PARENTAL INFLUENCE AND MATHEMATICS ACHIEVEMENT

A

THESIS

BY

KRISHNA BAHADUR B.K.

IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE DEGREE OF

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LETTER OF CERTIFICATE

This is to certify to Mr. Krishna Bahadur B.K., a student of academic of year 2072/73 with Exam Roll No. 7228308, Campus Roll No. 684/2072-073, Thesis No. 1461 and T.U. Regd. No. 9-2-0676-0059-2011 has completed his thesis under the supervision of Mrs. Hom Kumari Adhikari during the period prescribed by the rule and regulation of Tribhuvan University, Nepal. This thesis entitled "**Parental Influence and Mathematics Achievement"** has been prepared based on result of his investigation. I, here by recommended and forward that his thesis be submitted for evaluation as the partial requirements to the degree of Master of Mathematics Education.

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24 December, 2019

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LETTER OF APPROVAL

A thesis by Mr. Krishna Bahadur B.K. entitled **"Parental Influence and Mathematics Achievement"** has been approved for the partial fulfillment of the Requirements for Degree of Master of Mathematics Education.

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RECOMMENDATION FOR ACCEPTANCE

This is to certify that Mr. Krishna Bahadur B.K. has completed his M.Ed. thesis entitled **"Parental Influence and Mathematics Achievement"** under my supervision during the period prescribed by the rules and regulation of Tribhuvan University, Kirtipur, Kathmandu Nepal. I recommend and forward his thesis to the Department of Mathematics Education to organize final viva-voice.

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Mrs. Hom Kumari Adhikari

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Defense Date: 20 February, 2020

DEDICATION

Dedicated

To

My parents and all my family members whose blessings is with me forever.

DECLARATION

I hereby declare that this thesis is my original work. It contains no material which has been accepted for the award of other degree in any institutions. For the best of my knowledge and belief, this thesis contains no materials previously published by any authors due to acknowledgement has been made.

…….....…..……

Krishna Bahadur B.K.

24 December, 2019

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Krishna Bahadur B.K.

24 December, 2019

ABSTRACT

The study entitled "Parental Influence and Mathematics Achievements" based on quantitative approach. The objective of this study was to explore the relationship between parent related factors and mathematics achievements. This study was based on survey design (cross sectional). The population of this study were consisted the compulsory mathematics students at grade VIII in Raaptisonari gaunpalika in Banke district. The sample of this study 232 students selected from grade VIII of six schools and their parents in Raptisonai Gaunpalika by using random sampling method. Mathematics achievement test and questionnaire forms were uses to collecting data. The collected data were analyzed by using statistical tools as mean, standard derivation, coefficient of variation, correlation, t-test, ANOVA test and multiple linear regression.

The finding of the study shows that factor parents support to homework affected 44.0% which was more influence on mathematics achievement than other factors (father's education, mother's education, parents income, fathers occupation, mothers occupation, parents language and parents provide needs to support study). Also father's education and mother's education were almost equally affected on mathematics achievement. Relation between parents support to do homework and mathematics achievement was high and fathers education, mothers education, parents income have moderate relation with mathematics achievement also fathers occupation, mothers occupation, parents language and parents provide needs to support study have low relation with mathematics achievement.

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ABBREVIATIONS

ANOVA: Analysis Of Variance

S.D : Standard Deviation

T.U : Tribhuvan University

C.V : Coefficient of Variance

SPSS : Statistical Package For Social Science

MKO : More Knowledgeable Others

Chapter I

Introduction

Background of the Study

The school is a formal institutional where children and youth learn however, other informal institutional such as families and communities are equally important for children learning (Rothstein,as cited in Pangeni, 2014). There are many factors affecting on mathematics achievement of the students. Those factors may be parental involvement, families, peers groups, social environment, situation of class, parental economy and parents education (Khatri, 2017). Among these factors Parents is very strong influence on students mathematics achievement (Khatri, 2017). Parent related factors play the vital role on student's mathematics achievement. Parents are the first teacher in a child life, and it can be initiated with the verbal stimulation and supportive behavior by parent (Macbeth, as cited in Pangeni, 2014). It is the responsibility of parents to provide facilities for their child to study (Khatri, 2017).

The educational development of the students depend not only on self behavior and teachers but also on the parents knowledge, awareness and interest. Parents teach and give more information of fundamental knowledge, skills, attitudes and discipline. Parents can support their children to solve mathematics problems. Supporting this view ,

> The best way that the parents can contribute toward the continued progress in study of their children is to provide them with a secure and happy home and make them feel that they are loved well taken care, and at the same time they must make available almost unlimited facilities for free reading from well

graded children's books and magazines and provide opportunities for a great variety of games and get a balanced sense emotional satisfaction. Time to study, encouragement to study and materials to study are necessary conditions that can accelerate progress of the learning for the children.(Malakar,as cited in Khatri,2017).

Parent's education, occupation, social tradition, family size, poverty and load of house hold work is the main causes of affecting Kami student achievement in mathematics (Rawat,2011).The foremost responsibility of the parent is to bring further children that are assets to the family, to the community and to the wider societies , the country, children, guardian and the resident of community where the children belong equally grow capable of productive and beneficial participation in the varied process with take place in their immediate as well as extend environment i.e.in social, economic, cultural and other process disenable human value (UNESCO,1991).

The family income resources, which include the existence of some goods in the students house like the number of bathrooms, car, TV, vacuum cleaner, computer, the number of family member per room in the students house the existence of house maid and whether or not the student works always have to be consider in research on students. Families that highly value their children education, spend proportionally, more on cultural goods and other schooling resources (Soares and Collares,2006).

Mostly the educated and high social cast's parents take care of their children rather than the illiterate and low cast's parents because they know the importance of education (Sharma,2015). Ample research evidence suggest that most parents want

their children to succeed in school and in order for them to be good partner in their children's education; they obtain more information from school. Likewise, most students at all school levels, whether it being elementary school, middle school or high school level, want their families to be familiar and acquainted partner about schooling. The positive effect that parental involvement has on student's academic achievement appear to be undeniable. Therefore it should be a top priority for parents and schools to establish and maintain a strong partnership between schools and home (Epstain,2009).

Statement of the Problem

Research problems are the educational issues, controversies, or concerns that guide the need for conducting a study (Creswell,2012). Several researcher in developed countries such as Grau, Weinstein, and Walberg (1983) in the United State, Iverson and Walberg (1982) in the Australia, shows that parental support powerfully influence what children learn in and outside of the school.

In our context, after the commitment made to EFA in 1990, the government in Nepal selected education as a priority sector and interested its resources to provide a basic quality of education for its people. Various programs such as the Secondary Education Support Program(2003-2008), Education For All (2004-2009), Community School Support Program and Teacher Education Program were implemented. According to (Education Department Service Centre, 2008), the average learning achievement in mathematics of grade eight students in 1999 and 2008 are 28.90 and 31.70 respectively. According to (Department Of Education, 2012), promotion, repetition and drop out rate of lower secondary level in 2012 are 88.70, 5.20 and 6.10 respectively.

Raptisonari gaupalika is a impassable place of Banke district. It's area is 1041.73 sq km and 59946 population are there which are more population than other gaunpalika. Many people are uneducated and involved in agriculture. In this area, only some people have 'white colour job'. Many people are tharu and madhesi. Some mathematics teachers are friends of researcher. So by conversation of them and researcher observed by nearly, the researcher seems that some problems such that student's mathematics achievement is very poor. And many students are repeat class cause by they do not pass mathematics subject. Some researcher study on particular factors separately such as parent's education, occupation etc and some were study on relation between mathematics achievement and parent's factors. So the main purpose of this research is to find out the influence of parent's related factors on student's mathematics achievement of grade VIII at raptisonari gaunpalika in Banke district. In order to ascertain its effectiveness the researcher intends to answer the following research question:

- What is the relationship between parental factors and mathematics achievement?

Objective of the Study

A research objective is a statement of intent used in quantitative research that specific goals that the investigator plans to achieve in a study (Creswell, 2012). The study intended to determine the following objectives:

- To explore the relationship between parental factors and mathematics achievement.

Hypothesis of the Study

Hypotheses are statements in quantitative research in which the investigator makes a prediction or a conjecture about the outcome of a relationship among attributes or characteristics (Creswell,2012).There are two types of hypothesis like null hypothesis (H_0)and alternative hypothesis (H_1). The following hypothesis tested during the study:

H_0 : There is no significant difference between mathematics achievement and parental factors.

H_1 : There is significant difference between mathematics achievement and parental factors.

Significance of the Study

Mathematics is one of the most important subject of school education. It has been taught for all students as a compulsory subject in the school level. This study will be expected to significant for the reason that it will help to determine the parent related factor affecting on mathematics achievement. Significance of this study can be listed as follows:

- This study helps to inform mathematics teacher, student and parents, what are the factors related to parents affecting on mathematics achievement.
- This study helps to create effective environment for learning mathematics.
- This study helps to parent how to inspire their children.
- This study helps for researcher to review further study.

Delimitation of the Study

The major delimitation of this study were as follows:

- This study was delimited to the Raptisonari Gaunpalika, Banke district.
- This study was delimited to the students at grade VIII and their parents.
- This study was delimited to the 232students from different six schools.

Operational Definition of the Key Terms

In this study the key terms will be defined as below:

Student: Student in this study defined as who studying at grade eight in Raptisonari Gaunpalika in Banke district.

Parent: Parent in this study defined as the father or mother of grade eight's students in Raptisonari Gaunpalika in Banke district.

Parental role: duty of father and mother for their children's mathematics achievement.

Achievement: Achievement in this study defined as the obtained score of the students on the mathematics achievement test.

Parent's factors: Father's education, mother's education, parents income, parents language, father's occupation, mother's occupation, parents provide needs to support study and parents support to do homework.

Chapter II

Review of the Literature

A literature review is a written summery of journal article, books and other document that describes the past and current state of information on the topic of research study (Creswell,2012). Review of the literature is very important to provide an insight into the problem to familiarize the researcher with the previously done and to make the researcher to adopt suitable design. I have reviewed a few research works within my access.

Empirical Literature Review

The review of the empirical literature concerns the systematic concise of scientific researches and true exploration including their topics, the objectives of the study is done by clear way, designed and sample are concerned in the study, the data collection tools and methods of conforming their validity and reliability, and key finding in the related field.

Malakar (1989), conducted an article on the topic "Parental involvement in education of children" mentioned a study of 250 California elementary school revealed that parental involvement is related to parent satisfaction and students achievement. 'The curriculum of home' that included parent child discussion about everyday occurrences, monitoring and viewing television together encouragement to read and to discuss the matters read, and emotional support and interest in the child's world was reported to leave together, academic achievement. In 19 controlled study and 91 percent of the children in the program benefited when the learning environment at home was improved. The experimental children were compared to the children who did not participate in the program. It was found that home environment effected at the outcomes twice as much as socio-economic status did.

Erledsdottir (2010),conducted a study on the topic "effect of parental involvement in education" mentioned a study of qualitative case study research was approach was used. Data were gathered by interviewing parents of eight students at Combretum trust school in Windhoek, who all have achieved academically. The objective of the interviews was to learn if and how the parents are involved in their children's education. It was found that all the parents who were interviewed were highly involved with their children's education. They had high expectation towards their children's education and their future. In addition, they were all quite vocal about their expectation to their children. The parents all recognize the importance of their staying involved with their child's education and participate fully. All the parents want to know how their child spends his or her time outside of school and with whom their child spends his or her time. Staying involved with their children's education in this way the parents do impact positively on the academic achievement of the students.

Hamal (2012), conducted a study on the topic "Parent's occupation and its relation to students mathematics achievement" mentioned a study with the objectives of this study were to compare student's mathematics achievement at secondary level according as differential parental occupation and to analyze effect of parental occupation on mathematics achievement of student at grade X. For this purpose two public and one private school were selected in convenience to the researcher. This study was based on descriptive survey design. The selection of the sample of students was stratified random sampling methods. And all the corresponding parents of the students were sample of the study. Two kinds of tools were used to collect the data. To get the achievement score an achievement test was taken and two set of questionnaire were used to get the information form the students and their parents.

