6ACHIEVEMENT AND EFFECTING FACTORS IN LEARNING MATHEMATICS OF MUSAHAR STUDENTS

A

THESIS

BY

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LETTER OF CERTIFICATE

This is to certify that **Mr. Jitendra Kohar ,** student of academic year **2073/075** with campus Roll No: 378, Exam Roll No: 7328377 and T.U. Registration No: **9-2-559-18-2011** has completed his thesis under supervision of **Mr. Krishna Prasad Bhatt** during the period prescribed by the rules and regulations of Tribhuvan University, Nepal. The thesis entitled **"Achievement and Effecting Factors in Learning Mathematics of Musahar Students"** has been prepared based on the results of his investigation conducted during the period of December 2019 to January 2021 under the Department of Mathematics Education, University Campus,Tribhuvan University, Kirtipur, Kathmandu. His thesis number is **1570.** I recommend and forward his thesis for the evaluation as the partial requirements to award the Degree of Master of Education.

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LETTER OF APPROVAL

This thesis entitled **"Achievement and Effecting Factors in Learning Mathematics of Musahar Students"** submitted by **Mr. Jitendra Kohar** in partial fulfillment of the requirement for the Master's Degree in Mathematics Education has approved.

Vice-Voce Committee	**Signatures**
Prof. Dr. Bed Raj Acharya (Chairman) A	…………………………..
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Date:- March-05, 2021

RECOMMENDATION FOR ACCEPTANCE

This is to certify that **Mr. Jitendra Kohar** has completed his M.Ed. thesis entitled **"Achievement and Effecting Factors in Learning Mathematics of Musahar Students "**under my supervision during the period prescribed the rules and regulation of Tribhuvan University, Kirtipur, Kathmandu, Nepal. The study embodies the result of investigation conducting during the period of 2019-2021 under the Department of Mathematics Education, University Campus, Tribhuvan University, Kirtipur, and Kathmandu. I recommend and forward his thesis to the Department of Mathematics Education for the final viva-voice.

………………………………….

Mr. Krishna Prashad Bhatt

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Date: - February-14, 2021

DEDICATION

This work is heartily dedicated to my respected parents Mohan Kohar and Indrawati Kohar and all family members whose support, love, care and sacrifices made me a person who I am now.

DECLARATION

This thesis does not contain any others work which is offensive and beyond the copy write norms. To the best of my knowledge and beliefs this research is truly based on my effort and it does not match with any researches that were published earlier in any institutions. I take all the ethical and legal responsibility for submitting this thesis.

……………………..

Jitendra Kohar

February-14, 2021

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ABSTRACT

This study entitled "**Achievement and Effecting Factors in Learning Mathematics of Musahar Students**" intended to find out the achievement and leading factors that effects in learning mathematics Musahar students. The main objectives of this study were to identify the achievement in mathematics of Musahar children and to identify the leading factors that effects on their mathematical achievement. Where, the study is based only on the basic level of government school and on Musahar ethnic group of Nepal.

In this study, to fulfill above objective the researcher conducted achievement test with interview schedule and observation form to collect the required information. The researcher used the explanatory sequential mixed research design. Quantitative data were analyzed by the statistical tools and qualitative data were analyzed by thematic network approach of analysis. For this, researcher selected three sample schools from Rupandehi district by purposive sampling. Sixty students were selected for achievement test. Similarly mathematics teachers, head teachers, parents and students were included in interview. The researcher analyzed the collected data with the help of conceptual understanding on the basis of factors related to learning environment at home and school, pre-knowledge, interest and labor in mathematics of the students and maternal education and support.

The finding of the study shows that, there is very low achievement in mathematics of Musahar students in comparison of National Assessment of Students Achievement (NASA) 2011 and 2015. From the study, it is found that there a lots of factor behind low achievement of Musahar students such as factors related to school management, factors related to students, factors related to teacher, factors related to parents and factors related to environments. Specially, in learning mathematics Musahar students have lake of fundamental concepts of mathematics, problem to transform the word problems into algebraic expression, very low knowledge in process solving skill and application of concepts, formulas in the new context. The main reasons for the above problems are the irregularity and wrong concept in schooling. From the observation of schooling records of Musahar community and from interview, it is found that the low achievement of Musahar students is their genetic factor.

ABBREVIATIONS

CBS   : Central Bureau of Statistics

EFA   : Education for All

V.D.C   : Village Development Committee

 NASA   : National Assessment of Students Achievement

SD   : Standard Deviation

SEM   : Standard Error of Mean

ICT   : Information Communication and Technology

NASA   : National Assessment of Students Achievement

TU   : Tribhuvan University

Contents

<center>**Chapter-I**</center>

<center>**INTRODUCTION**</center>

Nepal is multicultural and multi-social country where the different ethnic groups are in Nepal among these groups, Musahar is also a cast that belongs to the ethnic group .This is the study on the mathematical achievement of Musahar community students up to secondary level. In this introductory part, background of the stud, statement of the problem, rationale of the study, objectives of the study, research questions, significance of the study, delimitation of the study and key terms are included respectively.

Background of the Study

Mathematics is one the subject that helps to go ahead with civilization. Mathematics makes our life orderly and prevents disorder. Certain qualities that are nurtured by mathematics are power of reasoning, creativity, abstract or spatial thinking, critical thinking, problem solving ability and even effective communication skills. Mathematics is the cradle of all creations, without which the world cannot move an inch. Be it a cook or farmer, a carpenter or a mechanic, a shopkeeper or a doctor, an engineer or a scientist, a musician or a magician, everyone needs mathematics in their day to day life. Even insects use mathematics in their everyday life for existence.

Nepal is committed to providing access to basic and primary education to all by 2015. There has been a significant expansion in the number of schools, teachers and students in the country. In Nepal there so many disadvantage groups and government committed to provide the free basic to all among the disadvantage groups of Nepal, Musahar also is one of the cast that belongs to the dis-advantage group of Nepal. Mostly, they are found in eastern and mid terai of Nepal. The total population of Musahar in Nepal is 234,490(0.89%) (census2011, CBS)

They are economically exploited and backward, politically voiceless, socially humiliated and treated as untouchable. Actually they used to catch the mouse by digging the field so they are called Musahar. Due to their poverty and backwardness less Musahar children are joining the school education in Nepal. If they joined the school education they are not able to continue up to the basic level also so their literacy rate is very low. Those students who are joined in school education they are also not giving their time and concentrations on their study due to their poverty and

home environment and their culture. So their educational achievement is very low although whoever is in school life what their subjective achievement condition is for that there is a study on the mathematical achievement of Musahar students up to school level.

We know that the mathematics is most important in the human life so mathematics is as the compulsory subject in school level in Nepal. But due to some lack of instructional materials, teaching methodology, difficulties to link with their daily life, it shows in the students as the math-phobia. To know the mathematical achievement of the students in school level, among the different ethnic group, this study is only with mathematical achievement of Musahar children.

This study will show that whoever is joined in school education of Musahar children, what is their mathematical progress and mathematical achievement.

Statement of the problem

Through purpose of EFA, Nepal is committed to provide the basic education to all groups of Nepal. But due different kinds of problem like methodology, instructional materials, environment etc. mathematics subject become more difficult for the students and there is less interest on mathematics, it becomes phobia for the students. There is lot of investment of Nepal government to provide the basic education to all. In the purpose of knowing the subjective achievement of students in basic level, this study is based only on the mathematical achievement of students. There are so many studies on the different advantage and disadvantage group and found their actual condition of mathematical achievement, among the different disadvantage group of Nepal, Musahar is also one of the disadvantage and ethnic group. To identify the mathematical achievement of Musahar children this study is held on and this study is concerned with only the mathematical achievement of Musahar Students in school level.

Rationale of the Study

Nepal government invested lots of money for the betterment of education and to provide the basis education to all groups of Nepal. With this purpose, what is the achievement of the students in education, this study is planned to find out the mathematical achievement of the disadvantage group of Nepal. There are so many studies on the mathematical achievement of different disadvantage of Nepal. Among the different disadvantage groups, Musahar is also one of the disadvantage group. This study is only on the Musahar group as before no any study has been done on this

group related to their mathematical achievement and to find out the actual condition of this group on the achievement of mathematics. Also to find out the factors that impact on their mathematical achievement. So this topic has been selected as the study.

Objectives of the Study

The objectives of this study are listed below:

- To identify the achievement in mathematics of Musahar children.
- To identify the leading factors that effects on their mathematical achievement.

Research Question

In order to investigate the mathematics achievement of the Musahar children up to the school level and the leading factors that effects on their mathematical achievement, the research questions of this study are as follows:

- What is the condition of achievement in mathematics of Musahar students up to basic level?
- What are the leading factors that effects on the achievement in mathematics of Musahar students?

Significance of the Study

Mathematics is most useful in the daily life of human being. To provide the education for all, government of Nepal invests lots of money on the free basic education program. For the hundred percent attainments in basic education, government also provides the economic support to poor and disadvantage group of Nepal. Among the different disadvantage group, this study only concern with the mathematical achievement of Musahar students up to the school level. This study will show the actual condition of mathematical achievement of Musahar students in school level and related factors those effects on their mathematical achievement. Also provides some suggestion for their betterment in mathematical achievement.

Mainly, the significance of this study are as follows:

- This study will show the actual condition of mathematical achievement of Musahar students.
- This study will show the leading factors that effect on the mathematical achievement of Musahar students.
- This study will help for the further research in the field of mathematical achievement of Musahar communities.

- This study will provide the information about the condition of mathematical achievement of Musahar students to them who are interested to know.
- This study will support to plane the new mathematical program for the better mathematical achievement.

Delimitation of the Study

For making every study researchable, the delimitation of study plays the vital role. The delimitation of this study are:

- This study will be only on the mathematical achievement of Musahar students.
- Musahar community lives in a certain area; in Repandehi district Musahar community lives in Gaindahawa Gaunpalika. So this study will contain only Gaindahawa Gaunpalika of Rupandehi districts.
- This study will be only in government school and based on basic level education.

Definition of the key terms

The following definitions are provided to ensure the understanding of these terms in a consistent manner throughout the study.

Musahar   : An ethnic group that exists within the Dalit.

Sample   :   Represented part of population.

Strategies : A plan of action or policy designed to achieve a major or overall aim.

Empirical: Verifiable by observation or experience rather than theory.

Mathematical achievement: The competency shown by students in mathematics subject.

Rationale : A set of reasons or a logical basis for a course of action or belief.

Snail   : Ghonghi

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter elaborates the existing literature and related study to the present study to find out what have been already studied and how those studies will be helpful for the present study. In this section, review of empirical literature, review of theoretical literature, conceptual framework and implications of the review for the research have been included.

Empirical literature Review

Nepal is a multi-cultural, multi-lingual, multi-racial and multi-religious country where each communities has own system of cultural. Among the different communities of Nepal, Musahar community is one of the communities which belong to dalit community. In Nepal there are so many research has been done on different communities to find the learning achievement of mathematics. On the same propose "learning achievement in mathematics of Musahar children's" has been decided for the research.

The main propose of this study is to find out the learning achievement level in mathematics of Musahar children's up to school level. Up to now there is no any research has been done on this topic so what is the actual condition on this topic has been decided to research. For this there are so many research studies, related journals, reports related on the same topic in other communities has been done so on the basis of that research some reviews are as follows.

Bom (2009), studied on "effect on home environment in mathematics learning". This study was conducted on the Badi students of lower Secondary School in Rukum district. In this study, researcher selected only one school as sample of Rukum district designed with qualitative. In this study interview, interaction, observation and group discussion tools are used for the data collection. Family size, work load, poverty, parent's education and occupation, social interaction and social beliefs are listed as the main factor of home environment that affects the learning of students.

Dhami (2012) studied on the topic "Impact of socio-economic status on mathematics achievement of Tharu students". In this study questionnaire is used for the main research tool for parents and students to find out the relation among the socio- economic status in mathematics achievement. This study shows that

mathematical achievement of the students is directly related with parent's education, occupation and their income.

Sharma (2011) studied on "The relation of home environment and mathematics achievement of Dalit community at Lower Secondary Level". This study has been done in Baglung and Parvat District on all Dalit students of class seven in government school where questionnaire is used as the main tool for the data collection. With the main propose of finding the relation between the facilities provided by home of Dalit students and their mathematical achievement whereas the study shows that the availability of facilities provided by their home play the vital role for their mathematical achievement as well as the family size, parental education and their economic condition also effects on their mathematical achievement.

Shrestha (2011) studied on the "Causes of low achievement in mathematics". This study was done in Chapang student of grade nine in Gorkha District. Data were collected through interview and observation where the samples were selected through random sampling method. This study shows that the economic condition, parent's occupation and their education, physical facilities, school policy and learning environment are the main causes of low achievement of in mathematics of Chepang students.

