

**LEARNING DIFFICULTIES OF TAMANG STUDENTS IN MATHEMATICS IN  
CULTURALLY DIVERSE CLASSROOM**

**A  
THESIS**

**BY  
SUK BAHADUR TAMANG**

**FOR THE PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE  
OF MASTER OF EDUCATION**

**SUBMITTED  
TO  
DEPARTMENT OF MATHEMATICS EDUCATION  
CENTRAL DEPARTMENT OF EDUCATION  
UNIVERSITY CAMPUS  
TRIBHUVAN UNIVERSITY  
KIRTIPUR**

**2022**

## LETTER OF CERTIFICATE

This is to certify that **Mr. Suk Bahadur Tamang**, students of semester system **2074/075** with campus Roll no: **24**, exam Roll No:**7428315** and T.U. Registration no: **9-2-694-33-2013** has completed his thesis under supervision of **Prof. Dr. Bed Raj Acharya** during the period prescribed by the rules and regulations of Tribhuwan University, Nepal. The thesis **Learning Difficulties of Tamang Students in Mathematics in Culturally Diverse Classroom** has been prepared based on the results of his investigation conducted during the period of Chaitra 2021 under the Department of Mathematics Education, University campus, Tribhuwan University, Kirtipur, Kathmandu. His thesis number is **1675**. I recommend and forward his thesis for evaluation as the partial requirements to award the Degree of Master of Education.

.....

Prof. Dr. Bed Raj Acharya

(Head of the Department of Mathematics)

---

**LETTER OF APPROVAL**

This thesis submitted by Mr. Suk Bahadur Tamang entitled on **Learning Difficulties of Tamang Students in Mathematics in Culturally Diverse Classroom** has been approved for the partial fulfillment for the requirement of Master's Degree in Mathematics Education.

**Committee for the Viva-Voce**

**Signature**

Prof. Dr. Bed Raj Acharya

.....

(Chairman/Supervisor)

Dr. Rajendra Kunwar

.....

(External)

Krishna Prashad Bhatt

.....

(Member)

Date: .....

### RECOMMENDATION FOR ACCEPATNCE

This is to certify that Mr. Suk Bahadur Tamang, has completed his thesis entitled **Learning Difficulties of Tamang Students in Mathematics in Culturally Diverse Classroom** under my supervision during the period prescribed by the rules and regulation of Tribhuwan University, Nepal. The study embodies the result of investigation conducting during the period of 2020 to 2022 under the Department of Mathematics Education, University campus, Tribhuwan University, Kirtipur, Kathmandu. I recommend and forward his thesis to the Department of Mathematics Education for the final viva-voce.

Date.....

.....

Prof. Dr. Bed Raj Acharya

(Supervisor/HOD)

© Copyright

By Suk Bahadur Tamang

2022

This document is copyright material. Under law, no parts of documents may be reproduced without the written permission of the researcher.

Defensed Date:

All Right Reserved

## **Dedication**

This piece of work is dedicated to my parents and teachers who had untiring effort and guardianship to make me what I am today.

## **Deceleration**

I declare that this thesis is my own work which contains no materials from other accepted thesis of degree awards which have been already done in any institutions. Similarly, I declare that this thesis has not been submitted for any other degree.

.....

**Suk Bahadur Tamang**

## ACKNOWLEDGEMENTS

First and foremost, I would like to express my humble gratitude to my thesis supervisor, Prof. Dr. Bed Raj Acharya and Head Department of Mathematics Education, Tribhuvan University, Kirtipur, Kathmandu, for his significant guidance, constant supervision and constructive feedback to shape the work in this frame. His valuable and constructive suggestions have become the greatest valuable property of this thesis, without his guidance this thesis would never have been appeared in this form.

I would like to express my sincere gratitude to my respected teachers Prof. Dr. Binod Prasad Dhakal, Dr. Ganesh Prasad Adhikari, Abatar Subedi, Loknath Bhattarai, Dr. Bed Prasad Dhakal, Krishna Prasad Adhikari, Krishna Prashad Bhatta, Mrs. Hom Kumari Adhikari and Mrs. Sarala Luitel of Department of Mathematics Education, Kirtipur, Kathmandu for their valuable comments and suggestions.

Similarly, I am equally indebted to all my respected Gurus of Department of Mathematics Education who cooperated and encouraged me to complete the work. Likewise, I would like to express my special thanks to teachers and students who gave me their time in order to collect data. Last but not the least, this work is an output of constructive and continuous encouragement of my respected supervisor, dear friends, seniors and relatives. Similarly, I would like to express my humble gratitude to all helping hands who gave hand directly or indirectly to complete this work.

.....

**Suk Bahadur Tamang**



## **ABSTRACT**

The title of this study is “Learning Difficulties of Tamang Students in Mathematics in Culturally Diverse Classroom”. The objectives of this study were to find the Causes of learning difficulties of Tamang students in mathematics in culturally diverse classroom and to minimize the difficulties of Tamang students in learning mathematics in culturally diverse classroom. This was a case study, which is qualitative in nature as well as descriptive and exploratory in nature. I selected the sample size of the five Tamang students from grade eight, one mathematics teacher, one head teacher, three parents. My research site was Shree Ichok Secondary School, Helambu-6, Sindhupalchok district. I used questionnaire, semi-structured interview and observation tools for data collection. The data from interviews were taken through asking direct question to students, parents, peers, teachers, head teacher about their experiences, opinions, feelings, participate extra -curricular, Tamang students achievement, result, skill and knowledge. The data were analyzed by using cultural different and discontinuity theory for qualitative data.

The major findings were parents of Tamang students do not fulfill their basic needs, buy book, pencil etc. Do not understand the values of education, motivation in household works than instructional works irregularity and non-participation of Tamang students in classroom activities and less interest of study were major influencing factors in mathematics achievement. Further, family background of Tamang is very low so it influences all the sectors. It was concluded that home environment is the most important factors which influence mathematics learning of Tamang children. To make the appropriate environment for the Tamang family, parents guidance, counseling, positive culture and regular attendance in school contribute to Tamang student's good achievement in mathematics.

## TABLE OF CONTENTS

	<b>Page No.</b>
<i>Letter of Certificate</i>	<i>i</i>
<i>Letter of Approval</i>	<i>ii</i>
<i>Recommendation for Acceptance</i>	<i>iii</i>
<i>Copyright</i>	<i>iv</i>
<i>Dedication</i>	<i>v</i>
<i>Declaration</i>	<i>vi</i>
<i>Acknowledgement</i>	<i>vii</i>
<i>Abstract</i>	<i>viii</i>
<i>Table of Contents</i>	<i>ix</i>
<b>CHAPTERS</b>	
<b>I.INTRODUCTION</b>	<b>1-6</b>
Background of Study	1
Statement of Problems	4
Rational of the Study	4
Objective of the Study	5
Delimitation of the Study	5
Definitions of Key Term Used	6
<b>II.REVIEW OF THE RELATED LITERATURES</b>	<b>7-13</b>
Empirical Review	7
Research Gap	10
Theoretical Literature	10
Culture Difference and Discontinuity Theory	10
Conceptual Framework	11

<b>III.METHODS AND PROCEDURE</b>	<b>13-16</b>
Design of Study	13
Research Site	13
Sampling of the Study	13
Selection of Respondent	14
Data Collections Tools	14
Reliability and Validity of Tools	15
Data Collection Procedure	15
Data Analysis and Interpretation	17
Quality Standards	17
Ethical Consideration	18
<b>IV.ANALYSIS AND INTERPRETATION OF DATA</b>	<b>19-28</b>
Participation of Tamang Students in School	19-22
Learning Environments of Tamang Students at Home	22-23
Educational Background of Tamang Student’s Family	24
Learning Environments of Tamang Students at School	24
Cultural Discontinuity at Home and School	27
<b>V.FINDINGS, CONCLUSIONS AND IMPLICATIONS</b>	<b>29-32</b>
Findings	29-31
Conclusions	31
Implications	32
<b>REFERENCES</b>	
<b>APPENDICES</b>	

## **ABBREVIATION**

CRC	Curriculum Research Center
SEE	Secondary Education Examination
CBS	Central Bureau of Statistics
%	Percentage
SES	Social Economic Status
CERID	Research Center for Educational Innovation and Development
FGD	Focus Group Discussion
VDC	Village Development Committee

## Chapter I

### INTRODUCTION

#### Background of Study

Nepal is a multicultural, multilingual and multi-religious with 26 million populations of 61 ethnic groups and their 125 caste. In the past time education was considered as a special privilege for the upper class but at present time education is considered as a right for all.