ANOVA and t-test were used to compare the achievement score of children and to compare the socio-economic status, parental involvement , and educational facilities at home, the method was used. This shows that the government services socio-economic status is good. Parental involvement on education of the government services parents' is high. The t- test result showed that the achievement score of business children's high. The ANOVA result shows that there is significance between the achievement score of three different occupation groups children. The businessman children's achievement mean score is more than the other four occupational group's children.

Mwirichia (2013), conducted a study on the topic "Influence of parental involvement on academic performance of pre-school children in kangeta division, meru country Kenya" mentioned a study of ten pre schools, hundred children, hundred parents and eightteacher were sampled. Therefore for this study sample size was two hundred and eight subjects consisting of parents, teachers and children. The researcher has used interview schedules for children and parents, questionnaire for teachers with hundred children, hundred parents and eight pre- school teacher and documentary analysis. This study was descriptive survey design. The objectives of this study were to find out whether home environment has an influence on academic performance of preschool learner, to establish whether the parent- school communication has and influence on academic performance of preschool learner, to investigate whether parent's participation in activities at home has an influence on academic performance of preschool learners and to find out whether parents participation in educational activities at school has an influence on academic performance of preschool learners.

Dekar (2016), conducted a study on the topic "The influence of parent's educational background on the academic achievement of the government high school students in Thimphu" mentioned with the objective to examine the influence and impact o parent's educational level on student's academic achievement at secondary level of education. A quantitative research method was employed for this study with class 12 students of government high school in Thimphu being randomly selected. This study attempted to survey both the students and their parents by distributing two sets of questionnaires. The rationale behind this was to triangulate the data in order to provide more insight on this topic and to ensure validity while complementing similar data. In the pursuit of finding the correlation between educational qualification of the parents and children's success, the researcher found out vividly that the former variable is not the only determinant for the latter one. After analysis of the data the researcher found moderate positive relationship between parent's education and academic achievements of the students.

Khatri(2016), this is a survey research related to "Parental involvement on their children's mathematics achievement." The objective of this study were to find the correlation between the mathematics achievement of students and their parents involvement as different role model and to find impact of parent's involvement to their children's mathematics achievement of grade V students. For this study the researcher selected 2 public schools with 120 students and their parents. Mathematics achievement test and parents questionnaire form were the main tools of this study. Mean, standard deviation, correlation, inter-correlation and multiple regression were used to analysis of the data related to parents involvement role. The achievement of students whose parents were taking more time is better than the parents taking less time as a teacher. Similarly mean score of children's whose parents always support

was higher than other. Also mathematics achievement of students is higher whose parents as high motivator.

It concluded that the different role of parent's involvement was very essential for increasing the mathematics achievement. They are able to increasing mathematics achievement by providing facilities for reading and writing as well as parents guiding for doing homework by parents participation with different role for encouraging. It shows that the parents involvement as motivator was not sufficient, monitoring was not sufficient but they needed help and guiding as teacher role. This researcher shows parent's role as teacher effected more than other on children's mathematics achievement.

Thapa(2016), conducted a topic "parent's involvement and mathematics learning of students. " The respondents were three groups of grade VIII student's parents such that jobholder, business and farmer. The aim of the study was to explore the way of parents involvement in their children learning. In this research was used in qualitative approach. Observation and in-depth tools were used to collect data. The field of the study was selected purposively and the student's were selected by using purposive sampling. The objective of interview was to how the data obtained from instrument were analyzed descriptively by using cross match and triangulation method. From the analysis of data from interview and observation. Job holder group parents shown more involved in their children learning in term of managing extra study room, guiding on doing homework, providing learning materials, study time table, alternative source of electricity than other group parents. Business group parents were also concern about these topics. But farmer group parents were not

more concern about it. It concluded that the occupation jobholder of parents here played major role in the way of involving in their children learning activities.

Khatri (2017), conducted a study on the topic "parent's involvement in learning mathematics" mentioned a study with the objective to examine the parent's involvement in learning mathematics and to analyze the mathematics achievement of the students of class VII. For this study the researcher selected three public schools and through stratified random sampling with 150 students and their parents through random and purposive sampling. Mathematics achievement test for students and parent's questionnaire were the main tools of this study. Percentage, mean, standard deviation and correlation coefficient were used to analyze the data related to parental involvement in learning mathematics. after analysis of the data the researcher conclude that the different role of parents involvement is very essential for increasing the mathematics achievement. They are able to increasing mathematics achievement by providing facilities for reading and writing as well as parents guiding for doing homework by parents involvement with different role for encouraging.

Lamichhane (2017), conducted a study on the topic "Influence of parent's education level on students mathematics achievement" mentioned a study with objective to examine the influence of father's education, mother's education and parental involvement on mathematics achievement of the students of class X .The study was based on descriptive survey design and quantitative technique was applied to analyze the data. To complete the objective of the study, four school were selected randomly from Nuwakot district. The total sample were 125 students and their 125 parents. The researcher divided the students in the three groups according to their parent's education. The researcher collected the data by using mathematics

achievement test from students and questionnaire related to five point Likert scale from parents. The achievement score of students were analyzed by using mean, standard deviation, t- test also used ANOVA. The parent's questionnaire was analyzed by percentage and mean. At last the researcher conclude that there was a significance difference among three groups of students according to the parental educational groups.

Sharma (2015), conducted a study on the topic "Impact of home environment on mathematics achievement of Tharu students" mentioned a study with objective to examine that the effect of home environment on mathematic achievement of Tharu students and to find the correlation between home environmental factor and mathematics achievement of Tharu students of grade VIII. Two hundred students and their parents from eight government schools and thirteen private schools in Banke district were selected through random sampling. Students questionnaire form ad parent's interview schedule were used to collection data. The collected data analyzed by using statistical tools such as mean, standard deviation correlation, t-test, ANOVA test and multiple linear regression. After analysis the researcher conclude that the home environment of the Tharu students effect directly in the mathematics achievement.

From the above review, it can be concluded that there have been many researcher worked on parent involvement on learning mathematics of students, Parent's occupation and its relation to students mathematics achievement, Influence of parent's education level on students mathematics achievement, Impact of home environment on mathematics achievement of Tharu students. Many researcher found that there are many factors such as cultural, physical facilities and home environment,

teaching learning process, motivation, teacher related factors and parent involvement which affecting on learning mathematics and its achievement of students. In Nepal some studies have been done to explore whether the achievement in mathematics is affected by different variable such as class size, gender, teacher qualification, home environment and parents involvement. The parental role is the strongly related to the students performance in mathematics. From above review, in Nepal, some researcher study on particular factor such as parent's education, occupation etc. I want to explore effect of parent related factors on student mathematics achievement also which factors strongly affecting. So this was the reason that I choose this topic "Parental influence on s mathematics achievement" to conduct my research. The variable of this study are parent's language, income, education, provide needs to support study, support to do homework and occupation.

Theoretical Framework

Theoretical framework is relevant for the interpretation of the finding of the study. There are various theory related to children's learning and development. For this study related to social constructivism theory of Vygotsky and Epstein theory.

Social Constructivism of Vygotsky's Theory

According to Lev Vygotsky, cultural-historical theory of understanding development is emphasized on the role of culture in the development of higher mental functions, such as speech and reasoning the children. His theory is related to socio-cultural The theory focuses the important of society and culture for enhancing the understanding intentionally efficient manner by heartening them in difficult and meaningful activities. We will return to our introductory examples throughout this lesson to exemplify the principle of Vygotsky theory in our introduction, the father

intentionally engaged with his child to help her understand how to fit theblocks into the designed holes, without this help she would have continued to be unsuccessful. But with the meaningful direction from her father, she was able to successfully get the blocks into the holes herself.

He had mentioned that learning is a necessary and universal aspect of the process of developing culturally organized and human psychological function Learning is achieved through social interaction and language. According to Vygotsky Initially child has two kinds of interpsychological and intrapsychological. Here interpsychological means the child has new knowledge through interaction with others and intrapsychological means the child has knowledge of his own inside and new knowledge which is mastered on an individual level.

The Zone of proximal development is central to Vygotsky's view on how leaning takes place. He had described this zone is the distance between the actual development level determined byindependent problem solving and the level of potential development as determined by independent problem solving under adult guidance or in the collaboration with more capable peers(Pandit,2069). He mentioned that learning occurred just above the student's current level of competence. The foundation of scaffolding is for potential development. The use of language and shared experience is essential to successfully implementing scaffolding as learning tool. Teachers are able to make the competence of students through the zone of proximal development. Scaffolding is the first step to build interest and engage the learner. If the learner is actively participating, the given task can be simplified by breaking it in to small subtask. Learners can imitate any task and they also internalize that task. The social context promotes sustained achievement and understanding

growth. They work together and construct the knowledge. Vygotsky differentiated between two forms of speech: spoken and written. Spoken speech can be symbolized in writing by the progression form. The child's transition is from drawing things to drawing speech. The curriculum should provide many opportunities to apply previous skills, knowledge and experiences with authentic activities connected to real life environment since children learn much through interaction and curriculum.

MKO is to anyone who has a better understanding or a higher ability level than the learner with respect to particular task, process and concept. The MKO is normally thought of being teacher, coach and older adult and the MKO could be peers, a younger person and even computers. The MKO is that they must have knowledge about the topic being learned than the learning does. Teachers are able to make the competence of students through the zone of proximal development.

Epstein framework

Epstein's conceptual model theory emphasizes the need for reciprocal relationship of parents, educators and community partners to identify common goals for student's academic achievement and to appreciate each other's contribution to students development. The six factor of parental involvement are parenting, communicating, volunteering, learning at home, decision making and collaborating with community. Parenting pertains to helping all families understand the development of both the child and the adolescent. It also helps establishing a supportive home environment for children as students. Communicating refers to how best to design and conduct an effective two way communication, which is school to home and home to school, about school programs and their children's progress. Volunteering applies to recruiting and organizing help and support from parents for

school programs and students activities. Learning at home pertains to providing ideas and information to parents about how they can best assist their children with homework and curricular related decisions and activities. Decision making refer to including parents in school decision and to developing parent leaders and representatives. Collaborative with the community pertains to identifying and integrating communities service and resources to support and strengthen schools, students and their families. Each of these factors can lead to various results for students, parents, teaching practices and the school climate. In addition, each factors includes many different practices of partnership. Lastly, each factors poses challenges to involve all families and those challenges must be met. That is why Epstein(2009), consider it to be important for each school to choose what factors are believed to be most likely to assist the school in reaching its goals for academic success, to develop a climate of alliance between home and the school.