Nepal (2011) studies on "Factor affecting on mathematics achievement of Dalit children". This study was also conducted on Taple V.D.C of Gorkha District to find out the affecting factors related mathematics learning and their effects on mathematical achievement of student Dalit students. In this study participant observation semi-structural interview, document analysis is used as the main tools for the data collection where interview were taken on teacher and parents and some case study has taken on student. In this study the main factors that effects on their study and mathematics achievement are categorized in personal factor, economic factor, social factor, psychological factor, educational factor.

Pokharel (2013) studies on "Study on the causes of low achievement on mathematics of Tamang students". With the main propose of finding the main causes to low achievement in mathematics, a case study was done on Tamang student in Kavrepalanchoc district. In this study interview and observation were taken as the main tool for the data collection. This study concludes that interest of students, workload, parent's occupation and their education and entertainment factor like

watching television are found as the main causes that creates low achievement in mathematics of students.

Yadav (2008), studies on, "Causes of low achievement in mathematics". This study was conducted on five students of Musahar communities that were selected in random sampling process. In this study interview, observation and written tests are used to get the proper information for this study. This study shows that language, socio-economic condition, motivation, learning environment are the main factors that leads to the low achievement in mathematics of students.

Sah (2002) studies on the topic "A comparative study of achievement in mathematics of lower secondary level students of different ethnic groups". In this study Brahmin, Sah and Chaudhary students were selected through the quota sampling method in grade eight of public school only in Saptari district. This comparative study concluded that among these three ethnic groups Brahmin Highest achievement than other two as well as Sah group has also higher than Chaudhary group students.

Shrestha (2004) studies on "Mathematics achievements of Gurung and Magar Children of Lower Secondary Level". This study was conducted in the purpose of comparing the mathematical achievement of Gurung and Magar students for this descriptive survey has been used to get the proper data. In this study, achievement test is used for the research tool where t- test is used to analysis the data. This study shows that, among these two ethnic groups, Gurung student has high mathematical achievement.

Bohora (2011) studied on "A Comparative study of Mathematics achievement among Chhetri and Tharu Children". This study is on Grade ten students in Bardia District. The main purpose of this study is to compare the mathematical achievement of Chhetri and Tharu students in grade ten. For this, study is designed as the survey study where achievement test is used as the main research tool to collect the required data and for data analyzing t- test is used. This study shows that the mathematical achievement of Chhetri students is higher than the Tharu students.

Jha (2011) studied on "A Study of Achievement in mathematics of Gurung and Thami students at Primary Level in Sindhupalchok District". On the main purpose to compare to the mathematical achievement of Gurung and Thami students, this study is designed as the survey study. For the data collection, achievement test is used as the main research tool and t-test is used for the data analysis. This study

shows that the mathematical achievement of Gurung students is higher than the Thami students.

Sapkota (2012) studied on "A Comparative Study on Secondary School Mathematics Achievements of Baramu and Gurung students". With the objective of comparing the mathematical achievement of Baramu and Gurung students, this study is designed as a survey study where mathematical achievement test is used as the main research tool. In this study, t- test is used for the data analysis which shows that the Gurung students has higher mathematical achievement than the students of Baramu. Also shows that the home environment, socio- economic status, parent education and occupation and the study hours of the students are the main affecting factor of students in their mathematical achievements.

From all the above empirical review, it can be concluded that normally, every disadvantage group has low achievement in mathematics than other group due to their home environment, parent's education and occupation, socio-economic status and the interest of the student on their learning.

Theoretical Framework

The theoretical framework defines the key concepts of the study. A strong theoretical framework gives a sound scientific basis, demonstrates your understanding of existing knowledge on the topic, and allows the reader to evaluate guiding assumptions. It provides direction for research, allowing strongly interpreting, explaining and generalizing from your findings. In this study, there is also some theoretical framework review to makes the study scientific basis and to make the clear guideline for the study.

The teaching and learning approaches are developed on the basis of students and their cultural basis like constructivism, social constructivism and many more, among these cultural differences and cultural discontinuity theory is one of the main supportive theories for this. So the reviews of the related theoretical framework are as below:

Cultural Deficit Theory

The Cultural Deficit Theory followed on the heels of the Genetic Deficit Theory, and Darwinian concepts of evolution. This is a system of thought that had

gained wide acceptance and controversy during the early 1900's. But where Darwin found genetic differentiations of animal species based upon geographical or environmental adaptation, Genetic Deficit Theorists had expanded that idea to include social and cultural systems of people (Davidson, 1992). This justified the belief that certain groups were intelligently inferior to others, particularly to the group in charge. Intelligence and scholastic achievement testing "allowed public educators to shuttle immigrants, particularly prone to low intelligence scores on these tests (Cohen 1970), directly into vocational classes" (1992:42). Around the 1960's Cultural Deficit Theorists began to gain more credence over the Genetic Theorists. Especially, studies began to focus on the idea of "nurture" versus "nature" (Erickson, 1987)." Most cultural deficit studies blamed the child's social, cultural or economic environment as being "depraved and deprived" of the elements necessary to "achieve the behavior rules (role requirements)" needed to academically succeed (Hess & Shipman, 1965). On the same way Engelmann and Bereiter emphasized how "cultural deprivation" theories supported the idea that social and emotional deficiencies affected student performance within the academic system. Until dealt with, these differences would make it "impossible for" culturally deprived students "to progress in academic areas" (1966). Although these same studies did testify that they could modify the behavior of disadvantaged children, they made little progress towards student knowledge acquisition. As this study states that there were "virtually no inroads against the children's lacks in verbal learning" (1966:41). These views catered to highly ethnocentric perspectives.

Cultural Difference Theory

 The major proponent of Cultural Difference Theory is Fredrick Erickson. In this theory, he uses the term "micro-ethnography" to describe his technique of "situation-specific analysis" (1976). Using this technique he observes "naturally occurring interaction in people's lives..." (1976:137) in this way, Cultural Difference Theorists are more focused on the `*micro*' elements of people's lives and communities. As Erickson points out this theory "provided a way of seeing classroom troubles as inadvertent misunderstanding as teachers and students playing into each other's cultural blind spots" (Anthropology and Education Quarterly, 1987). In 1982 Shirley Brice Heath's study of three populations in the Piedmont Carolinas area brought to light the components of micro-communication differences. Some differences

included cultural and socio-linguistic variability's. Most this study prompted educators to modify teaching methods in order to accommodate the different "ways with words" and understandings. Teachers, parents and students involved admitted that they had gained insights from the process of sharing information across groups

Cultural Ecological Theory

The major proponent of the Cultural Ecological Theory is John Ogbu (1986). In the view of this theory the ecological does not dismiss the importance of cultural difference, but focuses more on macro-ethnographic. It attempts to explain, for instance, why some immigrant groups do well in school, while others do not. In this theory, Ogbu maintains that there are three types of minorities: *autonomous, immigrant and caste-like*. While *autonomous minorities* are those who may possess ethnic, religious, linguistic or cultural identity, they are not "subordinated" in the social, economic or political system. *Cast-like minorities*, however, were brought into the United States society involuntarily, such as through slavery or through colonization. *Immigrant minorities*, on the other hand, they have become a part of American society voluntarily and don't experience the same hardships with academic success as *involuntary minorities*. Ultimately, the involuntary minorities are subject to "*secondary cultural differences*" from prolonged contact with a different dominant culture that causes a kind of resistance. In this theory, Ogbu calls this resistance "*cultural inversion*" (1987).

Ogbu (1982a) elaborates the cultural-ecological perspective further when he addresses more specifically the connections between home and school. He notes that all children experience an "initial discontinuity between home and school in language use, contextual learning, and style of learning" (p. 293). Ogbu (1993) defines "cultural frame of reference" as "the correct or ideal way of behaving within a culture—attitudes, beliefs, preferences, and practices considered appropriate for members of the culture" (p. 490). Unlike voluntary minorities, their cultural frames of reference do not allow them to cross-cultural or language boundaries (Ogbu, 1993). This oppositional cultural frame indicates that involuntary minorities perceive schooling as a "linear acculturation process, an assimilation process, or a displacement process" (p. 501). Voluntary minorities, on the other hand, usually view their belives in the US as an improvement over their "old country" and have a positive frame of reference such

that it "enhances symbolic responses conducive to academic striving and success" (p. 499). They can accommodate the system without assimilating.

In many ways, a cultural-ecological perspective goes further in explaining both structural and individual patterns of learning and achievement at home and school than cultural capital theory. The notion that there are alternative competencies within a culture which are based on future adult tasks within a population rather than on hierarchies rooted in static social class roles, values, and knowledge means that individuals and groups of individuals who might have been deemed "failures" in school can be seen in a different and more progressive light.

In this way from the above three theory we can conclude that these theories are developed on the basis of achievement of the ethnic groups students based on their different related factors.

Conceptual Framework

A conceptual framework is an analytical tool with several variations and contexts. It is used to make conceptual distinctions and organize ideas. Strong conceptual frameworks capture something real and do this in a way that is easy to remember and apply. For this study some variations are included for the conceptual analyzing that is as below:
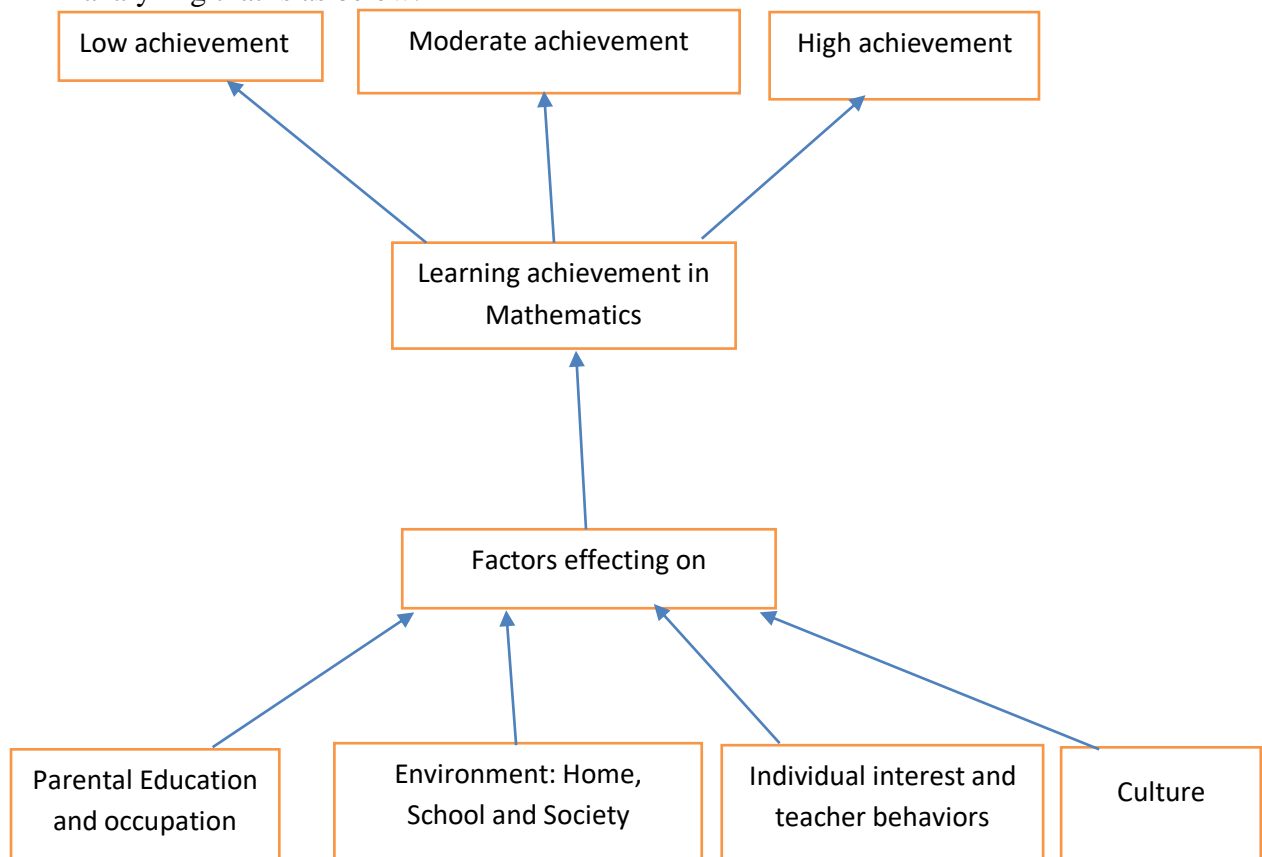
In this way we found many study on other communities but there is no any study has been done on the mathematical achievement of Musahar communities' students. There are some theoretical studies on the disadvantage group related to their achievement. With purpose of, to find out the actual condition of this disadvantage group in Nepal, this study has been design to find the condition of mathematical achievement of these students, what are the factors that effects on their study.

