A COMPARATIVE STUDY ON MATHEMATICS ACHIEVEMENT OF RURAL AND URBAN AREAS STUDENTS AT RUPANDEHI DISTRICT

A

THESIS

BY

PRAMOD YADAV

FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF EDUCATION

SUBMITTED

To

DEPARTMENT OF MATHEMATICS EDUCATION

CENTRAL DEPARTMENT OF EDUCATION

UNIVERSITY CAMPUS

TRIBHUVAN UNIVERSITY

KIRTIPUR, KATHMANDU

NEPAL

2019

LETTER OF CERTIFICATE

This is to certify that Mr. Pramod Yadav, a student of academic year 2072/073 with Campus Roll No: 440, Exam Roll No: 7228352, Thesis No: 1425 and T.U. Registration No: 9-2-306-86-2010 has completed this thesis under supervision and guidance of Mr. Krishan Prashad Bhatt during the period prescribed by the rules and regulation of Tribhuvan University, Kirtipur, Kathmandu, Nepal. The thesis entitled on **"A Comparative Study on Mathematics Achievement of Rural and Urban Areas Students at Rupandehi District"** has been prepared based on the result of his investigation conducted during the prescribed period under the Department of Mathematics Education, Central Department of Education, University Campus, Kirtipur, Kathmandu, Nepal. I recommend and forward this thesis for the evaluation to award the Degree of Master of Education.

……

Assco. Prof. Laxmi Narayan Yadav

(Head)

Date: May 1, 2019

त्रिभुवन विश्वविद्यालय
शिक्षा शास्त्र केन्द्रीय विभाग
गणित शिक्षा विभाग

विश्वविद्यालय क्याम्पस
कीर्तिपुर, काठमाडौं, नेपाल

UNIVERSITY CAMPUS
Kirtipur, Kathmandu, Nepal

TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF EDUCATION
DEPARTMENT OF MATHEMATICS EDUCATION

पत्र संख्या:-
Ref.

मिति:
Date: .....

LETTER OF APPROVAL

This thesis entitled **"A Comparative Study on Mathematics Achievement of Rural and Urban Areas Students at Rupandehi District"** has been approved for the partial fulfilment of the requirements for the Degree of Master of Education.

Viva-Voice Committee	**Signature**
Assoc. Prof. Laxmi Narayan Yadav (Chairman)	……..
Prof. Dr. Shiva Ram Neupane (External)	……
Mr. Krishna Prashad Bhatt (Member)	……

Date: May 21, 2019

त्रिभुवन विश्वविद्यालय
शिक्षा शास्त्र केन्द्रीय विभाग
गणित शिक्षा विभाग

विश्वविद्यालय क्याम्पस
कीर्तिपुर, काठमाडौं, नेपाल

UNIVERSITY CAMPUS
Kirtipur, Kathmandu, Nepal

TRIBHUVAN UNIVERSITY
CENTRAL DEPARTMENT OF EDUCATION
DEPARTMENT OF MATHEMATICS EDUCATION

पत्र संख्या:-
Ref.

मितिः
Date: .....

RECOMMENDATION FOR ACCEPTANCE

This is to certify that Mr. Pramod Yadav has completed his thesis entitled **"A Comparative Study on Mathematics Achievement of Rural and Urban Areas Students at Rupandehi District"** under my supervision during the period presented by rules and regulations of Tribhuvan University, Kirtipur, Kathmandu, Nepal. I recommend and forward his thesis to the Department of Mathematics Education to evaluate in final viva-voce.

.....

Mr. Krishna Prashad Bhatt

(Supervisor)

Date: May 1, 2019

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

Defence Date: 2076-2-7

DEDICATION TO

I want to dedicate this thesis to my father,Mr. Dileram Yadav and mother, Mrs. Parmi Devi Yadav. They have always been a source of inspiration in my life who have spent their whole life to transform me from nobody to somebody.

DECLARATION

I hereby declared that this thesis is my original work. I have prepared this thesis with fully attempt to make unique as possible as I can do has been accepted for the award of other degree in any institutions. To the best of my knowledge and belief that this thesis contains no materials previously published by any authors except due acknowledgement has been made.

……

(Mr. Pramod Yadav)

ACKNOWLEDGEMENT

First of all, I would like to thank the Department of Mathematics Education, Central Department of Education, Kirtipur, Kathmandu, Nepal for providing me support and co-operation to conduct this survey research.

I would like to express my heartfelt gratitude and respect to my respected supervisor, Mr. Krishna Prashad Bhatt, lecturer, Department of Mathematics Education, T.U., Kirtipur, Kathmandu. His precious and constructive suggestions, instruction and scholarly guidance have been the great asset of this thesis. In a similar manner, I feel immense hearties pleasure in expressing my gratitude to Associate professor Laxmi Narayan Yadav, Head, Department of Mathematics Education, T.U., Kirtipur, Prof. Dr. Shiva Ram Neupane, Prof. Dr. Binod Dhakal, Associate Prof. Dr. Eka Ratna Acharya, Associate Prof. Dr. Bed Raj Acharya, Mr. Abtar Subedi, Mr. Krishana Prasad Adhikari and all respected teacher of Department of Mathematics Education, T.U., Kirtipur for their constructive suggestions, valuable comments and proper guidance whenever I needed.

Furthermore, I am highly indebted to those teachers and students of my selected schools who co-operated me in collecting data. I can't forget the uncompromising assistance of big brother Mr. Mahendra Yadav during this research. Last but not least, I would like to extend immense thanks to Shiv Murat Yadav, Rajkumar Barai and all my amiable friends for providing me their valuable time, experience and inspiration in completing this thesis.

……

Pramod Yadav

ABSTRACT

This is a quantitative study based on survey design entitled "A comparative study on mathematics achievement of rural and urban areas urban areas schools students at Rupandehi district". The objectives of this study were to compare the student's achievement in mathematics in rural and urban schools and to find out the crucial factors that play roles in the achievement gap of students between rural and urban areas schools.

The sample of this study consisted of 445 students from five rural and five urban schools. Schools were chosen randomly and the whole students were taken from the selected class. A set of questionnaires were used as tools for collecting data and students mathematics achievement of selected schools of academic year 2074 was taken from schools marks ledgers. The questionnaires were related to five factors affecting mathematics achievement consisting of fifteen statements. The collected data were analyzed and interpreted by using statistical tools such as mean, standard deviation, t-test at 0.05 level of significance and multiple linear regression. It is found that the mathematics achievement mean score of urban community schools students is higher than the rural community secondary schools students. Hence, there is a significant difference between rural and urban schools students in their achievement in mathematics.