Conceptual Framework

A dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable (Creswell,2012).An independent variable is an attribute or characteristic that influences or affects an outcome or dependent variable (Creswell,2012).This study is focus to parent related factor affecting on students mathematics achievement. From the collection and studies of above literatures by the literatures such as Hamal(2012), Malakar(1989), Eeledsdottir(2010), Dekar(2016), Lamichhane(2017),Sharma(2015), Epstein framework, the researcher made the framework for this study. So this study was related to the following framework:

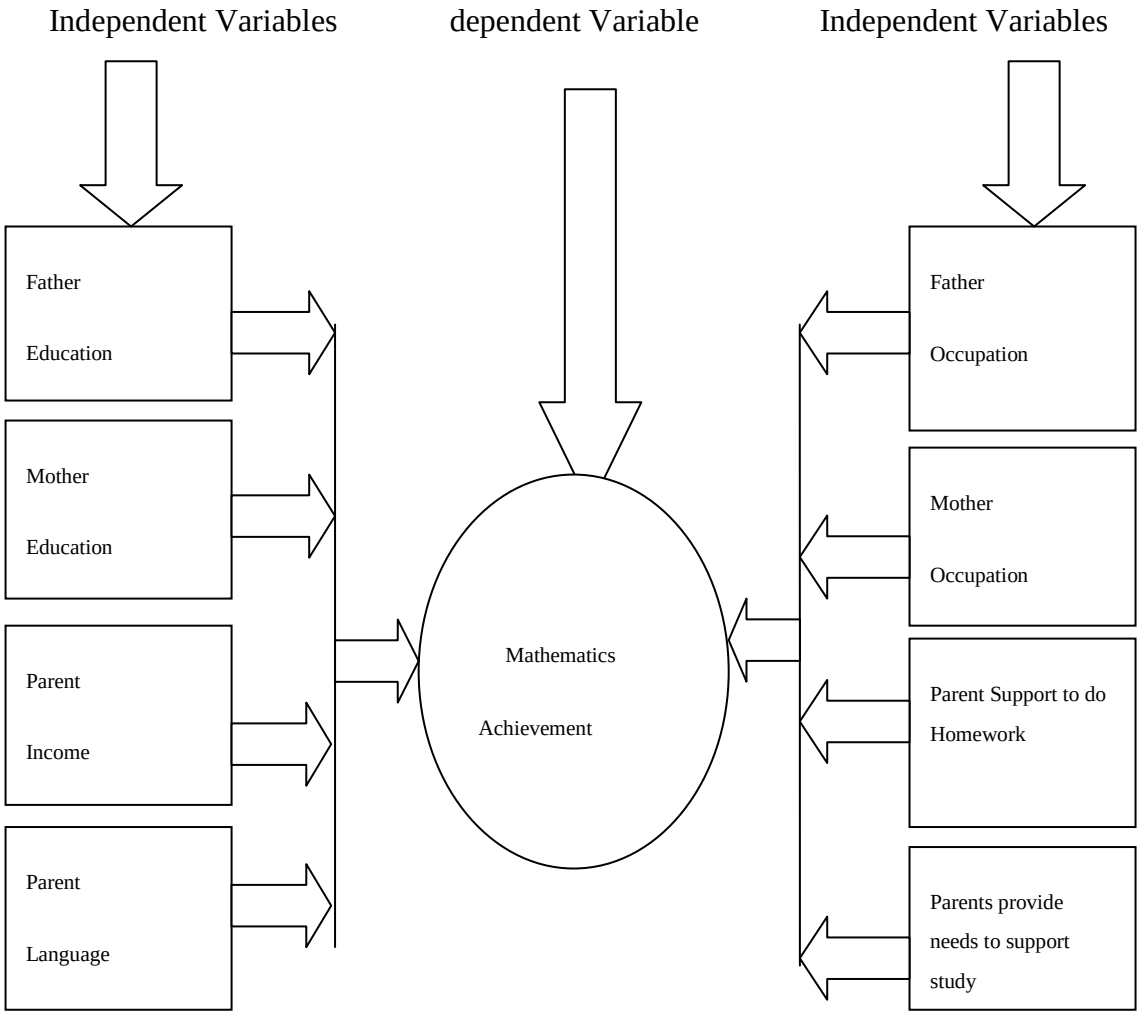

***Figure 1*: Conceptual Framework**

On the basis of above mentioned conceptual framework, the tools were constructed such as questionnaire form and student achievement test in mathematics. By using the tools, the data was collected. Collected data was analyzed on the basis of conceptual framework. The result of research was found out on the basis of conceptual framework. In sum, conceptual framework for this survey is designed in the above diagram on the basis of literature and theoretical understanding. On the basis of conceptual framework, to show the factor affecting of independent variable on mathematic achievement were analyzed.

Chapter III

Methods and Procedures

The research methodology is the important aspect of the study. This section explains the design of the study in detail. It includes a detail description of the data in which decision has made about the type of data needed for the study, the data and method using collected the data. The following will be the method and procedures in this study:

Design of the Study

This study was based on cross sectional survey design and quantitative research. It was found parents related factor and its affect on student's mathematics achievement. The most popular form of survey design used in education is a cross sectional survey design (Creswell, 2012). A research design is a plan, structure and strategy of investigation which is a complete scheme or program of the research.

Population of the Study

The population of this study was consisted the compulsory mathematics students at grade VIII in Banke district. A population is a group of individuals who have the same characteristic (Creswell,2012). A population is a group of individual objects or items from which sample are taken for measure while the target population refers to the total of subject.

Sample and Sampling of the Study

A sample is a subgroup of the target population that the researcher plans to study for generalizing the target population. In ideal situation, select a sample of individuals who are representative of the entire population (Creswell,2012). The

process of selecting the samples is called sampling. The idea of sampling is to select part of the population to represent the entire population. The sample of this study were selected randomly 6 schools(Appendix-E) from 34 schools and selected total students 232 of selected schools at grade VIII as well as their parents selected by purposive sampling in Raptisonari Gaunpalika, Banke district.

Data Collection Tools

Two types of tools would be used to collect data they were mathematics achievement test for student and questionnaires for parents were developed to collect the data for this study. These tools were developed by help of the supervisor.

***Mathematics achievement test*:** Mathematics achievement test for student used to collect achievement of mathematics of the student. The researcher was included 30 multiple choice questions in the test (Appendix-A). The researcher constructed these questions help of the mathematics curriculum and textbook of grade VIII.

***Questionnaire*:** The questionnaire is a widely used and useful instrument for collecting survey information, providing structure, often numerical data, being able to administered without the presence of the researcher, and often being comparatively straightforward to analyze (Wilson and Mclean, as cited in Cohen, Manion and Morrison,2007). An entire questionnaire form for parents were used to collecting information where these information was related to six parent's related factors like parent's income, parent's language, parent's education, parents provide needs to support study, parent's occupation and parent support to do homework. The researcher included six questions in this questionnaire form for parents.(Appendix-B)

Validity and Reliability of the Test

Validity is the development of sound evidence to demonstrate that the test interpretation (of scores about the concept or construct that the test is assumed to measure) matches its proposed use (Creswell, 2012). The validity of the mathematics achievement test and questionnaire was established its approval from thesis supervisor and teachers. Reliability means that scores from an instrument are stable and consistent(Creswell,2012). For the reliability test of the test paper, the researcher carried out pilot test on twenty five students of shree deep jyoti secondary school, Badhaiyataal Gaunpalika. A pilot test of a questionnaire or interview survey is a procedure in which a researcher makes changes in an instrument based on feedback from a small number of individuals who complete and evaluate the instrument(Creswell,2012). The researcher was applied Split-half method to test the internal consistency of the test. Then the researcher was found correlation coefficient was 0.74 also reliability coefficient was 0.85.(Appendix-D)

Item Analysis

The difficulties level and discrimination index of was computed to check the quality of the test item. The item analysis was accomplished by administering 25 students at grade VIII of shree deep jyoti secondary school, Badhaiyataal Gaunpalika. The test items were two score of each items. In the analysis of P-value, two items were easy, seven items were substance, twenty four items were general and two items were very hard. Similarly, according to D-value, six items were canceled because items D- values were lies between -1 to 0.19. And one item (item No. 20, Appendix-A) was selected from suggestion mathematics teacher. (Appendix-C)

Data Collection Procedure

At first the researcher selected six different schools in Raptisonari Gaunpalika, Banke district. For the data collection, in two days the researcher was visited selected schools along the letter, and met the Principal of concerned schools also met mathematics teacher and students of grade VIII. Then the researcher explained in detail the purpose of the visit. The researcher was informed mathematics teacher and student for the test of students on tomorrow, also some parent questionnaire form distributed to students delivered their parents and some questionnaire form distributed to parents by researcher. Then two days latter, the researcher was distributed question paper for students by help mathematics teachers. Then collected paper and questionnaire form. Then researcher was visited parents of those students and collected questionnaire form.

Data Analysis Procedure

The collected data was systematically analyzed and interpreted by using appropriate quantitative tools such as the mean, standard deviation (S.D.), coefficient of variance (c.v), t-test, ANOVA test, correlation coefficient and multiple linear regressions. The mean was used to found the level of mathematics achievement, standard deviation was used to found the significance representation of mean (Sharma,2015), also it does provide useful information, and we look at it as an indicator of the dispersion or spread of the scores (Creswell,2012), coefficient variance was used to measured consistency of the data, t-test and ANOVA test were used to found out the significance difference of mean score of parental factor in mathematics achievement, Correlation coefficient was used to determined the relationship between dependent and independent variables, Multiple linear regression

was used to find the effect of independent variables on dependent (Sharma,2015). The researcher was used computer program SPSS for for computing the data.

Chapter - IV

Analysis and Interpretation of Data

This chapter deals with the analysis and interpretation of the data. The main focus of this study was to explore the parental influence on mathematics achievement of grade VIII. The data which were categorized into different factors related to parent such as father's education, mother's education, parent's income, father's occupation, mother's occupation, parent's language, parent support to do homework and parents provide needs to support study. This quantitative research related to cross-sectional survey design selecting six schools in Raptisonari Gaunpalika. Mathematics achievement test and questionnaire were used as the data collection then the researcher analyzed each data with the help of statistical measures.

Mathematics Achievement According to Father Education

In this study, father education categorized into four groups such as illiterate, basic, secondary and higher education group. Illiterate represents Parents of students at grade eight inRaptisonari Gaunpalika Banke district who were unable to read and write. Basic level represents Parents of students at grade eight in Raptisonari Gaunpalika Banke district who were passed grade eight. Secondary represents Parents of students at grade eight in Raptisonari GaunpalikaBanke district who were passed grade twelve. Higher education represents Parents of students at grade eight in Raptisonari Gaunpalika Banke district who were passed bachelor level or master degree level. The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table I: ***Comparison of Achievement According to Father Education***

Group	**Mean**	**S.D.**	**C.V.**	**N**
Illiterate	29.68	13.25	44.64%	25
Basic	37.61	12.31	32.73%	149
Secondary	44.91	11.95	26.61%	53
Higher edu.	52.40	3.29	6.28%	5

The table I shows that the mean scores of illiterate, basic, secondary and higher education group are 29.68, 37.61, 44.91 and 52.40 respectively. It means that the highest and lowest mean score of student's mathematics achievement are in higher education group and illiterate group respectively. Therefore, the level of student's mathematics achievement of higher educated father is better than basic level educated father, secondary level educated father and illiterate father's children's mathematics achievement. And illiterate father's children's level of mathematics achievements are poor than other. Also the level of student's mathematics achievement of basic level educated father and secondary level educated father are between in illiterate and higher educated.

Also the table I shows that the standard deviation of illiterate, basic, secondary and higher education group are 13.25, 12.31, 11.95 and 3.29 respectively. It means that more dispersion and less dispersion of scores from mean score in illiterate group and higher education group respectively. Therefore student's mathematics achievements of higher educated father are closely with mean score than basic level educated father, secondary level educated father and illiterate father's children's mathematics achievement. And illiterate father's children's mathematics achievements are more spread than other. Also the dispersion of student's mathematics achievement

of basic level educated father and secondary level educated father are between in illiterate and higher educated.

Also here, the coefficient of variance of illiterate, basic, secondary and higher education group are 44.64, 32.73, 26.61 and 6.28 respectively. It shows that more consistency and less consistency scores in higher education and illiterate group respectively. Therefore, higher educated father's children's mathematics achievement are more consistency each other's achievements. And illiterate father's children's mathematics achievements are less consistency each other's achievements. Also the consistency of student's mathematics achievements of basic level educated father and secondary level educated father are between in illiterate and higher educated.

Lamichhane(2017), founded that student's score of mathematics achievement of higher educated father was better than moderately educated father and illiterate father's children's mathematics achievement. Also my study founded that the level of student's mathematics achievement of higher educated father is better than basic level educated father, secondary level educated father and illiterate father's children's mathematics achievement.

Table II: ***F-test at Mathematics Achievement According to their Father Education***

Father Edu.	**Sum of square**	**df**	**Mean square**	**F**	**sig**
Between groups	5189.892	3	1729.964	11.567	0.000
Within groups	34098.591	228	149.555		

The table II shows that $F(3,228)=11.567$ > tabulated value of $F(3,228)=2.60$ and $p<0.05$, it indicated that the null hypothesis is rejected. Therefore there is

significant difference between mathematics achievement and father's education. It means that student's mathematics achievement influence by their father's education.