Tamangs are an ancient and indigenous people of Nepal. Their traditional area is the hilly region between the Budhagandaki River and Likhu River. At the present, They live in large number in the district of Rasuwa, Nuwakot, Dhading, Sindhupalchok, Makawanpur, Ramechhap, Dolakha, Lalitpur, Kavrepalanchowk in the Bagmati Province in Nepal. They are also scattered all over the country and outside of Nepal they are found in Darjaling, Sikkim and Assam India Burma. The total population of Nepal, according to census of 2068, is 1,539,830. That is the population of Tamang people is 5.8% of the total population. The Tamang language occupies 5<sup>th</sup> place in the country in term of the number of speakers speaking any one language and first place among the Tibeto-burman language. The Tamang or Tamang, are the indigenous inhabitants of the Himalayan region of Nepal and India, their ancestral land called Tamsaling (National Census Population, 2068).

They are the aborigines of Yambu, or Kathmandu Valley, who had self-rule and autonomous roughly 2 centuries before present, systematically displaced during the expansion period of Gorkha Kingdom and this continues to present day, the Central Development Region, Nepal remains where 70% people reside.

The traditionally Buddhist Tamang are the largest Tibeto-Burman ethnic group within Nepal, consisting 5% of national population of over 1.3 million in 2001, increasing to 1,539,830 as of 2011 census, yet contested (Nepal Census Population, 2011).

Tamang are also the significance minority in Sikkim and Darjeeling District of West Bengal of India as permanent settlers doing labor work, their languages are fifth most spoken in Nepal, they were one of the aborigines who were least affected by the process of Nepalization or Khasization. They were considered low caste automatically in the dominant Hindu state and system, and thus, there is exploitation, marginalization and oppression of Tamang people. Peculiar to Tamang people are complex marriage restrictions within the community.

Tamang are an ancient and major indigenous people of Nepal. During 8<sup>th</sup> century the Tibetan king employed Tamangs as border patrol to protect the people and lands of Tibet. In Tibetan, the word Tamang means horse warriors. As such, they lived around the southern Himalayan region. Before the creation of Nepal, Tamangs occupied the tarai hills in the 7<sup>th</sup> century. Nepal was formed later in the 18<sup>th</sup> century and a slow assimilation of the Tamang group with other communities in region.

Around the 18<sup>th</sup> century following conquests from other communities, lands owned by Tamangs were taken away and distributed to the new rulers of the region. Tamangs are mostly believed in Bon Dharma which is one of the Buddhist religions and are known as Buddhist culture and cultural system, have a system of six types of societal leaders: Tamba, Ganba, Bonbo, Labonbo, Lama and Choho to keep the Tamang society continuously alive and dynamic. The six have their respective and important roles to play in the development of Tamang society. The Tamba looks after the culture aspect and has a role to play in marriage ceremonies. The lama carries out death rites (Ghewa) and undertakes activities related to the Buddhist religion. The Bonbo propitiates the local gods and goddesses and assists by providing treatment to the sick and needy in the village.

The labonbo (Laptapa) keeps alive the history of the clan and lineage through the worship of clan deities as each that or subgroup has its own Phola or clan deity, there are different Labanbos for each and every subgroup. The Choho looks into cases and dispenses justice and maintains peace, security and wellbeing in society. Gandba participates in all type of social political and religious activities. He observes the various type of society. There six societal leaders or actors continue to make the Tamang society aware of its duties and responsibilities. There are also in tamang society traditional insinuation like Nhangkhor active to undertake socio-culture activities. The name Tamang means "Horse Trader". They are generally very poor people. The majority of tamang follows Tibetan Buddhism but mix this heavily with animism and to lesser extent, with Hinduism.

Their priest, or lamas, have a dominant role on the community and perform ceremonies for funerals etc. Perhaps the most powerful person in society however is the shaman who exercise demons and interacts with the spirit world. Most of the tamang lives in Nepal. Tamang people should be ahead in nation but unfortunately, many years of marginalization and discrimination have hindered the progress of the tamangs. But despite facing several hardships they have survived to maintain their distinct identity and recent years

have seen some development. Some important facts about Tamang, Languages Tamang people speak their own mother language 'Tamang' Tamang language is based on Bhot-Barmeli language. They also speak Nepali (The National Language of Nepal) and educated Tamang people speak excellent English.

Tamang people follow Buddha religion. But still there in practice Bon Religion. Mostly Tamang people feel proud to say Buddhist to them. They go to Gumba (Buddhist Monastery) and pray to their God Buddha. They follow the Buddhist customs their social activities. They invite to Lama in their birth ceremony and cremation. Lamas give name to new birth child according to their religious book.

Lhochhar is main festival of Tamang. In the Tamang language 'Lho' means year and 'Chhar' means new. According to terminology Lhochhar means New Year. Tamang people celebrate this festival around one month. This festival falls in month of Falgun (February). They celebrate this festival they make tasty food and they eat in group. They see their relatives and friends in this time. However, Tamang people celebrate many more other festivals like as Dashain and Tihar, SauneSankranti and Mage Sankranti etc.

In Nepal most of the peoples are involved in agriculture field. Tamang peoples' main occupation is also same as agriculture. But these days divers occupation they follow. Most of the Tamang young are involve in Tourism industry. Some people follows local and international business, official job, driving, teaching, medical field, hospitality and go to abroad employment. There are more than 40 sub castes in Tamang community. These are the major sub castes of Tamang; Moktan, Lopchan, Gole, Lama, Syanbo, Waiba, Bomjan, Thing and Thoker etc. mathematics education has become a challenging issue not only for the teachers, students and parents and parents as well but also for the experts. The hanging features of the world mathematics education are such as challenging the students' intuition, teaching style and procedure and so on. Not only those multiple factors are treating and supporting the participation of students. But also gender, age prior knowledge, motivation and study at home directly affect the mathematics learning (Devkota; 2009). Mathematics is regarded as an important subject in all sector as well as school level to university level and it is useful for all sectors and profession. Although there for a big question for us such as: Why all the students don't give the interest in mathematics? Why the popularizations of mathematics don't go to village? How should we encourage to student to give the interest in mathematics?

After solve these question and practice in school we must increase the student's interest in mathematics and also increase the pass percentage in mathematics. But teaching learning activities are not being done will which school high failure percentage poor performance of students at mathematics reveals the problem of learning. Thus mathematics teaching situation in Nepal seems to be very poor. There are various researches done about student's problems, teacher's problems yet no research is found to problem of tamang students in mathematics learning in classroom and out of classroom.

### **Statement of the Problem**

This study is mainly concerned about the mathematics learning difficulties of tamang students. So it is well appropriate to discuss about the learning difficulties faced by tamang to improve the condition. This study analyses the difficulty in learning mathematics of tamang students in learning mathematics at basic level in term of culture, learning opportunities and classroom social dynamics. Previous researches have claimed that teachers are reluctant in using teaching materials, different approaches and method in teaching and managing learning in mathematics class. Tamang students in culturally different to mainstream school culture that are shaped according to Aryan-Khasa culture, may have problem in communication and learning to other casts students. The researchers thus intends to find out the difficulties faced by tamang in learning mathematics in relation to different perspective and it is influencing such in learning mathematics at basic level.

The following were the main research questions for the study:

- What are the difficulties of tamang students in learning mathematics?
- What are the causes of difficulties of tamang students in learning mathematics?
- How to minimize the difficulties of Tamang students to learn mathematics?

### **Objective of the Study**

The following were main objectives of the study

- To find the causes of learning difficulties of Tamang students in mathematics in culturally diverse classroom,
- To minimize the difficulties of Tamang students in learning mathematics in culturally diverse classroom.



## **Rationale of the Study**

Mathematics has got a prominent place in school curriculum for its utilitarian value. It has been taught as a compulsory subject at basic level of school education program and compulsory as well as major subject at secondary level of school education program. Consideration of culture aspect of students in basic education can heighten the moral of children in learning. It should be considered in teaching mathematics too. Every culture group student comes to school with their own mathematical concepts more or less. Nepali language is introduced as the official language is used as the medium of instruction in all school and the national curriculum which sometimes has been to problematic for learning to those children who have different tongue.

The dissimilar measurement code used in home and school influenced learning mathematics. Impact of culture difference in children's learning and school due to the unmatched condition of learning strategies of children and teaching style of the teacher seen to be researchable topic. So, this study tried to investigate the cause of learning difficulties of tamang students in learning mathematics.

Hence the significance of this study can be listed as follows:

- This study would be helpful to find and solve learning difficulties of tamang students in learning mathematics.
- This study would help for increase the learning activities of tamang students in mathematics.
- This would be useful for tamang community, parents, teachers, students and other stakeholders related to educational sector.

## **Delimitation of the Study**

The research is related to the learning difficulties of tamang students in mathematics. Any study can't overcome all the fields. The delimitation of this study was as follows:

- The research delimited to Ichok Secondary School at Helambu Rural Municipality of Sindhupalchok district.
- This study was included only class VIII students from selected school. So its finding can't be generalized elsewhere.