It is found that the factors class size, extra-curricular activities, time schedule, unit test and home assignment contribute for mathematics achievement around 7.6%, 7.1%, 22.4% , 30.9% and 24.7% respectively positively associated with mathematics achievement of rural schools students. Similarly, the effect of class size, extra-curricular activities, time schedule, unit test and home assignment in urban schools students 7.6%, 7.1%, 22.4%, 30.9% and 24.7% respectively. Thus , all these factors play an important role in the gap in mathematics achievement of urban and rural schools students.

TABLE OF CONTENTS

Page No.

LIST OF TABLE

Page No.

LIST OF FIGURE

ABBREVIATIONS

AY	:	Academic Year
DF	:	Degree of Freedom
GAT	:	Geometry Achievement Test
GII	:	Geometry Interest Inventory
IMO	:	Ministry Of Education
SPSS	:	Statistical Package for Social Science
TU	:	Tribhuvan University
UK	:	United Kingdom
VDV	:	Village Development Committee

CHAPTER I

Introduction

Background of the Study

Achievement means knowledge or skill developed by pupil usually in the school subjects measured by test scores marks assigned by the teacher or by both. Mathematics has played an important role in building up to modern civilization by perfecting all science.

The term “Urban” simply refers to the region or area which densely populated and poses the characteristics of the man-made surroundings. In an urban area, the population is very high and the lifestyle fast and complicated. Urban areas environment greater isolation from nature and associated with non-agriculture work i.e. Trade, the commerce of provision of services. There are many advantages of living in urban areas like easy access to various quantities, better transportation, facilities entertainment, and education options, health facilities etc. The term “Rural” refers to a small settlement, which is outside the boundaries of a city, commercial or industrial area. It may include, countryside areas, villages or hamlets where there are natural vegetation and open spaces. The rural area is the geographical region located in the outer parts of the cities or towns where life is simple and relaxed. The rural population is engaged in agricultural works (Surbhis, 2016).

Though, they are rural or urban students, they may have represented the same age, aptitude and interest towards mathematics education but while learning this subject in school level different factors and learning materials have played significant role for motivating and encouraging to learn. Teaching materials, parents’ guidance,

learning environment have also mitigated their achievements whether accepted grades or marks or partially accepted some of them can't meet expected goals.

Mathematics education can provide an effective impression by which the students of the school level can believe for any reasoning thought self-stream and efficiency. Nepal is such a country where the students have been studying in an urban or rural area. Curriculum development center has implemented this subject as compulsory from grade I to X. Moreover, private schools have taught mathematics by using English medium. Even some of the urban area schools have used their medium English. Rural areas schools taught this subject by using Nepali medium in community secondary schools.

The study area of this study is the Rupandehi district, which lies in the western development region of Nepal. Mixed cultural people have lived there. Different factors can play significantly for learning mathematics i.e. students motivation towards mathematics, class size, extra-curricular activities related to mathematics, time management, use of teaching materials into the classroom, periodic tests, unit test, regular home assignment of students. At the end of the lesson, teachers feedback to construct creative and constructive suggestions. Environment i.e. parents education, occupation and investment to education so forth, are some factors that enhance the achievement in mathematics and due to lack of the above-mentioned factors the students obtain low achievement.

Statement of the Problem

Though, the same academic years, same curriculum, total teaching period, prospective graduate teachers, textbooks and examination, the majority of people are in favour of urban areas schools rather than rural areas schools. Students from rural

schools are less succeeded in mathematics than that of urban schools. So it is the challenging issues for the people concerned this field. Also, the other basic question concerns with the crucial factors that play roles in the achievement gap of students between rural and urban areas schools. So, this study intends to answer the following research question:

- What is the level of achievement in mathematics among the students of rural and urban areas schools?
- Does the mathematics achievement of rural and urban areas differ significantly?
- What are the factors that play roles in the achievement gap of the mathematics students between rural and urban areas schools?

Objectives of the Study

This study intended to accomplish the following objectives:

- To compare the Students achievement in mathematics in rural and urban schools.
- To find out the crucial factors that play roles in the achievement gap of students between rural and urban areas schools.

Significance of the Study

Mathematics is an essential part of the school curriculum which is taught from basic level to secondary level, having the same curriculum, similar examination system, same textbooks and evaluation system of both rural and urban areas secondary community schools students. The urban school students performance can be better than rural school students due to the appropriates management of teaching. This inquiry tries to find out the difference in the performance and achievement of the

rural and urban school students caused by the various influencing factors. The researcher also expects that the outcomes of the study are useful, mostly for the people working in the field of education viz. teachers, curriculum developers, students experts policy makers, textbook writer, researcher, and government of assessment bodies. The significance of this study are summarized as follows:

- This study helps to carry out an actual achievement of rural area and urban areas community secondary schools.
- It helps to find out the difference in the performance and achievement of the rural and urban school students caused by the various influencing factors.
- It helps to improve students' performance and achievement of the rural and urban area's schools.
- The results of this study are helpful for future research to compare in rural and urban school in other districts.
- Outcomes of this study are useful, mostly for the people working in the field of education viz. teachers, curriculum developers, student's expert's, policymaker, textbook writer etc.

Hypothesis of the Study

The null and alternative hypothesis are as follows:

- **Null hypothesis:** There is no significant difference between mathematics achievement among the students of rural and urban schools.

  i.e. H_0: $\mu_1 = \mu_2$.

- **Alternative hypothesis:** There is significant difference between mathematics achievement among the students of rural and urban schools.

  i.e. $H_1: \mu_1 \neq \mu_2$

  (Where μ_1 & μ_2 are the corresponding parametric mean of the achievement among the students of rural and urban schools).

Delimitation of the Study

The delimitation of the study was as follows:

- This study was delimited in the rural and urban area's community secondary schools of Rupandehi District.
- This study was selected five urban and five rural areas schools.
- This study was taken whole students from each selected school and class.
- This study was focused on grade nine and ten.
- This study was concerned with the following factors only class size, extra-curricular activities, time schedule, unit test and home assignment.