Implications of the review for the Study

The review of related literature is one the most part of any study or research as it provides the theoretical and empirical back up to the related present study. This provides the fundamental knowledge on the topic, helps to identify the inconstancies gaps in research. The related review provides the information that how the proposed research is related to prior research. For this study, the related review of literature saw the originality and relevance of the study, provided the important aspect of the study, identified the data sources, population of study and familiar with the design of the study and provides the further consideration of the study. Thus the review of related literature is more implicated for any study.

METHODS AND PROCEDURES

Method and procedure are the most important part of the study or research. This chapter describes about the methods and procedure to obtain the objective of the study. This provides the proper and clear ways to complete the study or research. In this section will be discuss on: Research design and methodology, study area, population, sample, sampling strategies, research tools, sources of data, data collection procedures, analysis and interpretation and ethical considerations.

Research Design and Methodology

A research design is the set of methods and procedures used in collecting and analyzing measures of the variables specified in the problem research. A research design is a framework that has been created to find answers to research questions and reduce the inaccuracy as well as helps to get maximum efficiency and reliability. It provides the techniques and proper guide ways for the research viability.

This study will be based on the mix-design research approach with explanatory sequential design. In this design quantitative research design is followed by qualitative research design. Through result of quantitative research, the qualitative research will be designed.

Study Area

Especially, the disadvantage groups, Musahar are found in Tarai region of Nepal. In general the study area is all Tarai region of Nepal but to make specify of the study, only the Musahar communities' person will be included and the study area will be only the Musahar village of Gaindahawa gaunpalika of Rupandehi district only.

Population

To fulfill the objectives of this study the target population of this study will be only the Musahar students of the basic level.

Sample

In research terms a sample is a group of people, objects, or items that are taken from a larger population for measurement. The sample should be representative

of the population to ensure that we can generalize the findings from the research sample to the population as a whole.

The sample of this study will be 60 students that will be taken from the students up to the basic level as 30 from primary level and 30 from lower secondary level from the Musahar communities' students.

Sampling Strategies

There are several ways of sampling, among these, purposive sampling strategies will be used for this study. This technique provides the required data and information in easy way than other for this study. So this technique is selected for this study.

Research Tools

The required data and information are collected by the different types of tools. In this study, to collect the data and information, there will be the use of achievement test, in-depth interview, document analysis, field visit and observations. These tools will be more effective to collect the required data and information for this study.

Achievement test: such test is designed for measuring the level of knowledge, skills in a specific area of students. In this study, this tool helps to find the achievement level of Musahar students in mathematics up-to basic level. The researcher has developed achievement test tool (Appendix F & G) and its procedures for developing 'achievement test tool' are discussed below.

Development process of achievement test: To identity the achievement of Musahar students up-to basic level, there were constructed two achievement test for grade V and for grade VIII and these two tests were based on the national goal of mathematics on the basis of level. These tests were covered the major area of mathematics such as arithmetic, algebra and geometry. And these test items were selected on the basis of Bloom's Taxonomy. To find the difficulty level of these tests, were tested on 10 students of these level through pilot and used the mathematical procedure.

According to Ebel, the general guidelines for difficulty index and discriminating index (D.I)

Formula for difficulty index:

$$D.I. = \frac{RH+RL}{N}$$

Where, RH = right answered in highest

group

RL = right answered in lowest

group.

N = total number of

examinees.

Formula for discrimination index:

$$D.I. = \frac{RH-RL}{n}$$

Where, RH = right answered in highest

group

RL = right answered in lowest

group.

n = total number of examinees

in the highest or lowest

group.

From the item analysis; for the selecting items for final achievement test of grade V and grade VIII, It was decided that in grade V, question numbers 1, 6, 7, 9, 11, 13, 16, 18, 19 and 20 have revised similarly in grade VIII, question numbers 1, 4, 5, 7, 8, 10, 12, 14, 17,19 have revised according to the Appendix-A and B. In this way, achievement test was constructed.

Reliability and validity of achievement test: Reliability refers to the accuracy of measurement. It is one of the important characteristics of good test and measuring instruments (Sharma, 2000, p.222). For the reliability of theses achievement test, researcher used the Kuder Richardson method were used and find that the reliability of the test were 0.14413 for grade V and 0.41834 for grade VIII.

Similarly, Validity is also one of the essential parts for the achievement test. The validity of a test refers to the degree to which test actually measures or which it purports to measure (Bajracharya, 2007, p.121). The validity of these achievement tests have been maintained with the help of content and specification grid preferred by curriculum development centre, expert judgments and theoretical backgrounds.

In-depth interview: this is the process of collecting data by face to face interaction with respondents. Interview is the two way interaction between interviewer and interviewee in which interviewer creates situations that can attract the

attention of respondents for an enough period of time in asking questions and answering the questions which interviewee puts his/her understanding and meaning (Karki, 2017). In depth interview has been taken to study about socio-economic and cultural aspects as well as environment of school and home.

In this study, researcher had prepared interview guidelines including open-ended topics based on research document, objectives of the study and situation of environment. Then researcher met the head teacher, subject teachers, students and parents individually by making them clear on the purpose of this research and importance of their help. These interviews helped the researcher to get the leading factors that affecting in the students' mathematics learning achievement.

Observation: in qualitative research; to collect the information for research, observation is one of the most important techniques. Observation helps to collect the real information from the study area.

In this research; for the reality of the information, researcher observed the school environment, classroom environment, home environment, local community, and students' activities after school which helped to the researcher to analysis the leading factor that effecting in the learning achievement of Musahar students.

Documents analysis: Document analysis is a systematic procedure for getting information. For this research, documents such as students' record, attendance register and marks ledgers have been analyzed which helped to know the reality of these groups' students.

Quality Standards

Quality standards are defined as documents that provide requirements, specifications, guidelines, or characteristics that can be used consistently to ensure that materials, products, processes, and services are fit for their purpose. Quality research most commonly refers to the scientific process encompassing all aspects of study design; in particular, it pertains to the judgment regarding the match between the methods and questions, selection of subjects, measurement of outcomes, and protection against systematic bias, nonsystematic bias, and inferential error (Boaz & Ashby, 2003).

In research, for the quality standard, trustworthiness is one of the most essential part. Every research must contain its norms and value.

***Trustworthiness*:** Trustworthiness is the ability to be relied on as honest or truthful. Trustworthiness of a study refers to the degree of confidence in data. Due to the nature of qualitative research, there may be many doubts occur during and after the research process. Through the trustworthiness, every doubts of this nature of research may be minimized through the aspect of trustworthiness. Trustworthiness has four key components: credibility, transferability, dependability, and conformability. (IHRCS, 2016)

Credibility: to determine the trustworthiness of any qualitative searcher, credibility is the one of the important aspect, or criterion that must be established in such types of research. This helps to link the research study's findings with reality in order to demonstrate the truth of the research study's findings. Credibility refers to the extent to which a research account is believable and appropriate, with particular reference to the level of agreement between participants and the researcher. (Mills, Durepos &Wiebe, 2010). Specially, credibility contains the triangulation and member checking in research

Triangulation involves utilizing different data collection methods in order to check the consistency of the findings. In this research the researcher used in-depth interview, observation and document analysis. Through the information taken from different tools, researcher has come in conclusion of this study

Member-checking is the second important technique that qualitative researchers use to establish credibility. This is a technique in which the data, interpretations, and conclusions are shared with the participants. It allows participants to clarify what their intentions were, correct errors, and provide additional information if necessary.

Transferability: Transferability referees the generalization of research findings to other situations and contexts. Transferability is established by providing readers with evidence that the research study's findings could be applicable to other contexts, situations, times, and populations.

In this research; to maintain the transferability of the research, the researcher has taken sample by using purposive sampling procedure and included the photos of achievement test and records of all the activities done during the research. As well as, the researcher has taken many guidance and suggestions from the expertise.

Dependability: *In research, the d*ependability implies the stability of research findings over time and situations. Dependability involves participants ' evaluation of the findings, interpretation and recommendations of the study such that all are supported by the data as received from participants of the study. (Kortjens& Moser ,2018).

In this research the researcher had observed the research area to know the real reality of this group's students and has done some conversation with other communities persons for getting the reality as well as taken some guidance and suggestions from the experts.

Conformability: Conformability is the last criterion of Trustworthiness that a qualitative researcher must establish. This criterion has to do with the level of confidence that the research study's findings are based on the participants' narratives and words rather than potential researcher biases. Conformability is concerned with establishing that data and interpretations of the findings are not figments of the inquirer's imagination, but clearly derived from the data. (Kortjens& Moser ,2018).

In this research .the research study's findings are based on the participants' narratives and words rather than potential researcher biases.

Sources of Data Collection

Normally we can gather data from two sources namely primary and secondary. In primary sources, data gathered through perception or questionnaire review in a characteristic setting are illustrations of data obtained in an uncontrolled situation. Primary data sources include Questionnaire, Interview, Observation, Achievement test, Photograph collection, Telephonic Investigation etc. Secondary data is the data acquired from optional sources like magazines, books, documents, journals, reports, the web and more.

Primary Data

In this study, this types of data will be collected by the above indicated research tools. This type of data will help to analysis the level of mathematical achievement of students and the leading factors that effect on the learning and achievement of the students.

Secondary Data

In this study, for the secondary data, the recorded files, results of the students in mathematics, school's documents, school's article, and journal etc. will be used. These types of data will provide the historical information of the mathematical achievement of the Musahar students.

Data Collection Procedures

Data collection procedure is the ways of collecting information for study. There are different ways of collecting data. In this study; for collecting data or to get the information, researcher will visit the three different schools which are located in Rupandehi district. Researcher will visit Shree Hasanapur Secondary School, Shree Janata Aadharbhuta School and Shree Mahendranagar Higher Secondary School. And researcher will visit the school administrator and teacher and take permission to take the required information and data. Then researcher will ask for the achievement record of the students of that school. After that, researcher will take an interview with principal, teacher and students to know the leading factor that effect on their study and mathematical achievement.

Similarly, researcher will visit some parents of students through the purposive sampling method. By rapport building with their parents researcher will take the interview to take the information about the leading factors that effect on their mathematical achievement.

At last researcher will thank to all school administration, principal, teacher and their parents for their kind support and help of my research study.

Data analysis and Interpretation Procedure

There are different methods of data analysis but in this study qualitative and quantitative procedures will be included for the data analysis. Quantitative data will be analyses by using the different statistical tools. And the qualitative data will be

organized; coding, theme writing, comparing and then findings and conclusion will be found out for the study.

Ethical Consideration

This study will be conducted only for the academic purpose. While collecting the data, ethical considerations will take to ensure for the data privacy. With regarding this study, I will clearly inform my purpose to my respondents. I will not use the data for the other purpose except my research work I will not bring out anything that will effects to the prestige of my respondents.

CHAPTER IV

ANALYSIS AND INTERPRETATION

This chapter is the main body part of this study which includes the analysis and interpretation of the study. The primary and secondary data are collected in unprocessed form and such unprocessed data are presented in systematic formats and analyzed by using different statistical tools and techniques. The collected data from different sources are presented and analyzed separately using both qualitative and quantitative measure. In this course of analysis, data gathered from various sources have been inserted in the tabular form. The findings are interpreted, explained and presented with regards to the objectives specified for the study. For this study, 60 Musahar students had been taken as a sample. Among these 60 students 30 students were from primary level and 30 were from lower secondary level. Data were collected by using achievement test, observation and interview with sample respondents including five students, three subject teachers, one principle and three parents from three sample schools. The result of achievement has compared to standardized test National Assessment of Students Achievement (NASA).

Quantitative Data Analysis

For the quantitative data analysis, achievement test has been taken. This test has been prepared on the basis of Bloom's taxonomy. The collected data are analyzed by using the descriptive data analysis tools.

Achievement Test

Achievement test refer to assessments which scores are often used to determine the level of instruction for which a student is prepared. High achievement scores generally indicate that a level of mastery of grade-level material has been reached, and that the student is prepared for advanced instruction. Conversely, low achievement scores can indicate the need for further remediation or repeating a course grade level.

To know the mathematical achievement and progression of Musahar students, one achievement test has been taken. In this test there was total 15 questions, each question contains one mark all together 15 marks. The test is on the basis of different domains of objectives. The test was prepared for two levels, for Grade 5 and Grade 8.

