DIFFICULTIES IN LEARNING MATHEMATICS OF TAMANG STUDENTS

A

THESIS

BY

MEN KUMAR WOIBA

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विश्वविद्यालय क्याम्पस
कीर्तिपुर, काठमाडौं, नेपाल

UNIVERSITY CAMPUS
Kirtipur, Kathmandu, Nepal

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DEPARTMENT OF MATHEMATICS EDUCATION

पत्र संख्याः-
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Letter of Certificate

This is certify that Mr. Men Kumar Woiba, a student of academic year 2072/073 B.S. with Campus Roll No. 434, Exam Roll No. 7228326 (2075), thesis number 1696 and T.U. Regd. No: 9-2-285-113-2011 has completed his thesis under the supervision of Prof. Dr. Bed Raj Acharya during the period prescribed by the rules and regulations of Tribhuvan University, Nepal. This thesis entitled "Difficulties in Learning Mathematics of Tamang Students" has been prepared based on the result of his investigation conducted during the period of April 2021 to January 2022 at the Department of Mathematics Education, Tribhuvan University, Kathmandu. I recommend and forward that his thesis has been submitted for the evaluation as the partial requirements to award the Degree of Master of Education.

.....

Prof. Dr. Bed Raj Acharya

(Head of Department of Mathematics)

Date: .....

Phone No.: 977-1-4331337 / 4333229, Fax No.: 4334955, E-mail : foe@tucded.edu.np, Website : tucded.edu.np

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DEPARTMENT OF MATHEMATICS EDUCATION

UNIVERSITY CAMPUS
Kirtipur, Kathmandu, Nepal

पत्र संख्या:-
Ref.

मिति:
Date: .....

Letter of Approval

This thesis submitted by Mr. Men Kumar Woiba, entitled on "Difficulties in Learning Mathematics of Tamang Students" has been approved for the partial fulfillment of the requirement of Master Degree in Mathematics education.

Viva-voce committee	**Signature**
Prof. Dr. Bed Raj Acharya (Chairman/Supervisor)	…….
Assoc. Prof. Rajendra Kunwar (External Examiner)	……
Mr. Abatar Subedi (Member)	……..

Date: ……..

Phone No.: 977-1-4331337 / 4333229, Fax No.: 4334955, E-mail : foe@tucded.edu.np, Website : tucded.edu.np

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UNIVERSITY CAMPUS
Kirtipur, Kathmandu, Nepal

पत्र संख्या:-
Ref.

मिति:
Date: .....

Recommendation for Acceptance

This is to certify that Mr. Men Kumar Woiba has completed his M.Ed. Thesis entitled "Difficulties in Learning Mathematics of Tamang Students" under my supervision during the period prescribed by the rules and regulations of Tribhuvan University, Kathmandu, Nepal. I recommend and forward his thesis to the Department of Mathematics Education to organize final viva-voice.

.....

Prof. Dr. Bed Raj Acharya

(Supervisor)

Date: .....

Phone No.: 977-1-4331337 / 4333229, Fax No.: 4334955, E-mail : foe@tucded.edu.np, Website : tucded.edu.np

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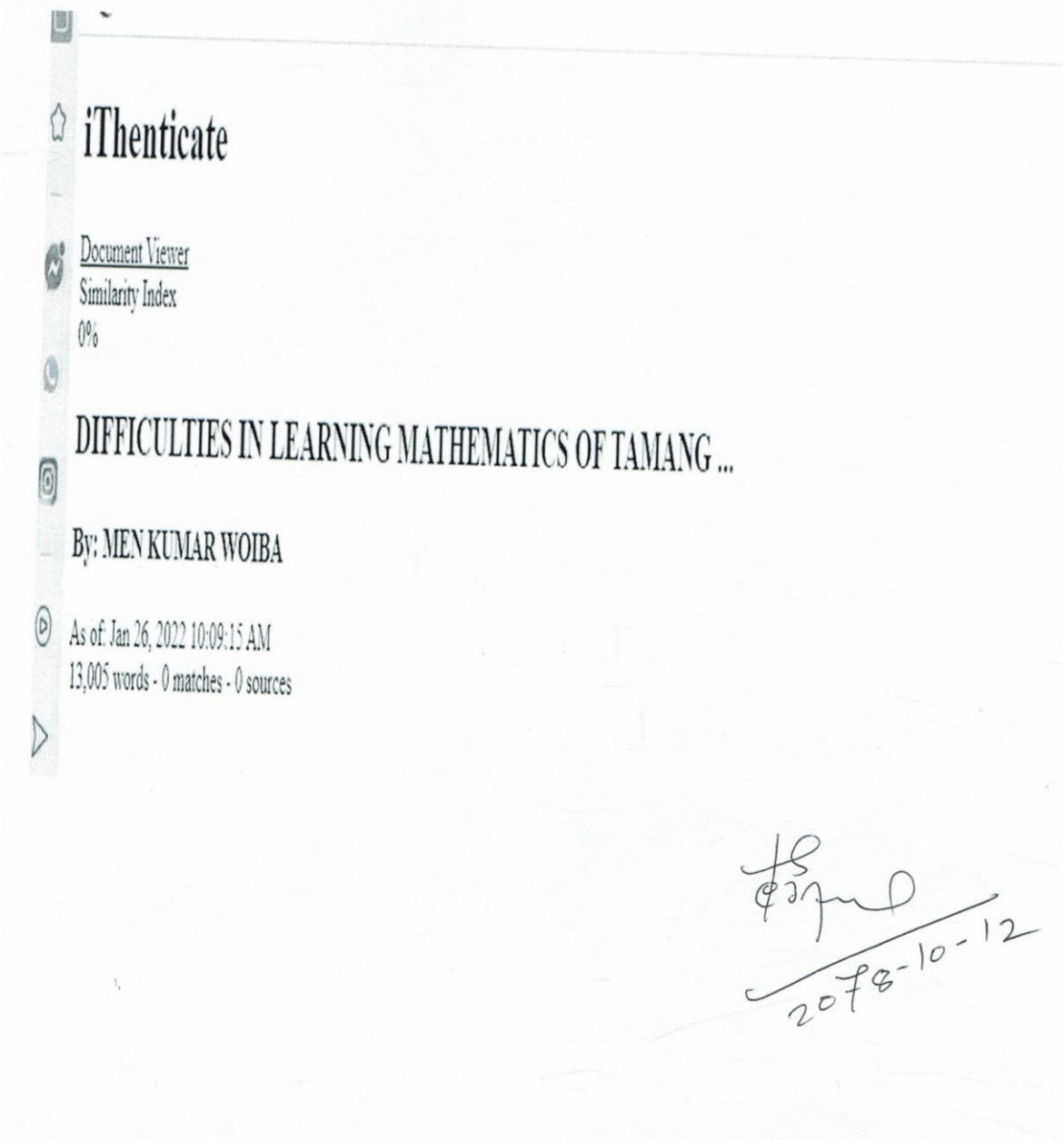

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DEDICATION

This work is heartly dedicated to my late father Mr. Bendang Tamang.

Declaration

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 degree.

Date: February 11, 2022 ……..

Mr. Men Kumar Woiba

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…….

Mr. Men Kumar Woiba

Abstract

This study focused on the difficulties in learning mathematics of Tamang students of grade X at Shree Annapurna Secondary School, Khoplang in Gorkha district. The objectives of this study was to explore the difficulties and analyze the causes of difficulties in learning mathematics of Tamang students. This study was qualitative in nature with case study research design. Six Tamang students, parents of the selected students, one head teacher and one mathematics teacher of the selected school were samples of this study selected by using purposive sampling method. I used in-depth interview, class room observation form, written documents and interview guidelines to collect the data and information for this study. I used thematic and triangulation method with the "Cultural difference and discontinuity theory" of John Ogbu to interpret the information and to get the conclusion. From this study, I found that Tamang students were facing the difficulties on concept, process, memorization and symbols of mathematics. The causes that makes difficulties in learning mathematics were cultural difference and discontinuity at home and school, lack of interpersonal relation, home environment of the Tamang students, parents education and low economic condition of the family. The main causes of the difficulties in learning mathematics of Tamang students is irregularity at the school. I want to suggest some ideas to reduce the difficulties in learning of mathematics of Tamang students. The school should provide hostel facilities, scholarships and provide extra time and support for the students. Mathematics teacher should use student-centered teaching method in the classroom and have to give proper feedback and guidance for the weak students individually. Parents should manage the educational environment at the home.