- The primary data for the research collected by questionnaire, semi-structured interview schedule and class observation.

### **Definition of Related Terms**

**Tamang.** An indigenous ethnic group of Nepal who are scattered in many districts.

**Students.** Students are the tamang students which were study in samples school.

**Illiterate.** Illiterate are those people who can't read and write and solve their general mathematical problem of daily life.

**Learning difficulties.** learning difficulties is obstruction in learning mathematics in which students feel due to communication, interaction pattern and behavior, participation and learning opportunities at home and school.

**Culture discontinuity.** culture discontinuity is the lack of regularity or sequence or gap of home culture and school culture.

**Environment.** environment is the term that indicates home environments and school environment.

**Interpersonal relation.** Interpersonal relation means relation between tamang students and other casts students.

**Participation.** In this research participation means regularity in classroom, interaction with teacher and friends, completion of homework and classwork etc.

## Chapter II

### REVIEW OF RELATED LITERATURE

The related studies construct the platform for standing to the research of the subject which gives the theoretical support for the study. Review of related literature is an exactly task is calling for a deep insight and clear prospect of over all fields. In this chapter different literature relevant to cause of difficulties in mathematics learning have been reviewed in order to know about their causes. The main purpose of review of related literature is to find out what works have been done to the area of study being under taken. It helps to conduct the new research study and avoids the necessary duplication. Mainly the literatures were previous thesis, books, journals and internet etc (Khanal, 2010).

There are two types of literature which is empirical literature includes the different researches in the problem faced by the mathematics and theoretical literature for understanding the learning mathematics.

#### **Empirical Literature Review**

Regmi, (2010), studied on “Attitude of Tamang Students towards Mathematics and Its Relationship with their Achievement”. The objectives of this study were to find the attitude of tamang students towards mathematics, to compare the achievement of tamang boys and girls towards mathematics, to determine the relation between attitude towards mathematics and achievement in mathematics. Conclusion of this study was attitude of tamang students towards mathematics is positive and boys’ and girls’ attitude towards is not different, the attitude of tamang students towards mathematics is positive but its relation with achievement in mathematics is negative.

Ghimire, (2005) did a case study on “Difficulties on Learning of Algebra”. The objectives of this study were to identify the difficulties on content of algebra and to identify the difficulties on classroom practices. The sample size of study is four blind students. The students were selected by random sample process. Difficult tools such; observation interviews and written text were applied to identify their learning difficulties on algebra. A study found that the blind students had able to only add subtract, multiple divide and they have the limited knowledge about the factorization HCF and LCM. They were only recognizing the equal bit cannot solve it and co-ordinate geometry was out of their capacity. The major difficulties of the blind students were found such as to develop clear concept on

subject matter, to write algebraic concept, to slice process of mathematical problems Brail script and to use material and methods in mathematics learning.

Conclusion of above study was display that the attitude of tamang students towards mathematics is positive and boys' and girls' attitude towards is not different, the attitude of tamang students towards mathematics is positive but its relation with achievement in mathematics is negative.

Moreover, Lama (2012) did a study on "Understanding Basic Concept of Mathematics by Tamang Community". The objective of this study were to find how the tamang people learn basic concept of mathematics and to find how the tamang people learn basic concept of mathematics and to find counting and measurement system used bu tamang community. This study was taken these tamang people from two villages Nagee and Chalise in Majuwa VDCc of Sindhuli districs and 10 people from each village with 5/5 male and female selected by the purpose sampling technique. This study has been circled around the mathematical knowledge and hidden mathematical activities used by tamang people in their daily life.

In depth interview, observation and written documents were the main tools of this study. The study concludes that this research facilitates to understanding modern mathematics in the school level mathematics curriculum.

CERID (1990), Studied on "Element process of learning mathematical concepts and process of Sindhupalchok Tamang". The purpose of that study was to identify the basic mathematical concepts used by Tamangs adults with no formal mathematics education, to identify traditional tamangs method of mathematical operation and ti find out the implication of tamang process and tone up to the present learning situation. That project work has shown that the tamangs have their own mathematical process and geometrical concepts. The study has also showed that the situation of children into the formal system. But it did nit study the effect of ethno mathematics practice in the classroom settings.

According to Grant Sleeter (2003), multicultural education has become the common term used it describe the types of pluralist education that its advocates are seeking for children receiving an education, pre-knowledge through college. Supporters of multicultural education claim at the societal level, its major goals are to reduce prejudice and discrimination again oppressed groups and to effect an equitable distribution of power among members of different culture groups (Cited in Jay 2003).

Adhikari (2006) did a study on “Culture discontinuity and difficulties in learning mathematics of Dalit Students”. The objectives of this study were to identify the causes of difficulties in learning mathematics at school, influence factors in learning mathematics, impact if home environment. The study was done on four Dalit students. In depth interview, observation form, written documents were main tools and the study concludes that there is discontinuity between home culture and school culture. The home environment is not supportive for mathematics learning.

Aale (2012) conducted a research on “Mathematics learning difficulties of Tamang children at Primary level”. The main objective of this research were to analyze the role of culture continuity of school and home culture in facilitating mathematics learning and to explain the individual and school strategies to address learning difficulty in mathematics of Tamang students. This study was based in the qualitative research and case study design where learning was case for this research that specially concerned with the exploring meanings and the way people understand. The tools of this study were semi-structured interview, observation form. This case study explained the role of instructional language used in mathematics classroom at primary level.

Teacher proposed understanding of multicultural issues in mathematics classroom at primary level must be the focused pedagogical consideration to improve mathematics learning and achievement is providing necessary learning opportunity through of home management. Janajati students were suppressed, it is very difficult for them to maintain social decorum in the society silly they can't go equally with their socio-culture norms and values.

The above empirical review documents related to mathematics education has discussed the problem of multicultural and multilingual teaching and learning in our and other values western countries in particular. These documents show we always statistically analyze the result of students but not analyze how the result is poor. And also not analyze the different factors which influence the teaching learning activities and learner's interest on learning mathematics with multicultural, multiracial and multilingual perspective.

Those documents also show simple and general result just focusing on student achievement through statically analysis but fail to touch other influence variables such as teachers' teaching strategies, methods, motivational tricks, feedback, multilingual and multicultural perspective of classroom diversity.

## **Research Gap**

Empirical review is the systematic literature and it examines past empirical studies to answer the particular research question. The main purpose of the literature review is to identify the gaps in literature (Boote&Beile,2005). After observing above literature related to mathematical concept used by particular community. I have found that many researchers were done on mathematics practice in Tamang community and achievement of Tamang students in mathematics. And they focused on influence factor of school environment to achievement of Tamang students in mathematics.

But in this research, I have tried to explore the factor that influences the home environment for Tamang students to achievement in mathematics. And my study was focused on finding out the social norm of Tamang community to relate with achievement in mathematics. In particular, the impact of home environment and social norms on learning mathematics. And the situation of Tamang student's achievement in mathematics.

## **Theoretical Literature Review**

In this chapter, the researcher discusses the theoretical frame work for the studies that would support the significant of causes of difficulties in learning mathematics of tamang students.

There are many causes for the low pass percentage of tamang students in mathematics subject such as low intelligence, family and school environment, teaching learning activities and other so many factors. As a consequence, students learn poorly in class and ultimately they have no option except dropping out from their schools. There were many learning theories which can be used for the analysis an interpretation of data such as social learning theory and culture difference and discontinuity theory.

## **Cultural Difference and Discontinuity Theory**

Ogbu (2000) delineates above the cultural difference and culture discontinuity theory that deal with the problems in children's learning caused by the difference and discontinuity between the cultural of home and school. The important part of this theory is those children, whose home cultures are much similar to the culture if this 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 they don't have enough attention in their learning and don't get much