Definition of Related Terms

Achievement. In this study, achievement means the score obtained by the students in school marks ledgers.

Class size. Class size refers to the number of students in a given course or classroom.

Home assignment. An assignment is a task that someone is given to do, an assignment is also a piece of work given to students to do at home.

Parents. Parents refer to father, mother and guardians whose children study either in urban areas schools or schools of rural area.

Rural area. It refers to a small settlement, which is outside the boundaries of a city, commercial or industrial area. Rural municipality.

Rural school. The school situated in a rural area.

Students. Students of grade IX and X of the selected school referred to as a student of this study.

Time schedule. The scheduled time of any crew is the time, calculated at the beginning of the lent, that they should arrive at any given control, which is fixed from the start of the event.

Unit test. Teaching and testing are an integral part of the education system, the unit test is an evaluation tool for the measurement of pupils and knowledge achievement and improves by given feedback.

Urban area. It refers to the region or area which densely populated and process the characteristics of the man-made surroundings. Metropolitan city or sub-metropolitan city or municipality.

Urban school. The school situated in an urban area.

CHAPTER II

Review of Related Literature

Review of related literature is a very difficult task. It explores the deep insight and clear perspective of the overall field. The main purpose of the review of related literature is to find out what works have been done in the area of the research problem under study and what has not been in the field of study being undertaken. The review of related literature helps to make the concepts clear for the study and also directed to analyze and interpret the data. There are some studies related to the achievement of mathematics review of this study. Few related kinds of literature are given below:

Empirical Literature

This section consists of the review of related articles, journals, reports, previous studies and thesis. So, the researcher has reviewed these studies in order to explain the present problem of the study. The literature was reviewed as follows.

Pokhrel (2001), did a research study on the topic "Mathematics achievement in school leaving certificate examination between public and private school student at Kaski district. The main conclusion of this study was to mean achievement scores and correlation of private school students in compulsory and optional mathematics was greater than public school students in Kaski district in S.L.C. examination he concluded that the mathematics achievement of private school is better than public school Richard (1983) had made study titled "factors related to students' school achievement". He concluded the important factors related to students' school achievement are classroom behaviour (time spent on learning, students' attention, a method of teaching

Teachers background (trained, experience ability) of private and public school students characteristic (perquisite knowledge students attitude daily attention).

Sapkota (2005), studied on "A comparative study of mathematics achievement on S.L.C. result of Kathmandu and Kavre district of Nepal". The major finding of the study in several variables are presented as follows: There is a significant difference between the achievement in mathematics students of Kathmandu and Kavre district. There is a significant difference between the achievement of boys and girls in the mathematics of Kathmandu district. There is a significant difference between the achievement of the students from the rural and urban area of Kathmandu district.

Paudel (2006), did research on "Achievement in the mathematics of schools" and aimed to find the difference between mathematics achievement of +2 level from the public and private school on one hand and on the other, from rural and urban schools background. This study researcher used survey research design.

The study was limited only around the vicinity of Banke district and 317 students (157 from public and 160 from private schools) were included as a sample of the study. The research concluded that there was no significant difference between the mean achievements secured the students from public and private school background. Furthermore, the researcher also concluded that the mean achievement of students from rural and urban school background was found to be insignificant and the achievement was found to be affected by various factors viz. management factors, the factor related to the examination system, policy-related factors top teaching skill.

Yadav (2010), in his research "A comparative study of secondary level Students achievement in mathematics between private and public schools in Siraha district". Concluded that the mean score of private school students and public school

students are 40.45 and 33.68 respectively. The mean score of private school students is higher achievement than public school students.

Parajuli (2010), in his research on "A comparative study of secondary level Students achievement in mathematics between private and public school at Gulmi district. In his research data were collected from eight private and eight public school. The mathematics achievements were examined were compared among 640 students in private and public school. The statistical techniques used in this study were mean score, standard deviation and two-tailed tests were used to test whether is significance difference or not in the mean score of students in mathematics studying at tenth grade. All the test were tested at 0.05 level of significance. The mean score of private school students and public school students respectively 40.45 and 33.68. The mean score of private school students is higher than public school students.

John & Benjamin (2013), research on the title "Rural and Urban students' academic achievement and interest in geometry ". The Games and simulations method was used to address the rural-urban difference in achievement and interest of students in Benue State of Nigeria. Two research questions and hypotheses guided the study. The sample is made up of 70 urban and 59 rural students. One group pre-test post-test design was used on intact classes. Data were generated using GAT and GII. GAT is multiple-choice 20 items with four options while GII is a 20 item Likert-rating scale with five options. Internal consistency reliability index of 0.80 for GAT was established using Kuder Richardson (KR-20), while Cronbach Alpha was used to estimate the GII internal coefficient reliability of 0.90. Mean and standard deviations were used to answer all the research questions while t-test was used to test the hypotheses at .05 level of significance. The study revealed that rural students achieved significantly better in mean achievement and interest scores than those in urban

schools post-treatment. These findings showed that rural students suffer disadvantage not as a result of their attendance at rural schools but non-usage of effective methods of teaching. The study's findings show that games and simulations in teaching mathematics concepts can be used to facilitate meaningful learning in rural schools.

Bosed & Emijou (2013),the research on the title "Rural and Urban differential in students' academic performance among secondary school students". This study investigated the difference between the academic performance of students from a rural environment and students from the urban environment. The researcher used descriptive research design of survey type was adopted for the study. The population for this study comprised all public secondary school students in Ondo State. The sample consisted of 240 students from six randomly selected schools. A questionnaire tagged 'Academic Performance Questionnaire' was used to collect data. Expert judgments were used to ensure face and content validity. The test-retest method was used to determine the reliability and a reliability coefficient of 0.72 was obtained. Data collected were analyzed using the t-test. The result revealed that there is no significant difference in the academic performance of students from a rural environment. It can be concluded from the result that, all else equal, rural students do not suffer disadvantage in their academic performance simply as the result of their residence in rural areas or their attendance at rural schools. It was recommended, among others that rural deficit model should be further examined as educators take a new and more objective look at the performance of the many different types of rural students. Also, parents and students should not feel that they must attend metropolitan schools in order to achieve success.