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Chapter I

INTRODUCTION

Background of the Study

Nepal is a small country with an area of 1,47,181 Sq. Km. but here we can find diversity in nature, culture, ethnic group, language, religion and so on. Nepal is situated in the south Asian region. Two great neighboring countries border it, the People's Republic of China in the north and India in the south, east and west. The country is located between 26º 22′ and 30º 27′ north latitude and 80º 4′ and 88º 12′ east longitude and present a unique transition zone between arid, cold and sparsely populated Tibetan Plateau of China in the north and humid, hot and densely populated India in the south, west and east.

The fact that the population census (2011) registered 125 different caste groups is one small example of these cultural resources. Nepalese society is ethnically diverse and complex in phenotype and culture from Indian to Tibetan. The varied ethnic groups had evolved into district pattern over time. The major two groups in Nepalese society are Tibet Burmens or Mangolids from the north and the Indo-Aryan from the south and there are many ethnics groups in Nepal. Tamang people can be found spread out in many districts, throughout the country, but the main districts are Makawanpur, Kavreplanchok, Nuwakot, Sindhupalanchowk, Dhading, Ramechhap etc. The total percentage of Tamangs among the total population is 5.8 (CBS, 2011). It is the fifth largest ethnics groups in Nepal.

Tamang house are clustered at one place to make up a dense village` within which there are constructed mainly cobble, stone paths for movement in the hills, do not possess proper cultivable lands. The few Tamangs who inhabit the flat lands produce enough food for their personal consumption and look healthy and happy. But in

comparison to those Tamangs inhabiting the hills to the north is perpetually toiling as hired labors on others farms and fields and they live hand to mouth existence. Their main occupation is farming, physical labor, driving etc. Like other ethnics groups, Tamangs also have their own culture, religion, tradition, values and languages. Tamang people are very simple their life standard is quite simple. Farming is the main occupation their main source of earning agriculture and physical labor majority of Tamang people are poor and they feel difficulty in surviving that is why they cannot invest enough for education.

Tamangs are an ancient and major indigenous people of Nepal. During 8th 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 hills in the 7th century. Nepal was formed later in the 18th century and saw a slow assimilation of the Tamangs groups with other communities in region.

Around the 18th century following conquests from other communities, land owned by Tamangs were taken away and distributed to the new rulers of the region. Tamangs are mostly believed in Bon and Buddhist religion. Tamang have a system of six types of social leader: Tamba, Ganba, Bonbo, Labonbo, Lama and Choho to keep the Tamang society continuously alive and dynamic. They have their respective and important role to play in the development of the society. Their priests, or Lamas have dominant role in the community and perform ceremonies for birth ceremony and funerals etc. perhaps the most powerful person in society, however is the Shaman (Bonbo), Who exorcises demos and interacts with the spirit world.

Religion. Tamangs are Lama (Tibetan) Buddhist, as are most upper Himalayan people. Their religion is traditionally Bon Lamaism, a fusion of Shamanism and Buddhism, Bon is the pre-Buddhist belief concentrated in Tibet and still widely practiced although generally ignored in western perceptions or descriptions of the area. They have gompas (monasteries) in every size able village. Every family has their special Buddhist god and book to worship every morning. The Tamangs retain Jhankris (Shamans) in addition to their Lamas (priest). These Jhankris perform certain rites such as trances and sacrifices to alleviate problems or assure good fortune.

Language. Tamang is a language spoken by the Tamangs speech community. In Nepal, the 2011 census shows that of Nepal's 123 languages, Tamang with 5.1 percent population has 5th most speakers. It belongs to the Tibeto-Burman group of the Sino-Tibetan language family. The majority of the Tamangs speech community live around the Kathmandu Valley, But the Tamang ethnic group are also found in other districts throughout the country. Identifying the original features of Tamangs ethnic community. In the same vein, the interim constitution of 2063 BS and the recent constitution, 2072 BS has prioritized Tamang as the national language.

Livelihood. Most Tamangs are farmers, engaged in agriculture due to the lack of irrigation at higher attitudes, their crops are often limited to corn, millet, wheat, barley and potatoes. They often supplement their farming in come with manual labor. Due to the discrimination experienced by the Tamangs people in the past, they have remained on the whole properly educated and the majority has been limited to working as farmers, mountain trekking, pottering and driving. They also work in manufacture of Tibetan rugs, Thankas (Tibetan painting)

Gellner (2007) noted that the autocratic Rana regime (1846-1951) ruled orthodox Hindu Nation. More, so the Muluki Ain of 1854, promulgated by Janga Bahadur Rana,

tried to bring all people into "Hill Hindu". Based on caste there was punishment in differed nature and severity as per the Muluki Ain legal procedure for social and economics offences. Due to which many ethnic groups are systematically marginalized and excluded from the various spheres of the economic, political and social dimensions. The dominant groups spread throughout the country as landowners, priests, administrators, soldiers, and police officers were all from Brahman and Chhetri castes. Tamang was considered who could be used as a slave. The economic mobility limitation as to 'Pipa' during the Rana regime, no access to military and need to serve as bonded labors as menial labors for the rulers. The Tamang women were associated and used as entertainers and concubines.

'Mathematics' is one of the most important subjects in schools and out of schools in a modern society and it is developed according to the human needs. It is the result of human activities, society cultures and values. Mathematics is a part of human life. It was created to fulfill human needs. Mathematics is closely related with culture, society, caste, ethnicity, environment, religion. Culture and mathematics have a strong relationship. The literal meaning of mathematics is "things which can be counted". Now you can think that counting has vital role in our daily life. Just imagine that there were no mathematics at all, how would it be possible for us to count members of the family, numbers of students in the class, rupees in the pocket, rungs in a cricket match, days in a week or in a month or in years? on a basic level you need to be able to count, add, subtract, multiply and divide interpretation to his ideas and conclusions. It is the numerical and calculation part of man's life and knowledge. It plays a predominant role in our everyday life and it has become an indispensable factor for the progress of our present day world.

Although, mathematics is very useful and important subject for every people, most of the students are not interest to study the mathematics. This is an issue, most of the student in secondary level have problem in learning mathematics in present days. Tamang students have to face more difficulties in learning mathematics than other caste group students.

Statement of the Problem

This study is mainly concerned about the difficulties in learning mathematics of Tamang students. Tamang students in culturally different to mainstream school cultures that are shaped according to Aryan Khasa culture may have problems in communication and learning to other casts students. Generally, most of the students feel difficult to learn mathematics. Tamang students also feel difficult to learn mathematics. Tamang students learning level of mathematics is very low. Reason of low achievement may be their society, their belief, culture, language, guardian's education level, poverty, access and so on.

NASA (2013), was a large-scale grade eight students' assessment in Mathematics, Nepali language and science subject, conducted in 28 sample districts. The overall objective of this assessment was to find out whether the students of grade eight had achieved the goals set by the national curricula in Mathematics, Nepali language and Science. In order to achieve the overall objectives of this assessment, the study not only assessed the overall achievement levels in the selected subjects, but also analyzed the variations in student achievements among different strata of population with considerations for and associations of various school related diversity factors on achievement. This report showed that student achievement by linguistic and ethnic background were different. The difference between the mean achievements of students

having their home language Nepali and Tamang was 5 percent. Mean achievement of the students having first language Nepali was 37 and that of Tamang was 32.