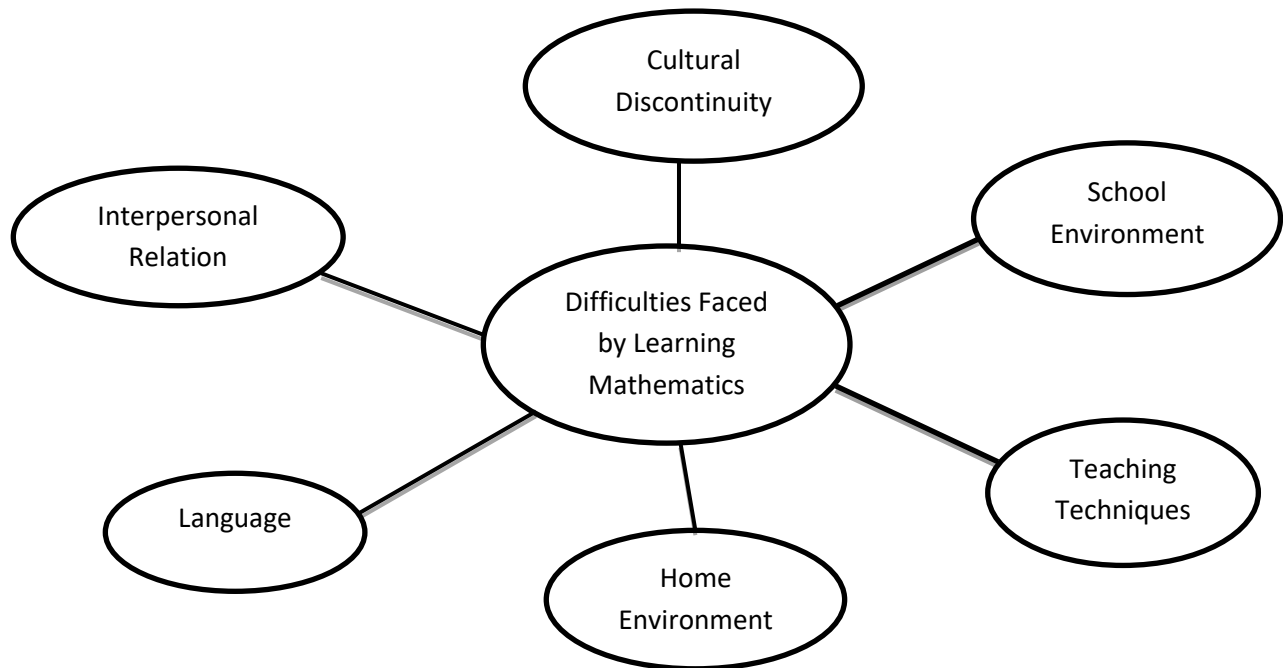
recognition of their cultures and they have to work achieving learning outcomes compared to the children with good matched. Ogbu distinguished involuntary minorities. Involuntary minorities are those who come to a society through enslavement, conquest and colonization. Voluntary minorities don't experience persistent or pervasive low achievement whereas involuntary (like as a caste) non-immigrant minorities do.

According to his story, involuntary immigrants experience a history of discrimination and prejudice that causes them to turn to each other in collective identity. If they know that can't turn to each other on collective identity. If they know that they can't turn to do dominant culture for help or support, they became more dependent upon and supportive of other member of their group. The most important reason as children with different culture word and human relation in school but they get a vast different in school.

Next lack of necessary concepts and skills in their own cultures may obstacle their learning. Finally, difference in teaching styles and learning strategy may be an important reason that affects their learning. As the present research question is considered it is helpful in findings the learning difficulties in mathematics of Tamang's students. Necessary information was collected from the observation of Tamang's behavior in classroom, playground and community inquiring the children about the parents about their culture aspects that contribute to their school. Oppositional culture, also known as the "Blocked opportunities framework" or "The caste theory of education", is a tern most commonly used in studying term most commonly used in studying the sociology of education to explain racial disparities in educational achievement, particularly between white and black Americans. However the terms and values, not just nonconformity within the educational system? Thus many criminal gangs and religious cults could also be considered oppositional cultures.

### **Conceptual Framework**

This is a research, to identify the learning difficulties of tamang students in mathematics at basic level students. This research mainly based upon the cultural discontinuity and culture difference theory. The following framework was proposed on the effective learning procedures ti develop the new knowledge for tamang students. (Figure: mathematics learning difficulties of basic level students)



(Source: Culture Difference and Discontinuity Theory, Ogbu, 2001)

The above chart shows that learning difficulties of tamang children at basic level. Research question is considered, it is helpful in findings the learning difficulties of tamang students in mathematics at basic level. This research mainly based upon the culture discontinuity and culture difference theory. Hence the environment reflected the education occupation, socio-economic status, culture and customs and learning opportunities at home.

School environment reflected belief and traditional of the school community delineation the relation among parents, students and teacher. Since the culture of home and school was different in term of language, culture and customs. So, Tamang students have their own language which is not matched at school. To find these difference themes this created learning difficulties of tamang children at basic level.



## Chapter III

### RESEARCH METHODS AND PROCEDURES

This chapter is the heart of the research. It includes the procedure adopted in the study, which is carryout to achieve the objectives of the study and to get answer of the research question. This chapter includes the design of the study, site selection, sample, tool of the study, data collection procedures, also explains the methods of analyzing the collected data.

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

Research design is the most important part of the research. Research design is the plan which is developed before starting the research work. Therefore research design is the base of each research. Preparation of research design is needed to conduct a research in a proper way (Khanal 2010). This research is based on qualitative research design. The qualitative research had descriptive, exploratory nature. Qualitative research is a form of inquiry that explores phenomena in their natural setting and used multi method to interpret, explain, understand and bring meaning to them. This data and information collected through using tools such as questionnaire, observation and interview.

#### **Research Site**

There are 77 districts in Nepal. Tamang people are live in all districts. But researcher selected the Sindhupalchok district. Sindhupalchok distric has 9 rural municipality and 3 municipality and tamang people lives all side of Sindhupalchok district. The researcher was selected a government school of Sindhupalchok district by sample purposively which is Shree Ichok Secondary School, Helambu-6, Sidhupalchok in which school has majority of Tamang students.

In this school, there are 20 (8 boys and 12 girls) tamang students\_in grade VIII. This site focused due to the prevalence of use of tamang language, culture and low literacy area. The researcher focused on tamang students studying in basic level specially grade VIII.

#### **Sampling of the Study**

This is the qualitative research. In this research the sample was used purposive sampling. Purposive sampling is one of the basic types of sampling, since it can be a component of other more complex sampling methods. The principle of sampling random sampling is that every object has not the same probability of being chosen.

## **Selection of Respondent**

The sample size of this research have taken 5 tamang students, 1 mathematics teacher, 1 head teacher and 3 parents. The sample of this research had taken tamang students, their parents, teachers and head teacher. The research site had choosed Helambu-6 rural municipality. In these rural municipalities the researcher chose a school for this research by sample purposively. This research focused on tamang students specially studying in grade VIII.

## **Data Collections Tools**

Every study required tools of data. Therefore in this study researcher used the following tools: Questionnaire, Semi-Structured interview and Observation Form.

**Questionnaire:** A questionnaire method is a device consisting of a series of questions dealing with some psychological, social, educational topic sent or given to an individual or group of individuals with the objective of obtaining data with regards to some problems under investigation, questionnaire method is one of the most important methods to collect the primary data for research so the researcher used the questionnaire methods to collect the data form the students.

I have prepared questionnaire focus on themes such as personal history, family background, reading opportunity at home and view about the learning environment at schools and home culture learning strategies at home and schools economic status of family and educational status of family etc. all the tamang students' fill up the questionnaire. The questionnaire had given in Appendix-II.

**Semi-Structured Interview:** The semi-structured interview has the both feature of both structured and unstructured interview. The researcher taken the learning environment in school, student and teacher relationship, learning opportunities for learning mathematics at home and school, training for mathematics teacher, teaching strategies for tamang students, problem on teaching tamang students, encouragement of tamang students for learning mathematics, effect of culture in learning mathematics, area of difficulties in learning mathematics for tamang students and techniques for minimizing mathematical problem etc. the researcher have taken interview from mathematics teachers, head teachers and parents. The interview guidelines have given in Appendix-II for Tamang Student, Appendix-C for math teacher and Appendix-IV for parents.

**Observation Form:** As a data gathering device direct observation makes an important contribution to research. Observation may be participant and non-participant. Participant observation is that in which the observer is familiar ad participants with the objective of study. Observation is the process of recognizing and noting people, objects and occurrence rather than asking for information. The research used observation form to observe classroom activities, tamang students' and teacher behavior, classroom interaction etc.

The observation of the study taken on the basis of factors that is watch, listen and interact the essential data from the informants using the observation form is given Appendix-VII.

### **Focus Group Discussion**

The method of data collection which cannot be collected from the interview schedule. The in depth data are collected from the focus group discussion. The focus group discussion(FGD) is conducted among the people more than five and below 8 peoples. The focus group discussion was conducted nicely and sensibly. The FGD was conducted with the people setting face to face. The promoter and note keeper were taken as a helper to conduct the focus group discussion. First of all the promoter started with the introduction and clarifies the motto of the FGD and requests to the participants to take part and debate in the topic. The note keeper made a note and records all the proceeding; the promoter should bring the participants in line if they are outlined.

The data collection is the important part of the study. On the basis of data, we can study and analyze every aspect of the study. For this, the data and information were collected by using different tools. The FGD was conducted among the parents of the students of the under the study. The FGD was conducted by separately on the school. The participations of parents of the key respondents was the key part of the research. The researcher conducted the FGD and recorded the event while conducting the FGD with the help of the note keeper or the helper. The data which were not able to collect with the interview were collected with the help of focus group discussion. The FGD was conducted with the help of the guidelines prepared in terms of the conceptual framework. The open ended questions were also included in the FGD according to the conceptual framework.