And it was taken on 30/30 sample of each level in three different schools. The result of this achievement test is carried out as follows:

Table. No. 4.1

Primary level (One-Sample Statistics)

	N	Mean	Std. Deviation	Std. Error Mean
x	30	2.3667	2.60614	0.47581

Table no. 4.2 *(One-Sample Test)*

	Test Value = 0					
			Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
	t	df			Lower	Upper
X	4.974	29	.000	2.36667	1.3935	3.3398

Table no. 4.3

Lower secondary(One-Sample Statistics)

	N	Mean	Std. Deviation	Std. Error Mean
x	30	3.2000	2.83330	0.51729

Table no. 4.4 *(One-Sample Test)*

	Test Value = 0					
			Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
	t	df			Lower	Upper
X	6.186	29	.000	3.20000	2.1420	4.2580

From the above table no. 4.1 and 4.3, we get the average obtained marks of Musahar students of grade V and VIII are 2.3667 and 3.2000. According to the National Assessment of Students Achievement (NASA) 2015 for grade V, the average in national level achievement of mathematics is 14.4 and according to the National Assessment of Students Achievement (NASA) 2011 for grade VIII, the average in national level achievement of mathematics is 43. In the comparison the average obtained marks of Musahar students in both levels are very less with NASA, 2015 and 2011. And the highest obtained marks and least obtained marks in grade V are 12 and 0 similarly the highest obtained marks and least obtained marks in lower secondary level are 10 and 0. So the ranges of obtained marks of Musahar students' are 12 and 10 respectively. Also, the standard deviation of obtained marks of Musahar students in grade V and grade VIII are 2.60614 and 2.83330 respectively. And the standard errors of mean are 0.47581 and 0.51729.

The above values show that there is more accuracy data so we conclude that there is a large variation and scatter of marks of Musahar students in both levels. From the above calculation, finally, we conclude that there are very low mathematical achievements of Musahar students in both levels.

Similarly from the table no. 4.2 and 4.4, we got the t-values 4.974 and 6.186 respectively and p-value in both grades is 0.000 which less than 0.5. This implies that there is significance difference between the mean achievement of Musahar students and national achievement of students in mathematics. There might be some reasons or leading factors that leading the Musahar students to obtained the very low achievement in mathematics.

Qualitative Data Analysis

This topic has explained the leading factors that effects on mathematical achievement of Musahar students. It consists different factors related to school management, subject teacher, parents and students that effects on their achievement and in learning mathematics.

To know the factors related to the school management, interview has been taken with three principal of each school and the view of principal are recorded as follows:

Respondent A:

This interview has been taken from the principal of Janata Basic Level School, Rupandehi. This respondent has described the actual conditions of Musahar students that are happening in this school. This respondent said that the almost this groups students are irregular in schooling, as said, *"Almost this groups students are like a tourist in school, they come at the end of the secession and on the days of distributing the scholars after getting the scholars within a week, they on the same condition means they started to be irregular in school and classroom. They come at the end of the secession for giving the final exam and after up grading they come for admission. And in the other days, they went for earning money with their parents at bricks kiln factory (itta bhatta). Due to these behaviors of them we are unable to upgrade to their achievement in mathematics and in other subject"*. respondent also replied that the school has managed everything for the students and provides lots of opportunities to the students like in playing, in study, in extra curriculum etc. but due to the lack of awareness on education of parents, no involvement and no seriousness of parents as well as students in the education leads them to get poor achievement in education. In the line of interview respondent also said, *"To make the regularity of this group of students we called their parents and chairperson of the entire ethnic group in meeting many times but there is no presence of their parents as well as the chairperson. This shows that they have no awareness to move forward"*.

Similarly, researcher asked with this respondent about their activities at school premises, respondent replied that for schooling almost, students have very low interest as well as in extra curriculum like quiz etc. But they show more interest in playing. Respondent said that due these kinds of behavior we are unable to motivate them internally for making their schooling good.

Respondent B:

This respondent is the principal of Hasanapur Higher Secondary School. He lives near this community. He said, "This community is an elite group which is still in under developing. This community's people are very poor, if they do not work a day, they might get challenges for their food on that day this shows that their economic condition is very bad in comparison of other communities. In our school, there are lots of students from this community up to basic level but after this level there is high rate

of drop out in this community's students. In school, this group's students are almost irregular so their achievement in learning is very low and in mathematics, obviously they are very poor. To make their regularity we called their parents many times but they show their irresponsibility and almost were not present in such meetings. Many times we discussed on this topic with the chief of this community member but there is no any progress in the regularity of these students.

When we discussed on the facilities that are given to the students of this group, respondent replied that we are providing money for their dress up and for the motivation in learning, we put a target to get 60 % in final exam to get some money as a scholars. But they are not actively participated in learning rather than playing.

Respondent C:

This respondent is the principal of Mahendranagar Secondary School. In this school there are few students of this group. In this interview, respondent said, "*This elite group is very poor in economic. In previous days, this community's people were catching mouse, fishing but now days there are little bit changes in such activities. But due to taking more alcohol and illiteracy, their living style is very poor then other communities. For schooling to this group's students however we motivate, we are unable to build up their interest on their studies. They made a wrong concept that almost students are joining the school only to get the scholarships. Mostly they are irregular. They will come on the day of distributing scholarships and within a week they will back on previous conditions. Finally they will come in final exam and parents are also not interested on the study of their children. They bring them to work together. In our school, from nursery to 8, there are 32 students of this community but among these students only 10 to 12 students are regular and almost these students are in the touch of other community.*"

In this interview respondent said the main reasons of drop out after the basic level are no interest on further study, lack of parent's supports, caring and guiding, alcoholism, early marriage, poor economy and community environments.

A teacher is a person who helps the students to acquire knowledge, skills and competence. The primary role of a teacher is to deliver classroom instruction that helps students learn. In addition to ensuring that students experience academic

success, teachers must also function as surrogate parents, mentors and counselors. Teachers are arguably the most important members of our society. So, to fulfill the second objective the interview has been taken with three subject teacher and their responses are as follow:

Respondent A

This respondent is the subject teacher in Janata Basic Level School. Respondent teaches mathematics from class five to eight. In this interview, respondent said that the almost students of this group are not actively participate in learning mathematics due to irregularity and lack of pre-knowledge although they never asked any question on their confusions. When respondent gives some class works and home works almost, they do not complete their class-works and home-works. Almost they copied their home-works from their friends but they never try to know how it comes. While talking about, interaction with teacher and participation in curriculum and non-curriculum activity. Respondent said, "*Almost students do not interested to interact in learning mathematics specially girls of this group and if we give some questions as a class work then they directly replied that hey, I don't know. Sometimes we give some project works, they never do that. Sometimes we phoned their parents to report such things but their parents are also not active in their study.*"

Respondent B

This respondent is the subject teacher in Hasanapur Higher Secondary School. Respondent teaches mathematics from class five to eight. Respondent lives near of this community. In interview, respondent said that almost those students feel mathematics is a difficult subject who has no any pre-knowledge in mathematics. To know the mathematics and feel an easy subject, all students must have pre-knowledge and should be regularity in mathematics class room as well as there should be proper concentration. Among the all students in the class room either in class five or in class eight, this group's students have more problem and difficulty in learning mathematics as they have no regularity in mathematics classroom and who have regularity in mathematics classroom, they have no proper concentration and no basic pre-knowledge in mathematics so their achievement is very low in mathematics. Almost this case is in Musahar's students with high rate. Even this group's student's parent have very poor economic in comparison of other group's but they are more

fashionable and they were murmuring in classroom. They never do any class work and homework so some teacher is being fed-up with them and do not care them in classroom.

Respondent said, *"Making mathematics is difficult subject for student, one of the reason is promoting or up grading the students unnecessary without knowing the concept of mathematical knowledge in the lower class. So the students cannot able to assimilate or relating new mathematical concept and principal to previously learned mathematical structure."*

In interview, respondent said that this group's students have very low interaction with teacher in classroom during learning mathematics and more passive in learning mathematics. Some students, who are regular in classroom, they show their homework but they don't know how it comes.

Respondent C

This respondent is the mathematics subject teacher of basic level in Mahendranagar Secondary School. Respondent teaches mathematics in basic level. In interview, respondent said that Musahar students are the students of those categories who are not interested in their study. In class there are many students in this category but they are more than other. According to respondent they are not trying to complete their homework or class work. Respondent said, *"Almost these students are irregular in mathematics class and due to lack of pre-knowledge about the operation of mathematics like DMAS and BODMAS and some other algebraic operation, they are very poor in mathematics"*. According to respondent, *"up-to five class, there are such type of students who do not know the table up-to five. If we talk about class eight students, almost students of this group, can't solve a normal question in mathematics related to the basic operation of mathematics. This condition is created due to unnecessarily up-grading without knowing the basic concept in lower level. So they are being poor in mathematics day by day."*

Respondent said that almost this group's students do not raise any question in class room related mathematics. Their parents are also silence in their study. They never claim on anything related to their progressive report. At last, researcher asked to the respondent, the reasons of drop out of these students. Respondent replied that in

case of girls, child marriage is also one of the reason, similarly, lack of motivation and lack of parents support.

Parents are the most precious gift of God for each child. They help them in every step of their life. Parents play important role in their mental, physical, social, financial and career development; they trained them very hard style for the future challenges. The involvement of parents plays a key role in encouraging the learning process to continue and make it better so as to cultivate an attitude of curiosity and open-mindedness throughout life. The boundaries of education are widening and making sure you are in the loop of how your child is progressing and being a companion to him can bring about great results. A number of students have reported higher scores in their tests and other examinations when their parents were actively involved within their education. Such kids are known to show great interest in advanced and higher learning courses end up graduating through college within the stipulated time and don't drop out as much as other kids do.

To know the role of parents of Musahar community students in their learning and to know the actual conditions of Musahar students; the interview has done with three parents.

Respondent A

This respondent is the parents of Rahul Musahar who lives at Devidada in Musahar Tol with his family. He works as labor in house construction. Respondent do not have field for the agriculture. They buy everything for their survival. Their economic condition is very poor, his wife and his mother also work at other's home seasonally for earning money. His father used to drink alcohol whole day.

Rahul studies in class five in Hasanapur Higher Secondary School. To know the family activity, schooling activity at home of Rahul, in interview, researcher asked with his father about the time providing for their children, respondent said that we are a labor person who works in under of other person. We go for laboring earlier in the morning, works whole day and comes back at home around 7/8 pm. This is our daily routine so obviously we do not have any time to spend with our child. And, said that, if respondent started to spend the time with them, then there will be challenge for survival. Respondent said that Rahul spend his time with his mother, grandmother,

sister and friends. While at home they told him to study, but do not obey them and run away. He spends his more time only in playing with his villager friends. If there is holiday, then we can't get him at home, whole day. He used to go to play football, fishing, and hunting birds and mouse and pick up snail (ghongi).

Similarly, respondent said, *"We are an illiterate person but we want to make our child literate but due to the surrounding they never show their interest on study at home. Due to the poor economic condition many parents takes their child with them to work but we never did like this. Although he did not ready for study, sometimes, I asked him that your teacher do not give homework, and said no. He used to cheat us."*

Respondent B

This respondent is the parents of Raatrani Musahar, she study in class eight in Janata Basic Level School. This interview has taken with her mother who has passed only three classes and she lives in Lakhanauti Danda. In her family, there are four children with three daughters and her husband. Her husband is a drunker, he used to drink whole day so she has all the responsibilities of her family. This family is very poor. To survive their daily life she used to go for work as labor in house construction and in other works. Seasonally, her daughter also used to go to work at other's home.

In interview, she said that she could not give the time to my child for their study and they also could not get more opportunities and time at home for their study as she is not at home, she goes to work so her daughters do all the works at home. Her daughters are busy at morning and evening time for cooking and in caring of goats and at free time do not show their interest in study. In the line of discussion the respondent said. *"Almost my all daughter has no more interest in study as well as do practice in mathematics, they do not show their interest to go for schooling instead of this they are happy to sit at home and do some works at home by playing with their friends. Here are so many children who do not go for schooling. They all gather and go for search snail (ghonghi) or for fishing."* She also replied, *"We have no good economic condition so we are unable to provide good schooling to our child as they have to lots of work for survive due these reasons they do not get more time for practice at home and at school, I think, teachers do not care properly to them, they don't say any things to my children either they their homework or not."*

Respondent C

This respondent is the father of Puja and Hemanand Musahar; these both students study in class eight. Puja studies at Janata Basic Level School and Hemanand studies at Hasanapur Higher Secondary School. Among this Musahar community, in that area his economic condition is better in comparison of other Musahar people. At his home there is a shop. In that area, respondent has good relation with other person and with other community persons. Respondent has completed his education up to class eight. Respondent is also the precedent of teacher and parent association at Janata Basic Level School.

Due to well economic status of family, according to respondent, there is no any over load of work to his children at home. While talking about the schooling of children, respondent said, "*I have four children with three daughters and one son but among these two children, I had sent my son to boarding school for his better education and to my daughter at government school but in the period of three four years, I didn't get any different between their knowledge on education. Then we decided to send him in government school but he is not ready to study with his sister so, now they study in same class but in different school. I provided all the necessary things to my children related schooling and other. To make their education good, we do not say to work anything at home but they do not show their interest in study. Hemanand do not obey to us when we say him to study, he runs away with his friends. Sometimes, we do not get him whole day; at that time he used to go with his friends to hunting mouse and bird.*"

He said that he is active in other things like playing football, cricket etc. but he is poor in study. He always used to cheat to his teacher and not doing his homework. In case of daughter, respondent said, "*Puja has not such type of behavior like him but she also not showing her interest in study. She also do not complete her works related to her study. She used to sit at shop due to no interest in study. Some time she does not go school and spend whole day by sitting at shop.*" In the line of interview, researcher asked to the respondent that school administration and teachers don't call you for the progressive report of the children and respondent replied that they call but doe lack of time respondent be unable to go and unable to join the parents meeting also.