The researcher had an experience of one year teaching at mathematics at Shree Annapurna Secondary school, Khoplang Gorkha. I faced many problems on the way of teaching mathematics.

Table 1: Achievements of Tamang and Other Students on Mathematics in SEE

year (B.S.)	2076	2077
Tamang students	1.6	1.8
Other students	1.92	1.91

(Source: SEE Grade 10 mark/grade ledger of Annapurna Ma Vi, Khoplang, Gorkha)

The SEE result of two years on the mathematics subject of this school shows average achievement of Tamang students was lower than other students in Mathematics.

My study was focused to answer the following questions:

- What are the difficulties in learning mathematics of Tamang students?
- What are the causes of difficulties in learning mathematics of Tamang students?

Objectives of the Study

The main objective of this study is to investigate the cause of difficulties in learning mathematics of Tamang students at Grade 'X'. Based on the research questions mentioned above, this study aims to fulfill the following objectives.

- To explore the difficulties in learning mathematics of Tamang students.
- To analyze the cause of difficulties in learning mathematics of Tamang students.

Justification of the Study

Nepal is a multilingual, multicultural, multiethnic and multi-religious country. Every ethnic group has their own language, culture and traditions. They posse their own mathematical concept more or less. The ethno-mathematics is one of the important

aspects of every ethnic group mathematics has great role in the human civilization and development.

This study would justify as it explores the difficulties in learning mathematics of Tamang students at Gorkha districts. The justification of this study were listed as follows:

- This study would be helpful to identify the difficulties in learning mathematics of Tamang students.
- This study would be helpful to solve difficulties in learning mathematics of Tamang students.
- This study would help to the teachers to know about the difficulties in learning mathematics of Tamang students.
- This study would help to increase the learning activities of Tamang students in mathematics.
- This study would be useful for Tamang students in learning mathematics.
- This study would be useful for Tamang community, parents, educationist, curriculum designer and other stakeholders related to the field of mathematics education.

Delimitation of the Study

This study focused on the difficulties in learning mathematics of Tamang students at grade 'X'. The delimitations of this study were as follows:

- This study was limited to Gorkha district.
- This study was limited to Tamang students of Grade 'X'.
- This study included students from only one selected Government school of Gorkha district. So its findings could not be generalized elsewhere.

Definition of Related Terms

The main key terms and words and their definitions are given below:

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

Difficulties. Students who feel difficulty (communication, interaction, pattern and behavior, participation) in the learning mathematics at secondary level.

Ethnic group. It refers to a specific group of people having common culture, tradition and language.

Learning. A more or less permanent changes in behavior which occurs a result of instruction and practice.

Parents. Parents means father, mother, brother, sister and other related person of Tamang students.

Students. Students refers to the Tamang students who are studying Grade 'X'.

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

Chapter II

REVIEW OF RELATED LITERATURE

Literature review means locating and summarizing the studies about a topic. It is compact written summary of journal, articles, books and other document that portrays the past and current state of information on research topic which is going to be studied (Creswell, 2014). 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. This chapter describes the empirical literature, theoretical literature and conceptual framework of the study.

Review of Empirical Literature

Each and every research work requires the knowledge of previous background to open the targeted objectives and to validate the study. Here this section was an attempt to review the related studies, articles and the report.

Ghimire (2013) conducted a study on "Difficulties of Bhote Students in Learning Mathematics". This study is based on descriptive survey design. The objective of this study was to find the difficulties of Bhote students in learning mathematics at lower secondary level. This research is qualitative in nature. This study is conducted with size of four Bhote students of Grade seven. Face to face interview with students, parents, mathematical teacher, head teacher and the observation is taken. Such collected data is analyzed by using thematic categorization and interpreted. The main findings of this study are that there is cultural difference and discontinuity at school and home of Bhote students. There is discontinuity in language, poor relationship with entire teacher, low participation in classroom discussion and poor interaction with the teachers.

Regmi (2016) carried out research on "A Study of Achievement in Mathematics of Gurung and Kumal Students of Primary Level" conducted in public school of Tanahu

district. He had selected 128 students from primary level in which 64 students were Gurung and 64 Kumal students. He used mean, standard deviation for statistical tools. His research was quantitative research design. The mean score of Gurung students was compared with the mean score of Kumal students. The mean score was compared of Gurung students between speaking mother tongue and non-mother tongue of Kumal students. He found that the achievement in mathematics of Gurung student was higher than the Kumal students.

Mahara (2010) did a study on "Difficulties in Learning Mathematics of Tamang Students at Lower Secondary Level", with the objectives to identify the impact of home environment to Tamang children to learn mathematics at school. He used qualitative research design for this study. The sample of this study was only five students of class VII among all the students. He used non-probability sampling to select the samples for this study. The main tools used to collect the information for this study were; in depth interview, observation form and written documents. Findings of this study were Tamang financial condition is not strong enough to send their children at school and afford them in their further education. Since the size of Tamang family is large, the children of Tamang parents do not have conductive environment for mathematics learning.

Adhikari (2006) did a study on "Cultural Discontinuity and Difficulties in Learning Mathematics of Dalit Students'. The objective of this study were to identify the cause of difficulties in learning mathematics at school, influence factors in learning mathematics, impact of home environment. This study was qualitative in nature. The researcher used purposive sampling to select the samples for this study. The study was done on four Dalit students. In depth interview, observation form, written documents were main tools and the study concluded that there is discontinuity between home

culture and school culture. The home environment of Dalit students is not supportive for mathematics learning.

Aale (2012) conducted a research on "Mathematics Learning Difficulties of Magar Children at Primary Level." The main objective of this research was to analyze the role of cultural 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 Magar students. This study was based on the qualitative research and case study design. Learning of 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.

CERID (1990), studied on "Elementary Process of Learning Mathematical Concept and Process of Rasuwa Tamang". The purpose of that study was to identify the basic mathematical concepts used by Tamangs adult with no formal mathematics education, to identify traditional Tamangs method of mathematical operation and to find out the implication of Tamang process and tone up to the present learning situation. This study concluded that Tamangs have their own system of counting, measurement and problem solving. Tamang numeration system is based on twenty. They have their own geometrical concept and based on the slopes and structure patterns of object existing around.

Kandel (2016) in his doctoral dissertation entitled "A Study of Learning Difficulties in Mathematics Among Grade V Students in the Kathmandu Valley of Nepal", did a study in the government and private school of Kathmandu valley. He selected the students, teachers and parents of the selected schools as his respondents. He used descriptive case study in nature followed by both quantitative and qualitative

approach. He was used questionnaire, observation and in –depth interview tools for collect data. The researcher found from study are as school related factors (quality of school program, quality of teachers, time allotment), class specific factors (quality of instruction, time for learning, opportunity of learning, relationship with other students), home related factors (parental help, sibling support), social factors (home culture and school culture difference, language of school and home), personal factors (time for learning and motivation) one the main factors which influence the mathematics learning.

Acharya (2017) published an article on the title "Factors Affecting Difficulties in Learning Mathematics by Mathematics Learners." The main purpose of this study was to explore the causes of learning difficulties in mathematics. This study attempted to make sense of interpreted phenomena in terms of meaning people bring to them in natural condition, He used naturalistic approach to its subject matter, It was used qualitative research design. On this study he found that the causes of difficulties are mathematical anxiety, Lack of prior knowledge, lack of student's labor in learning mathematics, lack of parents awareness, low economic condition of student's family and lack of motivation and counseling crates misunderstanding to study mathematics.