Mathematics Achievement According to Mother Education

In this study, mother education categorized into three groups such as illiterate, basic, secondary group. Illiterate represents Parents of students at grade eight in Raptisonari Gaunpalika Banke district who were unable to read and write. Basic level represents Parents of students at grade eight in Raptisonari Gaunpalika Banke district who were passed grade eight. Secondary represents Parents of students at grade eight in Raptisonari GaunpalikaBanke district who were passed grade twelve. The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table III: ***Comparison of Achievement According to their Mother Education***

Group	**Mean**	**S.D.**	**C.V.**	**N**
Illiterate	30.42	12.80	42.08%	57
Basic	40.69	12.21	30.01%	157
Secondary	48.11	6.63	13.78%	18

The table III shows that the mean scores of illiterate, basic and secondary group are 30.42, 40.69 and48.11 respectively. It means that the highest and lowest mean score of student's mathematics achievement are secondary group and illiterate group respectively. Therefore, the level of student's mathematics achievements of secondary level educated mother are better than basic level educated mother and illiterate mother's children's mathematics achievements. And illiterate mother's children's level of mathematics achievements are poor than other. Also the level of

student's mathematics achievement of basic level educated mother are between in illiterate and secondary level educated.

Also the table III shows that the standard deviation of illiterate, basic and secondary group are 12.80, 12.21 and 6.63 respectively. It means that more dispersion and less dispersion of scores from mean score in illiterate group and secondary group respectively. Therefore student's mathematics achievements of secondary level educated mother are closely with mean score than basic level educated mother and illiterate mother's children's mathematics achievement. And illiterate mother's children's mathematics achievements are more spread than other. Also the dispersion of student's mathematics achievement of basic level educated mother are between in illiterate and secondary level educated.

Also here, the coefficient of variance of illiterate, basic and secondary group are 42.08, 30.01 and 13.78 respectively. It shows that more consistency and less consistency scores in secondary group and illiterate group respectively. Therefore, secondary level educated mother's children's mathematics achievement are more consistency each other's achievements. And illiterate mother's children's mathematics achievements are less consistency each other's achievements. Also the consistency of student's mathematics achievements of basic level educated mother are between in illiterate and secondary level educated.

Lamichhane(2017), founded that student's score of mathematics achievement of higher educated mother was better than moderately educated father and illiterate mother's children's mathematics achievement. Also my study founded that the level of student's mathematics achievements of secondary level educated mother are better

than basic level educated mother and illiterate mother's children's mathematics achievements.

Table IV: ***F-test at Mathematics Achievement According to their Mother Education***

Mother Edu.	Sum of square	df	Mean square	F	sig
Between groups	6121.103	2	3060.552	21.131	0.000
Within groups	33167.380	229	144.836		

The table IV shows that F(2,229)=21.131 > tabulated value of F(2,229)=3.0 and $p<0.05$, it indicated that the null hypothesis is rejected. Therefore there is significant difference between mathematics achievement and mother's education. It shows that student's mathematics achievement influence by their mother's education.

Mathematics Achievement According to Parent's Income

In this study, Parent's income categorized into three groups such as high, medium and low group. Low income represents parent earn less than ninty thousand per annul of grade eight's students in Raptisonari Gaunpalika, Banke district. Middle income represents Parent earn between ninty thousand to one lakh twenty thousand per annual annul of grade eight's students in Raptisonari Gaunpalika, Banke district. High income represents Parent earn more than one lakh twenty thousand per annual annul of grade eight's students in Raptisonari GaunpalikaBanke district. The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table V: ***Comparison of Achievement According to Parent's Income***

Group	Mean	S.D.	C.V.	N
Low income	30.64	14.52	47.38%	56
Middle income	37.91	11.05	29.15%	46
Large income	42.52	11.35	26.69%	130

The table V shows that the mean scores of low income group, middle income group and large income group are 30.64, 37.91 and 42.52 respectively. It means that the highest and lowest mean score of student's mathematics achievement are large income group and low income group respectively. Therefore, the level of student's mathematics achievements whose parent's income is large are better than other's student whose parent's income is middle and low. And low income parent's children's level of mathematics achievements are poor than other. Also the level of student's mathematics achievement of middle income parents are between in large income group and low income group.

Also the table V shows that the standard deviation of low income group, middle income group and large income group are 14.52, 11.05 and 11.35 respectively. It means that more dispersion and less dispersion of scores from mean score in low income group and middle income group respectively. Therefore middle income parent's student's mathematics achievements are closely with mean score than large income and low income parent's children's achievement. And low income parent's children's mathematics achievements are more spread than other. Also the dispersion of large income parent's student's mathematics achievements are between in low income and middle income groups.

Also here, the coefficient of variance of low income group, middle income group and large income group are 47.38, 29.15 and 26.69 respectively. It shows that more consistency and less consistency scores in large income group and low income group respectively. Therefore, large income parent's children's mathematics achievements are more consistency each other's achievements. And low income parent's children's mathematics achievements are less consistency each other's achievements. Also the consistency of middle income parent's student's mathematics achievements are between in low income and large income groups.

Sharma(2015), showed that student's score of mathematics achievement whose family income was middle was better than other student's mathematics achievement whose family income was low and high. In the same way my research also founded that the level of student's mathematics achievements whose parent's income was large were better than other's student whose parent's income is middle and low.

Table VI: ***F-test at Mathematics Achievement According to Parent's Income***

Parent's income	**Sum of square**	**df**	**Mean square**	**F**	**sig**
Between groups	5563.543	2	2781.771	18.889	0.000
Within groups	33724.940	229	147.270		

The table VI shows that F(2,229)=18.889 > tabulated value of F(2,229)=3.0 and $p<0.05$, it indicated that the null hypothesis is rejected. Therefore there is significant difference between mathematics achievement and parent's income. It means that parent's income influence on student's mathematics achievements.

Mathematics Achievement According to Father's Occupation

Father's occupation categorized into six group such as Agriculture, Business, Service (work at bank, governmental sector), Teacher, Daily wage (labour, rikshaw driver) and others (plumber, carpenter). The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table VII: ***Comparison of Achievement According to Father's Occupation***

Group	**Mean**	**S.D.**	**C.V.**	**N**
Agriculture	36.56	13.15	35.97%	136
Business	38.92	13.47	34.61%	26
Service	43.33	12.68	29.26%	9
Teacher	56	0.00	0	2
Daily wage	40.68	11.16	27.43%	47
others	49.16	11.49	23.37%	12

The table VII shows that the mean scores of agriculture, business, service, teacher, daily wage and others group are 36.56, 38.92, 43.33, 56, 40.68 and 49.16 respectively. It means that the highest and lowest mean score of student's mathematics achievement are in teacher group and agriculture group respectively. Therefore, fathers who involved in teacher occupation their children's mathematics achievements levels are better than children's mathematics achievement whose fathers involved in agriculture, business, service, daily wage and others occupation. And fathers who involved in agriculture occupation their children's mathematics achievements levels are poor than children's mathematics achievement whose fathers involved in business, service, teacher, daily wage and others occupation. Also the level of student's

mathematics achievements whose father involved in business, service, daily wage and others occupation are between in teacher and agriculture group.

Also the table VII shows that the standard deviation of agriculture, business, service, teacher, daily wage and others group are 13.15, 13.47, 12.68, 0.00, 11.16 and 11.49 respectively. It means that more dispersion and less dispersion of scores from mean score in business group and teacher group respectively. Therefore fathers who involved in teacher occupation their children's mathematics achievements are equal. And fathers who involved in business occupation their children's mathematics achievements are more spread than children's mathematics achievements whose fathers involved in agriculture, service, teacher, daily wage and others occupation.

Also here, the coefficient of variance of agriculture, business, service, teacher, daily wage and others group are 35.97, 34.61, 29.26, 0.00, 27.43 and 23.37 respectively. It shows that more consistency and less consistency scores in teacher group and agriculture group respectively. Therefore, fathers who involved in teacher occupation their children's mathematics achievements are equal there are no difference between student's mathematics achievements each others. And fathers who involved in agriculture occupation their children's mathematics achievements are less consistency each other's achievements.

Table VIII: ***F-test at Mathematics Achievement According to Father Occupation***

Father's occupation	**Sum of square**	**df**	**Mean square**	**F**	**sig**
Between groups	2915.228	5	583.046	3.623	0.004
Within groups	36373.255	226	160.944		

The table VIII shows that F(5,226)=3.623 > tabulated value of F(5,226)=2.21 and p<0.05, it indicated that the null hypothesis is rejected. Therefore there is significant difference between mathematics achievement and father's occupation. It means that father's occupation influence on student's mathematics achievement.

Mathematics Achievement According to Mother's Occupation

Mother's occupation categorized into four groups such as Agriculture, Business, Service, Housewife, Daily wage (labour). The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table IX: ***Comparison of Achievement According to Mother's Occupation***

Group	**Mean**	**S.D.**	**C.V.**	**N**
Agriculture	36.56	13.06	35.72%	158
Business	43.37	8.41	19.39%	19
House wife	44.35	12.52	28.23%	52
Daily wage	28.67	8.08	28.18%	3

The table IX shows that the mean scores of agriculture, business, house wife and daily wage groups are 36.56, 43.37, 44.35 and 28.67 respectively. It means that the highest and lowest mean score of student's mathematics achievement are in house wife group and daily wage group respectively. Therefore, mothers who involved in only house wife their children's mathematics achievements levels are better than children's mathematics achievement whose mothers involved in agriculture, business and daily wage. And mothers who involved in daily wage occupation their children's mathematics achievements levels are poor than children's mathematics achievement whose mothers involved in agriculture, business and house wife occupation. Also the

level of student's mathematics achievements whose mother involved in business and agriculture occupation are between in house wife and daily wage group.

Also the table IX shows that the standard deviation of agriculture, business, house wife and daily wage groups are 13.06, 8.41, 12.52 and 8.08 respectively. It means that more dispersion and less dispersion of scores from mean score in agriculture group and daily wage group respectively. Therefore mothers who involved in daily wage their children's mathematics achievements are closely with mean score than children's mathematics achievements whose mothers involved in agriculture, business and house wife group. And mothers who involved in agriculture occupation their children's mathematics achievements are more spread than children's mathematics achievements whose mothers involved in business, house wife and daily wage group.

Also here, the coefficient of variance of agriculture, business, house wife and daily wage groups are 35.72, 19.39, 28.23 and 28.18 respectively. It shows that more consistency and less consistency scores in business group and agriculture group respectively. Therefore, mothers who involved in business their children's mathematics achievements are more consistency between student's mathematics achievements each others. And mothers who involved in agriculture occupation their children's mathematics achievements are less consistency each other's achievements.

Table X: ***F-test at Mathematics Achievement According to Mother's Occupation***

Mother's occupation	**Sum of square**	**df**	**Mean square**	**F**	**sig**
Between groups	3116.284	3	1038.761	6.548	0.000
Within groups	36172.199	228	158.650		

The table X shows that F(3,228)=6.548 > tabulated value of F(3,228)=2.60 and p<0.05, it indicated that the null hypothesis is rejected. Therefore there is significant difference between mathematics achievement and mother's occupation. It means that the student's mathematics achievements are influence by mother's occupation.

Mathematics Achievement According to Parent's Language

In this study, parent's language categorized into three group such as Tharu, Nepali and Others (Avadhi, Urdu, Hindi). The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table XI: ***Comparison of Achievement According to their Parent's Language***

Group	**Mean**	**S.D.**	**C.V.**	**N**
Tharu	37.11	13.34	35.95%	177
Nepali	43.71	11.51	26.33%	42
others	44.92	6.56	14.60%	13

The table XI shows that the mean scores of Tharu group, Nepali group and Others group are 37.11, 43.71 and 44.92 respectively. Here, level of student's mathematics achievements are almost equally in Nepali groups and Others groups. It means that the highest and lowest mean score of student's mathematics achievement are others group and tharu group respectively. Therefore, the level of student's mathematics achievements whose parent's language is others are better than other's student whose parent's languages are Tharu and Nepali. And Tharu language parent's children's level of mathematics achievements are poor than other group and Nepali

group. Also the level of student's mathematics achievement of Nepali language parents are between in Tharu group and Others group.

Also the table XI shows that the standard deviation of Tharu group, Nepali group and Others group are 13.34, 11.51 and 6.56 respectively. It means that more dispersion and less dispersion of scores from mean score in Tharu group and Others group respectively. Therefore Others language parent's student's mathematics achievements are closely with mean score than Tharu language and Nepali language parent's children's achievement. And Tharu language parent's children's mathematics achievements are more spread than others group and Nepali group. Also the dispersion of Nepali language parent's student's mathematics achievements are between in Tharu and Others groups.