Sharma (2015), conduct a study entitled "Impact of Home Environment on Mathematics Achievement of Tharu Students". The main objective of the study was

to find out the effect of home environment on mathematics achievement of Tharu students. The study used the survey design and the researcher selected 200 students from 40 schools in Bake District as a sample population. The researcher used a student's questionnaire form and parent's interview schedule to collect data. Mathematics achievement took from marks ledgers of schools record. The collected data were analyzed using statistical tools, such as mean, standard deviation, intercorrelation, t-test, and multiple linear regression model. The home environment related independent variables parent's education, parents education, language, time for study, parent's supporting to do homework, were found to be strongly related to students achievement in mathematics and the family size was found to be a low influence on students achievement in mathematics. The researcher concluded that the home environment of the student effect directly in mathematics achievement or performance.

Singh (2016), conduct a study entitled "Role of Home Environment on Learning Mathematics at Grade VIII". The main objective of the study were to find the influence of parent's economic states, family involvement and family education on student's mathematics achievement. The researcher had taken as the sample for the study 195 students were selected from four government schools in Rudrapur VDC by using random sampling method. The researcher used mathematics achievement test, questionnaire forms were used to collected data. The collected data were analyzed using statistical tools, such as mean, standard deviation, correlation coefficient and multiple linear regression.

The mean score of students of education, literate and illiterate father were 40.54, 30.10 and 19.50 respectively. The mean score of students of the educated, literate and illiterate mother were 38.52, 34.93 and 32.00 respectively. The mean

score of students one hour, two hours and three-hour providing time were 31.18, 36.07 and 45.20 respectively. The mean score of a student of at least one, at least two and at least three visits in school were 31.87, 38.11 and 42.00 respectively. The correlation between dependent variable mathematics achievement and independent variables family income, father education, mother education, parent provided time, parent visiting in school were found. The researcher finds mother education and father education had a substantial correlation with student's mathematics achievement. The family income and mathematics achievement had a moderate correlation. Similarly, parent provided time for student had moderated correlation with mathematics achievement.

The correlation between parents visiting school and mathematics achievement low correlated. The regression coefficient of family income, mother education, father education, the time provided, parents visiting the school are 4.49, 1.79, 0.206, 2.120 and 2.913 respectively. Also, standardized coefficient are 0.151, 0.479, 0.21, 0.156 and 0.132 respectively. So, the researcher concluded that the home environment of the student effect directly in mathematics achievement.

Khatri (2016), conducted research on the title "Parents involvement on their children's mathematics achievement". The objectives of this study were to find the correlation between the mathematics achievement of students and their parent's involvement as a different role model and to find the impact of parent's involvement their children's mathematics achievement of grade V students. The sample of this study was 120 students from two public schools by random sampling method. The researcher used a mathematics achievement test and parents questionnaire form tools for this study. The mean, standard deviation, correlation, intercorrelation and multiple regression were used to analyze the data related to the parent's involvement roles. The

researcher found that the mean achievement of students whose parents were taking more time was better than less time as a teacher. Similarly, the mean score of children whose parent always support whose higher than others.

Khanal (2016), in his research on "Learning Strategies Used by Urban and Rural School Students in Mathematics" This study finds out the difference in preferred learning strategies in mathematics between urban and rural school students in Nepal. Nepal is geographically a diverse country. It has three different geographical reasons Mountain, Hilly and Terai. The average pass rate of rural school students is lesser than in urban areas. The study about learning strategies used by urban and rural school students in mathematics has not been carried out in the Nepalese context. The culture, context and cognition of Nepalese students are different. Hence, the research aims to investigate school students in the learning of mathematics in the Nepalese context. This study tries to answer the following related to the learning strategies of secondary school mathematics students:

- Is there any difference between urban and rural school students in their preferred learning strategies in mathematics?
- What kinds of differences between urban and rural school students are there in their preferred learning strategies in mathematics?

This study was conducted in 1394 students grade IX students though multistage sampling Procedure throughout the country. Among them, 987 students were from urban schools, and 407 students were from rural students. The researcher adopted mix method –sequential explanatory design. The study was based on the taxonomy of learning strategies developed by Pintrich, Smith and Mc kerchief (1989). The tools for the data collection were motivated strategies for learning questionnaire, observation

and interview. This study shows that there significant difference in preferred learning strategies of urban and rural school students. Both urban and rural school students and rural school students used all nine learning strategies in equal proportion. These strategies are rehearsal, elaboration, organization, critical thinking, meta-cognition, time study mgmt, effort mgmt., peer learning and help to seek. The urban school students prefer peer learning whereas rural school students use elaboration as their effective learning strategies. While comparing all the nine strategies discussed in this study, urban school students are far ahead in almost all the strategies except for elaboration and organization. Rural school Students family background, attitude, environment, cultural value system, limited exposure to the learning resources and materials are the major causes of these differences. Elaboration and organization strategies are more often used by rural students than urban school students whereas peer learning, elaboration, help-seeking and effort management strategies are more often used by urban school students.

At the end of study related to comparative, the researcher reviewed the following research carried out by Khadka, (2017) in his research "Comparative study on the achievement of private and public school students in the pythan district". The researcher uses survey design on this research, the aim of this research compares the achievement of private and public schools students in mathematics. 15 school were selected for the sample and 15 students were included for his research as a sample. The statistical techniques used in this study were mean scores, standard deviation and two-tailed t-tests was used to test whether there is significance difference of not in the mean score of students in mathematics studying at ninth grade. All the test were tested at 0.05 level of significance. The mean score of private school students and public school students is respectively 52.36 and 43.28. The mean score of private school

students is higher than public school students. This shows that the significant difference between public and private schools students in their achievement.

The above discussion shows that the major challenge facing the Nepalese education system today is a problem of poor quality of rural areas. Likewise, the researcher has decided to study secondary level Students achievement in mathematics at rural and urban areas schools at Rupandehi district. The review of related literature guide the researcher in his research.

Theoretical Literature

There are various learning theories to analyze and interpret the data such as Classical Conditioning, Operant Conditioning, Trial and Error, Social Learning, Social Construction, Cultural discontinuity theories, Socio-cultural perspective and multiple intelligence and so on. All theories support the human situation and suggest them to promote human learning activities. The theoretical discussion is needed for the interactive finding of the study. To analyze and find a suitable solution in the area of "A comparative study on mathematics achievement of rural and urban areas students "and influencing factor of mathematics achievement. So, different learning theories following theories were found to be promoted to be more supportive of the present study taken by my study:

Coleman, Hoffer and Kilgor's model of student achievement.