Joshi (2020) did a study on "Difficulties in Acquiring the Knowledge of Mathematics: A Case Study of Dangura Tharu Students at Lower Secondary Level." He stated three objectives for his study. His objectives were to identify the difficulties, to identify the causes of difficulties and to overcome the difficulties in acquiring the knowledge of mathematics of Dangura Tharu students at school. He reviewed the Bourdieu's cultural theory, Ogbu's cultural difference and cultural discontinuity theory, Bernstein's language theory and Vygotsky's social constructivism. He selected qualitative approach as most appropriate design for the investigation of his research questions. He took a government school from rural area of Kanchanpur district where

Dangura Tharu students could be found. Since the objectives, his study was qualitative in nature and his research strategy was engaged ethnography. He had adopted purposeful sampling technique in his ethnographic study. He had selected 5 Dangura Tharu students, parents of relating children, the mathematics teacher and head teacher. He also added two mathematics educators purposefully to employ in-depth interview. He used 14 persons as the sample units of his study. He used in-depth interview, observation and document analysis as the tools for data collection.

He had found that the difficulties in acquiring the knowledge of mathematics of Dangura Tharu were language problem, low mathematics self-efficacy, inadequate prior knowledge, lack of cultural friendly curricular materials, traditional teaching learning activities and discrimination in the classroom. He also found that the causes of difficulties in acquiring the knowledge of mathematics were discontinuity between culture of school and home, negative attitude towards mathematics. low economic status of students, lack of parental education, lack of interpersonal relation and over aged enrollment and absenteeism. He suggest some ideas and visions for minimizing the difficulties in learning mathematics that were providing extra time and support, motivate and counsel each student as their needs, promoting collaborative group work and co-operative learning and mathematics teacher have to utilize culturally relevant pedagogy and developing ethnomathematics.

Nepali (2020), conducted a study on the title "Difficulties faced by Gurung Students in Learning Mathematics." The main aim of his study was to explore the difficulties faced by the Gurung students in learning mathematics. This study was case study research design. He collected the information from three community schools of Gorkha district. He selected five Gurung students from each selected schools by using purposive sampling. He used interview schedule, participant observations, observation

form, document analysis to collect the data for the study. He used thematic and triangulation methods to analysis the data with Vygotsky's social constructivism theory. He put some findings that causes of difficulties of Gurung Students in learning mathematics are difference of home and school environment, mother tongue, illiterate parents, low economic condition of family, lack of using ICT in teaching learning process, lack of trained teacher and lack of inter-personal relationship between other caste students.

Research Gap

The above empirical review documents related to mathematics education had discussed the problem of multi-cultural and multi-lingual teaching and learning in our and other countries. Some few studies had been focused to the ethnic group such as Gurung, Kumal, Magar, Tamang and Dalit community. Among these studies some were related to difficulties in learning mathematics of Tamang students in mathematics in lower secondary level, but research study on the difficulties in learning mathematics of Tamang students in secondary level were not found. So, I had chosen this area for the study.

Review of Theoretical Literature

The theoretical discussion is need for interaction of the findings of the study. Theories which can be used for the analysis and interpretation of the data are classical social theory of learning, cultural theory, everyday life theory and cultural difference and discontinuity theory etc. The researcher reviewed some theories related to the research topic and relevant to the study are summarized below.

Cultural Difference and Discontinuity Theory

Ogbu's cultural-ecological theory which focuses on minority students responses to schooling is consisted with "cultural discontinuity" approach opening new direction to

the nation of disparities as it explains minority students school performance not only through the lenses of the cultural adaption but also minority status influences. According to Ogbu's theory, there are universal difference between home and school culture that occur for all students regardless their culture background, in a sense that school favors, impersonality, individualism, universal standard and achievement patterns whereas the family context promote interdependence among family members and intimacy.

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

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

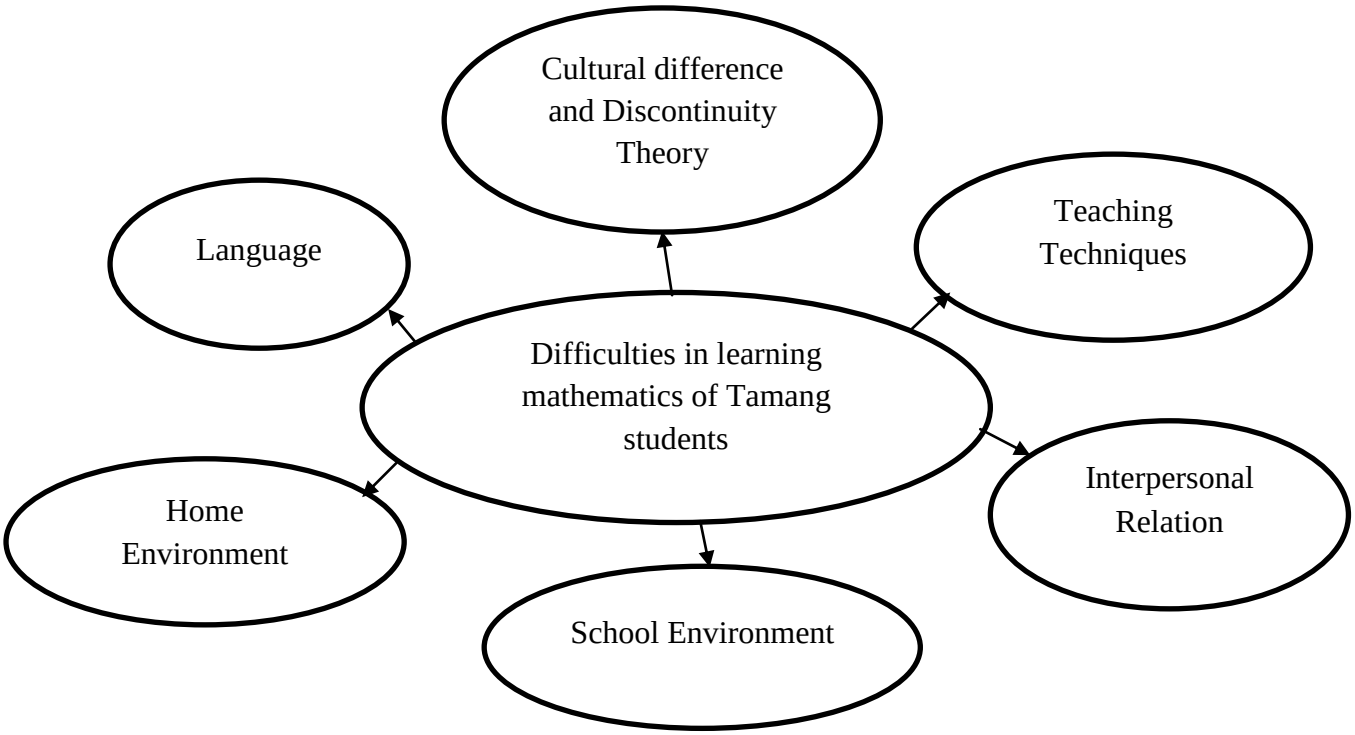
Mainly the Tamang children hesitated to interact with other children in the school as well as in the community due to the socio-cultural reasons. Such scenario hinders interaction and participation with other caste people that obstruct their learning.

Similarly, the Tamang children at home learn by observing and engaging in the works of their father, mother and elders. But they do not get the opportunity in the school expecting listening, which is the dominating activity during the day at school.

Conceptual Framework of the Study

This was a research, to identify the difficulties in learning mathematics of Tamang students at secondary level. This research mainly based upon the cultural discontinuity and cultural difference theory. The following framework was proposed on the effective learning procedures to develop the new knowledge for Tamang students.

Figure: Conceptual Framework of the study



The above figure shows that difficulties in learning mathematics of Tamang students at secondary level. This research mainly based upon the cultural discontinuity and cultural difference theory. Hence the home environment reflected the learning opportunity, low achievement, understanding mathematics. Language was the main difficulty of Tamang students to solve the mathematics problems. School environment

were not supported for Tamang students so they feel difficulties in learning mathematics. Inter personal relationship between student and teacher was also cause of difficulties in learning.

The culture of home and school was different in terms of language, customs and behavior. Tamang students had their own language which was not matched at school. Cultural discontinuity is conceptualized as the differences between ethnic minority students report of their cultural value-based behaviors exhibited at home and those exhibited at school, therefore cultural discontinuity is evidence by related difference between cultural value-based behavior at home and those exhibited at school.