Also here, the coefficient of variance of Tharu group, Nepali group and Others group are 35.95, 26.33 and 14.60 respectively. It shows that more consistency and less consistency scores in Others group and Tharu group respectively. Therefore, Others language parent's children's mathematics achievements are more consistency. And Tharu language parent's children's mathematics achievements are less consistency. Also the consistency of Nepali language parent's student's mathematics achievements are between in Tharu and Others language groups.

Sharma(2015), showed that student's score of mathematics achievement whose parent's language was Nepali, was better than other student's mathematics achievement whose parent's language were others. Also Vygotkian social constructivism theory and Epstein framework conducted that in children's educational achievement was affected by language. But my study founded that the level of

student's mathematics achievements whose parent's language is others were better than other's student whose parent's languages were Tharu and Nepali.

Table XII: ***F-test at Mathematics Achievement According to their Parent's Language***

Parent's language	**Sum of square**	**df**	**Mean square**	**F**	**sig**
Between groups	2008.028	2	1004.014	6.167	0.002
Within groups	37280.455	229	162.797		

The table XII shows that F(2,229)=6.167 > tabulated value of F(2,229)=3.0 and $p<0.05$, it indicated that the null hypothesis is rejected. Therefore there is significant difference between mathematics achievement and parent's language. It means that parent's language influence on student's mathematics achievement.

Mathematics Achievement According to Parents Provide Needs to Support Study

In this study, parents provide needs to support study categorized into three groups such as little, medium and very much. Little represents parents provide pen, copy, textbooks, bag, geometry box and dress to their children for study. Medium represents parents provide pen, copy, textbooks, bag and dress, additional practice book, dictionary and scientific calculator to their children for study. Very much represents parents provide pen, copy, textbooks, bag and dress, additional practice book, dictionary and scientific calculator, additional separate study room, table to read and write. The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table XIII: ***Comparison of Achievement According to Parents Provide Needs to Support Study***

Group	**Mean**	**S.D.**	**C.V.**	**N**
Little	33.18	12.59	37.94%	103
Medium	42.56	12.06	28.33%	110
Very much	46.73	8.41	17.99%	19

The table XIII shows that the mean scores of little, medium and very much groups' are 33.18, 42.56 and 46.73 respectively. It means that the highest and lowest mean score of student's mathematics achievement are very much group and little group respectively. Therefore, the level of student's mathematics achievements whose parent's provide needs very much for study are better than other's student whose parent's provide needs a little and medium for study. And parent who provide needs a little for study their children's level of mathematics achievements are poor than other's student whose parent's provide needs for study medium and very much. Also parent who provide needs medium for study their children's level of mathematics achievements are in between very much group and a little group.

Also the table XIII shows that the standard deviation of little, medium and very much groups' are 12.59, 12.06 and 8.41 respectively. Therefore parent who provide needs very much for study their children's mathematics achievements are closely with mean score than other's student whose parent's provide needs a little and medium for study. And student's mathematics achievements whose parents provide needs a little and medium for study are almost equally spread.

Also here, the coefficient of variance of little, medium and very much groups' are 37.94, 28.33 and 17.99 respectively. It shows that more consistency and less

consistency scores in very much group and little group respectively. Therefore, parent who provide needs very much for study their children's mathematics achievements are more consistency than other's student whose parent's provide needs a little and medium for study. And student's mathematics achievements whose parents provide needs a little for study are less consistency than other's student whose parent's provide needs very much and medium for study.

Malakar (1989), showed that materials to study were necessary conditions that can accelerate progress of the learning for the children. Khatri(2017) showed that students were able to increasing mathematics achievement by providing facilities for reading and writing. Also my study founded that the level of student's mathematics achievements whose parent's provide needs very much for study are better than other's student whose parent's provide needs a little and medium for study.

Table XIV: ***F-test at Mathematics Achievement According to Provide Needs to Support Study***

Parents provide needs to support study	**Sum of square**	**df**	**Mean square**	**F**	**Sig**
Between groups	6002.249	2	3001.124	20.647	0.000
Within groups	33286.234	229	145.355		

The table XIV shows that F(2,229)=20.647 > tabulated value of F(2,229)=3.0 and $p<0.05$, it indicated that the null hypothesis is rejected. Therefore there is significant difference between mathematics achievement and parents provide needs to support study. It means that parents provide needs to support study influence on student's mathematics achievement.

Mathematics Achievement According to Parents Support to Do Homework

In this study, parents Support to Do Homework categorized into two groups such as regular and sometimes. The researcher compared mean, standard deviation, coefficient variance of student's mathematics achievement with each categorized groups.

Table XV: ***Comparison and t-test at Achievement According to Parents Support to Do Homework***

Parents Support to Do Homework	**Mean**	**S.D**	**CV**	**N**	**df**	**t**	**Sig**
regular	43.15	10.55	24.45%	179	230	-12.070	0.000
sometimes	23.85	10.13	44.98%	53			

The table XV shows that the mean scores of regular group and sometimes group are 43.15 and 23.85 respectively. It means that the highest and lowest mean score of student's mathematics achievement are regular group and sometimes group respectively. Therefore, the level of student's mathematics achievements whose parents support regularly for homework are better than other's student whose parents support sometimes for homework. And parents who support sometimes for homework their children's level of mathematics achievements are poor than student whose parents support regularly for homework.

Also the table XIV shows that the standard deviation of regular group and sometimes group are 10.55 and 10.13 respectively. Therefore student's mathematics achievements whose parents support regularly for homework are closely with mean score than other's student whose parents support sometimes for homework. And

parents who support sometimes for homework their children's mathematics achievements are spread than student whose parents support regularly for homework.

Also here, the coefficient of variance of regular group and sometimes group are 24.45 and 44.98 respectively. It shows that more consistency and less consistency scores in regular group and sometimes group respectively. Therefore, student's mathematics achievements whose parents support regularly for homework are more consistency than other's student whose parents support sometimes for homework. And parents who support sometimes for homework their children's mathematics achievements are less consistency than student whose parents support regularly for homework.

Here the above table shows that calculated value is -12.070, tabulated value is -1.645 and significant value=0.000<0.05. Therefore there is significant difference between mathematics achievement and parents support to do homework. It means that parent support to do homework influence on student's mathematics achievement.

Khatri(2016), showed that mean achievement of mathematics of students were found better whose parents' were involved score of 3 hour and more than the mean achievement score of 2 hour and 1 hour group. Vygotsky social constructivism conducted scaffolding and MKO. Also my study founded that the level of student's mathematics achievements whose parents support regularly for homework are better than other's student whose parents support sometimes for homework.

Regression Analysis between Dependent and Independent Variables

In this topic the parent related factors on mathematics achievement is analyzed where eight independent variables and one dependent variable were used in multiple

linear regression model. Types of parent related factors coded into $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8$ such as X_1= Father education, X_2= Mother education, X_3= Parent's income, X_4= Father occupation, X_5= Mother occupation, X_6= Parent's language, X_7= Parents provide needs to support study, X_8= Parents support to do homework and Y=dependent variable.

Table XVI: ***Effect of Independent Variable on Dependent Variable Using Multiple Linear Regression***

Independent variables	**Regression co-efficient (b)**	**Standardized co-efficient (β)**	**Sig.**	**R**	**R^2**	**Adjusted R^2**	**Std. Errors**
Constant	10.162		.001	.738	.545	.528	8.957
Father education	.839	.041	. 493				
Mother education	1.198	.050	.383				
Parent's income	3.336	.214	.000				
Father occupation	.933	.129	.008				
Mother occupation	1.530	.151	.002				
Parent's language	.960	.103	.033				
Parents provide needs to support study	3.917	.189	.000				
Parents support to do homework	13.631	.440	.000				

Multiple regressions are used to predict one variable on the basis of several other variables. Regression Co-efficient indicates how much the Dependent variable varies with an Independent variable when all other independent variables are held constant. Standardize Co-efficient examines effects of Independent variable on a

Dependent variable. R-value can be considered as one of the measures of the quality of the prediction variable or level of predication. R^2 value can be considered as a proportion of variance in Dependent variable that can be data accurately. Also adjusted R^2 value is a modified version of the $R^2$and takes into account the number of predictors in the model. The above table shows adjusted R^2value is 0.528 which shows that that only 52.8% effect was found in student's achievement by their parent's related factor.

In the above table, the column labeled Regression coefficient 'b' is used to constructing a regression equation such as $Y= 10.162+0.839\ X_1+1.198\ X_2+3.336\ X_3+0.933\ X_4+1.530\ X_5+0.960\ X_6+3.917\ X_7+13.631\ X_8$. Also standardized coefficient ' β' which is used to compare the effect of independent variables on dependent variable. The beta coefficient for Father's education was 0.041 it means that 4.1% of student's achievement was affected by father education. It shows that low influence on student's mathematics achievement by father education. The beta coefficient for mother education was 0.050 it means that 5.0% of student's achievement was affected by mother education. It shows that low influence on student's mathematics achievement by mother education. Also it shows that father education and mother education were equally influence on student mathematics achievement.

The beta coefficient for parent income was 0.214 it means that 21.4% of student's achievement was affected by parent income. It shows that parent's income influence on student mathematics achievement was good. The beta coefficient for father occupation was 0.129 it means that 12.9% of student's achievement was affected by father occupation. The beta coefficient for Mother's occupation was 0.151

it means that 15.1% of student's achievement was affected by mother's occupation. The beta coefficient for Parents language was 0.103 it means that 10.3% of student's achievement was affected by parent's language. The beta coefficient for parents provide needs to support study was 0.189 it means that 18.9% of student's achievement was affected by parents provide needs to support study. The beta coefficient for Parents support to do homework was 0.440 it means that 44.0% of student's achievement was affected by parents support to do homework. It shows that high influence on student's mathematics achievement by parents support to do homework.

Correlation Analysis between Dependent and Independent Variables

The summary of correlation coefficient is presented in the following table.

Table XVII: ***Relation between Independent Variable and Dependent Variables***

Independent Variables	**Correlation coefficient with students' mathematics achievement**	**sig**	**N**
Father education	0.363	0.000	232
Mother education	0.392	0.000	232
Parent's income	0.374	0.000	232
Father occupation	0.218	0.001	232
Mother occupation	0.217	0.001	232
Parent's language	0.226	0.001	232
Parents provide needs to support study	0.382	0.000	232
Parents support to do homework	0.623	0.000	232

From the above table, the correlation coefficient between father education and student's mathematics achievement was 0.363 and $p<0.05$ which shows that positive moderate relation between them. It means that if father's educational qualification is good then student's mathematics achievement is also good. The correlation coefficient between mother's education and student's mathematics achievement was 0.392 and $p<0.05$ which shows that positive moderate relation between them. It means that if mother's educational qualification is good then student's mathematics achievement is also good. The correlation coefficient between parents income and student's mathematics achievement was 0.374 and $p<0.05$ which shows that positive moderate relation between them. It means that if parent's income is good then student's mathematics achievement is also good.

Similarly, the correlation coefficient between father occupation and mathematics achievement was 0.218 and $p<0.05$ which shows that weak positive relation between them. The correlation coefficient between mother occupation and mathematics achievement was 0.217 and $p<0.05$ which shows that weak positive relation between them. The correlation coefficient between parents language and mathematics achievement was 0.226 and $p<0.05$ which shows that weak positive relation between them. The correlation coefficient between parents parent provide needs to support study and mathematics achievement was 0.382 and $p<0.05$ which shows that moderate positive relation between them. It means that if parent who provide needs very much for study then their children's mathematics achievement is also good. The correlation coefficient between parents support to do homework and mathematics achievement was 0.623 and $p<0.05$ which shows that high positive relation between them. It means that if parent support regular for to do homework then their child's mathematics achievement is good.

