/pen and related material regular?
7. What is the maximum and minimum amount of children in your Classroom?
8. How is mathematical efficiency of Chepang students?
9. Do teachers do something if a child does not come to school for few days or do not do homework? What?

10. Do you ask to questions to Chepang while teaching in class? And do they ask if they do not understand?
  
11. Do you expect that Chepang students can do better in next classes?

**APPENDIX - 4**

Talkative Schedule for Principal's Interview

Name:

Date:

Qualification:

Sex:

Experience:

Age:

Address:

1. How long have you been working as a head teacher at this school? And which subject do you teach?
2. Is there Chepang parent involved as member of school management committee?
3. Do you or school have conducted special course for poor students? Why?
4. Do Chepang students getting scholarship from school? What kind of?

**APPENDIX - 5**

Classroom Observation Form

Name of teacher:

Date of observation:

Name of observed school:

Observed time:

<b>Items</b>	<b>Qualitative Information</b>
• Regularity	
• Practice and classwork	
• Homework system	
• Performance	
• Teacher's behavior	
• Punishment and reinforcement	
• Books and related materials	
• Classroom Size	
• Questioning system	
• Communication	
• Feedback	
• Seat planning	
• Relation and interaction with peers	
• Interested and enthusiastic	
• Motivation and encouragement	