In this research there are altogether 60 sample students and from these students, two girls and three boys, altogether five students have taken for interview through the lottery system where two from class five and three from class eight. Their views are as follow:

Respondent A

The respondent A is 11 years old girl who studies in grade five. She lives at Gaindahawa-8, Devidanda. Her school is at distance of around 3 km and it takes around 30 minutes to reach the school. In her family, there are six members with her parents, grandmother and two elder brothers who left their schooling and go for working in labor. Her family economics status is poor. Before 1.5 years, she was starting to cook food at morning and evening time. Before going school, she has to finish cleaning pots. Her parents are illiterate and they used to drink alcohols. They used to work for earning money at bricks kiln factory (itta bhatta).

Researcher asked about the regularity for schooling then she replied, *"Usually, I used to go school, regularly but sometimes feel boring to school and on that time I do not go to school."* Again researcher asked about the interest on study and she replied that she has no more interest in learning and immediately, researcher asked the reasons and she said, *"Actually, I do not understand clearly and it being difficult also due language."* The researcher asked, view on mathematics and she replied, "*mathematics is a difficult subject for me. I do not understand anything in mathematics. Even I do not have idea on the basic operation of mathematics and let's do not talk on verbal problem in algebra and geometry. Teacher gives homework; I always used to copy from my friends."* Researcher asked on raising question on confused questions; she replied that she never asked anything either she understand or not as she feels fear with teacher and feel shy to ask question in mass.

The researcher asked the behavior of mathematics teacher in classroom and she replied that teacher is normal with us but personally, she nerve asked any question with mathematics teacher. And researcher asked with her about the time for study at home, she said that she do not have more time at home for her study, she feel tired by working.

Respondent B

The respondent B is 15 years old girl who studies in grade eight. She lives at Gaindahawa-9, Lakhnautiya Dada. Her school is at distance of around 3 km and it takes around 30 minutes to reach the school. In her family, there are eight members with her grandparents, parents and two younger sisters and a younger brother. Her grandparents and her mother are an illiterate and her father passed three class. Grand father used to drink alcohols at early in the morning and also at evening. Her father works as labor in construction. And usually, he also used to drink alcohols at evening after returning from duty and her grandmother and mother are used to work seasonally at other's home. Her family's economics condition is poor.

Researcher asked about the regularity for schooling then she replied, *"we all brother and sisters go school, regularly. If we being absent at any day then our father scold us. And sometimes we got slap in the reasons of not going school."* Again researcher asked about the interest on study and she replied, "*Actually, I do not have more interest in study but it doesn't mind according to my father, I have go school. But after class eight I thought, I will not continue my study further more. Let's see what happens."* The researcher asked, view on mathematics and she replied that her mathematics teacher also said that mathematics subject is a difficult subject; who have mathematical knowledge, they only can study mathematics. And she also feels mathematics subject is a difficult subject. She has problem in solving arithmetic question like fraction, percentage etc, problem in solving questions' related to DMAS and BODAMS rule, difficulty in solving of algebraic question ,verbal problem and she feels more difficult in solving problem related geometry. Researcher asked on raising question on confused questions and she said that she never asked the confused question with her teacher instead of her teacher she asked with her friends and they made her clear on that confused questions. The researcher asked the behavior of mathematics teacher in classroom and she replied that her teacher is very polite; while teaching, he used different methods and examples for their better understanding but her problem is that she does not concentrate her mind and not giving more interest in learning mathematics.

Researcher asked with her about the time for study at home, she said that at home, she does not get more time for her study as she has to cook food at morning

and evening. She said that her mother is not positive with study; if she does not complete her work then her mother scolds

Respondent C

The respondent C is 15 years old boy who studies in grade eight. He lives at Gaindahawa-9, Lakhnautiya Tol. His school is at distance of around 3 km and it takes around 30 minutes to reach the school. In his family, there are four members with his parents and sister with same age. His mother is an illiterate and her father passed five classes. His father has good contact with other person and used to work as a land broker together with some friends. His has good behavior and not used to drink alcohol regularly. At home, there is a shop which is handled by all family members so their economic condition is good. Due to good economic condition, there is no over load for work to this child.

Researcher asked about the regularity for schooling then he replied, *"Normally, I used to go for schooling regularly. But, if there any match like football of cricket, on that day, I do not go for schooling. I used to go for playing with my friends."* Again researcher asked about the interest on study and he replied, *"Is elephant the tallest animal due to its study?"* this shows that he does not have interest on study. Again, respondent asked about the interest in learning mathematics then he said, *"I have little bit interest in study of other subjects but no any interest in mathematics as I can't understand anything while studying mathematics, feeling boring at that time. Mathematics is also being a reason to de-motivate in learning."* He said that mathematics is being burden for him. He said that in previous classes, he felt more confusion in mathematical operation like multiplication of positive and negative sign; he felt more difficulties in simplifying the fractional problem. Still he has same problems. According to his view, he has more problems in solving and understanding mathematical problems. Researcher asked on raising question on confused questions and he said that he asked confused question with his teacher but he forget after few minutes. The researcher asked the behavior of mathematics teacher in classroom and he replied, "Teacher is very polite, she uses different methods for better understanding but she never shows any rigid behavior with students , either doing homework or not. Researcher asked about homework and class work submission and he replied that he never do and shows his homework and class works.

Researcher asked with him about the time for study at home and he said that at home; in morning and evening, he is free but he does not have habit for study he sits in shop.

Respondent D

The respondent D is a boy of 11 years old who studies in class five. He lives at Gaindahawa-9, lakhnauti Danda with his family. In his, family there is seven members with his grandparents, parents, and two younger sisters. His grandparents are an illiterate and used to drink alcohol. Sometime, they walk on road by making loud sound with full drinking. His mother is an illiterate person but his father is a literate person. His father completed his schooling up to five classes. His father works as a labor in house construction and his mother also goes with his father for working. His family economic condition is poor.

Researcher asked about the regularity for schooling then he said, *"We go school regularly but if among we three have any problems like fever or etc then on that day we all do not go school as I have to care them at home."* Again researcher asked about the interest on study and he replied that he has interest in study as his father gives motivation for study and his father gives him a target that if he will pass his class five in good marks then he will buy a bicycle for him. Again, researcher asked with him about the interest in learning mathematics, he replied that he has a bit interest in learning mathematics but he said that he feels mathematics is a difficult subject; he being more confused while solving mathematical questions. He feels quite difficult in simplification, multiplication by using mathematical sign, division of decimal number, measuring angles etc. He is a little bit curious student than other Musahar students. He raises question on confused question without any hesitation and his teacher made him clear in that confusion. He has god interaction with teacher in mathematics classroom. Researcher asked about homework and class work submission and he replied that he used to show his home works and class works, sometimes, he does his homework himself sometimes copy from his friends. Researcher asked with him about the time for study at home and he said, "*Normally, my parents go for work together. At morning time before my parents going; I have to care my younger sister, they made me disturb for study sometimes I did not able to complete my homework but in evening time I do not get any opportunities for study as my parents come back late from work and also my grandfather does not work*

anything. He always full with alcohol." Researcher asked with him about his further study and he said, *"My father always says that you have to study more to be a good person so I will study as much as mind said."*

Respondent E

This respondent is a boy of 15 years old who studies in class eight. He lives at Gaindahawa-8, Devi Danda. In his family, there are six members with his parents and two younger brothers and one younger sister. His father used to work as a labor in house construction but always used to drink at evening. His mother is an illiterate and his father completed his schooling up to five classes. His mother does not work anything for earning money. If his father does not go for work then there will be difficult for their survival. His family economic condition is very poor. Due his poor economic condition, seasonally he also used to go for work as earning money.

Researcher asked about the regularity for schooling then he said*, "I do not go school regularly because of what to eat and how to eat without working, hungry is more needed then knowledge. Even I do not have more interest on study but I will complete up to class eight and then I will not continue my schooling."* Researcher asked with him on view on mathematic and he replied, "Among the entire subject, I feel, mathematics is more difficult subject. I am always confused in mathematics; I do not have more idea in the mathematical operation, I have too much irritation with mathematics and mathematics teacher sometimes I do not want to see the face of mathematics teacher." In the line of interview he said that he is not clear in each chapter of mathematics and have language problem in mathematics.

Similarly, while collecting the data researcher observed the behavior of Musahar students, parents behavior related to children learning, behavior of teacher and facilities provided by school for the betterment of schooling of Musahar students. So from the observation and interview, the activities related to these topics have described as:

Factor related to school management

The school manager has been studied by many researchers as one of the most important factors that affect student achievement. In school management factor, the facilities provided by the principal (leader of school) have been included. School

leadership behavior includes actions such as observing, monitoring and evaluating classroom practices and instructional procedures and protecting teachers from internal and external distractions from their teaching responsibilities (Ibrahim and Al-Tanejii, 2012). According to Kullar (2011) school leadership behavior and style can have a positive effect on students' achievement. But Kruger (2003) stated that principal leadership has only an indirect impact on students' achievement. School principals should focus on improving the school's climate to obtain better relationships with teachers, students and parents in order to enhance the students' academic achievement (MacNeil et.al, 2009). On the basis of the above view, some factors related to the school management have been described.

From the interview and observation of sample schools, researcher found that there is no proper management in school. No proper management for infrastructure, teaching materials, no any teaching material has been provided to students for helping in the betterment in their education. School principals are unable to manage the teachers, students and parents' relations. There are friendly behaviors between the teacher and students. In a sample school, teachers are always fighting for being the principal of the school instead of thinking about for the betterment of students' learning and their achievement. School leadership also categories the Musahar students in the group of low achievement and not serious group for the enhancing of achievement and blaming them as they have a genetic effect in their low achievement in their study as well as in mathematics. School management leader do not conduct any motivational program and class for the students to motivate in their learning. They know the every situation of these groups of students but they do not try to do anything from the school side to make their regularity in their schooling. No any special support has been given to them so the students of these groups are de-motivating day by day from their schooling.

Factors related student

Students are the main component for the teaching learning activities. Teaching learning activities should be on the basis of students' interest, activeness, and pre-effort. Without these things in students, the teaching learning activities is not possibility to conduct properly and to achieve the national goals of mathematics in any level. Student's achievement depends on their need, interest, practices and seriousness in subject matter. Students related factors include mathematics anxiety,

pre knowledge of students in mathematics and student's labor and efforts in learning mathematics. And the collected data from interview, test and observation were analyzed and interpreted on the above sub-heading.

Pre knowledge on mathematics of students

Pre knowledge related to content in students is one of the most important factors related to students for their excellent future learning. "Students who had a more integrated prior-knowledge base and were able to operate on higher levels of procedural prior knowledge at the beginning of the course were more likely to be successful"(*Biggs, 2003*). If students do not have pre-knowledge related to mathematical content then they will be unable to understand the question and will be difficult to solve the problem. It shows that the lack of pre knowledge is one of the significance causes for achieving low achievement in mathematics. The basic knowledge of mathematical content should be rigid to get the good achievement in mathematics. From the discussion were stated here related to prior knowledge of students the above view of student's emphasize that they do not have sufficient previously learned mathematical knowledge. The students cannot assimilate of relating new mathematical concept and principle to previously learned mathematical structure. In the observation of these three school, the mathematics teacher asked to the students about the pre knowledge of this topic, some students were silent and some students were replied wrongly and they seems to be not frank with teacher and students as there were no any interaction with teacher in the classroom and outside of classroom. The researcher asked with some students on this topic and they replied that they do not have much more idea in mathematics subject and topics (Field observation and interview, 2020). From these views, can be concluded that students feel mathematics is harder and difficult subject. From the point of views of principal and mathematics teachers, students were promoted unnecessary without knowing the concept of mathematical knowledge in the lower class. No sufficient basic knowledge in mathematics contents indicates that the students cannot able to assimilate or relating new mathematical concept and principal to previously learned mathematical structure and leads to committing various silly errors during the solving the problems. To be perfect or able in solving various types of problems in each topic of mathematics, students must have a clear understanding on basic mathematical

contents and how does it works in solving different types of mathematical problems. Thus it can be concluded that student's pri-knowledge in mathematics plays most important role for good achievement in learning mathematics of Musahar students.