Table XVIII: ***Inter-Correlation between Independent Variables***

Independent Variables	Father education	Mother education	Parent's income	Father occupation	Mother occupation	Parent's language	Parents provide needs to support study	Parents support to do homework
Father education	1	0.547	0.015	0.069	-0.003	0.221	0.139	0.533
Mother education	0.547	1	0.146	0.031	0.052	0.165	0.226	0.493
Parent's income	0.015	0.146	1	0.226	0.021	0.055	0.121	0.232
Father occupation	0.069	0.031	0.226	1	-0.170	0.05	0.114	0.103
Mother occupation	-0.003	0.052	0.021	-0.170	1	0.146	0.238	0.046
Parent's language	0.221	0.165	0.055	0.053	0.146	1	0.003	0.124
Parents provide needs to support study	0.139	0.226	0.121	0.144	0.238	0.003	1	0.226
Parents support to do homework	0.533	0.493	0.232	0.103	0.046	0.234	0.226	1

The above table shows that the correlation between parental factors each others. The father education seems moderate correlated with mother education and parents support to do homework. It concluded that the student whose father were educated their mother were also seem educated, their father were also supported to do

homework. Mother education seems moderate correlated with parents support to do homework. It means that student whose mother were educated their mother also support to do homework. Here educated mother provided needs to support study than educated fathers.

By the above table, the student whose mother occupation was strong correlated with provide needs to support study than their father occupation. But the student whose father occupation correlated with provide needs to support study more than their mother occupation. The student whose parents provide needs to support study their parents support to do homework but less.

Chapter - V

Summary, Finding, Conclusion and Recommendation

The first section of this chapter presents to summary of the study the second section present its findings the third section present to conclusions and the last section present recommendations base on the finding of the study. After analyzing and interpretation of the collected data according to design an attempt has been made to summarize and enlist the finding also providing some recommendations.

Summary

This is a quantitative research related to Parental Influence and Mathematics Achievement. The objectives of this research was to explore the relation between parent related factor and mathematics achievement. The study was conducted based on survey design which was included in quantitative research approach. Selected six schools at Raaptisonari Gaunpalika in Banke district. The sample of the study included 232 students. Mathematics achievement test and questionnaire were used as data collection tools. The reliability of these tools had been determined by split-half method. Similarly, validity test by thesis supervisor and mathematics teachers. The item analysis was also determined.

For the data analysis of the study, mean, standard deviation, t test, ANOVA, correlation coefficient and multiple linear regression. Level of student's mathematics achievement, dispersion in achievement and consistency in achievement also measured. To measure parental influence on mathematics achievement had been determined by multiple linear regressions also to measure relation between independent variable and dependent variable by correlation coefficient.

Findings

After statistical analysis of the collected data yielded the following results as the finding of the study follows:

- Father education, mother education, parent's income, father occupation, mother occupation, parent's language, parents support to do homework and parents provide needs to support study were the factors related to parents influence on student's mathematics achievement.
- The level of student's mathematics achievement of higher educated father is better than basic level educated father, secondary level educated father and illiterate father's children's mathematics achievement. And illiterate father's children's level of mathematics achievements are poor than other.
- The level of student's mathematics achievements of secondary level educated mother are better than basic level educated mother and illiterate mother's children's mathematics achievements. And illiterate mother's children's level of mathematics achievements are poor than other.
- The level of student's mathematics achievements whose parent's income is large are better than other's student whose parent's income is middle and low. And low income parent's children's level of mathematics achievements are poor than other.
- Fathers who involved in teacher occupation their children's mathematics achievements levels are better than children's mathematics achievement whose fathers involved in agriculture, business, service, daily wage and others occupation. And fathers who involved in agriculture occupation their children's mathematics achievements levels are poor than children's

mathematics achievement whose fathers involved in business, service, teacher, daily wage and others occupation.

- Mothers who involved in only house wife their children's mathematics achievements levels are better than children's mathematics achievement whose mothers involved in agriculture, business and daily wage. And mothers who involved in daily wage occupation their children's mathematics achievements levels are poor than children's mathematics achievement whose mothers involved in agriculture, business and house wife occupation.
- The level of student's mathematics achievements whose parent's language is others are better than other's student whose parent's languages are Tharu and Nepali. And Tharu language parent's children's level of mathematics achievements are poor than other group and Nepali group.
- The level of student's mathematics achievements whose parent's provide needs very much for study are better than other's student whose parent's provide needs a little and medium for study. And parent who provide needs a little for study their children's level of mathematics achievements are poor than other's student whose parent's provide needs for study medium and very much.
- The level of student's mathematics achievements whose parents support regularly for homework are better than other's student whose parents support sometimes for homework. And parents who support sometimes for homework their children's level of mathematics achievements are poor than student whose parents support regularly for homework.
- There is significant difference between mathematics achievement and parental factors. It means that student's mathematics achievement influence by parental factors.

- Student's achievement has affected 4.1% and 5.0% by father education and mother education respectively.
- Student's achievement has affected 21.4% by parent income.
- Student's achievement has affected 12.9% and 15.1% by father occupation and mother occupation respectively.
- Student's achievement has affected 10.3% by parent's language.
- Student's achievement has affected 18.9% by parents provide needs to support study.
- Student's achievement has affected 44.0% by parents support to do homework.
- Father education, mother education, parent income and parents provide needs to support study were moderate positive related with mathematics achievement.
- Father occupation, mother occupation and parent language were weak positive related with mathematics achievement.
- Parents support to do homework and mathematics achievement had high positive relation between them.

Conclusion

From the finding of the study it was confirmed that there were some parental roles that influence on student's mathematics achievement. Father education and mother education influence almost equally on mathematics achievement. Father education and mother education were less contributes on their children's mathematics achievement than others parental factors. So every educated parents were necessary aware to their children's study. Parent's language affected low on student's mathematics achievement, it conclude that many students' parents were Tharu and

Madhesi society, and the language was Nepali in school so they could not supported effectively for learning mathematics. Parents support to do homework effected mostly on student's mathematics achievement than other parent's related factors. Parental factors such as father education, mother education, parent's income, father occupation, mother occupation, parent's language, parents provide needs to support study and parents support to do homework were positively correlated with their children's mathematics achievement. But parents support to do homework correlated with student's mathematics achievement was more than other factors correlated with student's mathematics achievement.

Recommendations

Based on the research finding and concluding the following recommendations were made:

- A similar type of study should be carried out to get more reliable information.
- Parent should be always discourage absenteeism to their children from school.
- Parent's awareness programmed should be conducted.
- This study helps all parents should be inspire their children to create good environment for study mathematics.

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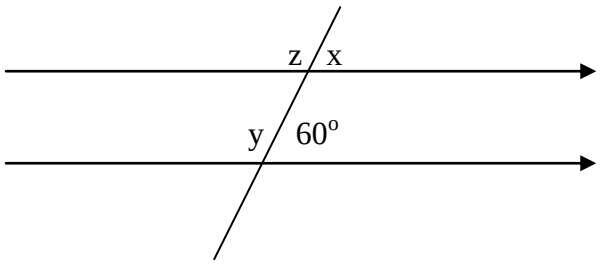
Appendix-A

Achievement test **F.M = 60**

P.M = 20

CLASS: 8 **TIME:2:00 hr**

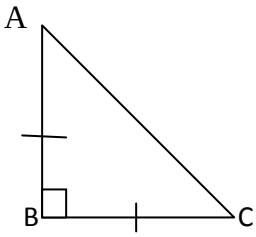
1. Find the value of x, y and z from the given figure.



a) x= 60, y= 120, z=120 b) x= 60, y= 60, z=120

c) x= 120, y= 60, z=60 d) x= 120, y= 60, z=120

2. Find the value of angle ACB from the given figure.



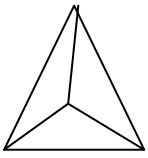
a) 45^0 b) 50^0 c) 55^0 d) 60^0

3. Find the area of the circle whose diameter is 14 cm.

a) $154cm^2$ b) $160cm^2$

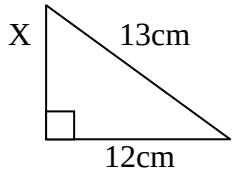
c) $165cm^2$ d) $170cm^2$

4. Identify the following solid figure.



a) cylinder b) sphere c) tetrahedron d) cone

5. Find the value of x from the given figure.



a) 4cm b) 5cm c) 6cm d) 7cm

6. If U= {vowel sound in English alphabet}, A= {a,e,i,u} and B= {i,o,u} then find A U $\overline{B}$.

a) {a,e,i,o,u} b) {a,e,o,u} c) {a,e,i,u} d) {i,o,u}

7. Find the cubical box of volume 729 cm^3 .

a) 6 cm b) 7 cm c) 8 cm d) 9 cm

8. If U= {1,2,3,4,5,...,10}, and A= {2,4,6,8,10} then find $\overline{\overline{A}}$.

a) {2,3,5,7,9} b) {2,4,6,8,10} c) {1,2,3,4,5} d) {6,7,8,9,10}

9. Convert the number 512 into quandary numeration system.

a) 4022_5 b) 2204_5 c) 2402_5 d) 2204_5

10. Convert the 10010_2 binary number into decimal numeration system.

a) 18 b)20 c) 22 d) 26

11. Find the value of : 108×3-55÷11+105.

a) 380 b) 400 c) 480 d) 424

12. Convert the decimal number 3400 into scientific numeration system.

a) 3.4×10^3 b) 3.4×10^2

c) 340×10 d) 34×100

13. Simplify: $4.54\times10\text{-}3^{-3}\text{-}2.4\times10^{-3}$.

a) 2.14×10^{-3} b) 2.14×10^{-2}

c) 3.4×10 d) 3.4×10^{-2}

14. Simplify: $-\sqrt{11}+\sqrt{121}+\sqrt{44}$

a) $12\sqrt{11}$ b) $11\sqrt{11}$ c) $10\sqrt{11}$ d) $9\sqrt{11}$

15. Convert the 40 kg and 5000gm into the ratio.

a) 1:2 b) 2:3 c) 3:4 d) 4:5

16. Find the value of x, x:5 = 10:25.

a) 1 b) 2 c) 3 d) 4

17. Which is the irrational number from given below.

a) $^{3}/_{5}$ b) $^{2}/_{5}$ c) $\sqrt{2}$ d) $^{10}/_{20}$

18. If $^{3}/_{5}$ of any number is 90 then find this number is

a) 150 b) 160 c)170 d) 180

19. Find the value of 10% of 250.

a) 25 b) 30 c) 35 d) 40

20. Marked price of a bag is Rs 750. There is 8% discount on purchase. Find the actual discount amount of the bag.

a) Rs 60 b) Rs 70 c) Rs 80 d) Rs 90

21. If the cost price of a television is Rs 13500 and its selling price is Rs 1295 then find loss percentage.

a) 10% b) 12% c) 14% d) 16%

22. If the cost of 3kg sugar is Rs.120, find the cost of 5kg sugar?

a) Rs 145 b) Rs 150 c) Rs 200 d) Rs 220

23. If P=Rs.3000, R=15%, I=Rs.900 then find T=?

a) 2y. b) 3y. c) 4y. d) 5y.

24. Find the mean from given data: 10,12,14,16,18

a) 14 b) 15 c) 16 d) 17

25. The price of 1 kg apple is 50 then calculate price of 5 kg apples.

a) Rs 200 b) Rs 225 c) Rs 250 d) Rs 300

26. $\left(\frac{k}{3}+{}^{1}/_{2}\right)\left(\frac{k}{3}-{}^{1}/_{2}\right)$ =……..

a) ${}^{k^2}/_{9}-{}^{1}/_{4}$ b) ${}^{k^2}/_{9}+{}^{1}/_{4}$ c) ${}^{k^2}/_{3}+{}^{1}/_{2}$ d) ${}^{k^2}/_{3}-{}^{1}/_{2}$

27. Find the median of the data

12,10,13,9,12,14,10,8

a) 9 b) 10 c) 12 d) 13

28. Find the HCF of $4x^2y$ and xy^2.

a) x^2y^2 b) 4xy c) xy d) $4x^2y^2$

29. Find the value of $\frac{2m^{17}\times m^3}{m^{20}}$.

a) 0 b) 1 c) 2 d) 3

30. Simplify : simplify : $\frac{x^2-y^2}{(x+y)}\times\frac{(x+y)}{(x-y)^2}$

a) $\frac{(x-y)}{(x+y)}$ b) $\frac{(x+y)}{(x-y)}$ c) $\frac{x}{y}$ d) $\frac{y}{x}$

Appendix-B

अभिभावकको लागी प्रश्नावली

विद्यार्थीको नाम : .....