Chapter III

METHODS AND PROCEDURES

This part presents the procedures of the study, which always carry out achieve the objective of the study and to get the answer of the problems. A scientific way by which a researcher gets scientific knowledge of particular subject with cause and effect is known as methodology. For this chapter researcher should be clear on design of the study, tools for data collection, data collection procedure and data analysis procedure.

Design of the Study

A research design is the planning structure and strategy of investigation, which is a complete scheme or program of the research. This was a qualitative research. In this research, I used case study design to conduct the study. This qualitative research study based on interview schedule, classroom observation and observation of home environment and written documents of Grade X students.

Case study is bounded by time and activity, and the researcher collects detailed information using a variety of data collection procedures over a sustained period of time. In the case study data are analyzed through description of the case and themes of the case as well as cross-case themes (Acharya, 2017). Related persons can know about the Tamang caste and his/her religions, occupation, educational condition, culture, language etc. The researcher tried to explore mathematical concept, home environment, cultural practices, speaking language and school environment of Tamang students. With the help of some selected students, I studied deeply of these students and analyzed the data. In this study, I had tried to explore the difficulties in learning mathematics of Tamang students of Grade X in Gorkha district.

Site Selection

My study site was Palungtar municipality of Gorkha district. I had selected Shree Annapurna Secondary school, Khoplang where I had been teaching since last year. Here students from different caste group such as Tamang, Newar, Brhaman, kshretry, Sunar and Magar etc. were studying. Among them achievement of Tamang students in Mathematics was very poor. So I had selected Tamang students of this school who were studying in grade X.

Sample and Sampling Process

According to Anderson, there were no rules for sample size in qualitative inquiry. So, the sample size of this study depends on the researcher what he wants to know and what the purpose of inquiry is. The researcher used convenience sampling to select the school Shree Annapurna Secondary school, Khoplang of Gorkha districts and purposive sampling to select six Tamang students from this school among the students of grade X. In such way I had selected six parents of related students, one head teacher and one mathematics teachers of this selected school. Altogether, 14 samples were used to collect the data and informations for the study altogether.

Research Tools for Data collection

I had used the different tools for collecting data. For the collection of primary sources of data interview schedule, participant observation, observation form and document analysis were used. I had collected secondary data from journals, articles, books and other published and unpublished documents. In this study, I had used following research tools.

Observation Form. Observation is the crucial data collection for qualitative research. Under the observation method, the information is sought by way of investigators own direct observation without asking form the respondents (Kothari,

1990). At first, I met the head teacher and mathematics teacher to know the position and educational condition of Tamang students. After getting information from them, I met with Tamang students and their parents. I took some information about environment, culture, customs, profession and economic condition of that community. I observed the daily life activities like reading at house, cultural values and other activities. I had noted information on notebook.

Interview Schedule. Interview is an important method to collect primary data. It is a collection procedure including the respondent by face-to-face situation. Interview schedule had developed on the basis accomplish the objective of this study. Those items were constructed on the recommendation of the experts and supervisor. For this study, my interview schedule consists of direct questions from people about their opinions, feelings, experience and knowledge. Firstly, I met the respondents informally then after discuss with the respondents I asked questions and took interview with their parents. I had visited the mathematics classrooms and took interview with mathematics teacher. I met head teacher and asked about the difficulties in learning of Tamang students in the school.

Data Collection Procedure

Data collection is most important part of the study. For this study the data and information were collected by using tools such as observation form and interview schedule. For this purpose, researcher had visited the selected school and explained the purpose of visiting to the head teacher and mathematics teacher. With the help of head teacher and subject teacher I had selected six Tamang students from grade 'X' and I had observed their mathematical class for two week continuously. I took interview with the students and their parents. I had visited the student's house to know the real condition,

environment, culture, language and customs of the family of selected students. From this procedure, I found out the difficulties in learning mathematics of Tamang students.

Data Analysis Procedure

Firstly, I had organize all information and data in different heading and sub-headings. I gave the coding and de-coding of these data also. Then I had identified the difficulties in learning mathematics of Tamang students. Through the interview, observation and document review, Individual reason, home environment, school, environment, family background, socio-cultural background, economic condition and so on, interpreted from the students' parents and teachers by the help of interview and document review. I had categorized the data and using thematic and triangulation method of data analysis.

The above-mentioned theme had collected together under the same theme and explained according to the conceptual framework and cultural difference and discontinuously theory.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

This study deals with the analysis and interpretation of the data collected form the case study of related respondents, observation of the mathematics classroom, interview with the head teacher and mathematics teacher and parents of the students. This was a qualitative study. The main focus of the study was to explore the difficulties in learning mathematics of Tamang students.

I observed the mathematics class regularly fourteen days. I also observed the daily activities such as students speaking language, cultural practices, interpersonal relation, home environment of each selected student. The data were collected from the school Shree Annapurna Secondary School, Palungtar Municipality – 1, Khoplang, Gorkha.

The data collected for the research were presented in terms of following topic: home environment, school environment, cultural discontinuity and language. At first the data was categorized according to the category of the respondents and different themes were given in the text of interview or the observation note. These themes were considered as a code and the similar code version of respondents were collected together and explained in their perspectives. The home environment and cultural practices were obtained by taking interview with their parents and observation.

Description of the Key Students

The respondents are Tamang students who were studying at grade X at Shree Annapurna Secondary School, Khoplang, Gorkha. The brief description of the key students which the researcher interviewed and observed during the study is given below:

Respondent A. Respondent A was 14 years old girl studying grade X. She lived in Palungtar Municipality - 1, Khoplang, Gorkha. she lived with five family members at Lunga village. From her house it takes one hour to come the school where she was studying. Her father and mother both were working in the field. They were farmers. She had to work in her house such as cutting grass, going to jungle to collect firewood etc. Her family economic condition was poor. Her father and mother both were literate only. They did not get higher education so they could not help to her for study. She had a few time to read and write at her home. Sometime she did not complete her homework. She become absent at the school because she had to work in her house and she had to participate cultural activities in her society. Her mother tongue is Tamang language. She spoke in Tamang language properly but she hesitated to speak Nepali language. She felt difficult to ask questions to the math teacher which was not understood. That's why she become weak in the mathematics. She said that she can not remember the process and tricks of solving problems of mathematics for long time.

Respondent B. Respondent B was eighteen years old boy studying in grade X. He lived in Palungtar Municipality- 1, Khoplang, Gorkha. The distance of school takes thirty minutes trip from his house. In his family father, mother, one younger brother and one younger sister were the family members. There are five family members altogether in his family. Economic condition of his family was poor. He had to finish all his household works in the morning before go to school so sometimes he become late to reach the school in time. He usually became absent in the school. He said that he knows the importance of education but he have to do works in home to help his parents. His younger brother and sister could not do works so he had to do more works in his house.

According to respondent B, there was no proper learning environment at home. During the observation in his home the researcher found that there was no separate room

for the study at home. The family members are talking in Tamang language. They could understand Nepali language but they felt uneasy to talk in Nepali language. They could not use correct grammatical uses in Nepali language. They said, "sir aayo" instead of "sir aaunubhayo". The researcher asked him, "how your cultural environment affect your study?" Then he replied, "our culture affects my study, we must participate in our socio-cultural activities such as chhewar, bihe and ghewa etc." So, he could not come to school regularly.

Respondent C. Respondent C was a boy of 16 years old studying at grade X. He lived in Palungtar Municipality- 1, Khoplang, Gorkha. There were six family members in his family. His father had died during the job in the foreign country Malaysia. His father was working in the construction field. His family economic condition was very poor. His mother could not do hard work so he and his sisters had to do work in the house. In his family there were grand father, grand mother, mother and two sisters. He was eldest son among the two sisters. He had more duties than his two younger sisters. He said that he had one big brother who had already married and lived in the separate house and they did not help his family. He said, "my father had died before two years when I was studying at grade VIII. I was good in math and other subject at that time, after my father's death our family fall under the big economic problem, then I had to do labor works to earn money. I have to cut grass daily in the morning and I have to plough the field sometimes. I can not go to school regularly nowadays. I become weak in mathematics. I have no enough time to practice the mathematics at home"

From this interview with the student and observation. The researcher concluded that mathematics is difficult subject for the respondent. The main reason was home environment of student and lack of practice time. He was irregular in the school so he

could not get complete concept on the content of the mathematics. He had no any guidance at home to learn mathematics.

