

Chapter I

INTRODUCTION

Background of the Study

Achievement is concerned with teachers, curriculum planners and administrators in education sector. Most students have desire to be successful in his/her class however most of them were fail. Moreover, many of them fail to reach the academic level due to different causes that affect mathematics achievement. Achievement appears to be a common phenomenon in our schools and many students are suffering from low achievement in mathematics.

In spite of increase focus on education, a large proportion of people in many countries are still being defined its full benefits. In developing countries like Nepal, it has become issue that poor achievement of the students in mathematics. It is the responsibility of every country to take the necessary steps to ensure their students maximize their academic potential. Realizing the potential of every individual child should be centre of any education.

Achievement of an individual is an outcome of his mental and physical potential, besides the experiences he has gained in the process of exploration and learning. In a study considering the factors of school achievement, it is possible to ignore those aspects in which individuals differ from one another. The starting point may be academic achievement itself where wide-ranging variations occur from the point of non- performance to the point of outstanding achievement. If we consider a group student, it is normal that a few students were finding to be high achievers on the hand and a few are underachievers on the other, while a sizable number of students usually appear as moderate achievers. The questions arises why such a difference in achievement appears when the school more or less uniform instructional and

environmental facilities? Is this difference due to certain psychological factors? Does the difference depend upon inherent qualities? Is there any single factor or host of factors, which account for all difference in scholastic achievement? These questions often appear the mind of the educators, educationists and the psychologist, but with hardly satisfactory answers. Various investigations have explored numerous factors, which were founds responsible for academic success and failure. It has been widely documented that the academic achievement of students linked to number of socio-cultural variables. Among the socio-cultural variables associated with academic achievement are the educational and occupational attainment levels of parents, family income and composition, ethnic, language minority status, and the absence of learning material in the home.

The term "Achievement" defined in Oxford Advance Dictionary as 'the thing done successful especially with effort the skill'. 'Achievement is the tool for evaluating the students which help to determine the quality of the student in related areas. The popular and reliable evaluating tool for students is examination. There are different types of examination to scale student achievement in different level. The level of student's was determines by evaluation applying different tools of achievement. The tools of achievement are examination such as oral, written, practical etc. They can be reliable means for the determination of achievement of students. There the several factors those are responsible for the achievement of the students. Those factors may be teacher education, teacher personality, home environment, instructional materials, individual difference, peer group, parent's attitudes and socio-economic status etc. The achievement of students not only on part played by teacher but also the parent awareness, student's interest, previous knowledge, teacher's training, revising curriculum, textbooks, developing resource materials, improving

supervision system, improving physical facilities etc have been made to up lift the achievement and performance level of student. Achievement in mathematics varies across nations, region and a variety of socio-economic and demographic characteristics. One of the most discussed among educators, researchers are participation, and achievement of students is related issues in mathematics learning.

Participation means involvement of people in many activities purposes. Students' involvement creates and models inclusive environment where students find opportunities for personal and professional development. Participation is the very important part to get achievement in mathematics learning. If the students are not active participation in mathematics, he/she cannot get achievement in learning. The participation and achievement of Tharu students is low in comparison to other students in the context of Nepal. Mathematics is a technical subject that needs more practice and high attention to learn. Achievement was determines by different variables such as school related variables, students related variables and house related variable and so on. These variables determine the achievement obtained by students

Introduction to the Tharu Community in Kailali District

The Tharu people are indigenous ethnic groups who have lived in the lowlands of Nepal for centuries. Tharus are the oldest inhabitant group in the Terai. Usually they lived close to the heavily forested regions. Most of the large compact Tharu settlements are founds in tropical malaria areas. It said that the Tharu originally cultivated most of these lands and in course of time clever people come and got the better of them. Its mean there were a few Tharu kings in Terai. Tharus are mostly founds in the Terai extending from Koshi in the east to Mahakali in the west and in some parts of inner Terai. The languages between them also dominated by Maithali language and in the west Hindi and Abadi languages dominate it. Therefore, they

speak a language mixed of Parkrit, Bhojapuri and Magadhi. These people have dark complexion, muscular slim body and an average height of 5.2".

Tharu are agricultural farmers. They are very hard working people by nature and seem sincere and simple-minded people. Tharu people live at the edges of forests village and educationally disadvantaged community. Only small percentages of people complete school education. Girls show little interest in going to school, because of most parents cannot afford the expenditure of education. Some Tharu are economically quite well. They were educated and culturally well exposed. Due to the difficulty with Nepali, language, especially in the early grades of the primary school, makes learning an uneasy task. Tharus populated the entire length of the Terai region of Nepal. According to the census 2011, the total population of the Tharu in Nepal is 15, 89,670 which is 6.75 percentage of the total population of Nepal and ranks 4th order majority of total population. Tharus are the largest ethnic group of the Terai and total population of Tharu is nearly about 439,267 in far western Development region of Nepal.

Table 1

Achievement of Grade VIII Students in Mathematics

Ecological zone	Tharu	Newar	Gurung	Sherpa
1. Mountain		44.7	35.6	59.2
2. Hill	30.1	42.1	45.0	34.7
3. Valley	65.3	54.5	60.7	60.7
4. Terai	44.5	50.7	34.9	58.9
Total achievement (Mean)	44.6	52.4	45.1	58.8
Total number of students (N)	446	167	137	15

Source: MOE Education Review, (2013)

The above table indicates that the achievement of eight grade students in mathematics for the different language groups is different zones. There are different ethnic group in Nepal. Their mother tongue is also different. All together, there are 125 castes in Nepal. In above table the achievement level of Tharu students is lower than other ethnic groups like Tamang, Newar and Sherpas in Terai region. The above data set is only the achievement level of students. To understand the further more reasons and fact about the participation and achievement of Tharu students one should conduct the study. Therefore, the researcher is interested to study about the participant and achievement level of Tharu students in Terai.

Statement of the Problem

Teaching mathematics involves the active participation of students inside and outside the classroom. Generally, it is assumed that the participation of the students directly affect the achievement of the students. Many ethnic groups are considering as back ward and disadvantaged from various sectors like political, social, economic and educational. Among the various ethnic groups, Tharu is one of the dominated communities of Nepal. The Tharu students are getting low achievement in mathematics due to various factors in Kailali district. Consequently demonstrate a poor learning out come. Lower achievement and the participation of Tharu students in mathematics reflect their position in society.

Education develops the resources, which interprets as a process of increasing the knowledge. It can be seems mathematics is an essential part of one's daily life. In official work, household and fields works everywhere, less or more mathematical knowledge are required. In fact, in every working field people are using mathematics with or without knowing the mathematical concept. Therefore, the children also need to have mathematical concept for performing their daily tasks. Therefore, the

researcher is interested to study about the participation and achievement of Tharu students in mathematics. This study was intends to carry out the school related, non-related determinant, and the factor of participation of the students learning mathematics from the point of view of the school-going pupils of Tharu community on Kailali district. It is rationale to study about the real fact, actual participation and achievement of Tharu students. This study has following research questions.

- What factors affected achievement of Tharu students in mathematics?
- How the factors effected on mathematics achievement of Tharu Students?

Objectives of the Study

The objectives of this study were:

- To find out the affecting factors on low achievement of Tharu students in smathematics of Kailali district.
- To analyze the effect of factors on mathematics achievement.

Significance of the Study

This study has some significance as follows.

- This study would help to identify the problems that might be seemed in mathematics teaching and show the way to solve them.
- This study would help improve teaching and learning situation when it taught to different ethnic groups of students.
- This study be future to motivate for encourage to the Tharu students to the participation in mathematics.
- This study would help to know the inter-relationship between the participation and achievements seen in teaching process.
- This study helps to find factor that affects in achievement of Tharu students in mathematic learning.

- This study helps for NGO/INGO and related committees for implementing suitable educational projects.
- This study helps the government to formulate policy and take right decision.

Delimitation of the Study

- . This study has the following delimitation.
- This study was limited to five schools of Kailali district.
- This study was limited the 150 students of five schools of Trishakti Municipality.
- This study was limited to the achievement level of Tharu.
- The research was included only eight grade students, and their mathematics teacher and parents.
- The sample of the study was delimited to only government school.

Operational Definition of the Terms

Achievement

In this study, achievement refers to the score obtained by the selected Tharu students in annual examination held in 2072.

Tharu students

Tharu student refer to students who are studying grade VIII in selected school of Kailali district and belong to Tharu community.

Factors

The term factor is defined as one of the several things that causes or influence something e.g. educational factors, economics factors, social factors, cultural factor, home-related factors, and personal factors.

Economic Condition

Economic condition means representing of family economic condition of student's family who are studying in grade VIII in selected five schools at Kailali districts.

Language

Language is the way of communication. Tharu language is of the local language among 123 languages. Tharu students who are faced difficulty when teacher teach in Nepali language.

School Environment

In this study school environment means physical environment of selected five schools in Kailali district. It denotes the classroom size, number of students in class and other effective learning environment in school.

Teaching Method

The strategies of how to learning of the students is called teaching method. What types of teaching materials used mathematics teacher in learning process on selected school. Which kinds of teaching style the students are interested for learning.

Prior knowledge

Prior knowledge is Pre knowledge about concept in mathematics of Tharu students on selected schools.

Gender

Gender refers to characteristics, role and occupation between male and female. So, gender included the social discrimination between boy and girl.

Housework load

House works means overloads that are daily involving farming of parent's occupation. The over load work of Tharu students who are facing in the home.