### **Data Collection Procedure**

I have spent one month time duration to the collect of data for this study. I have followed the following procedures for collecting data for this study. First of all, I had gone to

the research site School of Ichok Secondary School. And use the tools such as questionnaire, semi-structured interview and observation. I have taken the questionnaire for all tamang students of grade VIII of the sample schools Ichok Secondary School. Then discuss certain questions related to their learning mathematics and personal background, educational status of family, economic status of family. Personal interest for learning mathematics etc. semi-structured interview was taken from mathematics teachers, head teachers and parents.

I took interview with teachers, head teachers and parents one by one. The interaction with the above would be carefully listen and note properly. I discussed about causes of learning difficulties of tamang students in mathematics and their personal opinion about this. The school environment had obtained by taking interview by head teacher and mathematics teacher. The learning environment of home and other detail were obtained by taking interview with the parents of tamang students.

Mathematics classroom was observed by using classroom observation checklist to note the teaching and activities of the teacher and students in classroom activities. I observed the classroom using observation form for 5 days in grade VIII. Then I had watch, listen, interact and record the essential data from the information about learning strategies, participation of tamang students in class, relationship between teacher and tamang students and other caste students, use of teaching material in mathematics classroom, classwork and homework etc.

The observation focused on adopted to collect data about learning environment and tamang students' activities in real situation in the process of observation. I have divide a class into the three phases i.e. 0-5minute introduction phase, 5-25minute main teaching phase, 25-35minute evaluation and consolidation phase. Within all phases the researcher observed the teacher activities, behavior of language, use of material, biasness, tamang student s and teacher interaction, other caste student and tamang students interaction and learning environment of tamang students.

The school environment and other detail had obtained by watch, listen, interact and notes the document of school and parents in their home. And also collected the data for the study includes test scores from their previous examination, average attendance of the previous year which would help to find the validity and reliability of the data.

## **Data Analysis and Interpretation Procedure**

The data analysis and interpretation is the process of systematic searching and arranging information from the tools such as questionnaire, semi-structured interviews and observation. Data interpretation is the systematic process of presentation and showing effect. The analysis of data is important thing while preparing research report. In this research primary data presentation and analyze. The data and information collected from questionnaire, semi-structured interview and observation then will make grouping the information according to the different categories such as educational background of the family reading time at home. Family economic condition, relationship with teacher and other caste students, facility of practice book, book and tuition, language problem, doing classwork and homework, different problem faced in classroom, difficulties subject matter, teaching strategies, problem in teaching mathematics, area of difficulties in teaching mathematics, techniques to use minimize the problem in class. After collecting data the researcher analyzed and interprets these data. After coding and organization the data in table then find the percentage of these data. The validity and reliability of the result would be maintained by cross matching them.

The above mentioned theme collected together under the same theme and explained according to the conceptual framework related before the researcher developed and match with the theory literature review.

## **Quality Standards**

According to Denzin and Lincoln (2010), qualitative research is recently developed research approach. In this, researcher modify, adopt and adjust techniques to craft their practices. It confronts uncertainty, fragmentations, diversity and plurality. There are many trusts and their generalizations, typologies are contrasted, troubled or challenged (Denzin & Lincoln, 2005; Freitas, 2007; Onwuegbuzie & Leech, 2004). In my research, I have set the following mentioned quality standards.

**Trustworthiness.** "Research findings should be a trustworthy as possible and every research study must be evaluated in relation to the procedures used to generate the findings " (Graneheim & Lundman, 2003, p.109). In order to maintain trustworthiness of my research I have gone to the real field and appreciating social state, understanding and perspectives and participants by conducting research in personal, social and natural setting. I have maintained credibility through prolonged engagement by visiting of the participants frequently for interview, sharing and discussing my research topic and reinterpreting the situations. Before

starting discussion with the participants, I had clarify them the purpose of taking their interviews.

**Credibility.** Credibility is known as internal validity of a qualitative research. The credibility criteria involves establishing that the results of the qualitative research are credible or believable from the perspective of the participants in the research. For the credibility of the collected data and information, triangulation was done on the basis on document analysis and In-depth interview. During the whole process, I used personal notes, reflective notes and theoretical notes in each interview.

**Transferability.** Transferability is the external validity of research findings. It refers the degree to which the results of a qualitative research can be generalized or transferred to other contexts of setting. From the qualitative perspective, transferability is primarily the responsibility of the one who is doing the generalization. As theoretical generalization or transferability was practiced in qualitative research, I enhanced transferability by doing a thorough job of describing the research context and the assumptions were central to the research.

### **Ethical Considerations**

Ethical consideration is the integral part of the process of qualitative research design. The major ethical consideration of this research were informed to consents, respect privacy of respondents, do not harm the beneficence of respondents, respect for anonymity and confidentiality, Informing to consents is one of the important aspects of this research means by which respondents right to autonomy is strictly protected. Informed consent of this research refers to incorporate the right of autonomous individuals through self-determination and also to protect personal liberty and veracity.

The issue of anonymity and confidentiality of respondents is related to the rights of beneficence. I maintained confidentiality that goes beyond ordinary loyalty. Each and every respondent were free from being pressurized by the researcher and name of the respondents will not be disclosed. But the information related to the mathematics knowledge which is desired by the objective of this research is documents in the findings of this study. Therefore, all the information given by respondents is treated as confidential and will not be disclosed by the researcher to third party unless required to do so by the law.

## Chapter IV

### ANALYSIS AND DATA INTERPRETATION

This chapter deals with the analysis and interpretation of the collected information derived from the survey. This was a qualitative study. The main focus of this study was to find the causes of learning difficulties and minimize of learning difficulties of tamang students in mathematics. For meeting the objectives of the study, data was collected from a Shree Ichok Secondary School. The researcher minutely studied the school document such as mark ledger, attendance as well as the other activities of tamang students.

Also class observation form filled up from tamang students. Appendix-I, interview taken from the Tamang students Appendix-II, interview taken from the mathematics teacher Appendix-III, interview taken from the parents Appendix-IV, interview taken from the peer groups Appendix-V, class observation Appendix VI&VII and case study of some students Appendix VIII. And related published and unpublished school document. The descriptive method is mainly used in this research. The researcher attempted to calculate the study by describing and analyzing the information acquired in the process.

This chapter includes the analysis and interpretation of the collected information. Data was categorized according the framework category of the samples and different themes were given in the text or the observation note.

Thus the obtained data and information were analyzed and interpreted in their perspective under the following headings:

- Participation of Tamang students in school.
- Learning environment of Tamang students at home.
- Learning environment of Tamang students at school.
- Culture discontinuity at home and school.

#### **Participation of Tamang Students in School**

In this research, participation means regularity, interaction between teachers and other students, doing homework and classwork of the tamang students.

**Regularity.** Regularity in the classroom is one aspect of the participation. The following table shows the rate of participation in month of tamang students.

**Table4.1: Attendance of tamang students in Chaitra month.**

Name of the school	Attendance of tamang students In Chaitra month.
Shree Ichok Secondary School	10

In school, there were all together 20 students at grade VIII. There were different caste (Tamang, Sherpa, Gurung, Sonar) of students ad among them most of the students were tamang according to these schools data there were 20 (8 boys and 12 girls) tamang students in grade VIII. From above table shows that the average attendances of tamang students are only 71.4%, it indicates that the regularity of tamang students in school was low.

*"The tamang students' of this school are especially from poor and uneducated family. To make responsible towards the school management committee includes the member of tamang communities. We usually inform the parents for discussion about their children education and regularity in school but they did not participate all of them, they did not care their children for study".* – Head Teachers' view

*"Our parents are illiterate they could not read and write. So our parents cannot encourage to going school".* – Students View

The above view indicates that parents are not responsible for their children education because most of the parents' are uneducated and they are busy in the own work.

**Interaction.** Interaction with teacher and other caste students is another aspect of participation in learning mathematics to observe these activities the researcher noted the following episode.

#### **Episode-1**

There were 20 students in the class. Among them 14 were tamang students. Teacher took the attendance of the students. There were 15 students present on that day and only 10 tamang students present at that day. Usually teacher asked students to open the text book and asked the question to the student, did you finish the problem given yesterday? If the teacher did get the answer yes he went to another exercise if no teacher opened the book again and wrote the topic Set. He wrote a problem on the white board and solved it. All the students were busy to



copy the solution from the board. The teacher did not review the previous class and also did not check the homework. After some time teacher asked to the students do you understood or no? Some of students said yes sir but other were silent. The students discussed each other but teacher did not care them. Then he gave the question for them and checked the solution of some students only but did not visit around the all students. Then class was finished.

There were no proper interaction between students and teacher. So the teacher understanding and relation of multicultural issue the most impact issues in multicultural classroom.