Respondent D. Respondent D was a girl of 16 years old. She was studying at grade X. She lived at Mirkot village which is situated in the Palungtar Municipality word no. 10. From her house it took about one hour time to reach the school. She had to spent two hours daily to school and come back at home. In her family there were five family members. Father, mother one elder brother and one younger sister were the family members. Her brother was Nepal army. Father was farmer and mother was house wife. They are in medium class family in the economic condition. They had four buffaloes, two oxen and twelve goats. She had to cut grass everyday in the morning and she had to go jungle to collect firewood at Saturday or holiday. She had to face many problem on her study. She said," I am 16 years old now. I know, I am not mature to marry but nowadays my relatives came and purposed to marry. They forced to marry me but I ignore to marry. My parents also ready for them. That's why I can not concentrate my mind in my study." She was medium student in mathematics. According to her math teacher she was quite good in mathematics till grade VIII, but she became weak in mathematics at grade X. She became absent frequently and she had not participate actively in learning process as before.

Respondent E. Respondent E was a girl of fifteen years old studying at grade X at Shree Annapurna Secondary School, Khoplang, Gorkha. She lived in Palungtar Municipality- 10, Mirkot, Gorkha. The distance of school took one hour time from her house. She had six family members. Her family economic condition was good. She had to work some household works in the house but it was not compulsory. If she wants to read and write at home her family members let her to study. She had enough time to read and write at home. Her father was doing job at Saudi Arab. She had a mobile phone. She

used mobile phone for TikTok, Facebook and YouTube. Sometimes she used mobile phone for studying but she spent her almost of the time in social media.

At the observation I found that she was very weak in mathematics. She had no clear concept on the content of the mathematics. She did not know the simple simplification of '+' sign and '-' sign such as: $- 5x + 3x$. She wrote that, $- 5x + 3x = - 8x$ which is incorrect. The correct answer should be $- 5x + 3x = -2x$. She had no basic concept of simplification so she made mistake. I also found that she was not paying attention at the classroom. I asked to her, "why you are not paying attention at the classroom ?" Then she replied me that she did not understand anything in the math class. She did not like Mathematics subject. She liked to dance. She participated in the dance competition and win the prize also. She was interested in the field of sport. She became frequently absent at the school. Although her family support to her study, she was not good in mathematics. Society and culture affected her study. She had to participate every cultural program in the society.

Respondent F. Respondent F was a boy of sixteen years old studying at grade X. He lived in Palungatar Municipality -1, Khoplang, Gorkha. There were six family members in his family. His father was a truck driver and mother was housewife. He Had two sisters and one brother. They were emigrated from the upper village of Gorkha district. Sometimes he had to do work in house. He got time to study at home but he did not utilize it properly. He had a mobile phone. he used the mobile phone for playing online video games such as PUBG and Free Fire. Most of the time at home he spent on mobile with playing games. His parents scold him to don't use the mobile more time. He said to his parents that he is studying on mobile. His parents were unknown about the video games. He convinced his parents telling lie. He was not serious on his study. He

always talking about the games with his friends. This shows that misuse of the mobile phone is also one of the cause of low achievement of the student.

From the above information I found that difficulties and causes of difficulties in learning mathematics of Tamang students. I want to discuss them in two sections which are given below.

Section I: Difficulties in Learning Mathematics of Tamang Students

Tamang students are from the different cultural background at the school. They are not regular at the school is main problem to learn Mathematics. Tamang student faced many difficulties in learning mathematics. Some of them which I found in my study are following.

Difficulties on Concept

I found that on my research observation there is no clear concept about the LCM of algebraic expression. Among the sis respondents, respondent B and E could not start how to find the LCM of algebraic expression. They had difficulties on the concept.

"Sir, I don't understand anything, I can not do anything in mathematics and I have no any idea to solve mathematical problems, so I do not like to sit in the mathematics classroom." (Student's view)

From the above view, I conclude that Tamang students are facing the conceptual difficulties. They could not do anything in mathematics even they could not start how to solve the problem. I found that Tamang students are very weak in mathematics. They are not active in learning process.

Difficulties on Process

Tamang students had difficulties on process in learning mathematics. Among the six respondents four respondents tried to factorise the given algebraic expressions to find

the LCM. But they could not factorise correctly except the respondent D. Respondent A could not use formula: $a^2 - b^2 = (a - b)(a + b)$ properly to factorise the expression: $x^2 - 4$. He wrote that $x^2 - 4 = (x - 4)(x + 4)$ which was wrong. Respondent F could not factorise the expression $x^2 - 5x + 6$ correctly. He made mistake to use the negative sign. Respondent F said that he was always confused with the multiplication of sign. He forgot that the multiplication of positive and negative number is negative and multiplication od two negative numbers is positive. The multiplication of sign in algebra and arithmetic has very important role. If the students did know how to multiply the sign then they could not solve the problem correctly.

Difficulties on Memorization

Tamang student did not practice to solve the mathematical problem at their home. They had to do works at their home at the free time or they spent their time to use mobile for playing. So, they could not memorize the mathematical knowledge for long time. Respondent D solve the first problem given by the teacher correctly. She factorised the given algebraic expressions and found the LCM correctly. But she was unable to find the LCM of another question given by the teacher. There was no any common factor among the given algebraic expressions. She wrote LCM = 0. Which was not correct answer. The correct answer was LCM = 1. She forgot that if there is no any common factor then the LCM must be 1. Respondent D said, *"I understood the mathematical knowledge and solving process of mathematical problem while I was reading at the classroom but I can not remember that things for long time. I have no enough time to practice mathematical problem at home."*

One of the main problem and difficulties of the Tamang students is forgetting. They could not memorize for long time what they learned before. The main cause of

forgetting the mathematical knowledge is lack of practice the mathematical knowledge at home.

Difficulties on Symbols

Most of the Tamang students felt difficulties on different symbols used in mathematics. They were confused with the symbols such as ∑, ∞, ∏, <, >, π, ~ etc. Respondent A said*, "I am always confused while using the value of π. Sometime 3.14, sometime 22/7, sometime 180º"*. More symbols are used in mathematics that makes difficulties in learning mathematics for Tamang students. Tamang students had not seen such symbols in their practical life. Some of the symbols had different meanings in different conditions, so the students felt difficult to learn mathematics

Section II: Causes of Difficulties in Learning Mathematics of Tamang Students

I fond many informations that affected the learning process of Tamang students. There are many causes that makes difficulties to learn Tamang students. Some of them are introduced in the following topic.

Learning Environment at Home

Home is regarded as the first school of human beings. They can learn more things from their home which are necessary to live the life. They learn how to behave, how to respect elders, how to co-operate to each other. Home environment plays vital role in learning. Home environment reflects the occupation of the parents, economic condition, language they used at home and learning opportunity of the student at home. Tamang students used Tamang language at their home. They rarely used Nepali language at their home. Most of the Tamangs are farmers but they did not have enough cultivable land. They were very hardworking. They worked at labor in the construction field.

"We have to do works in our field. If we do not do any work than we have no food. We have no any good job, so we have to work with mud and stone in our field. We have to do labor work to earn money." (Parent's view)

The above view showed that the economic condition of the family. They had no good job. They had do works in the field. Their economic condition was very poor. They could not spent enough money for their children's education.