Chapter II

REVIEW OF THE RELATED LITERATURE

Research in any field of knowledge requires an adequate familiarity with the works, which have been doing already in related area. A research must have deep knowledge of already established theories and researches, which closely related to the problem chosen by the researcher. A review of related literature provides the knowledge of what has been established, known or studied and what has not been attempt yet. In other words, review of literature is necessary required to find out gap in research for further study. The various related studies, reports and books the Tharu students' participation and achievement toward mathematics classroom or mathematics activities were reviewed.

Empirical Literature

Ghimire (1997) did research entitled " A study on factors affecting teaching learning mathematics at secondary level" with the aim to study the factor learning of mathematics is secondary level by sex wise and rural/ urban location of school in terms of the following aspects school environment, family background , motivational factors, physical factors, interest of the learners and instrumental materials. The tools for the study were administering for the sample of ninety students and t-test will applied to conclude the using materials. Environment of the school in both rural and urban and urban areas affects equally but the boys will more affect then girls. Students of Arghakhachi and Chitwan were more affects than that of Kathmandu. The students of Arghakhachi were finding more affected than the Chitwan. The students of Kathmandu were more motivated to study mathematics than that of Arghakhachi and Chitwan. The students of urban area more interested in the study of boys and girls paid more attention for the study.

K.C. (2001) has conducted a research on the topic, "A comparative study of achievement in mathematics of primary level students of Chhetri, Tharu, and Kami caste in Surkhit district." The main objectives of this study were to compare the mathematics achievement of primary school pupils of Chhetri, Tharu and Kami communities of the Surkhet district. For the data collection, the researcher developed an observation form, interview schedule and questionnaire. For the collection of the data, the researcher selected the samples, which were selected by random sampling. This study was qualitative in nature and the conclusion of the study was Chhetri students' achievement significantly higher than Tharu and Kami students in the district level achievement test. There was no significant different in the achievement of Tharu and Kami students mean achievement was found to be higher than those of Kami, Chhetri and Kami students bare found scattered through many parts of district where as Tharu remain confined within certain school.

Lamichhane (2001) did research on "A comparative study of mathematics achievement of primary level students". The aim of the study was to compare the mathematics achievement of the children under grade teaching and subject teaching and to find the attitude of grade teachers towards grade teaching and its relationship with students' achievement in mathematics. The conclusions were drawn through the mean scores achieved by the students. These were a positive attitude of grade teachers towards grade teaching, the correlation between attitudes of grade teachers with the students' achievement was found to be 0.73, and it was found significant at 0.05 levels.

Pandey (2001) has studied in "Causes of low achievement for Rana Tharu students in Kailali district" with the objective of studying to identify the difficulties and causes of difficulties in learning mathematics. This was done by selecting four

students of Karnali secondary school Tikapur, Kailali. Questionnaire was used to collect data at school and home, which has created the difficulties in mathematics learning for Rana Tharu students.

Tharu (2004) did his research entitled "Impact of socio-economic status on mathematics achievement" with the objective to find the level of mathematics achievement of students with respect to their socio-economic status and mathematics achievements by gender. The tools for study was administered to the sample of 140 students of Bardiya district and multiple regressions were applied to conclude the results: Mathematics achievements of students were found to be strongly associated with the father's education and father's occupation where as family income variable had the low relationship that positively affect the children's mathematics achievement. Mathematics achievements status of boys and girls were founds consistently positives associated with three variables father's education, father's occupation and family income that positively affected on boys and girls mathematics achievements and family size and birth order of child had negatively correlated.

Adhikari (2007) conducted in his dissertation "Learning culture in mathematics classroom in an effective school (a case study)". That the factors responsible for making the typological of learning culture of mathematics classroom are teacher awareness, students participation, conducive learning environment of school, culture of recognizing individual cognitive style, head teacher supervision. The student from economically marginalized and understand family has less opportunity to learn in home.

Dhakal (2008) has conducted on the topic, "mathematics achievement of grade VI students in Kavre district."The objective to, find out of the mathematics achievement of students studying institutional and public school. for the data

collection , the research developed from a table and set of questionnaire then the researcher visited sample campuses which will selected by random sampling. The researcher used to the table, which is analyzes statically in term of mean, standard deviation and t-test. The conclusion of this study will mathematical achievement level of VI is satisfactory. The achievement level of students, studying in institution school is higher than studying in public school. The achievement level of girl's students and boys' students are almost same.

Karki (2011) did a research on the topic " , Factors causing low achievement in mathematics at secondary level" with three objectives to determine the correlation between causing factors and mathematics achievement at ineffective school of students of Surkhet district. For this research researcher has been selected 20 students from each ineffective and effective by taking interview schedule and observation form to find out factors of low participation. The researcher found the factors are gender, motivation, personal factors, attendance and study at home. The researcher has used to description method to describe factors of low participation.

This study shows that different situation (home related and school related) of the case respondent affect their achievement due to engagement of household work, farm work, labor work and the interaction between the member and society. It was also concludes that teacher and teaching method are not main factors to affect their achievement learning mathematics. Different situation of home, society, friends and parents affect them in mathematics. So that researcher concluded that the poverty, social belief, social tradition, cost of education, household, workload, problem of health, psychology effect, lack of motivation all these factors affected the respondent mathematics learning.

Theoretical Literature

Every child learns from society, from social contact with home, family and universe. Socio-cultural theories of mathematics learning are generally associated with the seminal work of Vygotsky (1978) by prioritizing the socially and culturally situated nature of mathematical activity over individual sensory-motor functions. Vygotsky (1978) identified three general themes of fundamental to his theory of development. Higher mental human processes can be best understand by focusing on how and when they occur; higher mental processes, such as memory, concepts, and reasoning, originate between people on the social plane before appearing in the individual on the psychological plane; and cultural tools and signs such as language, writing, and symbols mediate higher mental processes.

Vygotsky claimed that all higher mental activity originated through a process of internalization, or what some scholars refer to as “appropriation” (Cazden, 2001), which he described as the process by which individuals engage in cultural practices on the inter mental plane (i.e., through social interaction) before gradually performing these practices independently on the intra mental plane (i.e., through internalization). The transformation between the social and psychological planes occurs within a zone of proximal development – the space between an individual’s independent capabilities and his or her immediate mental potential. In other words, the zone of proximal development is determined by both the child’s level of development and the quality of instruction provided to the child (Wertsch, 1985). Vygotskian learning theory, and in particular, his contributions regarding the zone of proximal development, essentially paved the foundation for cooperative learning as a viable instructional approach in modern classroom settings.

Other researchers have extrapolated Vygotsky's work into theories that really on an apprenticeship metaphor specifically stating that learning occurs in social interaction between novices and more skilled others through increasingly greater degrees of legitimate participation. In other words, learning was defines, in part, as a positive change in participation in a set of cultural practices. For example, while co-participating in mathematics discourse communities, teachers or more-able peers initially take a major role in sharing their reasoning aloud. Wretch (1985) draws an important distinction between apprenticeship and School-like instruction.

Apprenticeship learning, which derives from labor activity settings, intentionally organizes interaction so that the expert assumes a majority of the responsibility for executing tasks in the earliest of interactions. Therefore, initial interactions of this type might be inform by the assumption that efficient error-free execution is of the highest priority, rendering the novice capable of only executing the easiest steps involved in successfully mastering a task. On the other hand, school-like learning, which derives from instructional activity settings, might intentionally structure interaction so that novices can learn for the sake of understanding by participating freely in all aspects of the task. The important distinction between apprenticeship and school like settings is that since learning is priorities in the school-like setting, errors and mistakes are view as necessary steps toward true mastery of a task.

According to Empson (2003), understanding classroom discourse, how it "structures students' participation requires a fine-grained analysis of teachers' and students' interactive talk" (p. 306). Participant frameworks can be use to explain how discourse organizes social interaction, or specifically how student and teacher talk animates individuals into certain intellectual roles or identities, such as answer-supplier, evaluators, claim-makers, listeners, solution-reporters, questioners, etc.

The teacher in a mathematics discourse community facilitates language socialization and role-taking by orchestrating interaction among the group, which aims to get students to “identify themselves as people who solve problems, construct arguments, justify claims, generate conjectures, and communicate with others formally and informally about their mathematical thoughts”

All members within a learning community position themselves and others as participants in myriad ways, but primarily through markers such as verbal and non-verbal language. For example, when a student asks a peer, “But why did you divide by one-half when there were two people sharing the cake?” the student is positioning his or her peer as a defender of and clarifier of a mathematical claim. In other words, the specific language used by one participant prompts another participant to assume a special role in discourse, in this case a justifier and clarifier Empson (2003) argues that lower-performing students’ success in discourse communities depends on the teacher’s ability to provide space and meaning for students’ contributions. Many researchers explain the struggles of lower-performing students’ ability to participate in discussion-intensive instructional settings as a function of socio-cognitive traits, such as a child’s limited capacity for listening and responding to others’ high-level explanations.