Lack of student's labor

It is another component of student's related causes behind the low achievement of Musahar students in learning mathematics. Generally mathematical achievements determine the student's labor in present situation; students are not laborious in mathematics learning. Student's labor is responsible for the good achievement and learning of mathematics. After analyzing the achievement test of Musahar student, we conclude that they have the poor mathematical concept and they are careless towards their study. From the observation and interviews it can be concluded that around eight to ninety percentage of Musahar students are not showing their interest on learning mathematics and rest of students are engaged in their home related tasks during school time due to poor economic conditions so they are unable to give the sufficient time in learning mathematics. Students are engaged in unnecessary task instead of teaching activates. Most of the parents of Musahar students are illiterate. Illiteracy and poverty parents force them on hose hold activities rather than to their study. As we know that parents supports and time always play a great role in labor of students for learning mathematics. Thus, lack of sufficient time for practice of students is the cause of low achievement in learning mathematics. According to the learning disability theory teacher and parents will be part of the intervention in terms of how students get individual aid for the different successful practice. But the students are not fully guided by the parents and teachers. It became difficulty in learning mathematics. So, on the basis of this justification researcher can conclude that the lack of labor of student is one of the most significance causes behind the low achievement in learning mathematics of the Musahar students.

Mathematics anxiety

Mark H. Ashcraft defines math anxiety as "a feeling of tension, apprehension, or fear that interferes with math performance" (2002, p. 1) where Mary Fides Gough introduced the term *math-phobia* to describe the phobia-like feelings of many towards mathematics. It determined that math anxiety is related to poor math performance on

math achievement tests and that math anxiety is related to negative attitudes concerning math. Hembree also suggests that math anxiety is directly connected with math avoidance. Mathematics anxiety is a one of the important aspect of International Journal of Elementary Education 2017 student's related factors in learning mathematics. Math anxiety has been defined as "an inconceivable dread/fear of mathematics that can hamper with manipulating numbers and solving mathematical problems within a variety of everyday life and academic situations"(Buckley & Ribordy, 1982, p.1).

Mathematics anxiety as a feeling of nervousness, tension and worry which interference the performance of mathematics. It is a negative feeling to mathematics learning process. When examining student's problems in mathematics anxiety as a feeling of tension, apprehension, or fear that interfere the mathematics performance. It also refers to forget and no confidence in mathematical subject matter. It directly affects in mathematics learning process of students and de-motivate to students in their mathematics learning. From the observation and interview of Musahar students the following views has been recorded related to mathematics anxiety. A member of sample said that mathematics is a very difficult subject, there a kind of fear with mathematics and math teacher. It is only for clever and talent students. Similarly another respondent said that talent students can read and remember formula of mathematics. It has several formulas that always need to remember for learning mathematics and difficult to understand. In the line of discussion one student said that why to read mathematics specially algebra, ratio and proportion, bearing of scale and geometry. These all are being a abstract education for us. It is being burden for us and cant not understand anything in these topics so I feel, mathematics is a difficult subject. Another student said that among the all subjects; he feels that mathematics is a more boring subject

From the above views of students about the anxiety of mathematics, it indicates that mathematics is very hard subject to understand and has no relation with other subjects and in our daily life. They feel mathematics as an abstracts subject, formula based subject and being unable to convert in concrete form. This anxiety brings a wrong and negative concept in mathematics and de-motivating in their learning mathematics. Due to this reasons there are irregularity in mathematics classroom and high dropout rate of this group students.

Teacher Related Factors

A teacher is a person who helps students to acquire knowledge, competence and inspires their students to look beyond the pages of the textbook to become problem solvers and critical thinkers. Every day, the teacher boundless passion and dedication impacts each and every student. As a math teacher, you are ensuring that your students will have the knowledge and skills that will help them not only succeed in the classroom, but also be empowered by mathematics to become productive citizens of our democratic society.

Teacher related factor is also a significance component of achievement and affecting factor in learning mathematics of students at basic level. The positive attitude of teacher creates positive impact to students learning process. Teacher can motivate to the students to the learning mathematics and use the students centered method in learning activities. Teacher related factors include the behavior of teacher and methodology. And the collected data from interview, test and observation were analyzed and interpreted on the above sub-heading.

Behavior of teacher

Behavior of teacher with of student is also one of most important factor that effects in their learning and achievement in mathematics. Positive behavior of students and interaction with students helps to increase the learning interest in mathematics and provides a positive motivation in students for learning. "Teacher behavior is one of the key determinants in forming the student's motivation and learning" (Article in Acta Kinesiologiae Universitatis Tartuensis · January 2012). 'The constructive teacher-student relationship is one of the main elements of proper behavior in educational environments' (Crowley, 1993; Wallace, 1994). On the basis of these views, teacher's behavior plays a vital role in achievement and learning mathematics. Positive attitude towards mathematics play valuable role in learning mathematical knowledge in all stages of education (Acharya, 2017). But in this study it is found that teacher did not provide counseling to the students towards the learning mathematics and most of students say that they were no any motivation for by the teacher. They do not care to student as they do their homework or not. From the observation and interview, researcher also found that their mathematics homework copy is not checked and no any comment on their works. Form the interview of

teacher, researcher found that this group students are those students who do not complete their homework and have no any interest in learning so teacher also used to ignore them. In line of interview a principal said that low achievement of this group is their genetic effect and most of the students are irregular in classroom so, no need to be more worried on it. And from the observation of classroom activities, most of the Musahar students are afraid and feel hesitation to talk with their mathematics subject teacher. They never share their feeling of learning to their mathematics subject teacher. That's they feel mathematics subject is more difficult subject and being unable to understand mathematics. Asubel's theory argues that students should be motivated to learn mathematics in meaningful way. So we can claim that the behavior of mathematics teacher should be as a positive motivator for learning mathematics of each student. Hence one factor of low achievement in learning mathematics for the Musahar students are no counseling and motivation to students and no students friendly behavior of teacher.

Methodology and materials used by teacher

Methodology provides the best platform to provide any knowledge from teacher to students in proper way. And teaching materials is used to deliver instruction in a proper way that can support students learning and enhance the student's success. A teaching method comprises the principles and methods used by teachers to enable student learning. Both are used to make good achievement in mathematics. The approaches for teaching can be broadly classified into teacher centered and student centered. In a teacher-centered approach to learning, teachers are the main authority figure and students are as passively information receiver. In this method, the primary role of teachers is to pass knowledge and information to their students. Student learning is measured through objectively scored tests and assessments. Similarly in student centered learning approach, teachers and students play an equally active role in the learning process. The teacher's primary role is to coach and facilitate student learning and overall comprehension of material. Commonly used teaching methods may include class participation, demonstration, recitation, memorization, or combinations of these.

From the observation and interview, researcher found that still the teacher are using teacher centered methods, their teaching style still old fashion, no any teaching material used during teaching period even in geometry also same case is going on, no

interaction with students, no group discussion, no any project work has given. They do not relate the content contextual; do not provide any project work related content with their daily life. Form of teaching style become as abstract teaching and learning. Students become as a passive learner and their learning being as parrot learning. In the line of discussion researcher found that students are totally based on teacher. Researcher asked to the mathematics teacher on the topic of not using teaching material and teacher replied that we have no sufficient infrastructure and learning equipment. In the line of discussion, researcher asked with some student of this group related to methodology and use of teaching materials they replied that teacher never used the teaching material during teaching period. So due to such condition, the mathematics being a difficult subject for the students and student's interest is decreasing on mathematics due to these factors the achievement of Musahar students is very low in mathematics.

Parents Related Factor

Parents related causes are the one of the important components behind the low achievement in learning mathematics. The education of child does not depend only on teacher role but also depend on their parent's awareness, interest, and time providing for them and knowledge about handling and guiding their children at home. Parental involvement has always been an essential; component of every teacher-student-school academic endeavor. Parents, who have been considered as one of the stakeholders of the school community, play tremendous roles in the child's educational and environmental transformation. According to Centre for Child Well-Being (2010), parental involvement in their children's learning not only improves a child's morale, attitude and academic achievement across all subject areas but it also promotes better behavior and social adjustment. Parent related factors include maternal education and support, economy and time for child and view on their study. And the collected data from interview, test and observation were analyzed and interpreted on the above sub-heading.

Maternal education and Support

Among the different factors that effecting in the learning achievement of Musahar student, one of the most significant factor is parental education. Parental educational level is an important predictor of children's educational and behavioral

outcomes (Davis-Kean, 2005). Parents can also be involved by means of follow-ups with their children's subject teachers in order to identify areas where the children are facing challenges (Clinton & Hattie, 2013:324). Where children fail, parents go to the extent of contacting their teacher, thus, building and strengthening the teacher and parent relationship which would show their commitment towards their children's learning. According to Hornby and Lafaele (2011:37) parental involvement is a significant element in education and can also be achieved through home-based parental involvement like listening to the child as they read, helping them in completing their homework as well as school-based activities, which include attending parents meeting and education workshops.

In the research, from the observation and interview on the maternal education and support in their child's learning, researcher found that the maternal education is very poor. All most parents were uneducated specially, female were found more uneducated and male have very few literacy. Such parents are not aware in their children's education. This group is very poor in economic condition, due this reason they took their children for work together at bricks kiln factory. According to a principal, they have a wrong concept on taking education, they force their child to go school on the day of distributing scholar and almost students have thought and they come at school at the last examination at the end of the session for being upgrade. All most this group people are used to drink more alcohol, some at morning and evening and some at whole day so due to these behavior and poor economic conditions such group students do not get more support in their study from their parents. According to another principal, this groups parents who are in touch of other community, they support their child in their study, they care them, they send them school regularly but the achievement of these students is also not good. As they are aware but not educated. So researcher can claim that maternal education and support is one of the significant factors that effects in the learning achievement of Musahar students.

Environment Related Factors

One of the factor related that effect in achievement of learning mathematics is environment. Environment related factor a significant factor which effects directly and indirectly in achievement in students learning. The environment is the external conditions which affect and influence the human lives. There are two types of environments; the physical environment and the psychosocial environment. The

physical environment is associated with the infrastructure development and material, such as a house. The non-physical environment is associated with emotional, cultural and social environments, which includes behavior, language and religion (Mizan, 2001). Students' environment usually consists of their relationship with their teachers, parents and peers, both inside and outside the classroom. The learning environment refers to the school atmosphere which is determined by the schools' vision, values and objectives. A good school atmosphere is actually established by a learning environment and school which is orderly, organized, calm and harmonious (Salina et al., 2009). Teachers should provide a conducive classroom for active social interaction and cooperation amongst the students (Salina et al., 2009). A conducive learning environment would promote learning and student development, which includes intellectual activities, friendship, cooperation and support (Nidzam et al., 2010).

Form the observation and interview, researcher found that the physical environment related learning in not very good. . In the teaching learning activities, teacher should have to accomplish the appropriate environment for learning mathematics. Teacher should address students need and interest. Also teacher have to motivate to students in the learning mathematics. In school during teaching there is no use of interactive learning method no care of student's interest. Teacher laves this group student as they belong to not reading group. From the interview of students and observation, researcher found that school does not provide any teaching material and teacher also not use any material during teaching learning activities. This is the bad behavior of teacher related to this group of students. Specially, this group of students has Bhojpuri language as a mother tone. Vygotsky argued that language is the main tool that promotes thinking, develops reasoning, and supports cultural activities like reading and writing. But in school, teachers are using only Nepali language during teaching time so there is difficulty in understanding the language and mathematics in proper way. Different kinds of scholars has been provided by the government to this group of student to make their involvement in basic education but there is no any motivational program and positive motivation to motivate the students toward their study and make the regularity in schooling. Teacher do not say anything either doing homework or not. There is no any kind of parental meeting of this group student with teacher. The relation of peer group is also not very good specially, these groups

students have peer with the same categories students. Mostly this group student has no more interest in study. Mostly, they used to go catch mouse by digging field, pick up snail (Ghongi) at pound, lake etc. and hunting birds, playing cards, roaming whole day, eating gutka with friends. Due to poverty, lack of education and awareness and no proper caring of child, there is high rate of dropout in Musahar students. This claims that there is no good environment for Musahar students in their learning mathematics. Similarly, in the line of discussion one head teacher said that the low achievement in mathematics and no interest in learning is their genetic effect. And habit of taking more alcohols is the main reason to lead them poverty and due to this reason children do not get more time and support at home for study. By daily observation of this behavior, it leads them to follow the same behavior. Another thing's is that, still this ethnic group has child marriage problem. So by analyzing these above things, researcher claims that environmental factor is also one of the significant factors that effect in the learning achievement of mathematics of Musahar students. The involved in children's sports activities, would improve their achievements and serve as motivation.

CHAPTER V

SUMMARY, CONCLUSION AND FINDING

Summary and Major Finding

This heading contains the major finding and summary of this research. Finding of this research is based on collected data and summary is an overview of the main points of this thesis. The major finding and summary of this research were described in the following heading.