"My Parents are farmers. I have to help them. I have to leave my school to work in the field at working season. I have to carry the manure to our field. I always cut grass for buffaloes. I have no time for study at home." (Student's view)

The above view showed that Tamang students had to do more works in their home. Their parents gave more priority to do works in home than study at the school. they had no enough time to study. They could go to school finishing the household works at their home.

"We are very poor. We have to face many problems after his (respondent's) father was dead in the foreign country. we lost the man who had gone to earn money. I can not do hard works. we have difficulty in hand and mouth existence, then how can we send our children regularly to the school." (Parent's view)

The above view showed that the how the foreign employment affects the family badly. They lost their main person of the family. They had to face more trouble in their life. It was very serious problem. They wanted to send their children at the school regularly but they could not. Their children had to do works in the home.

"my parents are illiterate . My father always drinks alcohol and he rarely comes at home. He did not care us. He is doing labor work such as carrying bricks, load and unload the truck. He earns money but he spends it for himself. My mother is housewife.

She is always busy in the household works. Nobody is literate then me at my home. I have no separate room for study at home." (Student's view)

The above view showed that Tamang were illiterate. They could not teach their children at home. Due to lack of education, Tamangs were engaged on hard physical works. The involvement of their parents in their children's learning was negligible. The student did not get a supportive environment at his house. So, he become weak in the mathematics as well as other subject.

Learning Environment at School

School is the second home of any child. The teachers, students and parents are the components of the school. School environment reflects belief and tradition of the school community delineating the relation among parents, students and teachers. All the activities which are conducted in the school are taken as school environment. The school have rule and regulations for each student as well as teacher. Students must be under the rule and regulation of school. They have to respect teacher and seniors; and love younger. They must obey their teacher. Social environment affects the school environment and learning process of the students. If the social environment become adverse to the school environment then it has negative impact in learning process. If social environment maintains the educational environment in the society, the school environment becomes suitable for student to learn the new knowledge.

"We have well trained and experienced teacher. We also have good physical structure of building but we have no facilities of internet and we have some computers but we have no smart boards and projectors at our school. So we can not use ICT based technology at the classroom. Tamang students do not come regularly at the school. We follow their parents and inform that but they are not serious in their children's learning

achievement. They do not come to school to see their children's progress."

(Head teacher's view)

"I give chance to solve the problem at whiteboard to the student themselves but Tamang student are not ready to write on whiteboard. They feel uneasy to go in front of the class. They feel that they can not solve the problem. They can not use respected words in Nepali language. They have language problem too. Tamang students do not complete their homework." (Mathematics teacher's view)

The above views showed that Tamang student were not participating actively in the learning process. Neither the parents nor the student were serious in their learning. It could not be possible that to increase the learning achievement of Tamang students from the school and teacher side only. The culture and home environment affects the learning process of children at school. We can not separate the school from the society because school is also a institution in the society.

"I am weak in mathematics. I don't like mathematics subject. It is difficult subject for me. I can not understand in the classroom and I feel difficult to ask the teacher. He scold me, "such a simple question can not be solved? What type of student are you?" I become absent sometimes at the class so I can not understand the concept of mathematics." (Student's view)

"Our Mathematics teacher focuses to the student who are talent in mathematics. He always ignore the weak students like us." (Student's view)

From the above views the students have unfavorable condition at the school to learn the mathematics. They are weak because they are not properly guided at school and they can not go to school regularly. If someone missed the one class of mathematics than he/she can not understand the concept of the next class. It is clear that the low

achievement of Tamang students in mathematics is unfavorable environment for learning at home and school.

Cultural Discontinuity at Home and School

Tamang people have different cultural practices and life style than other people. They have own culture, language and practices, so the Tamang students felt difficult to adjust at the school environment. Tamang student were not given emphasis for their learning in the school. They always consider school as an artificial and incomplete institution so they neither assimilate nor accommodate into mainstreaming school system. They learn by doing and practicing at home, but they did not get opportunity of that in the school. Environment of home and school were different. At the home the students were focused to works and they were focused to study at the school. Tamang Students had to engage in household works, they did not have sufficient time to study at home. Tamang students felt difficulty in learning theoretical knowledge because they practiced practical works in their home like as farming in the field, working as labor to earn money and making doko etc. This discontinuity between everyday life and school practices made Tamang students weak and passive in learning mathematics.

Since the learning strategy of the Tamang students at home was discontinued at the school, they faced problems in learning mathematics. 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 children. To sum up, the discontinuity between the culture i.e. environment of home and school discouraged to learning of mathematics of Tamang students.

At the school, teacher did not give proper attention separately to the Tamang students. Tamang students could not ask any question to their teacher where they were

facing problems. They felt uneasy to ask the questions because of the language problem. They could not use respected words for the teacher in Nepali language. They did not learn the respected words in Nepali language at home. They could use respected words for seniors in Tamang language which was learnt at their home. So the home environment and school environment affects the learning process of the students. If the school environment and home environment have more differences then the learning process is difficult to the students.

Language

Language is the principal method of human communication, consisting of words used in a structured and conventional way and conveyed by speech writing or gesture. Language is the greatest means of human civilization that sets them apart from the other living beings. Human language is unique among known systems of animal communication in that it is not dependent on a single mode of transmission (sight, sound etc.), it is highly variable between cultures and across time. Tamang people has their own language. Most of them used Tamang language at their home. The researcher found that on his observation the Tamang students and their parents used Tamang language at their home.

Tamang students had learned the language as the mother tongue. They learned the numbers in also Tamang language which is shown in the following table.

Table 2: Numbers in Hindu Arabic System and Tamang Language

Numbers	**English**	**Tamang**
1	One	Gee
2	Two	Ngi
3	Three	Som
4	four	Bli

5	Five	Nga
6	Six	Doo
7	Seven	Ngees
8	Eight	Bre/Brat
9	Nine	Ku
10	ten	Chui
11	eleven	Chuik gee
12	Twelve	Chuik ngi
13	Thirteen	Chuik som
14	Fourteen	Chuik bli
15	Fifteen	Chuik nga
16	Sixteen	Chuik doo
17	Seventeen	Chuik ngees
18	Eighteen	Chuik bre/brat
19	Nineteen	chuik ku
20	Twenty	Ngi chui/ Bogal

The Tamang students learned their own counting numbers. It also made difficult to learn the numbers in other language or system. As the above table they used "som chui" for 30, "bli chui" for 40 and so on.

Teaching Learning Activities

Mathematics is the subject of practical knowledge, so sufficient use of teaching materials is necessary for the study of this subject. The experienced and trained teacher can make his class effective. Teaching learning activities should be very interactive. The student can understand and solve the problem from the discussion with their friends and

teacher. Teaching method should be used student centered method to teach the mathematics. Teaching learning process can not be effective if there is not chosen appropriate method. In teaching mathematics there are many methods such as problem solving, discussion, question answer, experimental, discovery etc.

The researcher had observed the mathematics class regularly fourteen days. In his observation he found that the teacher uses teacher centered method more than student centered method. He rarely engaged the students in learning process. Active participation of the students at the classroom was not seen. Here one episode was shown below which one was the researcher observed at the first day.

Episode

"The teacher entered in the class at first and the researcher entered in the classroom. All the student stood up and said good morning. The teacher said good morning to all and sit down. There were 36 students present at the class. Three students were absent that day. among the absent students one was Tamang student. There were 39 students in total, among them there were six Tamang students. the class was so quite. the teacher wrote the topic 'LCM of algebraic expressions' on the white board and he wrote a problem on white board and solved it by himself, then he explained it. The teacher said to the students write this solution in your copy. After that the teacher wrote another problem on white board and said to the student do your self this problem. Then after few minutes some of the students stood up and showed their solution to the teacher. The teacher checked the solutions done by the students individually, but he did not suggest individually to the students if they made mistake. Some students could not solve the problem. He did it on the white board again and explained it. He gave another problem to the students and repeated the same process as the first problem. He gave homework at the end of the class and finished the class."