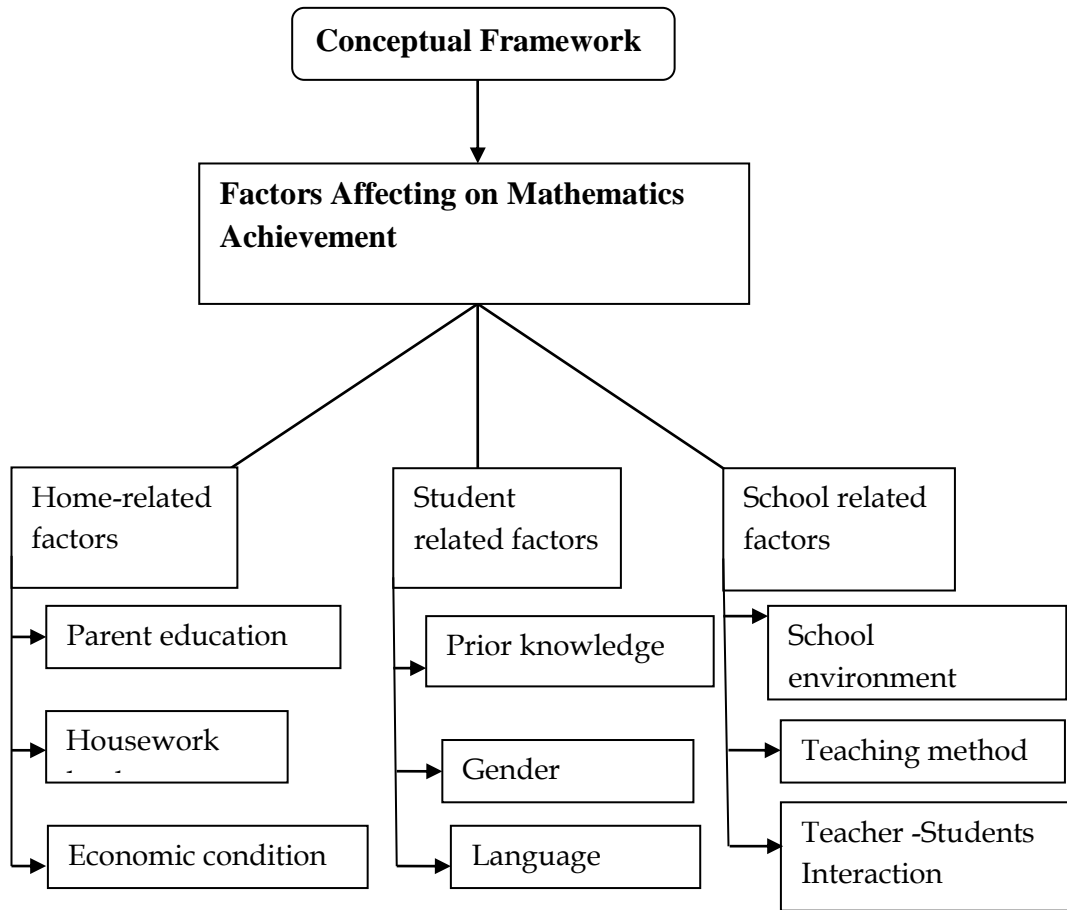
However, suggest that even low-performing or low-status students’ degree and quality of participation in discourse can increase when teachers orchestrate their interactions skillfully, (e.g., praising a student’s contributions during task work, using effective scaffolding practices, etc.). Thus, the teacher’s role in facilitating discourse is paramount, but that is not to say that students themselves play a marginal role in producing quality verbal interactions.

Frameworks as a method of analyzing discourse have focused almost exclusively on teachers to student's interactions, giving priority to the teacher's role in facilitating discussion among students. This study used participant frameworks as a lens to analyze that emerged not only between the teacher and students, but primarily among the students themselves in both whole-class and small-group instructional contexts. Studies that have moved beyond pigeonholing low-performing students as incapable of engaging in productive discourse with teachers and peers underscore the usefulness of adopting analytical lenses like participation frameworks within the context of Mathematics in Tharu students.

Conceptual Framework

A conceptual framework was making to find out the participation and achievement at Basic level in mathematics learning. This deals with directly or indirectly to school enrolment as their parent education. Home and culture is the sum of knowledge past and present. The base of human psychological affects in everything as in learning. Heredity, environment and class are three things, which shape the psyche of the people. The social environment includes the people's behavior of the society, their social status, social structure, man is social animal, and so his behavior is ever shaping by the society. The ways they speak, eat, think and behave affect the other people of society.

The factor that affecting on mathematics achievements of Tharu students at lower secondary level in mathematics learning and higher resources, such as memory concepts and reasoning between people on the social plan cultural tool and sign such as language writing and symbol are relate as following figure.



Several causes bring low participation and achievement in mathematics of Tharu students. Home is the first school of students so the home environment plays the vital role in learning mathematics. Parents education and their behavior affects in learning. Language is the means of communication. Therefore, language has its vital role in learning mathematics.

In my research, the main cause for the low achievement of Tharu students are lack of practice, learning environment of home and schools, not doing homework and class work, lack of encouragement in motivation, teacher students' relation parents' education occupation of the parents and socio-economic condition.

Chapter III

METHODS AND PROCEDURES OF THE STUDY

This chapter deals with the research design, population, sample, sampling strategy, tools for data collection, data collection procedure and data analysis and interpretation procedures. The researcher adopted the following methodology to fulfill the objectives of this study.

Design of the Study

This study was conducted by using mixed research design (qualitative and quantitative). Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach alone.

The objectives of this study was to find out affecting factors on mathematics achievement and participation on mathematics and to analyzes the effects of factors on mathematics achievement of Tharu students in mathematics. It was quantitative and qualitative in nature. Descriptive survey method was adopted to study the Achievement and participation of Tharu students in mathematics. Similarly, quantitative method was used to present the factors affecting students' achievement. Collected data through questionnaire, interview and classroom observation were analyzed using statistical tools and descriptive method wherever needs to fulfill the objectives.

Population of the Study

The population of the study consisted, the Tharu students studying in grade eight at Kailali district. The researcher selected the different five schools named Kalika basic school, Rastriya secondary school, Kanara basic school, Nawajoti basic school, and Rastriya higher secondary school in Trishakti municipality. In addition to this, teachers of selected schools and parents of the selected students were participated.

Sample of the Study

To find the affecting factors, the researcher selected five schools from Kailali district purposively and 150 students from different schools were selected as sample by using random sampling strategy. Moreover, 10 students, 6 teachers and 5 parents were selected to collect required data for qualitative part of the study. The sample of this study is presented in given table.

Table 2

Sample for related schools

Schools	For Survey	
	Boys	Girls
Rastriya Higher Secondary School	25	18
Nawajoti Basic School	13	7
Kalika Basic School	15	12
Rastriya Secondary School	20	15
Kanara Secondary School	16	9
Total	89	61

The researcher selected altogether, 89 boys and 61 girls with the help of simple random sampling from 5 different schools to collect required data.

Data Collection Tools

One of the important parts of conducting study was data collection. Every aspects of the study can be analyzed and interpreted based on the collected data. In this study researcher used questionnaires, interview schedule and class observation tools were used to find out the affecting factors and effect of these factors in mathematics achievement.

Questionnaires

To collect the required data related to the factors affecting on mathematics achievement of Tharu students, questionnaire was used to find the opinion of these selected students by items analysis process. Mainly, questionnaires were based on three factors: home related, personal related, and school related. There were 10 home, 15 personal, and 15 school related factors were included. Among 40 statements, 28 were positive and 12 were negative. Each statements contains five columns of as strongly agree (SA), agree (A), undecided (U), disagree (D) and strongly disagree (DA).

In-depth Interview

In depth interview was conducted in qualitative nature of study. 10 students, 6 teachers and 5 parents interviews were taken in different times. The purpose of interviewing is to find out response of participation. It is the most effective method, which is used widely in collection primary data. It is a medium to express internal thoughts, interest, concept and thinking of person. Researcher conducted interview to find the targeted information from different respondent students, teacher and parents mixed interview was used to collect information. Interview of student helped to find

teacher' behaviors and their personal interest views toward mathematics. Interview of teachers and parents helped to analyze the factors that affect on mathematics achievement, which is given in (Appendix-E).

Classroom Observation Note

Researcher used class observation form to observe classroom activities and home activities of respondents. This observation form includes effect of the factors on the achievement of Tharu students in mathematics, such as, school physical environment, and learner participation in class. The researcher also used checklist for the observation (Appendix-D). Therefore, it was focused observation but researcher did not entirely depend upon the checklist. Rather he tried to observe as much emerging things as possible in classroom.

Reliability of Instruments

The ability of an item to perform a required function under stated conditions for a specified period. Reliability and validity are essential elements for the effectiveness of any data gathering procedure. Reliability is necessary not sufficient condition for validity (Best and Kahn, 2009). In this study, the text was piloted involving 25 students in Shree Taranagar Higher secondary school by applying the split-half method, reliability test was determined (Appendix-E) and found the reliability coefficient was 0.97. It showed that the questionnaire sheet was reliable.

Validation of Instruments

Validity is that quality of data gathering instrument or procedure that enables it to measure what it was supposed to measure (Best & Kahn, 2009). Triangulation is power way of demonstrating concurrent validity particularly in qualitative research (Compbell and Kiske, 1959). Combined levels of triangulation are using to insure validity of tools and techniques of this study. Data triangulation was among the data

collected from interview schedule and schools documents to insure concurrent validity. For the validation of study, student's participation and achievements related questionnaires were administered. Similarly, subject expert opinion such as subject teacher and supervisor was considered. Furthermore, items were selected based on the level mathematics curriculum.

Data Collection Procedure

In order to collect the required data, the researcher visited the selected school of Kailali district and established good rapport with head teacher and concerned teachers, then took the permission to administer the test from their students using questionnaires. The researcher administered questionnaires to the students of selected different five schools. Again, the researcher took interview with selected students, teachers and parents. Then, the researcher observed classes in selected different five schools to find out the participation and achievement in mathematics. In the same way, the researcher collected the previous annual result of the students from the school records.