Summary

This study emphasizes on the achievement and effecting factors in learning mathematics of Musahar students. The purpose of this study is to identify the achievement in mathematics of Musahar children. And to identify the leading factors that affects on their mathematical achievement. This study is composed of five chapters, each of them dealing with different aspects. This research was based on mixed research approach (Qualitative and Quantitative research approach). It followed the explanatory sequential mixed research method. The researcher conducted an achievement test for quantitative analysis and quantitative data were analyzed through SPSS with calculating the mean, standard deviation and t-test. Similarly, the data needed for qualitative analysis were collected through interview with subject teacher, principal, parents and students as well as from field observation. The samples were taken from three different schools of Rupandehi district in Lumbini province of Nepal. The qualitative data were carefully generalized, analyzed and interpreted by using thematic network approach design. From the analysis of data getting from the achievement test, it was found that students have very less mean comparison to National Assessment of Students Achievement (NASA) 2015. Based on analysis and interpretation of data, the findings of this research are presented in the hierarchical order in the heading on major finding.

Major findings of the study

On the basis of data analysis and interpretation of the results, the major findings of this research are listed below:

- It was found that the average obtained mark of Musahar students of grade V is 2.3667out of 20 but according to NASA (2015), it was 14.4.

- It was found that the average obtained mark of Musahar students of grade VIII is 3.20 out of 20 but according to NASA (2015), it was 43.
- The range of obtained marks of Musahar students of grade V is 12 in which the maximum obtained mark is 12 and the least obtained mark is 0.
- The range of obtained marks of Musahar students of grade VIII is 10 in which the maximum obtained mark is 10 and the least obtained mark is 0.

- The standard deviation of obtained marks of Musahar students in grade V is 2.60614. This shows that there is a large variation and scatter of marks of Musahar students.
- The standard deviation of obtained marks of Musahar students in grade VIII is 2.83330. This shows that there is a large variation and scatter of marks of Musahar students.
- Musahar students have more problems on basic fundamental concepts of learning mathematics and on the applying strategies, concepts, formulas and theories in the new context.
- Musahar students have the problem on understanding and the use of basic mathematical operation, rules of manipulation to solve equations and process of solving.
- Musahar students have the problems on language and transformation on verbal/word problems of mathematics and geometrical figural problems.. .
- The students neglected the daily assignments and the teacher did not use to check daily homework as well as did not give any feedback about homework.
- No motivation in the mathematics classroom and no practical knowledge on mathematics.
- The poor pre-knowledge in mathematics, creates the difficulties on learning mathematics to the Musahar students.
- Students do not show their interest on study and not laborious in learning mathematics
- Musahar students (girls) have over load of work at home instead of study and practice of mathematics.
- Students suffer from the mathematical anxiety which is de-motivating to student from mathematics. They have more irritation with mathematics teacher.

- Parents have no time for their child and no proper involvement in children's study.
- Lack of motivation and counseling to the students, they feel mathematics as a very difficult subject.
- Traditional teaching learning methodology, lack of teaching learning materials, lack of child friendly environment, not addressing of the need and interest of students, irregularity of students are creating the environment for low achievement of Musahar students in mathematics.
- Lack of appropriate physical infrastructure, insufficient time and resources of school can be taken as the factors that effecting in learning achievement of Musahar students in mathematics.
- Low achievement in mathematics of Musahar students is taken as genetic factor.
- No friendly behaviors between teacher and students.
- Developed a wrong concept in schooling, thought as to get scholars
- High rate of illiteracy in parents and high poverty.
- Early marriage, language and geographical difficulties and some bad habits are also leads as the factors for low achievement in mathematics.
- Use of traditional methodology rather than students centered methodology in learning activities.

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Conclusion

The main aim of this study is to find the actual mathematical achievement of in mathematics and find out the effecting factors that effect in learning achievement of Musahar students. It was found that the Musahar students have very low achievement in mathematics up-to basic level in comparison of comparison to the National Assessment of Students Achievement (NASA) 2015.Behind the low achievement of students, there are several leading factors such as lack of pre-knowledge in mathematical concepts, low labor of students in mathematics, mathematics anxiety, maternal education and support, behavior of mathematics teacher, methodology and materials used by teacher, home environment and school environment. Lack of prior knowledge, less laboriousness of students, reasons for focusing on house hold work rather than their study, mathematical anxiety and no

interest in schooling are the major factors related student that are effecting in learning achievement in mathematics of Musahar Students'. School, teacher, parents and environment have also the meaningful role for low achievement in mathematics of Musahar students. This study found that the parents of Musahar students do not concern to their children's study. Due to poor economic condition and lack of education and awareness, mostly they focused them on the house hold work rather than their study. no any motivation and proper support for education from parents to their children.

To eradicate the above factors and increase the mathematical achievement of Musahar students, first parents of Musahar students should be aware on the importance of education on children's future and school should conduct different program to increase their regularity in schooling and mathematical achievement as well as to decrease the dropout rate of Musahar students. At last in conclusion, we should eradicate the barriers for influencing their learning mathematics and make mathematics learning enjoyable according to the context which helps to increase the mathematical achievement of Musahar students as well as other students.

Implications

From the observation of the above study, the researcher has presented implications and recommendation which might be beneficial to the concerned authority further improvement in the mathematics teaching and learning. So, the following points reveal the implications of this study:

- This study can be used to the teacher and other stakeholders to reduce the leading factors that effecting in the learning mathematics of Musahar students.
- The teacher should motivate to this group student and praise them to participate in teaching learning activities of mathematics.
- The concerned authority can use to know what the present conditions of Musahar students in mathematics up-to basic level.
- On basis of this information, school administration can conduct the different programs to motivate in learning mathematics and increase the achievement in mathematics of Musahar students.

- The school administration can interact with the students, teachers, parents and with other stakeholders to discuss on the leading factors and come to the solution.
- Innovative and refreshment training, orientation and supervision should be provided to the teacher time to time.
- Administration and subject teacher can conduct a special program to eliminate the mathematical anxiety from the students.
- Use of paradoxes in teaching and learning of mathematics can generate curiosity, increase motivation and create and effective instructional environment.
- Teacher should be encouraged for making and using the teaching materials.
- This kind of studies can be conducted at all levels of schools.
- We can conduct the study on the use of information, communication and technology (ICT) in mathematics to make a visual understanding.
- We can conduct the higher research work Musahar students.

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APPENDIX

Appendix-A

Item analysis of primary level achievement test

item	S2	S1	S4	S5	S6	S10	S7	S9	S3	S8	RH	RL	diff. indx	interpretation	Disc. indx	interpretation
Q1	1	1	0	1	1	1	0	1	1	0	2	2	0.4	average	0	poor item
Q2	1	1	1	1	1	0	1	1	0	0	3	1	0.4	average	0.666666667	very good
Q3	1	1	1	1	0	0	1	0	1	1	3	2	0.5	average	0.333333333	reasonably good
Q4	1	1	1	0	1	1	1	0	1	1	3	2	0.5	average	0.333333333	reasonably good
Q5	0	1	1	1	1	1	1	0	0	1	2	1	0.3	average	0.333333333	reasonably good
Q6	1	1	0	1	0	0	1	0	1	1	2	2	0.4	average	0	poor item
Q7	0	1	1	0	1	1	0	0	0	0	2	0	0.2	very difficult	0.666666667	very good
Q8	1	1	1	1	0	0	0	1	0	1	3	2	0.5	average	0.333333333	reasonably good
Q9	0	0	0	0	0	0	0	1	1	0	0	2	0.2	very difficult	-0.66666667	poor item
Q10	1	1	0	0	0	1	0	1	1	0	2	2	0.4	average	0	poor item
Q11	1	0	0	0	1	0	1	1	0	0	1	1	0.2	very difficult	0	poor item
Q12	1	1	1	1	0	0	0	1	0	0	3	1	0.4	average	0.666666667	very good
Q13	0	1	0	0	0	0	0	0	0	1	1	1	0.2	very difficult	0	poor item
Q14	1	1	0	1	0	1	0	0	0	1	2	1	0.3	average	0.333333333	reasonably good
Q15	1	0	1	0	0	0	1	0	1	0	2	1	0.3	average	0.333333333	reasonably good
Q16	1	0	1	1	1	1	0	0	0	0	2	0	0.2	very difficult	0.666666667	very good
Q17	1	1	1	1	1	1	1	1	1	1	3	3	0.6	average	0	poor item
Q18	0	1	0	1	1	1	0	0	0	0	1	0	0.1	very difficult	0.333333333	reasonably good
Q19	0	0	1	0	0	0	0	0	0	0	1	0	0.1	very difficult	0.333333333	reasonably good
Q20	1	0	0	0	1	1	1	1	0	0	1	1	0.2	very difficult	0	poor item
tol.	14	14	11	11	10	10	9	9	8	8						

Appendix-B

Item analysis of lower secondary level achievement test

item	S4	S7	S2	S5	S6	S3	S9	S1	S8	S10	RH	RL	Diff. Indx	interpretation	Dis. Indix	Interpretation
Q1	0	0	1	0	1	1	1	0	0	1	1	1	0.2	very difficult	0	poor item
Q2	1	1	0	1	0	0	1	1	0	0	2	1	0.3	average	0.333333333	reasonably good
Q3	1	1	1	1	0	1	0	0	1	0	3	1	0.4	average	0.666666667	very good
Q4	0	0	1	0	1	1	0	0	0	1	1	1	0.2	very difficult	0	poor item
Q5	1	1	0	1	1	0	0	1	0	0	2	1	0.3	average	0.333333333	reasonably good
Q6	0	1	1	1	0	1	0	0	1	0	2	1	0.3	average	0.333333333	reasonably good
Q7	1	1	1	0	0	0	0	1	0	1	3	2	0.5	average	0.333333333	reasonably good
Q8	1	1	0	1	1	0	1	1	1	0	2	2	0.4	average	0	poor item
Q9	0	0	1	0	0	1	0	0	0	0	1	0	0.1	very difficult	0.333333333	reasonably good
Q10	1	0	1	0	1	1	1	1	0	1	2	2	0.4	average	0	poor item
Q11	1	1	1	0	1	0	0	1	0	0	3	1	0.4	average	0.666666667	very good
Q12	1	0	0	1	0	0	0	0	0	0	1	0	0.1	very difficult	0.333333333	reasonably good
Q13	1	1	1	0	0	1	0	0	1	0	3	1	0.4	average	0.666666667	very good
Q14	1	1	0	1	0	0	1	1	1	0	2	2	0.4	average	0	poor item
Q15	0	1	1	0	0	1	0	0	0	0	2	0	0.2	very difficult	0.666666667	very good
Q16	1	0	0	1	1	0	0	0	0	0	1	0	0.1	very difficult	0.333333333	reasonably good
Q17	0	0	0	1	1	1	1	0	0	0	0	0	0	very difficult	0	poor item
Q18	1	1	0	1	1	0	0	0	0	1	2	1	0.3	average	0.333333333	reasonably good
Q19	0	1	1	0	1	1	1	1	0	0	2	1	0.3	average	0.333333333	reasonably good
Q20	1	0	1	1	1	0	1	0	1	0	2	1	0.3	average	0.333333333	reasonably good
tol.	13	12	12	11	11	10	8	8	6	5						

Appendix-C

Reliability test record for Achievement test for grade-V

item	S2	S1	S4	S5	S6	S10	S7	S9	S3	S8	total	p	q	pq
Q1	1	1	0	1	1	1	0	1	1	0	7	0.7	0.3	0.21
Q2	1	1	1	1	1	0	1	1	0	0	7	0.7	0.3	0.21
Q3	1	1	1	1	0	0	1	0	1	1	7	0.7	0.3	0.21
Q4	1	1	1	0	1	1	1	0	1	1	8	0.8	0.2	0.16
Q5	0	1	1	1	1	1	1	0	0	1	7	0.7	0.3	0.21
Q6	1	1	0	1	0	0	1	0	1	1	6	0.6	0.4	0.24
Q7	0	1	1	0	1	1	0	0	0	0	4	0.4	0.6	0.24
Q8	1	1	1	1	0	0	0	1	0	1	6	0.6	0.4	0.24
Q9	0	0	0	0	0	0	0	1	1	0	2	0.2	0.8	0.16
Q10	1	1	0	0	0	1	0	1	1	0	5	0.5	0.5	0.25
Q11	1	0	0	0	1	0	1	1	0	0	4	0.4	0.6	0.24
Q12	1	1	1	1	0	0	0	1	0	0	5	0.5	0.5	0.25
Q13	0	1	0	0	0	0	0	0	0	1	2	0.2	0.8	0.16
Q14	1	1	0	1	0	1	0	0	0	1	5	0.5	0.5	0.25
Q15	1	0	1	0	0	0	1	0	1	0	4	0.4	0.6	0.24
Q16	1	0	1	1	1	1	0	0	0	0	5	0.5	0.5	0.25
Q17	1	1	1	1	1	1	1	1	1	1	10	1	0	0
Q18	0	1	0	1	1	1	0	0	0	0	4	0.4	0.6	0.24
Q19	0	0	1	0	0	0	0	0	0	0	1	0.1	0.9	0.09
Q20	1	0	0	0	1	1	1	1	0	0	5	0.5	0.5	0.25
total	14	14	11	11	10	10	9	9	8	8				