From the above observation, It was clear that the teacher did not check the homework daily. Students did not complete the exercise. They said that there is no punishment to the student who did not complete their homework, so that most of the students did complete their homework. The teacher did not care to the weak students who could not solve the problem at the class and student also did not ask any questions to their teacher which was difficult to them. None of the Tamang students showed the problem at the class.

Chapter V

FINDINGS, CONCLUSION AND IMPLICATIONS

This chapter includes the findings, conclusions and implications of the whole study. The whole study is conducted to explore and analyze the difficulties in learning mathematics of Tamang students.

Findings of the Study

On the basis of analysis and interpretation of data which studied the causes of difficulties of Tamang students in learning mathematics. The difficulties in learning mathematics of Tamang students are given below.

Findings Related to Difficulties in Learning Mathematics. Findings of this study related to difficulties in learning mathematics of Tamang students are given below.

- Difficulties on Concept: Tamang students can not start to solve many problems. They do not have clear concept of mathematics knowledge.
- Difficulties on Process: Some of the Tamang students make mistakes in the process on solving the problem. They can not use the idea that they learn in the mathematics class at the right time and right place.
- Difficulties on Memorization: Most of the Tamang students forget so fast what they learned the mathematics knowledge. They can not remember the concept of mathematical content and steps of problem solving.
- Difficulties on Symbols: Tamang students feel difficult to learn mathematics with symbols. In mathematics there are a lot of abstract symbols.

Tamang students are not regular is the main cause of difficulties on learning mathematics. They had to do more works at their home. Their cultural practices is also

not favorable in learning mathematics. Findings of this study that creates the Tamang students difficult in learning mathematics are given below.

Findings Related to Causes of Difficulties in Learning Mathematics.

Findings of this study related to causes of difficulties in learning mathematics of Tamang students are given below.

- Tamang students are not regular in the school.
- Tamang students have used their mother tongue at their home. They use Nepali language as the second language. There is language discontinuity at home and school
- There is cultural differences and discontinuity at home and school.
- Tamang students are focused on household works. Most of the Tamang students did not practice mathematics home and did not do their homework.
- Economic condition of the family was very poor so Tamang students have to do labour to earn money.
- Most of the Parent's of Tamang student are illiterate, so the students can not get any guidance at home to learn mathematics knowledge.
- There is lack of homework checking and feedback to the student at the school and there is no any supportive extra class for weak students.
- The Teacher do not care individually to the Tamang students.
- There is lack of group discussion and inter-personal relationship among the students and teacher to learn mathematics knowledge.
- Lack of involvement of parents at the school is one of the cause of low achievement of Tamang students.
- Lack of appropriate teaching method and Teaching learning materials.

- Lack of ICT based teaching strategies, sources, means and knowledge to teach mathematics at the classroom.
- Misuse of mobile phone at home and school. Some of the Tamang students spends more time with mobile phone to play games and to use social networks.

The above are the causes of difficulties in learning Mathematics of Tamang students which I found on my study. There is no hostel facility to the students who are coming far from the school. There is no encouragement to ask the questions if they do not understand. Here I would like to list out the ways to address the difficulties of Tamang students in learning mathematics. Ways to minimize the difficulties of Tamang students in learning mathematics are given below.

- Provide hostel facility to the students whose house is far from the school.
- Take unit test regularly and give feedback to the students.
- Check homework daily and give feedback to the students.
- Provide scholarship for the students.
- Link teaching pedagogy with students daily life.
- Teach basic concept using concrete objects.
- Use ICT based learning method at classroom.
- Make rules for the for teachers and students at school and apply them.
- Increase the parents involvement at learning process of students at school and home.
- Involving group discussion and inter-relationship programs.
- Proper use the mobile phone for learning.

Conclusions

From the above findings of this study, it can be concluded that teaching and learning mathematics was not satisfactory and its prominent cases are the poor economic condition of their family and the students do not come regular at the school. Most of the Tamang student's parents are illiterate. They do not have good job, so their children must do works in home.

On the one hand due to the low educational and low economic condition of Tamang student's family, Tamang students are not present in the school regularly and on the other hand, the teacher behaves coldly to the Tamang students at the school. The motivational factor is poor. The mathematics teacher does not motivate the Tamang students rather they are discouraged. Mainly the things to affect the Tamang students learning are the Parents' education, economic condition, social and cultural activities and practices, insufficient time to practice mathematics at home and misuse of mobile phone and social networks. Moreover, their own passivity while studying and low confidence also hamper the learning of mathematics.

Tamang students are passive at the classroom because of language problem. they can not express their problems to the teacher in Nepali language with respected word and correct grammar. So, the teacher should addressed the problem of students individually. The teacher should make comfortable environment to learn the mathematics at the classroom for all students.

Implications

Teacher can relate the learning process with teaching activities by reflecting their previous experiences in the home and community where he/she has performed different everyday activities. Teacher can use low-cost and no-cost local materials for teaching mathematics. Learning environment of the student at home and school should be

suitable, for this parents, head teacher and subject teacher have vital role. The teacher has to create situation that can be bridging between learning at home and school environment.

The following are the some implications of this study.

- This study supports to enhance the practical knowledge and activities while teaching and learning mathematics in the classroom.
- This study can help the students, parents as well as teachers to find the difficulties in learning mathematics of Tamang students and give guidance to solve the problems faced by the students.
- An extensive study can be done on the effect of parental involvement in learning of mathematics.
- A similar study can be done in basic level students with large sample size than this study.
- This study can support the curriculum designer, policy maker to make suitable curriculum and policy to addressed the socially deprived groups.

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Appendices

Appendix-A

Individual student record- 2021

Name: ……... Grade: …….

Roll no.: …… sex: ……

Age: ……. Nationality: …….

Religion: …….. Address: ……..

Name of the school: ……

Distance to school from home: …….

Father's name: …… Occupation: …….

Mother's Name: …… Occupation: …….

Number of family members:…….

Appendix-B

Interview format with the key information 2021

Name of student: ……. Grade: …….

Roll No.: ……. Age: ……

The interview with the Tamang students will be in the basis of following topics:

- Family background
- Personal history
- Working time in his/her home
- Reading opportunity in home
- Home environment
- School environment
- View about mathematics
- Parent's education
- Difficulties area in Mathematics
- Relation between Tamang students and other students
- Relation between Tamang students and math teacher
- Appropriateness of teaching learning strategies

Appendix-C

Interview Format with Math Teacher 2021

Date of Interview: ……

Name of Teacher: …… Gender: ……..

Teaching Experience: …….. Age: ……..

Address: …….

The interview with Mathematics teacher will be on the base of following topics:

- Teaching of the Tamang students
- Problem of teaching Tamang students
- Encouragement of the student learning
- Participation on individual/group
- Relation between teacher and Tamang students
- Impact of cultural difference in the learning mathematics
- Factor that influences the learning of mathematics for Tamang students

Appendix-D

Interview Format with Head Teacher

Date of interview: ……..

Name: …… Religion: ……..

Address: …… Qualification: ……

The interview with the head teacher will be in the basis of the following topic:

- Learning environment in the school
- Student and teacher relation
- Student opportunity for learning with teacher
- Difficulties for Tamang students at school
- Causes of difficulties
- Problem on culturally deprived students.
- Participation of students in learning process.
- Use of homework and classwork
- Feedback to the students
- Effect of culture and language in learning mathematical knowledge

Appendix-E

Interview Guideline with Parents

Name: Date:

Age: Gender:

Educational Status:

Address:

The interview with the parents had been taken on the basis of following main topics:

- Economic condition:
- Educational background of family:
- Views about education:
- Behaviour of child at home:
- Home environment of students for learning mathematics:
- Child's interest:
- Physical facility at home:
- Expectation from the child:
- Expectation from school:
- Learning opportunity at home:

Appendix-F

Class Observation Form

Name of the Student: …….

Name of the School: …….

Days	Respondents	homework		Textbook		Classwork		Interaction	
		Yes	No	Yes	No	Yes	No	Yes	No
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									