विद्यालयको नाम : .....

१.तपाईको शैक्षिक योग्यता कति रहेको छ ?

क)बुवाको :

ख) आमाको :

२.तपाईको मासिक कति आम्दानी हुन्छ ?

.....

३.तपाई कुन पेशामा संलग्न हुनुहुन्छ ?

क)बुवा :

ख) आमा

४.तपाईको भाषा कुन हो ?

.....

५. तपाईलले आफ्ना छोराछोरीहरुलाई अध्ययनको लागी आवश्यक सामाग्री के–कति उपलब्ध गर्नुहुन्छ ?

.....

.....

.....

६. तपाईलले आफ्ना छोराछोरीहरुलाई गृहकार्यमा कत्तिको सहयोग गर्नुहुन्छ ?

क) कहिलेकाँहि ख) सँधै

Appendix -C

Roll / Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	R	p-value %	Analysis	D-value	Analysis
	Upper 27%							Medium 46%											Lower 27%											
1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	0	1	1	0	1	1	0	0	1	19	76	Easy	0.29	General
2	1	1	1	1	1	0	0	1	1	1	1	0	1	1	0	1	1	1	0	0	1	0	0	1	0	16	64	Substance	0.43	v.Good
3	1	1	0	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	0	1	0	0	1	0	0	13	52	General	0.43	v.Good
4	0	1	1	0	1	1	0	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	0	0	0	15	60	General	0.29	General
5	1	1	1	0	1	1	1	1	0	1	1	0	1	0	0	0	0	0	0	1	1	0	1	0	1	14	56	General	0.29	General
6	0	1	0	1	1	1	1	1	0	0	0	0	1	1	1	0	1	0	0	1	0	0	0	1	1	13	52	General	0.29	General
7	1	1	0	1	1	0	0	1	0	1	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	9	36	v.hard	0.43	v.Good
8	1	0	1	0	0	1	1	0	1	1	1	1	1	0	1	1	0	0	0	0	1	0	0	1	0	13	52	General	0.29	General
9	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0	18	72	Substance	0.43	v.Good
10	1	1	1	1	1	1	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	1	1	0	1	13	52	General	0.29	General
11	1	1	0	1	1	1	0	1	1	0	1	1	0	0	0	0	1	1	1	0	1	0	0	1	0	14	56	General	0.29	General
12	1	0	1	0	0	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	0	0	0	0	0	14	56	General	0.43	v.Good
13	1	1	0	1	1	0	1	1	1	0	0	1	0	1	1	1	0	0	1	0	1	0	1	0	0	14	56	General	0.29	General
14	1	1	0	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	0	0	0	18	72	Substance	0.29	General
15	1	0	1	0	0	1	1	0	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	1	1	44	Gener	0.29	Gener

																									1		al		al
16	1	1	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	6	24	v.hard	0.29	General
17	1	1	1	0	0	1	0	1	1	0	0	0	1	1	0	0	1	0	0	1	1	1	0	0	0	12	48	General	0.14	Negligible
18	0	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	0	0	1	1	0	0	0	0	1	14	56	General	0.29	General
19	1	1	1	1	0	0	1	1	0	1	1	1	0	1	1	1	0	1	0	0	1	0	1	1	0	16	64	Substance	0.29	General
20	0	1	0	1	1	0	0	1	1	1	1	0	1	0	1	0	1	1	0	1	1	0	0	1	1	15	60	General	-0.14	Negligible
21	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	0	0	1	1	1	0	1	0	0	1	17	68	Substance	0.29	General
22	0	1	0	0	1	1	1	1	1	0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	12	48	General	0.29	General
23	0	0	1	1	1	1	1	0	0	0	0	0	1	1	0	0	1	0	1	0	0	1	1	0	1	12	48	General	0.14	Negligible
24	1	0	1	0	1	1	1	1	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	1	11	44	General	0.29	General
25	1	1	0	1	1	1	1	1	1	1	1	0	0	0	1	0	0	1	0	1	1	1	1	0	0	16	64	Substance	0.29	General
26	1	1	1	0	0	0	0	1	1	1	0	0	0	0	1	0	1	0	1	0	0	0	0	1	1	11	44	General	0	Negligible
27	0	0	1	1	0	1	1	0	0	1	1	1	1	1	0	1	0	0	0	0	1	0	0	1	0	12	48	General	0.29	General
28	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	22	88	Easy	0.29	General
29	0	1	0	0	1	1	1	1	1	1	0	1	0	0	1	1	1	0	0	0	1	1	0	0	1	14	56	General	0.14	Negligible
30	1	1	0	0	0	1	1	1	1	0	1	1	0	1	1	1	1	1	1	0	0	0	0	1	0	15	60	General	0.29	General
31	1	1	1	1	1	0	0	0	1	1	1	0	0	1	1	0	0	1	1	0	0	0	0	1	0	13	52	General	0.43	v.Good
32	1	0	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	0	0	1	0	18	72	Substance	0.29	General
33	0	0	1	1	1	0	1	1	0	1	0	1	1	0	0	0	1	0	1	0	0	0	0	1	0	1	44	Gener	0.29	Gener

																									1		al		Al
34	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	1	1	0	0	1	0	1	0	11	44	General	0.14	Negligible
35	1	1	1	0	0	1	1	1	1	0	1	1	0	1	0	0	1	0	1	0	1	0	0	1	0	14	56	General	0.29	General
total	52	54	50	44	48	46	42	48	42	44	42	44	38	42	38	34	38	32	38	24	38	24	18	34	24	-	-	-	-	-

Difficulty index of the item(P)= $\frac{R}{T} \times 100\%$

Where, R= number of examine who gave correct answer.

T= total number of examine.

Discrimination of index(D)= $\frac{RU-RL}{T/2}$

Where, RU= 27% upper group of student who the item right.

LU= 27% lower group of student who the item right.

P value interpretation	
p-value %	Interpretation
0-39	v.hard
40-60	General
61-75	Substantial
76-90	Easy
91-100	v.easy

Sources: Harper and Harper, 1990:363.

D-value interpretation	
D-value	interpretation
-1-0.19	Negligible
0.20-0.29	General
0.30-0.39	Good
0.40-1.00	v.good

Sources: Eble and Frisbie, 1991:232.

Appendix-D

S.N.	Score of odd item(x)	Score of even item(y)	x^2	y^2	x.y
1	26	20	676	400	520
2	24	20	576	400	480
3	20	16	400	256	320
4	22	16	484	256	352
5	22	20	484	400	440
6	18	22	324	484	396
7	18	20	324	400	360
8	18	22	324	484	396
9	20	14	400	196	280
10	22	16	484	256	352
11	24	16	576	256	384
12	22	20	484	400	440
13	14	20	196	400	280
14	18	18	324	324	324
15	14	16	196	256	224
16	10	20	100	400	200
17	12	16	144	256	192
18	14	14	256	196	196
19	18	14	324	196	252
20	10	10	100	100	100
21	16	16	256	256	256
22	8	8	64	64	64
23	12	4	144	16	48
24	14	14	196	196	196
25	8	8	64	64	64
Sum	424	400	7840	6712	7116

Correlation coefficient (r_{xy}) $= \frac{N\Sigma xy - \Sigma x.\Sigma y}{\sqrt{N\Sigma x^2 - (\Sigma x)^2}\sqrt{N\Sigma y^2 - (\Sigma y)^2}}$

$= \frac{25*7116-424*400}{\sqrt{25*7840-424*424}\sqrt{25*6712-400*400}}$

$=0.74$

Reliability coefficient (r) $= \frac{2r_{xy}}{1+r_{xy}} = \frac{2*0.74}{1+0.74} = 0.85$

Appendix-E

Sample schools

- Shree Saraswoti Secondary School.
- Shree Nepal National Basic Level School.
- Shree Siddeswor Secondary School.
- Bhunwar Bhawani Secondary School.
- Nepal National Secondary School.
- Phattepur Basic Level School.

Appendix -F

Crosstabs

Mathematical Achievements * Father Education Crosstabulation

Count

		Father Education				Total
		Illiterate	Basic	Secondary	Higher Education	
Mathematical Achievments	10.00	1	0	0	0	1
	12.00	0	2	0	0	2
	14.00	4	5	0	0	9
	16.00	0	2	0	0	2
	18.00	2	7	3	0	12
	20.00	0	9	0	0	9
	22.00	2	4	4	0	10
	24.00	2	4	0	0	6
	26.00	2	4	1	0	7
	28.00	2	5	1	0	8
	30.00	0	2	0	0	2
	32.00	0	4	0	0	4
	34.00	0	5	0	0	5
	36.00	2	2	2	0	6
	38.00	0	10	2	0	12
	40.00	2	7	2	0	11
	42.00	0	14	3	0	17
	44.00	0	10	1	0	11
	46.00	4	16	2	0	22
	48.00	0	11	0	0	11
	50.00	0	10	5	3	18
	52.00	2	7	13	0	22
	54.00	0	5	8	0	13
	56.00	0	2	6	2	10
	58.00	0	2	0	0	2
Total		25	149	53	5	232

Mathematical Achievements * Mother Education Crosstabulation

Count

		Mother Education			Total
		Illiterate	Basic	Secondary	
Mathematical Achievments	10.00	1	0	0	1
	12.00	0	2	0	2
	14.00	6	3	0	9
	16.00	2	0	0	2
	18.00	5	7	0	12
	20.00	4	5	0	9
	22.00	4	6	0	10
	24.00	2	4	0	6
	26.00	3	4	0	7
	28.00	3	5	0	8
	30.00	0	2	0	2
	32.00	4	0	0	4
	34.00	0	5	0	5
	36.00	5	1	0	6
	38.00	1	9	2	12
	40.00	2	7	2	11
	42.00	3	12	2	17
	44.00	0	10	1	11
	46.00	6	16	0	22
	48.00	0	11	0	11
	50.00	2	13	3	18
	52.00	2	16	4	22
	54.00	2	11	0	13
	56.00	0	6	4	10
	58.00	0	2	0	2
Total		57	157	18	232

Mathematical Achievements * Annual Income Crosstabulation

Count

		Annual Income			Total
		Less than 90 thousand	90-120 thousand	More than 120 thousand	
Mathematical Achievments	10.00	0	0	1	1
	12.00	2	0	0	2
	14.00	6	2	1	9
	16.00	0	0	2	2
	18.00	11	0	1	12
	20.00	6	2	1	9
	22.00	2	2	6	10
	24.00	0	2	4	6
	26.00	1	2	4	7
	28.00	2	4	2	8
	30.00	0	0	2	2
	32.00	1	0	3	4
	34.00	1	2	2	5
	36.00	2	2	2	6
	38.00	4	2	6	12
	40.00	1	2	8	11
	42.00	5	0	12	17
	44.00	0	6	5	11
	46.00	0	10	12	22
	48.00	2	4	5	11
	50.00	4	2	12	18
	52.00	2	0	20	22
	54.00	2	2	9	13
	56.00	0	0	10	10
	58.00	2	0	0	2
Total		56	46	130	232

Mathematical Achievements * Father Occupation Crosstabulation

Count

		Father Occupation						Total
		Agriculture	Business	Service	Teacher	Daily wage	Others	
Mathematical Achievments	10.00	1	0	0	0	0	0	1
	12.00	2	0	0	0	0	0	2
	14.00	6	0	0	0	2	1	9
	16.00	0	0	0	0	2	0	2
	18.00	8	3	1	0	0	0	12
	20.00	6	2	0	0	1	0	9
	22.00	8	2	0	0	0	0	10
	24.00	2	0	0	0	4	0	6
	26.00	6	1	0	0	0	0	7
	28.00	8	0	0	0	0	0	8
	30.00	2	0	0	0	0	0	2
	32.00	3	1	0	0	0	0	4
	34.00	5	0	0	0	0	0	5
	36.00	6	0	0	0	0	0	6
	38.00	7	0	4	0	1	0	12
	40.00	4	3	0	0	4	0	11
	42.00	12	0	0	0	5	0	17
	44.00	2	0	0	0	8	1	11
	46.00	11	4	0	0	7	0	22
	48.00	8	0	0	0	3	0	11
	50.00	7	4	0	0	7	0	18
	52.00	9	6	0	0	1	6	22
	54.00	7	0	2	0	2	2	13
	56.00	4	0	2	2	0	2	10
	58.00	2	0	0	0	0	0	2
Total		136	26	9	2	47	12	232