Data Analysis and Interpretation

After collection of both primary and secondary data, the researcher analyzed data by using Chi-square test and mean value. Mean was used to analyze the affecting factors on low achievement of Tharu students. For the analysis of the items labeled values 5, 4, 3, 2, and 1 was assigned to the statements for 'strongly agree', 'agree', 'undecided,' 'disagree,' and 'strongly disagree' respectively. Total score of five points of rating scale is 15 and average score is 3. If calculated index is greater than 3, it is favorable on statement but if calculated mean value is less than 3 or 3, then it is less favorable on the statement. Based on this five rating scale, the collected data were analyzed and interpreted. In qualitative research, data analysis involves reducing,

organization the data synthesizing, and discovering what is important. So, the researcher used cross match method to analyze qualitative data given from in- depth interview of teacher, students and parents and classroom observation. This study involves a detailed description of case, follow by an analysis of the data for conceptual framework and pattern of issues.

Chapter IV

ANALYSIS AND INTERPRETATION OF DATA

This chapter presents analysis and interpretation of the data with the help of the three sets of instrument. The information was collected from basic schools of Kailali district. As a data collection tool, questionnaire of the students consisting 40 statements (28 positive and 12 negative). The statements included based on three components; school related factor, home-related factors and students related factors related to achievement of Tharu students. In order to analyze and interpret the collected data, mean, standard deviation (Appendix-B) and chi-square value on each statement with their statistical significance at 0.05 level has given in (Appendix-C). Similarly, in-depth interview and observation forms were used to find the main affecting factors on low achievements of Tharu students in mathematics. It was analyzed by cross-match method among data taken from students and teachers. The analysis of the study was carried on following major headings corresponding to the objectives of the study.

Factor Analysis

The researcher included forty statements (28 positive and 12 negative) in the questionnaire sheet based on three components; school related factor, home-related factors and student's related factors that affect in the achievement of Tharu students. The researcher took 150 students from five public schools of Kailali district. Mean value was calculated on each statements of the questionnaire sheet. Mean and standards deviation on each statement with their statistical values has presented Appendix-B. In order to find out the affecting factors of low achievement of Tharu students in mathematics, the researcher divided the students' factor affecting of Tharu

students based on three components; home-related factors, student's related factors and school related factors related with achievements. The above-mentioned three components are analyzed in the following subheadings.

Home-Related factors

Among different factors, home-related factor was the first component. In this component, 10 statements were asked to the students to identify the affecting factors to the achievements of Tharu students in mathematics. The opinions given by the students were classified by using five points likerts scale and mean value was calculated for different statements that are presented in following table.

Table No.3

Mean and standard deviation of the responses on home related factors

S.N.	Statements	Mean	S.D
	Home related factors		
1	I have not sufficient time to read at home	2.65	1.55
2	Your guardians support to manage necessary thing for study	3.03	1.42
3	Any family member is not in educational job holder	2.34	1.29
4	Works In the field morning and evening	2.87	1.50
5	You do not have guidance to learn mathematics at home.	2.49	1.34
6	Guardians manage tuition and coaching for mathematics	2.55	1.45
7	You have not separate study room at home	2.27	1.28
8	My family condition is not good	2.54	1.25
9	You get equal treatment as your brother from parents	2.85	1.50
10	Joint family is effects on learning environment.	2.59	1.45

These statements were calculated using statistical analysis mean weightage and standard deviation. All statements were capable to measure students' affecting factors on mathematics achievement. The statements number 2 with mean weightage 3.03 and statement was tested using chi- square test at 0.05 levels, the chi-square

value 11.0 (from appendix-C), there is less significance of the problem. From the above data, it can be said that most of the parents of Tharu students properly manage the environment for the study study. Thus, researcher concluded that during the home period, parents give time and help them to learn mathematics.

Similarly, statement numbers 1, 3, 4, 5, 6, 7, 8, 9 and 10 with mean weightage 2.65, 2.34, 2.87, 2.49, 2.55, 2.54, 2.84 and 2.59 respectively. The chi- square value of statement no. 4 and 8 are 9.33 and 9.13, which are not favorable. Other statement, such as, 1, 3, 5, 7, 9 and 10 which chi- square values are 24.6, 43.13, 29.0, 22.8, 52.4, 27.6 and 22.0 respectively. Actually, above statements reveal some problems, students are not satisfied or disagree of these statements. Students who secure good marks in mathematics had good learning environments such as more time to get for better achievements. Some Tharu students have sufficient time to read at home but they do not practice the mathematics problem. Literate Tharu parents only manage proper time and guidance their children. However, most guardians of Tharu students are not concern for their children learning, they just want to make their children literate and to join a job in neighborhood country. On the other hand, poor Tharu people cannot manage the things, which are necessary for their studying.

They cannot manage tuition and coaching classes for their children. Such types of condition give negative effect on mathematics achievement. Most of the Tharu parents work in agriculture sectors remain busy in daily life activities and stay in joint family. So, that children do not have separate room for the study, it also affects in learning mathematics. Other affecting factor is "Kamlari Partha" which means rich people keep Tharu children in their house for household works; as a result, Tharu children do not get sufficient time for study. In this regard, one of the Tharu students said:

"Actually I felt mathematics is hard subject because I must engage in house hold work like cooking food, cutting grass, working in the field, looking cattle etc."

The researcher concluded that there are many problems to Tharu students in home environment, which was affecting in the achievement of mathematics.

Student-Related Factors

Again, student related factor was the second component. Here, Student means the learner of knowledge and factor means element, which affect positively and negatively. To find out the affecting factors on mathematics achievement of Tharu students 15 statements were included and they were (12 positive and 3 negative). This statement with their respective mean and standard deviation value is given in following table.

Table No. 4

Mean and standard deviation of the responses on personal related factors

S.N	Student related factors	Mean	S.D
11	I like mathematics as well other subjects	2.52	1.36
12	Give more time to math than other subject	2.51	1.26
13	You are not regular in school	2.78	1.60
14	I consult to my friends when I missed the class	2.98	1.51
15	You asked to your teacher if you can unable to solve the mathematical problem	2.29	1.29
16	I feel difficult to understand when teacher explain in Nepali	2.45	1.28
17	I think mathematical knowledge is useful for my future in any area	2.85	1.53
18	I help my peers when they are facing any problem in mathematics	2.85	1.49
19	I want to join in educational field	3.07	1.55
20	I always good mark in mathematics	2.53	1.48
21	I do not enjoy learning mathematics stuffs.	2.60	1.38
22	Compared to for my age I am good at mathematics	2.82	1.52
23	Works in math class easy for me	2.26	1.29
24	I take additional learning time for teacher whenever possible.	2.73	1.45
25	Mathematics is not my favorite subject	2.75	1.44

Above table shows that the statement no 19, with mean wightage 3, and the Chi-square values 9.53(from appendix-C), which is low significance. Students were agreeing to join educational field in future but due to different types of problems, they were unable to reach the goal. The government of Nepal should provide much opportunity for Tharu students in any sectors so that they might be interested to join in many sectors of educational field. Likewise, the statement number 11, 12, 13, 14, 15, 17 and 18, with mean weightage 2.52, 2.51, 2.78, 2.29, 2.85, and 2.85 respectively. In addition, Chi-square values 19.46, 28.6, 23.9, 43.8 and 11.26, which is not favorable. This indicates that Tharu community students were not agreeing these statements. Tharu students did not go regular in school and give more time in mathematics because they did not like mathematics as well as other subjects. It means they feel mathematics is a difficult subject and avoid the problems of mathematics. Without practice learner cannot learn mathematics. Being weak, they feel that mathematics is not useful for their future so they read mathematics just for pass. After passing S.E.E., they stop further studying mathematics.

Mathematics teachers of visited school also argued that they do not ask the problems which they cannot solve. Most of Tharu students go to fishing in the nearest pond, lake and river. If they missed the class nobody consult to the friends. Similarly, the statements number 16, 20, 21 and 22 with mean weightage 2.45, 2.5, 2.60, 2.26, 2.73, and 2.75. Again, chi-square values of the statements are 30.86, 36.0, 15.53 and 24.9 respectively. In these statements, students were disagreed. It means there are some problems in these statements. Some Tharu students in grade VIII informed that they did not feel difficult to understand the Nepali language in the classroom. However, few students informed that they feel difficulty to understand the Nepali language. Many school of Kaliali district where Tharu teacher teach. Multi

language community can be found in Kailali district. So, Tharu students did not feel difficulty to understand Nepali because there was good rapport between Tharu community and other community. Some Tharu students get good marks but most of the Tharu students were failing in mathematics. There are many problems of Tharu students, they do not get guidance at home, not sufficient practice in mathematics, low economic condition etc. Some Tharu students were interested in mathematics learning but they do not have prior knowledge of mathematics. In these selected school, most of the Tharu students have low achievement in mathematics. The teachers were not using material and lack of qualified and trained teacher. Teachers do not give additional time for weak students. They take coaching class to complete the course of mathematics. Many Schools do not have teaching materials in school. Moreover, the teachers were not interested to collect the materials.

School -Related Factors

Again, school related factor was the other factor of affecting achievements of Tharu students in mathematics where 15 statements were included. Responses of students were analyzed with labeled value for responses. Mean standard deviation and statistical tools were used to analyze the data related to school related factors in following page table.