When teachers form positive bonds with students, classroom becomes supportive spaces in which students can engage in academically and socially productive ways. Positive teacher-student relationships are classified as having the presence of closeness, warmth and positivity. Students who have positive relationships with their teachers use the, as a secure vase from which they can explore the classroom and school setting both academically and socially, to take on academic challenges and work on social-emotional development. This includes relationships with peers and developing self-esteem and self-concept. Through this secure relationship, students learn about socially appropriate behaviors as well as academic expectations and how to achieve these expectations (Hamre & pianta, 2001). Students in low-income schools can especially benefit from positive relationships with teachers. Students in high-poverty urban schools may benefit from positive teacher- student relationships even more than students in high-income schools. Because of the risks associated with poverty. Risk outcomes associate with poverty include high rates of high school dropout, lower rates of college applications low self-efficacy and low self-confidence. There are several factors that can protect against the negative outcomes often associated with an adult, most often a teacher. Low-income students who have strong teacher-student relationships have higher academic achievement and have more positive social-emotion adjustment than their peer who do not have a positive relationship with teacher (Murray & Malmgren, 2005).

The above view indicates that the interaction between teachers and students was one of the causes of learning difficulties of tamang students in mathematics.

**Homework and Classwork.** Homework and classwork is another aspect of participation in learning mathematics. Homework is an assignment to a student to be completed outside the regular class period and classwork is the part of a students' work that is

done in class. The following table shows the participation in homework and classwork of tamang students.

**Table 4.2: Participation in homework and classwork**

Name of the school	Percentage of participation in homework and classwork of tamang students.	
Shree Ichok Secondary School	Homework	Classwork
	35%	50%

From the above table shows that the average percentage of participation in homework of tamang students is only 35% and participation in classwork of tamang is only 50%.

It indicate that participation of tamang students in homework and classwork in very low, the participation of tamang students in homework were affected by factors such as literacy of parents, home environment and school environment.

Paschal, Weinstein and Walberg (1984) discovered through a meta-analysis of fifteen quantitative studies that homework did have a positive effect on achievement, especially in certain grade levels. Specifically, traditional, daily and graded homework had the greatest positive impact on student achievement in the basic level.

Homework appears to provide more academic benefit to basic level students for whom the benefits seem to lie in non-academic realism. Such as in improving study skills and learning structure and responsibility. It shows that low participation of homework and classwork is the one of the cause of learning difficulties of tamang students in mathematics.

### **Learning Environments of Tamang Students at Home**

Environment is the totality of the educational atmosphere at home and school. Home is regarded as the first school to all individuals. They learn how to behave, how to respect elder, how to cooperation to each other. In this research home environment reflects the occupation, economic condition, educational back ground of the family and learning opportunity of the students at home. Home environment plays the vital role in learning. School is the second home of any child. The teacher, students, head teacher, friends and parents are the component of the school.

## Occupation of Parents

Occupation of the parents is the one aspect of learning environment at home. Occupation means that which occupies or engages the time and attention. The following table shows the occupational details of parents of tamang students.

**Table 4.3: The occupational details of parents are as follows**

Occupation	Involvement
Agriculture	90%
Labor	5%
Business	3%
Others	2%

The above table shows that 95%, most of the tamang students were from low economic family background only few students were from medium class. 35% tamang students complete their homework in home. None of the students took the tuition class of mathematics for improving their result.

*"We do not have basic things in our house. Nobody is in the family to earn money. We are in difficult situation to survive. How can we send the children to the school?"*

- Parents View

*"Our family income depends upon agriculture and labor which is not sufficient for us it is difficult to manage daily expenditure of home. We do not have tuition class to improve mathematics".*

- Students View

Tamang students used informal language in his/her family not standard vocabulary but in school informal language was not suitable. The standard vocabularies were used.

According to Ogbu, it is the culture difference and culture discontinuity between home and school in every home culture which was discontinued in the school culture and forwarded culture. Home environment was affected by everyday life of all individuals.

### **Educational Background of the Family**

Educational background of the family is another aspect of learning environment at home. The following table shows the educational background of the parents of tamang student's family;

**Table 4.4: Educational background of Tamang student's family**

Education	Percentage
Bachelor or above	0
Intermediate or 10+2	0
S.L.C	3
Literate	30
Illiterate	70

The above data and view indicates that most of the tamang students were from uneducated family and low economic background and they have not given the sufficient time at home for mathematics learning and doing homework and other practices. Tamang students were not getting expected achieve in mathematics. The parents do not guide them in house and always avoid taking responsibility to provide educational environment in the home. The above data also show tamang students did not do homework regularly in mathematics. Due to lack of sufficient time at home for mathematics practice, not separate room to read and lack of guidance of parents they become weak in mathematics. Indeed mathematics needs more practice to achieve good marks but they didn't give enough time for practice and they didn't take the tuition classes because they have no enough money.

### **Learning Environment of Tamang Students at School**

School is the second home of any child. The teachers, students and parents are the component of the school. School environment reflects belief and tradition of the school community delineating the relation among parents, students and teachers. Scholarship to the students, extra class provided, appropriate teaching method and equal chance for boys and girls in all activities are the major aspect of school environment (KC 2009).

All the activities which are conducted in the school come within school environment. It is one of the components to total educational atmosphere. However, school is considered as second home of any child where the teachers, students and other staffs play the as the family members. And the teacher's guide control and provide information about book and the current time. The schools have to maintain the rule and regulation of the school period. No matter how the school environment, it has deep relation with society. The social environment becomes adverse to the school environment. If the social environment maintains the educational environment is society. They the school environment becomes good for students to learn the current knowledge.

*"The school has not enough teaching materials for mathematics and other class. Also the school future plan is to manage required materials some computers for teaching and add more books in the library".*

- Head Teacher

*"I am planning to take unit test regularly from this month".*

- Teacher

*"Teacher gives homework daily but checks it as the end of unit. If we do no complete the homework the he beat us but never check in classroom. The teacher checks in after a long time".*

- Students

This shows that there is lack of continuous assessment in school. The teacher solely punishes so the students had negative attitude towards the mathematics teacher.

In this connection UNICEF (1999) states that there is sample research showing that students are quicker to learn, to read and acquire other academic skill when first taught in the mother tongue. The above data shows that the tamang students do not understand second language adequately while teacher teach in Nepali. The second language hinders to understand an idea about mathematics which becomes a poor interaction with teacher and tamang students.

Teachers are use students centered learning strategies for mathematics teaching and use the mathematical material for teaching mathematics. Language, lack of pre knowledge, low attendance in school, do not study at home, do not do their homework and classwork regularly are the main problem of teaching tamang students.

**Language.** Language is the one aspect of the learning environment of tamang at school. Language is the greatest means of human civilization that sets them apart from the other loving beings. It is such a means by which we perform communication, thinking group

solidarity, nation buildings, control, creation and absence of which no artistic academic and social activities can be thought. The language is major component for learning when the researcher observed. It was found that language was a factor of misunderstanding between tamang children and other caste children and also between teacher and tamang students.

*"Tamang students have language problem. They couldn't speak Nepali correctly, they mixed Nepali and tamang language which is difficult for us in understands. They feel difficult in understanding Nepali language in comparison to other students. That causes they are always backwards".* - Teacher

*"We understand clearly math teacher teaches in our language".* – Students

*"We want good teacher who are clear in mathematics and language, can give examples related to tamang culture."* - Students View

From the above view indicates that most of the tamang students feel uneasy to speak and understand Nepali as well as English languages.

UNESCO (2003) stated that at elementary level instruction through home language have psychological, sociological and educational strategies. Therefore, they spoke their own mother language at home. The language of tamang was not matched with the school language. So students were taught in their language they would have educational, psychological and sociological impact on their study. The response of teacher and students as given above proved that the problem of language is communication. From the above view it showed that of the tamang students have poor in Nepali language. They spoke their own mother tongue at home. The language of tamang was not matched with the school language. So, language is major factor for creating the difficulties in learning mathematics of tamang students.

**Teaching Method.** Mathematics is the subject of practical knowledge. So, the sufficient use of teaching materials are necessary in the study of this subject. The experienced teacher can make his class effective. The students can understand the problems if the teacher use the tricky methods. A trained teacher can use right and appropriately the teaching materials and makes the teaching learning easy and interesting.

The teaching learning process cannot be effective in mathematics classroom if there is not chosen appropriate method. How the students can easily understand the solving process is important. In mathematics teaching many methods are being used like problem solving, discussion, question answer, practice, experimental, discovery etc. and which method to use

always in problem solving depends in teacher' experience, qualification, training and so on. It is better to use students centered approach than teacher centered approach than teacher approach while teaching mathematics.