Coleman, Hoffer and Kilgore proposed a general mode of Students achievement that explains that the school sector may affect a Students achievement. In their model, Students achievement is influence by the following six factors:

- Students own background
- Other students background

- Students own behaviour
- Other students behaviour
- School type
- School policies

According to Coleman, Hoffer and Kilgore “School police, such as level of homework, curriculum and disciplinary practices, indirectly affect a Student’s achievement by influencing that Students (Mehta, 2017).

Constructivism

Constructivism becomes related to educational theory to deal with the problems of mathematics. It resolves the problem of comparative achievement study and influencing factor of mathematics achievement. It is a theory based on observation and scientific study to deal with the problem of learning. It asserts on forming the understanding and knowledge of the world though experiencing thing. When we encounter something, our mind perceives the things and reconcile with previous ideas which have already existed or reconciled with preexist idea. It means mind becomes active creator to reach and act with present surrounding in a similar way constructivist idea of learning can point towards a number of different teaching practice. It encourages the students to involve themselves actively and use techniques of learner-centered, group work discussion, learning by doing, use outside tools to be more practical and gain high achievement in mathematics rather than classroom it focuses on real-life learning environment, social interaction and use of complex idea share with others outside of the classroom easily constructivism transforms the students from passive receipting of information to active participation in the teaching process. Constructivism is based on three axioms that are as follows.

- Learners learn knowledge from their active participation.
- Learners gain knowledge while reflecting on their own actions.
- Learners gain knowledge when they try to convey their solution to others.

From these axioms action, reflection, and scaffolding describe the psychological aspect, philosophical aspect and sociological aspect. Piaget stresses the key word "action" through which he advocates that knowledge is gained. He said that an essential way of knowledge is not directly through our sense, but primarily thought our action. The Philosophical aspect of constructivism is also called radical constructivism, which is led by Glasserdfeid who also advocates social constructivism led by Vygotsky, who states that knowledge is socially constructed (Ghimire, 2017).

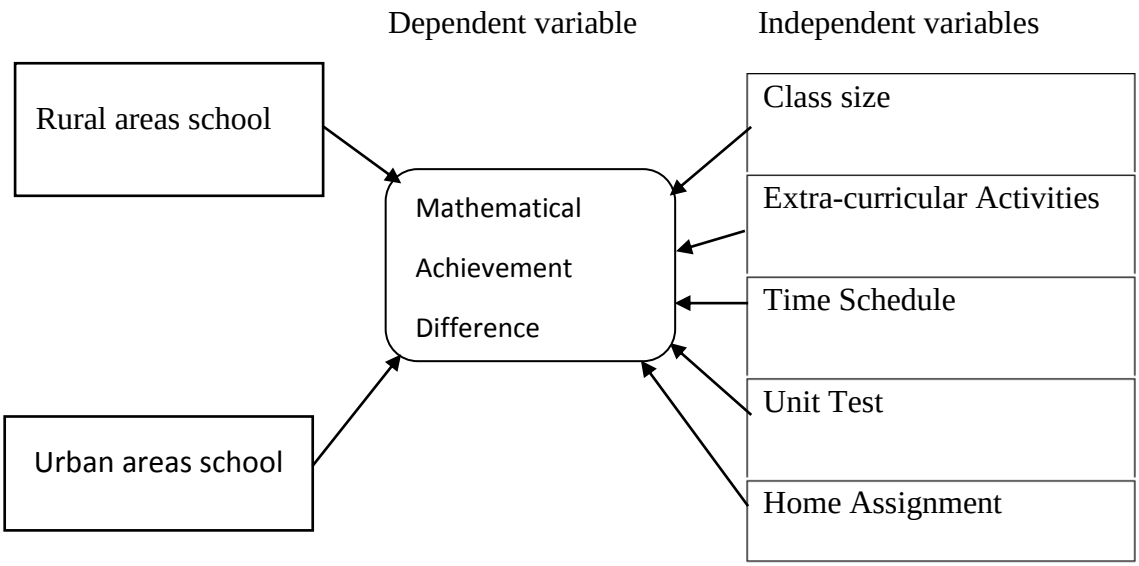
Conceptual Framework

A conceptual framework represents the researcher's synthesis of the literature on how to explain a phenomenon. It maps out the actions required in the course of the study given his previous knowledge of other researchers' point of view and his observations on the subject of research. In, other words a conceptual framework is the researchers own model illustrating variables that specify the problem and gives the direction of a model in early theory, with modifications to suit the inquiry.

The conceptual framework of this study gives a clear picture of the relationship between the dependent and independent variables used in this research. In this study, the researcher has used independent variables are: class size, extra-curricular activities, time schedule, unit test, home assignment and mathematics achievement is dependent variable The mathematics achievement difference between rural and urban

areas schools is also a unit of analysis in this research which is the dependent variable of this study. The conceptual framework of this study is shown in the following figure.

***Figure I*. Conceptual Framework of the Study**



(Source: *Olive joy F. Andaya, researcher world-journal of arts, science &commerce).*

From the above conceptual framework class size, extra-curricular activities, time schedule, unit test, home assignment are independent variables and mathematical achievement is the dependent variable in this study. On the basis of the above-mentioned conceptual framework, the tools were constructed such as questionnaire form. By using the tools, the data were collected and data were analyzed on the conceptual framework. To find the effect of the independent variable on the dependent variable and to find the relationship between the independent variable and dependent variable. This conceptual model diagram was consisting to show the influence/effect of independent variables on mathematics achievement by taken quantitative data and was analyzed using multiple regression method.

CHAPTER III

Methods and Procedures

This chapter includes the method and procedure of the study carried out in this study. It describes the design of the study, the population of the study, a sample of the study, the variable of the study, tools, reliability and validity of the tools, data collection procedure and data analysis procedures.

Research Design

The research design is the conceptual structure, strategy of the logical, systematic plan and direction of research. The research design for this study was quantitative survey research.

Population, Sample of the Study and Sampling Strategy

The population of the study was all the students studying in grade X (IX Completed) at Rupandehi district. The number of total community secondary schools was 148 in this district. The researcher selected five rural areas community secondary schools out of 46 and five were selected from urban community secondary schools out of 102 by random sampling method. The researcher took the whole students of each selected schools and class. The number of total participants students were 445 were 259 from rural schools and 186 from urban schools.