Mathematical Achievements * Mother Occupation Crosstabulation

Count

		Mother Occupation				Total
		Agriculture	Business	Housewife	Daily wage	
Mathematical Achievments	10.00	1	0	0	0	1
	12.00	0	0	2	0	2
	14.00	7	0	2	0	9
	16.00	2	0	0	0	2
	18.00	10	1	1	0	12
	20.00	9	0	0	0	9
	22.00	10	0	0	0	10
	24.00	4	0	0	2	6
	26.00	7	0	0	0	7
	28.00	7	0	1	0	8
	30.00	0	0	2	0	2
	32.00	4	0	0	0	4
	34.00	2	0	3	0	5
	36.00	4	0	2	0	6
	38.00	9	2	0	1	12
	40.00	6	5	0	0	11
	42.00	11	3	3	0	17
	44.00	11	0	0	0	11
	46.00	14	2	6	0	22
	48.00	7	0	4	0	11
	50.00	7	4	7	0	18
	52.00	16	0	6	0	22
	54.00	6	0	7	0	13
	56.00	4	2	4	0	10
	58.00	0	0	2	0	2
Total		158	19	52	3	232

Mathematical Achievements * Parents Language Crosstabulation

Count

		Parents Language			Total
		Tharu	Nepali	Others	
Mathematical Achievments	10.00	1	0	0	1
	12.00	2	0	0	2
	14.00	9	0	0	9
	16.00	2	0	0	2
	18.00	11	1	0	12
	20.00	9	0	0	9
	22.00	10	0	0	10
	24.00	4	2	0	6
	26.00	5	2	0	7
	28.00	7	1	0	8
	30.00	0	2	0	2
	32.00	0	4	0	4
	34.00	4	0	1	5
	36.00	6	0	0	6
	38.00	8	2	2	12
	40.00	10	0	1	11
	42.00	10	4	3	17
	44.00	9	2	0	11
	46.00	22	0	0	22
	48.00	11	0	0	11
	50.00	11	5	2	18
	52.00	11	7	4	22
	54.00	9	4	0	13
	56.00	6	4	0	10
	58.00	0	2	0	2
Total		177	42	13	232

Mathematical Achievements * Parents Provide Needs to Support Study Crosstabulation

Count

		Parents Provide Needs To Support Education			Total
		Little	Medium	Very Much	
Mathematical Achievments	10.00	1	0	0	1
	12.00	0	2	0	2
	14.00	7	2	0	9
	16.00	1	1	0	2
	18.00	7	5	0	12
	20.00	6	3	0	9
	22.00	8	2	0	10
	24.00	6	0	0	6
	26.00	5	2	0	7
	28.00	5	2	1	8
	30.00	2	0	0	2
	32.00	3	1	0	4
	34.00	2	3	0	5
	36.00	2	2	2	6
	38.00	6	4	2	12
	40.00	7	3	1	11
	42.00	9	8	0	17
	44.00	6	3	2	11
	46.00	5	17	0	22
	48.00	2	9	0	11
	50.00	3	14	1	18
	52.00	4	13	5	22
	54.00	4	6	3	13
	56.00	2	6	2	10
	58.00	0	2	0	2
Total		103	110	19	232

Mathematical Achievements * Parents Support to Do Homework

Crosstabulation

Count

		Parents Supports To Do Homework		Total
		Sometime	Regular	
Mathematical Achievments	10.00	1	0	1
	12.00	2	0	2
	14.00	9	0	9
	16.00	1	1	2
	18.00	9	3	12
	20.00	5	4	9
	22.00	6	4	10
	24.00	4	2	6
	26.00	2	5	7
	28.00	3	5	8
	30.00	0	2	2
	32.00	0	4	4
	34.00	0	5	5
	36.00	3	3	6
	38.00	1	11	12
	40.00	2	9	11
	42.00	0	17	17
	44.00	0	11	11
	46.00	4	18	22
	48.00	0	11	11
	50.00	0	18	18
	52.00	1	21	22
	54.00	0	13	13
	56.00	0	10	10
	58.00	0	2	2
Total		53	179	232

Appendix-G

Means

Mathematical Achievements * Father Education

Mathematical Achievements

Father Education	Mean	Std. Deviation	N
Illiterate	29.6800	13.24991	25
Basic	37.6107	12.30618	149
Secondary	44.9057	11.95225	53
Higher Education	52.4000	3.28634	5
Total	38.7414	13.04147	232

Mathematical Achievements * Mother Education

Mathematical Achievements

Mother Education	Mean	Std. Deviation	N
Illiterate	30.4211	12.79920	57
Basic	40.6879	12.20700	157
Secondary	48.1111	6.63226	18
Total	38.7414	13.04147	232

Mathematical Achievements * Annual Income

Mathematical Achievements

Annual Income	Mean	Std. Deviation	N
Less than 90 thousand	30.6429	14.52325	56
90-120 thousand	37.9130	11.05105	46
More than 120 thousand	42.5231	11.35353	130
Total	38.7414	13.04147	232

Mathematical Achievements * Father Occupation

Mathematical Achievements

Father Occupation	Mean	Std. Deviation	N
Agriculture	36.5588	13.14915	136
Business	38.9231	13.47271	26
Service	43.3333	12.76715	9
Teacher	56.0000	.00000	2
Daily wage	40.6809	11.16887	47
Others	49.1667	11.48781	12
Total	38.7414	13.04147	232

Mathematical Achievements * Mother Occupation

Mathematical Achievements

Mother Occupation	Mean	Std. Deviation	N
Agriculture	36.5316	13.05826	158
Business	43.3684	8.40774	19
Housewife	44.3462	12.52274	52
Daily wage	28.6667	8.08290	3
Total	38.7414	13.04147	232

Mathematical Achievements * Parents Language

Mathematical Achievements

Parents Language	Mean	Std. Deviation	N
Tharu	37.1073	13.34315	177
Nepali	43.7143	11.50670	42
Others	44.9231	6.56330	13
Total	38.7414	13.04147	232

Mathematical Achievements * Parents Provide Needs To Support Study

Mathematical Achievements

Parents Provide Needs To Support Study	Mean	Std. Deviation	N
Little	33.1845	12.59143	103
Medium	42.5636	12.05532	110
Very Much	46.7368	8.41191	19
Total	38.7414	13.04147	232

Mathematical Achievements * Parents Support To Do Homework

Mathematical Achievements

Parents Support To Do Homework	Mean	Std. Deviation	N
Sometimes	23.8491	10.55279	53
regular	43.1508	10.12920	179
Total	38.7414	13.04147	232

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5189.892	3	1729.964	11.567	.000
Within Groups	34098.591	228	149.555		
Total	39288.483	231			

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6121.103	2	3060.552	21.131	.000
Within Groups	33167.380	229	144.836		
Total	39288.483	231			

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5563.543	2	2781.771	18.889	.000
Within Groups	33724.940	229	147.270		
Total	39288.483	231			

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2915.228	5	583.046	3.623	.004
Within Groups	36373.255	226	160.944		
Total	39288.483	231			

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3116.284	3	1038.761	6.548	.000
Within Groups	36172.199	228	158.650		
Total	39288.483	231			

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2008.028	2	1004.014	6.167	.002
Within Groups	37280.455	229	162.797		
Total	39288.483	231			

Oneway

ANOVA

Mathematical Achievements

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6002.249	2	3001.124	20.647	.000
Within Groups	33286.234	229	145.355		
Total	39288.483	231			

T-Test

Group Statistics

	Parents support to do homework	N	Mean	Std. Deviation	Std. Error Mean
Mathematical Achievements	Sometimes	53	23.8491	10.55279	1.44954
	regular	179	43.1508	10.12920	.75709

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means			
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference
Mathematical Achievments	Equal variances assumed	.015	.903	-12.070	230	.000	-19.30178
	Equal variances not assumed			-11.803	82.448	.000	-19.30178

Independent Samples Test

		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
Mathematical Achievments	Equal variances assumed	1.59921	-22.45276	-16.15080
	Equal variances not assumed	1.63534	-22.55473	-16.04883

Correlations

Correlations

		Mathematical Achievements	Father Education	Mother Education	Annual Income	Father Occupation	Mother Occupation	Parents Language	Parents Provide Needs To Support Study	Parents Support to Do Homework
Mathematical Achievements	Pearson Correlation	1	.363**	.392**	.374**	.218**	.217**	.226**	.382**	.623**
	Sig. (2-tailed)		.000	.000	.000	.001	.001	.001	.000	.000
	N	232	232	232	232	232	232	232	232	232
Father Education	Pearson Correlation	.363**	1	.547**	.015	.069	-.003	.221**	.139*	.533**
	Sig. (2-tailed)	.000		.000	.816	.293	.960	.001	.034	.000
	N	232	232	232	232	232	232	232	232	232
Mother Education	Pearson Correlation	.392**	.547**	1	.146*	.031	.052	.165*	.226**	.493**
	Sig. (2-tailed)	.000	.000		.026	.635	.430	.012	.001	.000
	N	232	232	232	232	232	232	232	232	232
Annual Income	Pearson Correlation	.374**	.015	.146*	1	.226**	.021	-.055	.121	.232**
	Sig. (2-tailed)	.000	.816	.026		.001	.745	.407	.065	.000
	N	232	232	232	232	232	232	232	232	232
Father Occupation	Pearson Correlation	.218**	.069	.031	.226**	1	-.170**	-.053	.114	.103
	Sig. (2-tailed)	.001	.293	.635	.001		.009	.423	.083	.117
	N	232	232	232	232	232	232	232	232	232
Mother Occupation	Pearson Correlation	.217**	-.003	.052	.021	-.170**	1	.146*	.238**	.046
	Sig. (2-tailed)	.001	.960	.430	.745	.009		.027	.000	.489
	N	232	232	232	232	232	232	232	232	232
Parents Language	Pearson Correlation	.226**	.221**	.165*	-.055	-.053	.146*	1	-.003	.234**
	Sig. (2-tailed)	.001	.001	.012	.407	.423	.027		.967	.000
	N	232	232	232	232	232	232	232	232	232
Parents Provide Needs To Support Study	Pearson Correlation	.382**	.139*	.226**	.121	.114	.238**	-.003	1	.226**
	Sig. (2-tailed)	.000	.034	.001	.065	.083	.000	.967		.001
	N	232	232	232	232	232	232	232	232	232
Parents Support to Do Homework	Pearson Correlation	.623**	.533**	.493**	.232**	.103	.046	.234**	.226**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.117	.489	.000	.001	
	N	232	232	232	232	232	232	232	232	232

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Parents Provide Needs To Support Study, Mother Occupation, Father Occupation, Parents Language, Annual Income, Parents Support To Do Homework, Mother Education, Father Education[b]	.	Enter

a. Dependent Variable: Mathematical Achievements

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.738[a]	.545	.528	8.95686

a. Predictors: (Constant), Parents Provide Needs To Support Study, Mother Occupation, Father Occupation, Parents Language, Annual Income, Parents Support to Do Homework, Mother Education, Father Education

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21398.214	8	2674.777	33.341	.000[b]
	Residual	17890.268	223	80.225		
	Total	39288.483	231			

a. Dependent Variable: Mathematical Achievements

b. Predictors: (Constant), Parents Provide Needs To Support Study, Mother Occupation, Father Occupation, Parents Language, Annual Income, Parents Support to Do Homework, Mother Education, Father Education

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.162	3.156		3.220	.001
	Father Education	.839	1.223	.041	.686	.493
	Mother Education	1.198	1.371	.050	.874	.383
	Annual Income	3.336	.755	.214	4.421	.000
	Father Occupation	.933	.346	.129	2.698	.008
	Mother Occupation	1.530	.487	.151	3.141	.002
	Parents Language	.960	.447	.103	2.150	.033
	Parents Provide Needs To Support Study	3.917	1.012	.189	3.869	.000
	Parents Support to Do Homework	13.631	1.811	.440	7.527	.000

a. Dependent Variable: Mathematical Achievements