Table No. 5

Mean and standard deviation of the responses on school related factors

S. N	School related factors	Mean	S.D
26	Course of mathematics in completed on timely	3.81	1.20
27	Unit test are taken at the end of each lesson	2.71	1.30
27	Mathematics teacher using teaching materials	2.84	1.62
29	Mathematics teacher not equally behave on each students	2.75	1.54
30	Teacher focus on weak students	2.92	1.47
31	Mathematics teacher gives chance to ask when you do not understand	2.61	1.50
32	Mathematics teacher bias the Tharu students.	2.93	1.47
33	Mathematics teacher gives class work and homework	3.51	1.44
34	Teacher come regular in school	3.59	1.33
35	Peer help you to learn confuse lesson	2.86	1.49
36	Teacher teach practically using teaching materials	2.90	1.49
37	School sometime not conducts comparative extra program	2.87	1.46
38	Being your school far from home learning is hampering	2.73	1.51
39	You are satisfying your class size.	2.90	1.41
40	I am satisfy with school environment	3.30	1.51

From the above table, statement number 26, 33, 34 and 39 with mean weightage 3.81, 3.51, 3.59, 2.90. This indicates that the respondents agreed to the above statements. Students were not fully agreed in completing the course. In this case, teacher completed the mathematics by taking coaching class. Teacher gives class woks and homework sometime but not regularly, because students are in large number. Teacher cannot check the homework. So the teacher only gives home woks and class works, he does not check it each students. There are some problems occur from interview, the researcher asked question to the sample students, "Does not your math teacher always prepare to check your homework"?

"Really our math teacher does not completely check the whole students' homework".

Again, the researcher ask the same question to the another respondent he said, *"Mathematics teacher gives us homework after finish the class but he does not check our homework regularly "*.

The class size is very large and many students read in this class. Teachers come regular in school; he does not take regular class. Sometime teachers become absent in school because students are not strongly agree on this statement. Similarly, statement number 27, 28, 30, 31, 35 and 37 with mean weight age 2.71, 2.84, 2.92, 2.61, 2.86 and 2.87. Moreover, chi-square values of the given statement are 19.26, 25.3, 31.9, 19.6, 17.9 and 5.53(from appendix-C), which indicate that there are significance differences of these statements. From the above responses, sometime, mathematics teacher used teaching materials and do not take unit test at the end of lesson. He does not teach practically to students. School was not managed teaching materials. Teacher did not focus on weak students. It means there is no use of social interaction and collaboration learning theory. Most of the teacher said that Tharu students do not ask question at the class, they do not interact with friends for mathematics learning. School sometime conducts extra competitive program but not regularly.

Therefore, it can conclude that interaction plays main role to mathematics learning and its achievement. Again, statements number 29, 38, and 40 with mean weightage 2.75, 2.73 and 3.30. It indicates that disagreed responses of the statements. Students responded teacher behave equally, he gives equally chance to ask question and good behaviors of all students. However, any school activity programs some teacher and students bias Tharu students, which was not good in education. In

addition, he has not give punished the students in minor mistake. In second statement deals, school is not far from village and not hampering in learning. Most of Students Tharu students satisfied with school environment but not large number of students in single class. Some Tharu students were not satisfied the school environments. They say that school does not create collaborative, effective and learning environment.

It can be concluded that, mathematics is not so easy subjects it needs more practice and exercise. Teacher and students co-operation take place in the classroom to facilitate and create the learning mathematics environment. Teacher always encourage to the students for their daily and regularly mathematical work. Teacher also should be punctual in their work. The mathematics teacher should provide the reward to the students who are good at mathematics. Every teacher should use teaching material that is the necessary part of mathematics teaching and makes the class environment attractive, interactive, peaceful and effective. Thus, the achievement of Tharu and other students can be improved.

The effect of factors on mathematics achievement

The last objective of the study was to analyze the effect of participation in achievement of Tharu students. To achieve this objective, the researcher used chi-square test (Appendix-C), the interview, teacher and parents with the help of checklist (Appendix-D) and interviews guideline (Appendix-E) and observation of class. The class was not homogeneous in terms of gender, class, language minority, knowledge, teaching materials etc. So, most of the teacher used traditional teaching technique neither they used appropriate method nor materials in publics school. Some teacher wanted to provide the good and appropriate teaching method in classroom but they were failing because in each public school large class size and lack of physical facilities. So, many students felt teacher has not taught us appropriately and most of

Tharu students felt difficulty to understand subject matter. There are so many reasons low achievement in mathematics. Every student did not have good environment to learn at home in the terms of parent education, economics status, over house load, traditional social value etc. Almost all Guardians of Tharu students were illiterate and they did not know the value of education. So, Tharu community is back warded in every field.

Parent's Education

Parents' educational level is seen to be a key factor in academic achievement of students. Parents serve as a role of model and a guide to encourage their children to pursue high educational goals and desires by establishing the educational resources at home and holding particular attitudes and values towards their children's learning. In this case, the educational level of parents serve as an indicator of attitudes and values, in which they use to create a home environment that, can affect children's learning and achievement. Parent's education refers to the academic and non-academic qualifications, awareness, moral and good character of presents by which children learns many things. There is not only role of teachers in learning process but also the parents awareness, education, environment, interest etc. the parents teacher the basis knowledge of life, practical aspects and skillful concepts, right vision of parents, appropriate norm and values to their children. If the parents have good education, they try their best to enable their children academically. Therefore, they can live easily in the society and inspire him or her to the right use of life's every potentiality and opportunity. From (Appendix- C), Statement no. 2, 3 and 5 are 44%, 64% and 60% students agreed with these statements.

It indicates that most of Tharu students' parents were uneducated but parents' education helps the children to get good education and make them economically

sound. It also enables them to live in the society and face challenges with each person for life. So that parents are first teacher, when parents are educated then parents plays important role in learning mathematics. Researcher asked question, what is the educational condition of your family? The selected one parent said,

"We have not got any formal education we can't count money and do translation my children most know household works then education."

It shows that Tharu student's parents faced difficulty in managing the home environment. In addition, researcher asked same question for student. She said,

"My parents are illiterate and they cannot teach me".

There is great conservative concept of parent in community. Girl must know household woks than education; home is a place to learn household work. Researcher asked the question, "What is the role of parent's education in learning mathematics?" The mathematics teacher said,

"Parent are the first teacher of children so it is very important role of parents to participate their children in mathematics learning if parents are literate they teach many kinds of knowledge for their own children".

Another teacher answers the same question,"

The role of parent education provides to learn mathematics easy and interesting for children".

While analyzing the above-mentioned responses of parents, it can be known that, parents had traditional belief and primitive thoughts, which was a matter of hindrance in overall development of their children. It was due to the lack of parent's education that they had not taken formal education. Parent had not positive attitude towards daughter and they were not interested and aware to educate girls.

House Work Load

Those Tharu students who wanted to study with working were spoiling by heavy duty of the house. The statement no 1 and 4 (Appendix-C), the students are agreed 53% and 47% respectively. Most of the time, they were working in the field. They hardly got rest time. They were often disturbed while studying by asking to about work. One of the respondents said,

"I have to work rather than the study; I work 5 hours in a day besides studying. I am often asked to work whenever I start reading at home". Similarly, another respondent said,

"I have not sufficient time to study. I am not given specific time to study." Moreover, the mathematics teacher said, *"They have less time to study at home and they also do not homework regularly"*. So, due to the heavy works, they had no enough time to practice and do homework. It also affected their learning mathematics.

Researcher asked the question for students, "Is over house work load effecting in participation and achievement? One respondent said,

"Absolutely, over house work affects in participation and achievements because there is no good environments to practice at home. I depend on class study only to get mathematical problem. Hence I am weak in mathematics".

To the same question another respondent said,

"Really, without actively practice in mathematics problem we cannot get good marks in mathematics". Again the same question asked the same to the another respondent and said,

"Yes, I am busy for household works so I am poor in mathematics thus mathematics teacher don't love me".

While analyzing the responses, it was found that the Tharu family had poor economic conditions and their occupation was agriculture so they had to work physically and hence they did not get extra time to study. They had to look after their brothers, sisters and support to send schools. For learning purpose too, they had to depend on classroom only. Hence, it led to the Tharu student's low participation in mathematics learning. From class observation, the researcher found that their family was simple and family members working in the field. None of the family members was wasting the time. There was not a separate reading room for study. Tharu students were not punctual because they had to work at home before coming to school. They did not show their homework to teacher, as they did not have time to practice at home. Sometime more than fifty percent of Tharu students were absent in the class due to their work at home. Parents did not think to give opportunity to study rather they always tried how to marry them and would become free from burden.

According to Wertsch (1985) theory educational productivity learning, environment has great role in participation. Tharu students did not have enough time to do exercise mathematics at home and repeat chapter, which were taught in class. It emphasized of the law of exercise, recall, recognition, re-learning and reconstruction. They did not have enough time to do practice at home because of house work problem. So, it effect of achievements in mathematics.

Economic Condition

Home creates a first learning environment to the Tharu students. The economic status of family influences to the achievement of the students. The high economic status family can afford high cost to books, copies, and take tuition classes. Family with traditional agriculture always force to their children to work in the fields than to study. Parents do not provide learning opportunities to their children. Parents

become happy when their children work hard to them. Economic condition is one of the great factors affecting the participation and achievement of Tharu students. From (Appendix-C), statement no 6, 7 and 8 which are negative statements. The students were agreed with this statement 58%, 74% and 57% respectively. Almost all the families of Tharu students are poor. They work hard in the field whole day. The researcher asks the question about the economic status for the selected student said,

"Parents do not invest a lot of money on our education".

This shows that Tharu student's parent did not invest a lot of money to their children's education because they thought that children should know only different household works. Again, the researcher asked about the economic condition the mathematics teacher said,

"Most of the economic conditions of Tharu family are poor they only depends in agriculture."

This shows that the economics condition of Tharu family in kailali district are poor. They depend only in the agriculture for fulfillment their needs.