Variables of the Study

In this study, the researcher has taken five influencing factors of mathematics achievement which are taken as an independent variable for study. The independent variables are class size, extra-curricular activities, time schedule, unit test, home

assignment and mathematics achievement of the student taken as the dependent variable for this study.

Tools/Instrument of Data Collection

This study was used following tools for collecting data:

Marks Ledgers

The mark ledgers, already recorded by the schools were used for statistical analysis regarding the achievement in mathematics of grade IX students. The mark ledgers of the final examination (the academic year 2074) of grade IX students were one of the tools of this study.

Questionnaire

The questionnaire is a predefined series of question used to collect information from individuals. In this study, the researcher used a set of questionnaires with fifteen statements to know the view of students on the level influence in mathematics achievement related to five factors i.e. class size, extra-curricular activities, time schedule, unit test and home assignment. Statement of the questionnaire was prepared on the basis of a conceptual framework with the help of Likert five-point scale. The respondent was given their opinion on the basis of Strongly Agree (SA), Agree (A), Neutral (N), Disagree (D) and Strongly Disagree (SD) of the statement. The responses of each statement were scoring as given below.

Table I. ***Scoring methods***

Meaning of rating	For Positive Statement	For Negative Statement
Strongly Agree	5	1
Agree	4	2
Neutral	3	3
Disagree	2	4
Strongly Disagree	1	5

Reliability and Validity of Tools

The reliability of tools refers to the consistency in results. A tool is said to be reliable if it consistently yields the same or nearly the same ranks repeated over administrations (Kalauni, 2016). The consistency of scores obtained by the same individuals on different occasions or with different sets of equivalence items (Anastasi, 1976). Validity is nothing but simple evidence for inferences made about the test score. This evidence may be content-related, criterion-related, or construct-related. The extent to which a test measures the quality it purports to measure (Kaplan & Saccuzzo, 2005). A test is valid to the extent that inferences made from it are appropriate, meaningful and useful (Gregory, 2004, p.121). Mainly, the validity of tools relates to reliability.

For the reliability and validity of tools conformed and verified with subject expert and thesis supervisor. The researcher designed questionnaires based on the conceptual framework that could make reliable as well as validity. For this purpose, the supervisor of this thesis provided me with appropriate help on how the questionnaires tool for students made reliable. So far as, the researcher designed questionnaires which were related to the content of subject matter (mathematics).

Likewise, criteria to fulfil the related independent variables and to construct fifteen statements of Likert Five-point scale with related factors in this study.

Data Collection Procedures

In this study, first of all the schools was sampled. After that, the researcher visited the sampled schools of Rupandehi district at different dates and time (See appendix-G). The data were collected from the result of mathematics achievement of grade IX students with their mark ledgers (Academic year 2074) all the sampled schools were categorized into two groups such as rural and urban areas secondary schools. Then, the students of these schools were also categorized in accordance with urban, rural, boys, girls. Also, the researcher collected the data administrating a set of questionnaire to know the responses of students about influencing factors in mathematics achievement. While collecting the data, if any confusion or unclearness things was asked by the respondents about any statement, researcher cleared them about it. Finally, the researcher thanked all the student, teacher and head teacher for their kind co-operation.

Data Analysis Procedure

In this study, after collecting and before analyzing the data, it is necessary for the organization of data the collected data had been organized by computer. This study based on a quantitative approach and therefore analysis had been done using Microsoft Excel and SPSS16.0 by entering method. The researcher has analyzed and interpreted the first objectives of this study by statistical tools such as mean, standard deviation and t-value at 0.05 level of significance. For analysis and interpretation of the second objective the responses of students were scoring according to Likert five-point scale in various factors such as class size, extra-curricular activities, time

schedule, unit test and home assignment which influence in students mathematics achievement. After that, multiple linear regression was calculated to find the effect of above listed independent variables on the dependent variable that is mathematics achievement.

CHAPTER IV

Analysis and Interpretation of the Data

This chapter deals with the analysis and interpretation of the collected data. This is a quantitative study based on survey design conducted in Rupandehi District. The main purpose of this study was to compare the Students achievement in mathematics in rural and urban school at the secondary level and find out the crucial factors that play roles in the achievement gap of students between rural and urban areas school. For analysis and interpretation of data the researcher has collected data from 445 students from five rural and five urban randomly selected school. To compare the Students achievement of rural and urban areas students, the data were collected final exam mark ledger of grade IX (see Appendix-C and D) from sampled school students. The data were analyzed and interpreted finding with mean, standard deviation and t-value at 0.05 level of significance.

For analysis and interpretation of the second objective a set of questionnaire which is given appendix-A consisting of fifteen statements related to five factors that play roles in the achievement gap of the students. The responses were taken from Likert five-point scale of related factors which are influencing in the achievement of students. The data were analyzed and interpreted by factor analysis of the multiple linear regression model using responses of students and their mathematics achievement. The data were analyzed and interpreted using computer software program Microsoft Excel and Statistical Package for Social Science (SPSS 16.00).

Comparison of Rural and Urban Secondary School Students' Achievement in Mathematics

The mean, standard deviation and corresponding t-value of the score obtained by rural and urban Secondary school students and t-test were given below:

Table II. ***Rural and urban secondary school students' achievement in mathematics***

Group Compared	**N**	**Mean**	**S.D**	**DF**	**Calculated t-value**	**Remarks**
Rural School	259	44.74	7.26	443	|t|=7.36	H_o is Rejected
Urban School	186	51.50	12.06			

∗ Significant at 0.05 level

Where,

N= number of students, S.D= Standard Deviation, DF= Degree of Freedom

The analysis of the information mentioned in the above table (II) represented that the number of the students participated was 259 from rural and 186 from urban secondary schools. The mean scores of rural and urban school students at secondary level were respectively 44.74 and 51.50. Therefore, the mean score of urban secondary schools students' achievement is higher than the mean score of rural secondary schools by 6.67. The calculated standard deviation of rural schools is 7.26 and urban schools are 12.06.The calculated t-value is |t|= 7.36 (from SPSS 16.0) which is greater than the tabulated value 1.96 at 0.05 level of significance with degree of freedom (N_1+N_2-2) = 259+186-2 = 443. It indicates that there is significant

difference between the mean achievement of rural and urban secondary school students. Thus, the hypothesis of no significant difference between mathematics achievement among the students of rural and urban schools is rejected.