### **Episode-2**

The teacher went to the class first and the researcher also entered the class. All the students stood up and said good afternoon sir. The teacher told them sit down. Physical environment of classroom was good. When the teacher started to teach mathematics, there viewed the previous lesson of unitary method then wrote a problem from textbook and solved the problem in whiteboard by explaining it step by step. But teacher did not use any material related topic. After one demonstration, he gave one more problem to the students to solve. The teacher then just walked among the student and guided them who seem distribution with noise. Mostly in the process of teaching teacher used method and strategies was lecture practice method in the teaching of mathematics. This episode shows classroom environment is controlled by teacher according to his method or strategies in the classroom.

From the above observation, it seems that there is not proper interaction between teacher and tamang students. And also the teacher did not use the student centered learning method. This observation shows that student's participation was poor and not achieved in equal learning experiences. It can be concluded that from the observation of classroom, the teacher mostly used lecture method. Though, sometimes I found him with using problem solving method but it was not sufficient. The classroom environment was authoritative. The class lacks student's friendly environment. Thus, it can be concluded that traditional type of lecture method one of the causes of poor learning in tamang students.

### **Cultural Discontinuity at Home and School**

Culture refer to the cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notion of time, roles, spatial, relations, concepts of the universe and material objects and possessions acquired by a group of people in the course of generations through individual and group striving.

Since the everyday lives of Tamang children were not given emphasis for their learning in school practices. They always consider school as an artificial and incompatible institution so they neither assimilate nor accommodate into mainstreaming school system. In home they learned by observing and doing things side by side. But they did not get chance of

that in school. There were great differences between the lives of tamang children at home and school practices. As the tamang children had to engage in household works they did not have sufficient time to study at a home. Teachers were found unaware about children home environment. Similarly, there are some mathematical concepts in tamang culture which are in solving many problems but these concepts are not addressing attitude of tamangs cultural aspects in learning mathematics than other caste children. Tamang children felt difficulty in learning has influence in their learning because of not connecting everyday mathematics to school math. They use their own counting system: Gi, Nee, Som, Blee, Ngh etc. this discontinuity between everyday life and school practice made tamang students to feel complicated in learning mathematics.

Since the culture at home and school was different in terms of language, teaching style, culture customs and everyday lives of tamang students at home and school was also different. In this situation they had to adopt the learning strategy differently. Consequently they faced problem in learning mathematics. Since the learning strategy of the children at home was discontinued at school. Here according to the theory of cultural discontinuity, Ogbu (2000) argued that due to the cultural discontinuity between home and school, children face problems in learning mathematics. Environment of home and school affected the learning of students. To sum up, the discontinuity between the cultures, i.e. environment of home and school discouraged or not support the mathematics learning of tamang students.

Teacher never gave proper attention separately to the tamang students. Tamang students learn at home and school along with different influencing factors. Home is treated as the first school of human being. So, home environment, school environment and parents' behaviors etc. play an important role. Similarly, the behavior of society and teachers also play the vital role for tamang students in learning mathematics.

Most of the student had difficulty in learning mathematics in same area and difficulty was due to their cultural discontinuity. In one hand they were forced to engage in household works by the demand of society. It was their weak economic condition which forced them to different works. On the other hand the children were forced to engage in performing household works by their parents. When they went to school they had to face different humiliating and offering behaviors from their friends from other caste. Teacher also did not give special attention to them as they treat all the students equally.



## **Chapter V**

### **SUMMARY, FINDINGS, CONCLUSION**

After analyzing and interpreting the data, the researchers have tried to summarize, draw findings and derive conclusion and recommendations based on the finding of the study.

This chapter includes the finding derived from the analyzing and interpretation of the previous chapter and the recommendation of how these finding can be used in the academic field. The first section of this chapter reveals summary, second findings third describes conclusion.

#### **Summary and Findings**

This was a research related to the difficulties of tamang students in learning mathematics. Tamang people are discriminated, humiliate and disadvantaged socially, economically, culturally and politically in the society and the state policy. The main objectives of the study were to find the causes of learning difficulties of tamang students in mathematics. To reach faced the following will be the specific objectives of this research: 1. To finds the causes of learning difficulties of Tamang students in mathematics in culturally diverse classroom. 2. To minimize the difficulties of Tamang students in learning mathematics in culturally diverse classroom.

To fulfill the objective of the study and to analyze and interpret that data, the researcher has developed the conceptual framework in literature review altogether. The design of this research is survey design. To investigates difficulties of tamang students in mathematics learning. The researcher had done the different activities to complete this objective the questionnaire and semi structured interview taken from the tamang students, mathematics teacher and head teacher of the school. The researcher attempted to calculate the study by describing and analyzing the information acquired in the research process.

In this research the researcher selects the government school which is Shree Ichok Secondary School in which school have majority of Tamang students. In this school there are 20 students in grade VIII (8 boys and 12 girls) and 14 students are tamang students in this class. The researcher used the mainly these tools to collect the data: classroom observation, questionnaire and semi-structured interview. The analysis and interpretation data at first the collected information was categorized according to the category. Data triangulation was adopted to maintain the validity and reliability of the information. The analyzed data were interpreted by using the framework. The researcher developed in literature review altogether.

In causes of analyzing the John Ogbu's theory of culture discontinuity was used. Most of the Tamang student have difficulty in learning mathematics in same area and causes of difficulty their cultural discontinuity between home and school culture. When Tamang student go to school for learning, they have to accept different humiliating behaviors from their friends who are from different caste. Teacher never gives proper attention separately to the Tamang students which is required in multicultural classroom. So, home environment, school environment, parent's behaviors, home played important role in learning of Tamang students.

### **Finding Related with Causes of Learning Difficulties of Tamang Students in Mathematics in Culturally Diverse Classroom**

- Tamang student have used their mother language at home and Nepali language in school. There is language discontinuity at home and school in basic level.
- Most of the Tamang students were from illiterate family background.
- Most of the Tamang students do not read at home and practice mathematics at home.
- Most of the Tamang students have not good relationship with other caste students.
- All Tamang students have facilitated with compulsory books but most of the students do not access in mathematics practice book and tuition.
- Most of the Tamang students were feel easy with their mother language for teaching mathematics.
- Most of the Tamang students did not do their homework and classwork regularly.
- There is not proper interaction between Tamang students and mathematics teacher at school.
- Teacher couldn't care every student individually and properly because students did not show good behavior in classroom.
- Mathematics teacher had not motivated the Tamang students in mathematics class.
- There is not proper interaction between Tamang students, teacher and parents about children progress.
- The children of Tamang parents do not have provide conducive environment for mathematics learning at home.

- By the economic condition and bad social norms about the education of their community. So, they are irregular in the school.
- Most of the tamang students were not try to minimize their mathematical problem.
- There is cultural difference and discontinuity at home and school as they get practical knowledge in their home and theoretical knowledge at school.

### **Finding Related with Minimize the Difficulties of Tamang Students in Learning Difficulties in Culturally Diverse Classroom**

- Teacher should provide the constructive and encourage environment in classroom.
- Mathematics teacher should motivate and properly interaction with Tamang students and other students at school.
- Mathematics teacher should do the case study of Tamang students who are backward in learning mathematics.
- Provide the proper environment to build up a good relation with other students.
- Engage the parents of Tamang students in school activities and give awareness about important of learning mathematics.
- Provide the good environment to Tamang students to learn mathematics at home.
- Provide the all needed books, text book, practice book and tuition to learn mathematics.
- Teach the mathematics content relate with practical knowledge in their home.
- Provide the good environment to do compulsory, regularities homework and classwork at home and school.
- Minimize the bad social norm which affected Tamang students to regularity in school.

### **Conclusion**

The school environment is appropriate. But, family environment is not satisfied on learning mathematics of Tamang students. Students creatively could not develop in mathematics because parents did not develop proper environment for study in family. The parents of Tamang children go to the work for another person's house and children do not go to the school, children go to fishing in the river. Most of the Tamang children parents are

illiterate so they do not take care of their children in their study. They do not understand the values of education. There are many students of different socio-economic status. Among the Janjati, Tamang are again socially, economically, educationally, politically and culturally backward. Their learning achievement is very low in mathematics. From this research, researcher found that the effecting factor related to home environment of Tamang students are parent's education, family size, household workload, poverty, parent's occupation, social belief and social tradition. Home environment, parents guidance, school environment, school leadership, parents education, parents economic condition are improve then Tamang students achievement improve in mathematics.

The researcher has come up in the conclusion that the school environment is not sufficient so the home environment should be better. For the good mathematics achievement the home environment should be good, the participation in the school activities should be good, the regularity in the school should be better, the psychologically dominating behaviors should; the family should be economically and educationally sound.