Prior-Knowledge

Regarding the children's learning, Cognitive philosophy believes that sense impression is the primary source of knowledge. It becomes knowledge only when the mind systematized it. Therefore, intellects are taking as the primary sources of knowledge. They further believe that pre- knowledge is a pre-requisite for effective learning.

From (Appendix-C) the statement no. 21 and 25, the students agreed with these statements i.e; 54% and 53% of agreement respectively. According to the one respondent student, "Mathematics is difficult subject; the nature of mathematics is

vague". The problems of mathematics are difficult. On the other hand, the teacher said,

"The students come from different background and often lack of pre-knowledge. So teaching is difficult".

In addition, the nature of difficulties faced in the classroom should that learning mathematics was difficult in the class due to the lack of pre-knowledge. The researcher observed five public school's administration and concluded that school administration supported to the Tharu students in mathematics subject, sometime school conducted extra- class and gave opportunities to the Tharu students but the Tharu students did not participate in the school programme.

Regarding interaction between schools administration and Tharu students, it was not found better favorable environment having other resources. The researcher took three students for the purpose of the study for learning environment, most of the students said that school administration is the most important factors of the learning environment. Among them, researcher asked the question to the selected student.

"What types of program is launched by your school to improve mathematics knowledge of Tharu students? First respondent said,

"Our school conducts school on interaction program teacher training but it is not scientific due to the political and other factors". In the above same question another respondent said, *"Some time school organized program that is not relevant to improve Tharu students for mathematics learning.*

The same type of question asked to the next respondent and he said, *"Specially, school not provided that any program to participate for Tharu students".* To explore the possible achievement in mathematics of students, the researcher asked a question to the students. Then students replied the following views:

"Yes, I'm feeling mathematics is hard subject but in basic levels my favorite subject was mathematics. Now a day I don't get sufficient time to practice mathematics so I fell it hard subject".

The researcher takes View of Mathematics teacher toward Tharu students.

Most of the Tharu students were looked tired and lazy but other students looked confident and active to learn. He agreed that they have lacked time to study at home. They learnt mathematics slowly as they have lacked pre-knowledge and had not good home environment. He gave more sympathy to Tharu students. He said that their guardians had not come to school to talk their student's performance in mathematics yet. There was not equal involvement of all students in class works but Tharu students did not complete their home work every often because they said that they had no time to do class works at home. So they had they had different level of knowledge and regional culture. Therefore, they felt difficulty in learning.

As we know that school plays vital role to the students for learning mathematics. School should be well equipped and should provided opportunity and facilities to Tharu students for learning mathematics. In the case of studied students, they were not getting favorable environment due to socio-economic pattern of Tharu students. According to questionnaire of Tharu students, they were not satisfied to the school management. School administration managed extra classes but the Tharu students were not getting benefit. Researcher asked the question about the attendance in the class and they were unable to learn the mathematics as expected by teacher and parents.

Gender

Many variables have studied as predictors of mathematics achievement. However, researcher studied gender issues on mathematics achievement most

frequently. For instance, a study through a meta-analysis reveals that males tend to do better on mathematics tests that involve problem solving. As gender equality is the equal treatment of boys and girls in the same environment to provide educational and other opportunities, this study includes treatment behaviors of Tharu girl students as compared to boy in Tharu community. The statement no 9, (Appendix-C) the respondents disagreed i.e. 48%. It shows that there was gender inequality in Tharu community. The researcher took many responses from interview, which are presented as below.

"In our society, girls and boys do not get equal opportunity, parent discriminate between son and daughter". (Girls student)

"Guardians admit their sons in the school and ask about their study time. However, they are not eager about their daughter's study. No any guardians are seems to worries about their daughter study" (Mathematics teacher)

"Sons are our prestige and they have weightage in the society, girls are only fear to us and we would be light when they get married" (Parent)

While analyzing the above views of the respondent, the researcher concluded that society did not give equal opportunity to boys and girls. Parents discriminated girls from boys and they treat them differently. Due to gender inequality, Tharu girls did not take higher education as that of boy. Regarding gender another parent said,

"We cannot give equal opportunity daughter and son because son is our property and look after us but daughter go to other's home so they cannot equally treatment." There is discrimination between sons and daughters in the family. Parents think their daughter should be moral and they are not allowed to go out in comparison to son. Parents were very nervous about their matured daughter and they were eager

to marry them soon rather to give education. About the gender role, mathematics teacher said,

"Most of the Tharu people lived in joint family; they cannot give education of their all children".

From the above discussion, it can be said that Tharu girls were treated differently and they were backwarded by emphasizing the boys to go ahead. Feminism values community and equality building a trusting environment in which all members are respect and have an equal opportunity to participate at its core. However, this study found that there was no equal treatment between boys and girls in the same environment.

Language

Language is the means of communication, without language we cannot get or transfer information from one person to another parson. In any sector, the role of language is very important. Different community has its own language to communicate and transfer information. In the context of Nepal there are 123 language used in different ethnic community. The Tharu language is one of the local languages among 123. In the the Terai area all of the Tharu communities used this language. Tharu is an ethnic community in Nepal. So, their language also different language from other. Most of the Tharu students used Tharu language at school, which is their mother tongue language. For each society, babies first used their own mother language. Parents are the first teacher because who teach the language how to speak. 54% students were agreed with the statement no 16. Some of the Tharu students faced difficulty in understanding classroom language when teacher taught from Nepali language in the classroom. The researcher asked the question, do you feel difficulty in understanding Nepali language? The fist respondent said,

"Yes, I feel difficulty when teacher teach in Nepali language".

Similarly, researcher asked the same question to next respondent, he said,

"Really, I feel uneasy this language because I used my own language any time at home."

Above students' views show that there are challenges for students to get mathematics knowledge. They do not understand easily the concept of mathematics when teacher teach in Nepali language. The researcher asked question, which language do you use when you teach mathematics? The mathematics teacher said,

"I use Nepali language because there are multilingual students in the class room."

From the above view, it can be concluded that the Tharu students faced difficulty to understand knowledge of mathematics. Teacher should use multi language in classroom.

School Environment

School environment reflects belief and tradition of school community. A scholarship to the marginalized group helps to the participation the more number of students in education. The school should be enjoyable and peaceful for learning. School environment should be mixture of social values, culture, and friendly behaves, safety and organized structure. The school environment plays the important role to decide the future position and the life of the students. The learning activities, extracurricular activities, and discipline are important for good achievement of the result of the students. This study includes scholarship to the students, extra class and dominance of language culture at home and school of Tharu students. From (Appendix-C), 72% and 61% with statements no 26 and 33 the students disagreed. It indicates that teachers do not give homework, class work, and complete the course on

time. In addition, 47% of the students were agreed with statements no 37 and 53% disagreed with statement no 39.

The researcher took the following views from the selected respondent.

"There is no discrimination between Tharu and others in school. We encouraged them equally to study" (Mathematics teacher)

"We have not provided extra classes for weaker students". (Mathematics teacher)

"I do not know about the scholarship for our children at school". (Parents)

While analyzing the above views of the respondents and the mathematics teacher, it was found that girls were suppressed in different activities besides their study. In school, there was not discrimination between Tharu and other students to bring learning environment but there was not provision of extra classes for weaker students in school. Tharu students had to speak Nepali language in school, which was difficult for some students. Parents did not accept Scholarship scheme provided by school.

In observation, it was found that there was not provision of extra classes. At home, local language was used which made difficult to understand some other culture language at school for Tharu students. Parent's education, their supports children, teacher qualifications, scholarship and other helpful methods are useful for the success of students. Hence, no scholarship, no extra classes for weak students and difference in language between school and home greatly affected the learning environment, and that finally caused low participation of Tharu students in mathematics.

Teaching Method

Learning for relevance is the suggestion of positive correlation between students' math experiences and their affecting factors in achievement. The students who actively participated in the study frequently, connection between their learning styles help to develop achievement in mathematics. As shared their mathematical stories they included the learning styles and they experienced in the classroom that fit their needs of particular interest was the suggestion that a positive experience with a learning style resulted in positive self-concept and positive mathematics achievement. The inverse was also suggested where a negative experience with a learning style was associated with a negative achievement. 45%, 51% and 43% students agreed with statements no 36, 27 and 30 (Appendix-C). This shows that there are some problems with these statements. The researcher asked the for mathematics teacher, "what types of method do you adopt in mathematics classroom effectively"? In this question teacher said,

I am not using any fixed teaching methods for mathematics teaching, but my aim is how children receive the knowledge and children pass in mathematics.

Researcher asked the same questions for another school's teacher, he said

"There are large numbers of students in class, so teaching period is short to finish the course on it is impossible to apply child centered teaching method.

The above opinion indicates that the teacher mostly used lecture method or other method but did not use the child-oriented method in the classroom. Researcher also asked the question, for student "What types of method does your teacher use in mathematics teaching"? The selected respondent said

"Teacher always emphasis their own methods and he choose the lesson according to their own will".

The student answered this same question,

"Teacher always focuses on bookish knowledge and not gives any example for concept of mathematics classroom."

According to Vygostky, theory the idea the potential for cognitive development depends upon the ZPD attained when children engaged in social behaviors full development of depends upon full social interaction. This theory is an attempt to explain consciousness at the product of socialization. Every function of the child culture development appears twice first in the social level and letter in the individual level first between the people and the inside the child.