Comparison of Mathematics Achievement between Rural School Boys and Urban School Boys

The mean, standard deviation and corresponding t-value of the score obtained by rural and urban secondary school boys' students were tabulated below:

Table III. ***Mathematics achievement between rural school boys and urban school boys***

Group Compared	**N**	**Mean**	**S.D**	**DF**	**Calculated t-value**	**Remarks**
Rural School	123	45.95	8.78	218	|t|=5.32	H_o is Rejected
Urban School	97	53.81	12.28			

∗ Significant at 0.05 level

Where,

N= number of students, S.D= Standard Deviation, DF= Degree of Freedom

The analysis of the information mentioned in the above table (III) represents that there were 123 boys students from rural secondary school; the mean score obtained by them was 45.95 with standard deviation of 8.78. Similarly, there were 97 boys students from urban secondary school; the mean score obtained by them was 53.81with standard deviation of 12.28. The calculated t-value was |t|= 5.32 (from SPSS 16.0) which is greater than the tabulated value 1.96 at 0.05 level of significance

with degree of freedom 218. Thus, the null hypothesis is rejected. Hence, there is significant difference between the mathematics achievement among the boy's students of rural and urban secondary schools, which shows that the alternative hypothesis is accepted.

Comparison of Mathematics Achievement between Rural School Girls and Urban School Girls

The mean, standard deviation and corresponding t-value of the score obtained by rural and urban secondary school girls' students were tabulated below:

Table IV. ***Mathematics achievement between rural school girls and urban school girls***

Group Compared	**N**	**Mean**	**S.D**	**DF**	**Calculated t-value**	**Remarks**
Rural School	136	43.65	5.34	223	|t|=4.14	H_o is Rejected
Urban School	89	48.98	11.35			

∗ Significant at 0.05 level

Where,

N= number of students, S.D= Standard Deviation, DF= Degree of Freedom

The analysis of the information mentioned in the above table (IV) represents that there were 136 girls students from rural secondary schools; the mean score obtained by them was 43.65 with standard deviation of 5.34. Similarly, there were 89 girls students from urban secondary schools; the mean score obtained by them was 48.98 with standard deviation of 11.35. The calculated t-value was |t|= 4.14 (from SPSS 16.0) which is greater than the tabulated value 1.96 at 0.05 level of significance

with degree of freedom 223. Thus, the null hypothesis is rejected. Hence, there is significant difference between the mathematics achievement among the girl's students of rural secondary schools and urban secondary schools, which shows that the alternative hypothesis is accepted.

Comparison of Mathematics Achievement between Rural School Boys and Urban School Girls

The mean score, standard deviation and corresponding t-value of the score obtained by rural secondary school boys and urban secondary school girls' students were tabulated below and analyzed.

Table V. ***Mathematics achievement between rural school boys and urban school girls***

Group Compared	**N**	**Mean**	**S.D**	**DF**	**Calculated t-value**	**Remarks**
Rural School	123	45.95	8.78	210	|t|=2.2	H_o is Rejected
Urban School	89	48.98	11.35			

* Significant at 0.05 level

Where,

N= number of students, S.D= Standard Deviation, DF= Degree of Freedom

The analysis of the information mentioned in the above table (V) represents that there were 123 boys students from rural secondary school; the mean score obtained by them was 45.95 with standard deviation of 8.78. Similarly, there were 89 girls students from urban secondary school; the mean score obtained by them was 48.98 with standard deviation of 11.35. The calculated t-value was |t|= 2.2 (from SPSS 16.0), which is greater than the tabulated value 1.96 at 0.05 level of significance

with degree of freedom 210. Thus, the null hypothesis is rejected. Hence, there is significant difference between the mathematics achievement among the boys students of rural secondary school and girls students of urban secondary schools, which shows that alternative hypothesis is accepted.

Comparison of Mathematics Achievement between Rural School Girls and Urban School Boys

The mean score, standard deviation and corresponding t-value of the score obtained by rural secondary school girls' students and urban secondary school boys' students were tabulated below and analyzed.

Table VI. ***Mathematics achievement between rural school girls and urban school boys***

Group Compared	**N**	**Mean**	**S.D**	**DF**	**Calculated t-value**	**Remarks**
Rural School	136	43.65	5.34	231	|t|=7.65	H_o is Rejected
Urban School	97	53.28	12.28			

***** Significant at 0.05 level

Where,

N= number of students, S.D= Standard Deviation, DF= Degree of Freedom

The analysis of the information mentioned in the above table (VI) represents that there were 136 girls students from rural secondary school; the mean score obtained by them was 43.65 with a standard deviation of 5.34. Similarly, there were

97 boys students from urban secondary school; the mean score obtained by them was 53.28 with a standard deviation of 11.35. The calculated t-value was |t|= 7.65 (from SPSS 16.0) which is greater than the tabulated value 1.96 at 0.05 level of significance with degree of freedom 231. Thus, the null hypothesis is rejected. Hence, there is significant difference between the mathematics achievement among the girls students of rural secondary school and boys students of urban secondary schools, which shows that alternative hypothesis is accepted.

Analysis of Factors Affecting Mathematics Achievement

In this study, the researcher established two objectives. Among them first objectives previously analyzed by using t-test but the second objective was factors affecting in mathematics achievement of students. For the second objective, it has been taken responses of students using Likert five-point scale related to thirteen factors which are influencing Students' mathematics achievement and data were analyzed by multiple linear regression.

Regression Analysis between Dependent and Independent Variables

In simple regression, we study the mathematical relationship between a dependent variable and only one independent variable but multiple regression analysis is an extension of simple regression in that sense two or more independent variables are used to predict the value of a dependent variable. A multiple regression equation is an equation for estimating the value of the dependent variable from two or more independent variables. More precisely, it is a mathematical relationship between one dependent variable and two or more independent variables (Acharya, Yadav, Khadka & Paudel, 2016).

In this section, the independent factors on mathematics achievement are

analyzed where five independent variables and one dependent variable were used in a multiple linear regression model. The result of regression analysis and standardized regression coefficient of the independent variable are shown in the table below.