### **Implications**

The implications of this study are given below:

- It is useful for teacher to understand the Tamang students and improve their mathematics achievement.
- To use cooperating teaching methods and materials in the mathematics class.
- To encourage the Tamang students to be regular in the class, regular Tamang students should be awarded.
- Time to time modern and refreshment training and orientation should be provided to teacher.
- School administration should gather students, teachers and guardians for open interaction so that difficulties could be identified and improved easily.
- Various studies should be done in this community to uplift them.
- Implement the literacy program identifying the Tamang community.
- Scholarship should be provided to the Tamang students up to higher education.

## REFERENCES

- Aale, S. (2012). *Mathematics Learning Difficulties of Magar Children at Primary Level (A case study in Sindhuli district)*. An unpublished master thesis, T.U., Kirtipur.
- Adhikari, S. (2006). *Cultural Discontinuity and Difficulties in Learning Mathematics of Dalit Students*. An unpublished master thesis, T.U., Kirtipur.
- CERID (1990). *The Elementary Process of Learning Mathematics Concepts and Process of Rasauwa, Tamang*, Kathmandu.
- Ghimire, K.P. (2012). *A Study on Difficulties in Learning Algebra*. An unpublished master thesis, T.U., Kirtipur.
- Hamrek, B.K., & Pianta, R.C. (2001). Every Teacher-Child relationships and the trajectory of children's school outcome through eighth grade. *Child Development*, 72(2), 625-638  
Retrieved from  
<http://www.centerforpubliceducation.org/main-manu/instruction/>
- Jay, M. (2003). Critical Race Theory, Multicultural Education and the Hidden Curriculum of Hegemony. *Multicultural Perspectives*, 5-4, 3-9.
- Khanal, P. (2010). *Educational Research Methodology*, 4<sup>th</sup> ed. Kathmandu: Sanlit Publication.
- Lama, B. (2012). *A Study in Understanding Basic Concepts of Mathematics by Tamang Community*. An unpublished master thesis, T.U. Kirtipur.
- Murray, C., & Malmgren, K. (2005). *Implementing teacher student relationship program in a high poverty urban school: effect on social, emotional and academic adjustment and lessons learned*. *Journal of School Psychology*, 43(2), 137-152. Retrieved from.  
<http://www.steinhard.nyu.edu/appsyh/opus/issues/>
- National Census Report, (2068). Kathmandu Government Printing Office.
- Ogbu, J.U. (2001). *Understanding Cultural Diversity and Learning*. In Bhallantine, J. and Sapde J.Z. (Eds) *School and Society*, (pp. 334-354). California: words Worth Thomsan Learning.
- Regmi, P. (2010). *Attitude of Tamang Students towards Mathematics and its Relationship with their Achievement*. An unpublished master thesis, T.U. Kirtipur.

Shrestha, D.B. (2003), *The Measurement System in Newar Civilization*. An unpublished master thesis, T.U. kirtipur.

## Appendix I

### Class Observation Form

Name of the School:

Date:

Name of Teacher:

Time:

Students No:

Subject:

Period:

<b>1. Initiation of lesson</b>	<b>Vg</b>	<b>Go</b>	<b>Sa</b>	<b>Po</b>	<b>Remarks</b>
Teacher's punctuality					
Self-confidence of teacher					
Introducing the objectives of the lesson					
Interesting class starting					
Based on previous lesson					
Class management					
<b>2. Presentation and developing of the lesson</b>					
Stimulating recall of prerequisite					
Presenting the content with its distinctive future and learning guidance					
Providing suitable example and learning guidance					
Encouraging for sharing and small group discussion					
Appropriate of question answer between student and teacher					
Teacher and student interaction for electing the performance					
Use of teaching materials					
Tamang students participation in discussion					
Providing reinforcement and feedback to the weak students					

Listen to students opinions					
Students listen attentively					
<b>3. Used method of teaching</b>	<b>Ne</b>	<b>So</b>	<b>Of</b>	<b>Ad</b>	<b>Remarks</b>
Lecture					
Discussion					
Problem solving					
Questions answer					
Demonstration					

<b>4.Closing of lesson</b>	<b>Yes</b>	<b>No</b>	<b>Remarks</b>
Did the teacher summarize the lesson?			
Is the lesson evaluated?			
Does evaluation come out satisfactory?			
Is the class work given?			
<b>5. Classroom organization</b>			
Is the blackboard at appropriate place?			
Are the sufficient seats for students?			
Is door and window is appropriate place?			

Where,

Vg means very good

Sa means satisfactory

Po means Poor

Ad means almost daily

Of means Often

Ne means never

So means sometimes



## Appendix II

### Interview Schedule for Tamang Students

Name:

Age:

Gender:        Male         Female

Mother tongue: Nepali         Other

Residence:    Local         Outside

Entry class in present school:

1. Do you like study mathematics? Why?
2. How much time do you spend at home for studying math?
3. Do you discuss math problem with class friends in and outside school?
4. Do you understand mathematics in school? If you math teacher?
5. What kinds of behave do you get from your math teacher?
6. What kinds of behave do you get from other students?
7. Does your mathematics teacher use teaching materials in the classroom teaching?
8. Do you parents help math study at home?
9. How many hours do you spend in household work in a day?

## **Appendix III**

### **Interview Schedule for Math teacher**

Name:

Address:

1. What are the factors that affect the learning of mathematics?
2. Do you any different between the learning achievement of Tamang and other students?
3. Does student attendance influence their learning achievement level?
4. What are the factors that influence Tamang student regularity in school?
5. What problems do you see at the basic level math teaching? Would you give any suggestions to solve the problem?
6. What is the influence of teacher weekly teaching load on students' achievement and in the learning activities?

## Appendix IV

### Interview Schedule for Parent's

Name:

Addresses:

Sex: Male

Female

Age:

Occupation:

1. In which occupation do you involve now?
2. Have you been going to school to meet the school to know about the children's learning achievement?
3. Are you suffered by any problem at the time of educating your children?
4. What kinds of behavior are you feeling towards your children from the school teacher's?
5. Do you children face any problem being a Tamang?
6. What are the causes to be low participation of Tamang students in education according to your views?
7. What are the ways to increase the participation of Tamang students at school?
8. Do you agree the home environment influencing the mathematics learning so students? Why?
9. Are you satisfying the mathematics achievement of your children?

## **Appendix V**

### **Interview Schedule for Peer Groups**

Name:

Date:

Address:

Class:

1. How much different caste students are reading in your school?
2. What is your relation with Tamang students?
3. Do you feel equal behavior to the all students from your school teacher?

## Appendix-VI

### Episode of Class Observation

The researcher observed the first school one day and found that the teacher of that school was five minutes late such that the students of that class were found talking and fighting. After the attendance, when the teacher started the class, he introduces the lesson of that day but he missed to rewind the previous lesson. The class was found arranging with the separated benches for boys and girls and equal size of benches for all students.

The mathematics teacher of the first school was found teaching the verbal problem algebra. He wrote the problem white board i.e.  $2x+5=15$ . He taught the problem with old and lecture method. He was found saying and writing to  $2x=15-5$  and  $2x=10$  i.e  $x=5$ . He was mixing the Tamang language in the middle of lesson and researcher notice that Tamang students were feeling complexity in understanding that problem through the Tamang students were getting more advantage. The researcher found that one Tamang student asking for repeating the problem ones again but the teacher was found saying "yeti pani bhujenau". The student feels shy and after that he didn't ask more question after that day. The researcher also found that the class work has not check of all students including the Tamang students. Most of the cases under the study were found not participating in the interaction that day. The researcher notice the mathematics teachers of the school was giving opportunity to ask the questions, giving time for interaction for only focus to the first students of the class.

When the class was finished the researcher found that mathematics teacher walked without giving homework and neither lesson was the summarized. The researcher found also found that the students point out immediately out of the class when the class was off and start playing and come to the class when other teacher arrives.

## **Appendix-VII**

### **Episode of the Class Observation**

When the researcher observed the mathematics classroom of the second school under the study, the researcher found that the mathematics class very noisy. The mathematics teacher tried to make silent when the mathematics teacher arrived in the classroom, he starts without rewinding the previous class.

When the researcher observed the teaching learning activities of the mathematics classroom, the researcher found that the teacher was found busier in clarifying the problem. When the researcher observed the last five minute, the researcher found that no summarization was made by teacher. The teacher did not asked again such that it was unknown the objective were achieved. The class work was soon shown by thirty percentages of students such that the evaluation was not seemed satisfactory and the teacher was found walking without giving homework.

### Appendix-VIII

This researcher had included the five students from school. The name is Shree Ichok Secondary School, Helambu-6, Sindhupalchok were included in this research. The description of the students in this research is given below.

#### List of Case Students

S.N	Name	Class	Gender	Residence
1	Dorje Tamang	8	Male	Helambu-6
2	Man Kumari Tamang	8	Female	Helambu-6
3	Sunita Samden	8	Female	Helambu-6
4	Sonam Lama	8	male	Helambu-6
5	Rita Tamang	8	Male	Helambu-6
	Total		5	