Finally, the students of Tharu have negative achievement than positive. When mathematics is tough in manners that connect to their learning strengths, they are better to access the mathematical content but also add to their vision of mathematics. Factors affecting on mathematics achievements of Tharu students frequently discussed learning styles with in the classroom. The vast majority of students mentioned that note- taking was not valuable mode of learning in the classroom. "Just because I am taking notes, doesn't mean I am learning." The suggestion made by the little participation was to provide notes to students rather than spending time in the class to record notes. The feeling was that they would rather be "doing" mathematics rather than copying notes. As students discussed the various learning styles they had experienced in the classroom, both negative and positive, there appeared to be a direct positive correlation between the experiences and their concepts. As students described a learning style that fit their needs, they described a concept, which was positive and displayed an overall positive mathematical achievement. The negative experience with a learning style was associated with a negative concept and low mathematics achievement.

Teachers - Students Interaction

Participants' form this study was clear in their desire for teacher positive behavior and care in mathematics classroom. The challenging in analyzing this specific data was felt that a teacher who shared incidents from their experience helped to build rapport and understanding. 54% of students were agreed with statements no. 31(Appendix-C). Teacher gives chance to ask question when students are confused but the Tharu students cannot ask any problem with teacher in classroom. Form this point, participants and experienced the same kind and teacher seemed as supported because not all participants experienced the same kinds. Some views on teacher and students interaction has been presenting as follow:

"We are keeping in school environments sound with the cooperation between staffs on the school. Our school staffs are punctual and responsible for the school".

(Head teacher).

There is a good relation between Staff and no one complained each other with any matter. The teachers are responsible for the school. They do their duty in time.

"My mathematics teachers don't like me because I am poor in mathematics, he love to those who are top ten students because they are good in mathematics".

(Student)

For this expression of the students, it was concluding that some students are confidents in learning mathematics.

"Although I provide the most of the study hours to mathematics but my all efforts and laborious have been wasted and I always fail in subjects so I don't like it".

(Student)

They additionally shared stories where they felt unsuccessful in mathematics and mathematics teacher share their worst experiences in mathematics. The result was

insight into how the interactions with peers, positive and negative, have an impact on student's academic achievement. The above view indicates that the students who have less participation in peer interaction they have less achievements. Also from the class observation, students were less participated in peer interaction. It can be concluded that from the both qualitative and quantitative phenomenon the peer interaction had a major effect on achievements in mathematics.

According to Empson (2003), understanding classroom, how it structure students' participation requires a fine-grained analysis of teacher and students interaction talk (p.306). Participant frame works can be used to explain or especially how students and teacher talk animates individuals into certain intellectual roles.

Chapter V

SUMMARY, FINDING, CONCLUSION AND RECOMMENDATIONS

The purpose of this chapter is to present as overall summary of the study. The findings of the study are summarized, conclusions are drawn and some recommendations have been made in this part of study.

Summary

The purpose of this mixed methods study was to examine, factors affecting on mathematics achievement of Tharu students in mathematics as it relates to factors affecting on mathematics of basic levels students. The focus of this research was to investigate the relationship between basic school mathematics students factors affecting on mathematics achievements of Tharu students was not the intent to prove or disprove research connecting age, culture and mindsets to the developments of a student's achievements towards mathematics. The intent of this study was to develop a better understanding the affecting factors on low achievement and find the ways of enhancing the quality of mathematical teaching and learning by listening to the voice of basic levels students.

Foundational of this research was Vygotsky's social-constructivist learning theory, used as the theoretical frame for the study, it is understood that learning is a social process shaped by external forces where knowledge is formed via interactions with others and the environment. The questionnaire from included 40 statements based on three main components: home related factors, personal related factors, and school related factors. Among 40 statements on which 28 are positive and 12 are negative. 150 students were taken from five public school of Kailali District. Five different points Likert scale adopted in questionnaire from. The researcher took 10 students (boys and girls), 5-mathematics teacher, and 5 parents from sample schools

for in-depth interviews. The researcher used interview to analyze the effect of factors in mathematics achievements of Tharu students in mathematics. For this purpose, the researcher also made the guideline for the interview and checklist observation form.

Findings and Discussion

The findings of this study based on the analysis and interpretation of the collected data are presented as below:

- Tharu students do not pay more interested in learning mathematics. Their aim of future and occupation tradition is affecting mathematical learning.
- Mathematics achievements of Tharu students are affected by the home environments, interest culture tradition parent' helps and support and instructional quality. In addition, these factors are strongly affecting in mathematics achievement in mathematics. There is no proper support and positive attitude of parents towards mathematics.
- School environment and teacher behaviors play significant role in mathematics achievements.
- Teachers do not teach practically, there is no collaboration and interaction in teaching and learning.
- Tharu student's parents were illiterate, their interest was to marry their daughters at the earlier stage and boys are field worker rather than to continue study, and there is not awareness to give basic level education.
- Tharu students' home environment was not good and students were weak in mathematics. So, that their achievements in mathematics was very poor.
- There was no scholarship fund, no extra classes for weak students, there was difference in language between school, and home, which greatly affected the

learning environments, thus finally caused the low achievements of Tharu student's in Basic level education.

- Teacher provided sometime homework to students but teacher did not check it regularly. Therefore, students were careless towards their homework.

Conclusion

Teaching and learning process has become a great issue in different level of education. From basic level to secondary level of education, different factors directly and indirectly affect the achievement on mathematics. This study has shown that to learn mathematics one need to have prior knowledge, extra labor as well as strategic teaching technique and regularity of students plays a vital role in students' achievements. Cognitive development, classroom practices and the curriculum are closely linked for successful learning. Factors affecting on mathematics achievements of Tharu students are always determined by different variables such as teacher support, peer support, peer support and school administration support. This study focuses on the learners role in mathematics, understanding begin with the development of reforms in mathematics instruction programs that attempted to incorporate new skills of linking and working in mathematics.

Teachers believe about the nature and purpose of mathematics, how to learn a powerful effect on the practices of learning. The teacher who were not aware of strategic improvement and had less experience might be unable to develop student's capacity in learning mathematics. Among peer group discussion, student's achievements and interaction with each other plays vital role in high achievement in mathematics. Elements like parent's education, parent guidance and financial way, were also as influencing factors in Tharu student's Achievement. Besides this, school administration play major role and these school libraries, instructional materials,

teaching method as well as experienced and trained teacher seems to be great factors for the achievements in mathematics at basic level.

Recommendations

The findings of the study cannot be generalized to all public schools due to limitation contained in this study. Thus, after analyzing the conclusions and implication of this study the researcher would like to suggest some recommendations for the improvement of Factors affecting on mathematics achievements of Tharu students are pointed out as follows.

- This study was conducting in Kailali district. To get more valid and generalized conclusion it is recommended that the study would extend to nationwide.
- The study can be conducted by in different level on the achievement of Tharu students.
- A similar study would extend in other subjects as well.
- Peer supports, interest of learner and home environment have played vital role in low achievement in mathematics. Other study would extend that, how can the causing factors minimized.
- Elimination technique can be improving Factors affecting on mathematics achievements of Tharu students
- To increase their economic status, they should be encouraged to send their children to the school.
- Since, it was found that the mathematics achievements of Tharu students was heavily affected by the interest of learner, self-confidence, participate of learner, interaction between teacher and student's , and facility of school environment. So, it is suggested that to improve the above variables in

teaching learning process encourage the students in learning mathematics to get good achievement in mathematics.

- Finally, active participation and practices play the important role in achievement in mathematics. Teacher and parents have to emphasis on students' practice.

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Appendix-A

Questionnaire for students

Dear students,

I am a student of M.Ed. major mathematics; I have tried to prepare a thesis about achievements and participants of Tharu students in mathematics basic level students for my master degree of education.

There are 40 statements concerned with about achievements and participants of Tharu students in mathematics basic level students. There is no wrong or right answer. Please read the statements carefully and give your judgment about the intensity of a statements but putting the tick mark (√) one any one of the five choices of each statements. Your opinions will be used for research purpose and will be kept confidential.

Name of the students: ...

Date:.....

Class:

Time:.....

S.N	Statements	S.A	A	U	D.A	S.D.A
A	Home related factors					
1	I have not sufficient time to read at home					
2	Your guardians support to manage necessary thing for study					
3	Any family member is not in educational job holder					
4	Works In the field morning and evening					
5	You do not have guidance to learn mathematics at home.					
6	Guardians manage tuition and coaching for mathematics					
7	You have not separate study room at home					
8	my family condition is not good					
9	You get equal treatment as your brother from parents					
10	Joint family is effects on learning environment.					
B	Students related factors					
11	I like mathematics as well other subjects					

12	Give more time to math than other subject					
13	You are not regular in school					
14	I consult to my friends when I missed the class					
15	You asked to your teacher if you can unable to solve the mathematical problem					
16	I feel difficult to understand when teacher explain in Nepali language					
17	My mathematical knowledge is useful for my future area					
18	I help my peers when they are facing any problem in mathematics					
19	I want to join in educational field					
20	I always good mark in mathematics					
21	I do not enjoy learning mathematics stuffs.					
22	Compared to for my age I am good at mathematics					
23	Works in math class easy for me					
24	I take additional learning time for teacher whenever possible.					
25	Mathematics is not my favorite subject					
C	School related factors					
26	Course of mathematics in completed on timely					
27	Unit test are taken at the end of each lesson					
27	Mathematics teacher using teaching materials					
29	Mathematics teacher not equally behave on each students					
30	Teacher focus on weak students					
31	Mathematics teacher gives chance to ask when you are do not understand.					
32	Mathematics teacher bias the Tharu students.					
33	Mathematics teacher gives class work and homework					
34	Teacher come regular in school					
35	Peer help you to learn confuse lesson					
36	Teacher teach practically using teaching materials					
37	School sometime not conducts comparative extra program					
38	Being your school far from home learning is hampering					
39	You are satisfying your class size.					
40	I am satisfy with school environment					