k	10		∑pq	4.1		KR20	0.14
			var.	4.7			

Appendix-D

Reliability test record for Achievement test for grade-VIII

students	S4	S7	S2	S5	S6	S3	S9	S1	S8	S10		p	q	pq
Q1	0	0	1	0	1	1	1	0	0	1	5	0.5	1	0.3
Q2	1	1	0	1	0	0	1	1	0	0	5	0.5	1	0.3
Q3	1	1	1	1	0	1	0	0	1	0	6	0.6	0	0.2
Q4	0	0	1	0	1	1	0	0	0	1	4	0.4	1	0.2
Q5	1	1	0	1	1	0	0	1	0	0	5	0.5	1	0.3
Q6	0	1	1	1	0	1	0	0	1	0	5	0.5	1	0.3
Q7	1	1	1	0	0	0	0	1	0	1	5	0.5	1	0.3
Q8	1	1	0	1	1	0	1	1	1	0	7	0.7	0	0.2
Q9	0	0	1	0	0	1	0	0	0	0	2	0.2	1	0.2
Q10	1	0	1	0	1	1	1	1	0	1	7	0.7	0	0.2
Q11	1	1	1	0	1	0	0	1	0	0	5	0.5	1	0.3
Q12	1	0	0	1	0	0	0	0	0	0	2	0.2	1	0.2
Q13	1	1	1	0	0	1	0	0	1	0	5	0.5	1	0.3
Q14	1	1	0	1	0	0	1	1	1	0	6	0.6	0	0.2
Q15	0	1	1	0	0	1	0	0	0	0	3	0.3	1	0.2
Q16	1	0	0	1	1	0	0	0	0	0	3	0.3	1	0.2
Q17	0	0	0	1	1	1	1	0	0	0	4	0.4	1	0.2
Q18	1	1	0	1	1	0	0	0	0	1	5	0.5	1	0.3
Q19	0	1	1	0	1	1	1	1	0	0	6	0.6	0	0.2
Q20	1	0	1	1	1	0	1	0	1	0	6	0.6	0	0.2
Total	13	12	12	11	11	10	8	8	6	5				

k	10		∑pq	4.6		KR20	0.42
			var	7.38			

Appendix-E

Data analysis of primary and lower secondary level

Primary level

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
x	30	2.3667	2.60614	.47581

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
x	4.974	29	.000	2.36667	1.3935	3.3398

Lower secondary

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
x	30	3.2000	2.83330	0.51729

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
x	6.186	29	.000	3.20000	2.1420	4.2580

Appendix-F

Research Topic

Achievement and Effecting Factors in Learning Mathematics of Musahar

Objectives:

- To identify the achievement in mathematics of Musahar children.

Achievement Test Format for Primary Level students

Student's Name:………………………. 　　　　Date:…………………….

School's Name:………………………… 　　　　Gender:………………….

Class:……………………………… 　　　　　　Roll No.:………………..

Adress:…………………………………. 　　　　Age:…………………….

1. Write the name of given geometrical figures.　Ans………………………………
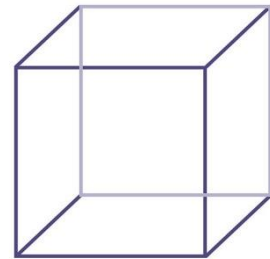
2. How many sides are there in quadrilateral?

   Ans:...

3. Write the name of given triangle on the basis of length of its sides.

   …………………………………..
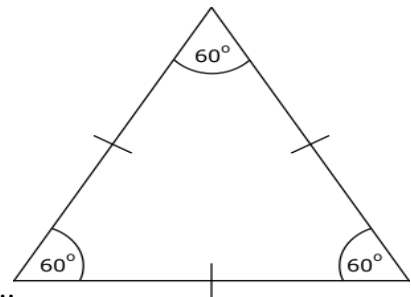
4. Write prime numbers from 1 to 30.

   ----

5. What is the square of 5?

Ans:…………………………………………………………

6. Write the cube root of 64.

Ans:……………………………………………………………………..

7. Solve: 25 - [8 + {3 × (5-2)}]

=………………………………………….

=…………………………………………..

=…………………………………………..

=……………………………………………

8. Add:

3 hr. 25 min. 15 sec.

+ 5 hr. 20 min. 25 sec.

_____

……………………………………..

9. What is formula to calculate the perimeter of rectangle?

Ans:…………………………………………………………………..

10. How many paisa are there in Re. 1?

Ans:…………………………………………………………………..

11. Write the formula to calculate the volume of cube.

Ans:…………………………………………………………………………

12. Add: $\frac{3}{5} + \frac{5}{3}$ =………………… =………………………….

=…………………….

13. What number is multiplied to convert the fraction into percentage?

Ans………………………………………………………………………………

14. Covert into percentage: $\frac{2}{5}$ =…………………

15. How many hours are there in 120 minutes?

Ans:……………………………………………………

16. Ran bought a pen in Rs. 20 and sold it shyam in Rs.25 then how much he got as profit?

Ans………………………………………………………………..

17. Construct angle of 90°.   Ans……

18. Write any acute angle?

Ans ……………………………………………………………

19. Write the formula to calculate simple interest.

…………………………………………………………………………………..

20. Solve: 3x – 5 = -2x +15

    Ans………………………………………..

    …………………………………………..

    …………………………………………….

Appendix-G

Research Topic

Achievement and Effecting Factors in Learning Mathematics of Musahar

Objectives:

- To identify the achievement in mathematics of Musahar children.

Achievement Test Format for Lower Secondary Level students

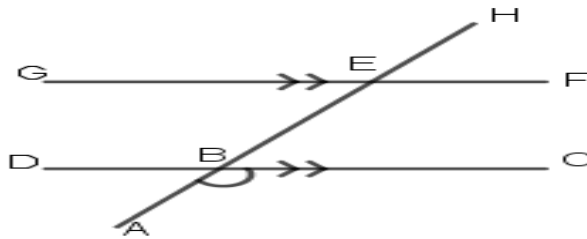Student's Name:……………………….   Date:…………………….

School's Name:…………………………   Gender:………………….

Class:…………………………………   Roll No.:………………..

Adress:………………………………….

1. Which one is the corresponding angle of ∠□□□ in the given figure?

     Ans:………………………………………………………………………………

     ……………..

2. Write any three features of square.

     Ans:………………………………………………………………………………
     ………………………………………………………………………………………
     ………………………………………………………………………………………
     ………………………………………………………………………………………
     ………………………………………………………………………………………
     …………………………………

3. Name the given lines in the circle.

Ans:

…………………………………………………………………………………………

…………………………………………………………………………………………

……………………………………………………………………………………………

………………………………………………………………………………………..
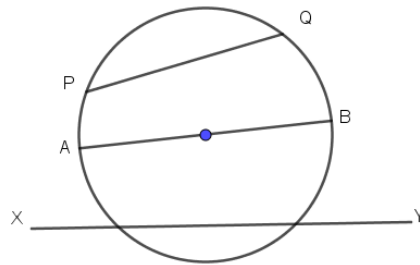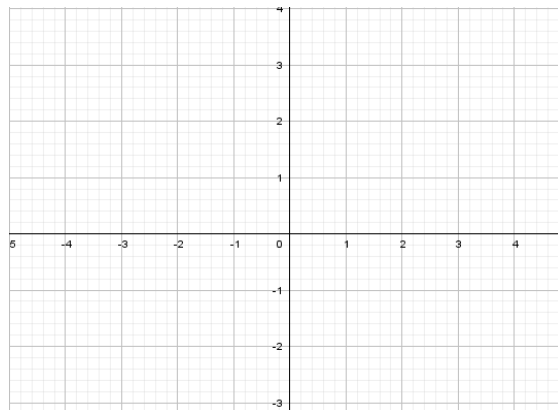

4. Plot the given point A(-1,3) in the given graph.

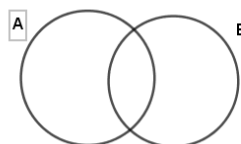5. Ram has a piece of square land whose length is 30m. Find the perimeter of that land.

Ans:……………………………………………………………………………

………………………………..

……………………………………………………………………………………

……………………………………

6. Color the intersection part of the sets A and B in the given figure.

7. What is the square root of the number $\frac{36}{64}$?

   Ans:………………………………………………………………..

8. Find the L.C.M. of 24 and 36.

   Ans:…………………………………………………………………………

   ……………………………………………………………………………

9. From a piece of bread, Ram ate $\frac{2}{3}$. Find the remaining part of bread

   Ans:……………………………………………………………………………

   ………………………………………………………….

10. Ram bought a pen in Rs. 50 and sold to Hari at Rs. 60. Find the profit

    parentage.

    Ans:……………………………………………………………………………

    ……………………………………………………………………………………

    ……………………………………………………………………………………

    ……………………………………………………………………………………

    ……………………………………………………………………………………

    ……………

11. What is the formula of

    $(a+b)^2$:…………………………………………………………………………

    ………………………..

12. What would be the value of $x^2.x^{-2}$

    Ans…………………………………………………………………………………

    ………..

13. What would be the value of : $(+3)x(-3)$

    =………………………………………….

14. Find the value of : $(-100) \div (-20)$

    =………………………………………………….

15. Express in mathematical form: "4 is multiplied in the addition of 5 and 6."

    Ans:………………………………………………………………………..

16. Construct angle of 45°. Ans:………………..

17. Convert into percentage: $\frac{1}{4}$ Ans:………………………………………….

18. Write the formula to find the simple interest.

    Ans:……………………………….

19. Find the ratio of 2 kg and 14 kg.

   Ans:………………………………………………

20. Write the formula to find the perimeter of circle.

   Ans:………………………………..

Appendix-H

Research Topic

Achievement and Effecting Factors in Learning Mathematics of Musahar Students Objective

- To identify the achievement in mathematics of Musahar children.
- To identify the leading factors that effects on their mathematical achievement.

Interview Format for head Teacher

Name:………………………………..   Gender:……………

School's Name:………………………………

Interview Guidelines

- Regularity of Musahar students.
- View of students in schooling.
- Student's performance in schooling.
- Student's performance in extra curriculum activities.
- Facilities provided to students
- Facilities for special students.
- Relationship with students.
- Impact of culture in learning mathematics.
- Learning opportunities.
- About individual different.
- Role of local language in learning mathematics.
- Problems in teaching mathematics.
- Students learning habits.
- Factors that influences in learning mathematics.
- Drop out conditions.
- Reasons to not continue in upper level.

Appendix-I

Research Topic

Achievement and Effecting Factors in Learning Mathematics of Musahar Students Objective

- To identify the achievement in mathematics of Musahar children.
- To identify the leading factors that effects on their mathematical achievement.

Interview Format for Teacher

Name:………………………………..   Gender:…………………

Qualification:………………………….   Training:………………

School's Name:………………………

Interview Guidelines

- Teaching Methods.
- Student's performance in classroom while teaching and learning mathematics.
- Homework and class work for special students.
- Relationship with students.
- Impact of culture in learning mathematics.
- Learning opportunities.
- Language problems in instruction process.
- Role of local language in learning mathematics in classroom.
- About individual different.
- Problems in teaching mathematics.
- Students learning habits.
- Factors that influences in learning mathematics.
- Mathematics curriculum
- Use of teaching materials in learning mathematics.
- Drop out conditions.
- Reasons to not continue in upper level.

Appendix-J

Research Topic

Achievement and Effecting Factors in Learning Mathematics of Musahar Students Objective

- To identify the achievement in mathematics of Musahar children.

- To identify the leading factors that effects on their mathematical achievement.

Interview Format for Students

Student's Name:……………………….   Date:…………………….

School's Name:…………………………   Gender:………………….

Class:……………………………   Roll No.:………………..

Adress:…………………………………….   Age:…………………….

Interview Guidelines

- Reading and learning opportunity at home.

- Learning and reading opportunity at school.

- Views about mathematics (either difficult or easy)

- Parents support in learning mathematics.

- Sufficient time to practice and learn mathematics at school and home.

- Language difficulties.

- Homework and classwork.

- Opportunity in Participation on extracurricular activities.

- Difficulties in understanding, learning mathematics.

- Pedagogical problems in teaching.

- Views on further study.

Appendix-K

Research Topic

Achievement and Effecting Factors in Learning Mathematics of Musahar Students Objective

- To identify the achievement in mathematics of Musahar children.
- To identify the leading factors that effects on their mathematical achievement.

Interview Format for Parents

Student's Name:………………………   Date:…………………….

School's Name:…………………………   Gender:………………….

Class:…………………………………   Roll No.:………………..

Adress:……………………………….   Age:…………………….

Interview Guidelines

- View about school and teacher.
- View about mathematics.
- Afford for children study.
- Expectation from school like scholarship and other facilities.
- Awareness towards child learning.
- Provided opportunities for learning to the child at home.
- Main interesting area of child at home.
- Views on further study of children.