Appendix-B

Mean and standard deviation value of the student's responses

S.N.	Statements	Mean	S.D
A	Home related factors		
1	I have not sufficient time to read at home	2.65	1.55
2	Your guardians support to manage necessary thing for study	3.03	1.42
3	Any family member is not in educational job holder	2.34	1.29
4	Works In the field morning and evening	2.87	1.50
5	You do not have guidance to learn mathematics at home.	2.49	1.34
6	Guardians manage tuition and coaching for mathematics	2.55	1.45
7	You have not separate study room at home	2.27	1.28
8	My family condition is not good	2.54	1.25
9	You get equal treatment as your brother from parents	2.85	1.50
10	Joint family is effects on learning environment.	2.59	1.45
B	Students related factors		
11	I like mathematics as well other subjects	2.52	1.36
12	Give more time to math than other subject	2.51	1.26
13	You are not regular in school	2.78	1.60
14	I consult to my friends when I missed the class	2.98	1.51
15	You asked to your teacher if you can unable to solve the mathematical problem	2.29	1.29
16	I feel difficult to understand when teacher explain in Nepali language	2.45	1.28
17	I think mathematical knowledge is useful for my future in any area	2.85	1.53
18	I help my peers when they are facing any problem in mathematics	2.85	1.49
19	I want to join in educational field	3.07	1.55
20	I always good mark in mathematics	2.53	1.48
21	I do not enjoy learning mathematics stuffs.	2.60	1.38
22	Compared to for my age I am good at mathematics	2.82	1.52
23	Works in math class easy for me	2.26	1.29
24	I take additional learning time for teacher whenever possible.	2.73	1.45
25	Mathematics is not my favorite subject	2.75	1.44
C	School related factors		
26	Course of mathematics in completed on timely	3.81	1.20
27	Unit test are taken at the end of each lesson	2.71	1.30
27	Mathematics teacher using teaching materials	2.84	1.62
29	Mathematics teacher not equally behave on each students	2.75	1.54
30	Teacher focus on weak students	2.92	1.47
31	Mathematics teacher gives chance to ask when you are do not understand.	2.61	1.50
32	Mathematics teacher bias the Tharu students.	2.93	1.47
33	Mathematics teacher gives class work and homework	3.51	1.44
34	Teacher come regular in school	3.59	1.33
35	Peer help you to learn confuse lesson	2.86	1.49
36	Teacher teach practically using teaching materials	2.90	1.49
37	School sometime not conducts comparative extra program	2.87	1.46
38	Being your school far from home learning is hampering	2.73	1.51
39	You are satisfying your class size.	3.30	1.41
40	I am satisfy with school environment	2.91	1.51

Appendix-C

Percentage the responses of students in each items and χ^2 value with statistical significance.

S.N	Statements	SA	A	U	D.A	SDA	χ^2 Value	Con.
A	Home related factors							
1	I have not sufficient time to read at home	35.3	18.0	13.3	13.3	20.0	24.600	S
2	Your guardians support to manage necessary thing for study	16.7	28.0	12.0	22.7	20.7	11.000	S
3	Any family member is not in educational job holder	31.3	34.7	12.0	12.7	9.3	43.133	S
4	Works In the field morning and evening	26.7	20.7	11.3	22.0	19.3	9.333	NS
5	You do not have guidance to learn mathematics at home.	28.0	32.7	12.0	16.7	10.7	29.000	S
6	Guardians manage tuition and coaching for mathematics	31.3	27.3	12.0	14.0	15.3	22.800	S
7	You have not separate study room at home	34.0	34.7	10.0	13.3	8.0	52.467	S
8	My family condition is not good	22.7	34.7	17.3	16.7	8.7	27.667	S
9	You get equal treatment as your brother from parents	25.3	24.0	11.3	18.7	20.7	9.133	NS
10	Joint family is effects on learning environment.	31.3	25.3	10.0	19.3	14.0	22.000	S
B	Students related factors							
11	I like mathematics as well other subjects	29.3	28.0	16.0	14.7	12.0	19.467	S
12	Give more time to math than other subject	24.7	33.3	15.3	19.3	7.3	28.667	S
13	You are not regular in school	32.7	19.3	8.0	17.3	22.7	23.933	S
14	I consult to my friends when I missed the class	23.3	22.0	10.0	22.7	22.0	9.467	NS
15	You asked to your teacher if you can unable to solve the mathematical problem	36.0	28.7	12.0	16.7	6.7	43.800	S
16	I feel difficult to understand when teacher explain in Nepali language	28.7	25.3	14.7	20.0	11.3	30.867	S
17	I think mathematical knowledge is useful for my future in any area	26.0	27.3	4.7	22.7	19.3	11.267	S
18	I help my peers when they are facing any problem in mathematics	24.0	26.7	10.0	18.7	20.7	12.200	S
19	I want to join in educational field	24.7	16.0	13.3	19.3	26.7	9.533	S
20	I always good mark in mathematics	36.7	20.7	8.0	22.0	12.7	36.000	S
21	I do not enjoy learning mathematics stuffs.	28.7	25.3	14.7	20.0	11.3	15.533	S
22	Compared to for my age I am good at mathematics	26.0	27.3	4.7	22.7	19.3	24.933	S
23	Works in math class not easy for me	35.3	32.7	10.7	13.3	8.0	50.333	S
24	I take additional learning time for teacher whenever possible.	28.7	22.7	8.7	27.3	12.7	23.867	S
25	Mathematics is not my favorite subject	24.0	29.3	11.3	18.0	17.3	14.200	S
C	School related factors							
26	Course of mathematics in completed on timely	70.40	6.0	12.7	8.7	40	32.7	S
27	Unit test are taken at the end of each lesson	20.0	32.0	15.3	22.0	10.7	19.267	S
27	Mathematics teacher not using teaching materials	30.7	21.3	6.7	16.0	25.3	25.333	S
29	Mathematics teacher not equally behave on each students	30.7	22.7	7.3	20.0	19.3	21.133	S

30	Teacher focus on weak students	21.3	24.7	15.3	19.3	18.7	31.920	S
31	Mathematics teacher gives chance to ask when you are do not understand.	32.7	21.3	16.7	10.7	18.7	19.667	S
32	Mathematics teacher bias the Tharu students.	22.7	22.7	13.3	21.3	20.0	4.533	NS
33	Mathematics teacher gives class work and homework	12.7	18.7	7.3	27.3	34.0	34.933	S
34	Teacher come regular in school	10.7	13.3	12.3	33.3	30.0	34.733	S
35	Peer help you to learn confuse lesson	22.7	29.3	8.0	19.3	20.7	17.933	S
36	Teacher teach practically using teaching materials	25.3	20.0	14.0	20.7	20.0	4.867	NS
37	School sometime not conducts comparative extra program	22.7	25.3	15.3	16.0	20.7	5.533	NS
38	Being your school far from home learning is hampering	28.7	25.3	9.3	17.3	19.3	16.867	S
39	You are satisfying your class size.	16.7	14.0	16.0	29.3	24.0	12.467	S
40	I am satisfy with school environment	24.0	24.7	8.0	22.0	20.7	14.054	S

Tabulated values of χ^2 at 0.05 level of significance and 4 degree of freedom = 9.49

Agree = Strongly Agree + Agree

Disagree = Strongly Disagree + Disagree

Appendix-D

Class observation note

CHICKLIST FOR OBSERVATION OF THE OF THE BASIC LEVEL STUDENTS

Direction: Give \surd or \times to indicate weather participants and achievement has been demonstrated

School Related Factors

- Regular present of the students
- Participants of all students
- Teaching method
- Use of material
- Checked homework
- Regularity of the teacher
- Support to week students, Interaction teacher and students

Home-Related Factors

- Biasness
- Financial support
- Extra class tuition and coaching for mathematics
- Work at home
- Guidance at home

Student Related Factors

- Interest of learner toward mathematics
- Prior knowledge in mathematics
- Participation in extra activities

Appendix-E

Interview guideline with students

Name of the student:

Roll No:

Class:

girls/boys:

- Interest of learning
- School environment
- Future aim , future education, occupation
- Parent education
- Available time to read
- Economical support for their parents
- Effectiveness of teacher teaching
- Homework, work with parents, local festival.

Interview guideline for mathematics teacher

- Teaching method
- Problems of Tharu students and place taken for interacting in classes
- Available for materials, skill of teaching, experience
- About home environment of Tharu students
- Culture affected on learning mathematics.
- Area of difficulties in mathematics contents
- Interest of Tharu students in mathematic
- Teacher, student's regularity in mathematics

Interview guideline for parents

- Parents views about Tharu student's education
- Economic condition and sources about family
- Environment at home for learning
- Behaviors towards your children
- Manage tuition and coaching for children

Appendix -F

Reliability of instrument by using split half method

Odd (X)	Even(Y)	X ²	Y ²	X.Y
26	22	676	484	572
24	22	576	484	528
22	21	484	441	462
21	18	441	324	378
14	14	196	196	196
6	11	36	121	66
13	7	169	49	91
14	10	196	100	140
12	6	144	36	72
9	4	81	16	36
8	3	64	9	24
2	6	4	36	12
26	22	676	484	572
24	22	576	484	528
22	21	484	441	462
21	18	441	324	378
14	14	196	196	196
6	11	36	121	66
13	7	169	49	91
14	10	196	100	140

$$\text{Reliability of the Test (Rxy)} = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2} \sqrt{\sum Y^2 - (\sum Y)^2}}$$

0.95

$$\text{The Reliability of the whole test (Ru)} = \frac{2Rxy}{1+Rxy}$$

= 0.97