Table VII. ***Regression and standardized coefficient of mathematics achievement and independent variables (rural school students)***

Independent Variables	**Regression Co-efficient**	**Standardized Co-efficient**	**Sig.**	**R-Value**	**R^2**	**Adj. R^2**	**Std. Errors**
	B	**Beta**					
Constant	14.033		0.000	0.842	0.709	0.704	4.164
Class Size	0.595	0.182	0.002				
Extracurricular Activities	0.755	0.229	0.000				
Time Schedule	0.517	0.158	0.014				
Unit Test	0.226	0.074	0.207				
Home assignment	1.040	0.299	0.000				

a. Dependent Variable: Mathematics Achievement

b. Independent Variable: Class size, Extra-curricular activities, Time schedule, Unit test and Home assignment.

Multiple regression is used to predict one variable on the basis of several other variables. It is also a statistical approach for modelling the linear relationship between the independent and dependent variable. Now, Un-standardized Co-efficient indicates how much the dependent variable varies with an independent variable when all other independent variables are held constant. Standardized Co-efficient examines the effects of an independent variable on the dependent variable. R-value can be

considered to be one measure of the prediction of the dependent variable or level of prediction. R^2- value can be considered as a proportion of variance in Dependent variables that can be explained by the independent variable. Adjusted R^2 value can be considered to report your data accurately (Byerly, 1970 & Sharma, 2015).

Moreover, the standardized coefficient is also called beta coefficient. The beta value is a measure of how strongly each predictor influences the dependent variable. The beta is measured in units of standard deviation, the higher the beta value the greater the impact of the predictor variable on the dependent variable. The beta coefficient is the degree of change in the outcomes variable for every 1-unit of change in the predictor variable. If the beta coefficient is positive, the interpretation is that for every 1-unit increase in the predictor variable, the outcome variable will increase by the beta coefficient value. If the beta coefficient is negative, the interpretation is that for every 1-unit increase in the predictor variable, the outcome variable will decrease by the beta coefficient value (statistics.www.com).

The above table (VII) illustrates the information of the result analyzed based on the multiple regression of independent factors that contribute to the prediction model of the mathematics achievement rural schools students. The above shows R-value (0.842) which indicates a good level of prediction and R^2-value (0.709) which shows that proportion of variance in mathematics achievement that can be explained by the independent variable with adjusted R^2 (0.704) which shows that only 70.4% effect was found in Rural schools students achievement by their independent factors.

However, independent factors contribute significantly to the prediction model of rural school students and other factors that might contribute to their achievement

29.6%. From the finding the prediction model can be written as the multiple linear regression lines.

$Y=14.033+ 0.595\ X_1+ 0.755X_2 + 0.517\ X_3 + 0.226\ X_4 + 1.040\ X_5$

Where,

Y= Dependent variable, X_1 = Class size, X_2 = Extra-Curricular activities,

X_3 = Time schedule, X_4 = Unit test, X_5 = Home assignment

In the regression line, the constant value 14.033 represents the y-intercept that means the above regression line cut the y-axis at 14.033. Among them, the regression coefficient of home assignment is 1.040 which is the highest, so it most influential factor to increase mathematics achievement of the rural school students. The home assignment was found to be positively associated with mathematics achievement. Likewise, the standardized coefficient of home assignment is 0.299 it is implied that only 29.9% effect was found on students mathematics achievement .This means the mathematics achievement of students is increased with the incresament of home assignment.

Similarly, the regression coefficient of class size is 0.595 which was also found to be positively associated with mathematics achievement of the students. Class size was found to be effective in mathematics achievement and standardized coefficient of class size is the 0.182 it is implied that only 18.2% effect of the class size was found in Students mathematics achievement. This means mathematics' achievement of the Students is increased with the management of suitable class size.

Similarly, the regression coefficient of extra-curricular activities is 0.755 which was also found to be positively associated with mathematics achievement of

the students and the standardized coefficient of extra-curricular activities is 0.229 it is implied that only 22.9% effect of extra-curricular activities on mathematical achievement which was found in their Students mathematics achievement. This means the mathematics achievement of students is increased with the increasement of the mathematics related puzzles, games, and quizzes are organized in the school.

Similarly, the regression coefficient of the time schedule is 0.517 which was also found to be positively associated with mathematics achievement of the students. The standardized coefficient of time is 0.158 it is implied that the only 15.8% effect of time schedule was found in mathematics achievement. This means the mathematics achievement of students is increased with the study at home according to the time table and instructions are given by mathematics teachers.

Similarly, the regression coefficient of the unit test is 0.226 which was also found to be positively associated with mathematics achievement of the students and standardized regression coefficient of unit test is 0.074 which is implied that only 7.4% effect of the unit test was found in mathematics achievement. This means the mathematics achievement of students is increased in mathematics taken the unit test by the teacher at the end of each lesson.

From the overall analysis of the above table (VII) the variable home assignment, extra-curricular activities, time schedule have more effect than class size and unit test. It means that extra-curricular activities, time schedule, class size and unit test have a positive relationship between the mathematics achievement of rural schools students.

Table VIII. ***Regression and standardized co-efficient of mathematics achievement and independent variables (urban school students)***

Independent Variables	**Regression Co-efficient**	**Standardized Co-efficient**	**Sig.**	**R-Value**	**R^2**	**Adj. R^2**	**Std. Errors**
	B	**Beta**					
Constant	-13.224		0.006	0.730	0.533	0.521	8.349
Class Size	0.462	0.076	0.294				
Extracurricular Activities	0.447	0.071	0.245				
Time Schedule	1.363	0.224	0.001				
Unit Test	1.927	0.309	0.000				
Home assignment	1.550	0.247	0.000				

a. Dependent Variable: Mathematics Achievement

b. Independent Variable: Class size, Extra-curricular activities, Time schedule, Unit test and Home assignment.

Multiple regression is used to predict one variable on the basis of several other variables. It is also a statistical approach for modelling the linear relationship between the independent and dependent variable. Now, Un-standardized Co-efficient indicates how much the dependent variable varies with an independent variable when all other independent variables are held constant. Standardized Co-efficient examines the effects of an independent variable on the dependent variable. R-value can be considered to be one measure of the prediction of the dependent variable or level of prediction. R^2- value can be considered as a proportion of variance in Dependent variables that can be explained by the independent variable. Adjusted R^2 value can be considered to report your data accurately (Byerly, 1970 & Sharma, 2015).

Moreover, the standardized coefficient is also called beta coefficient. The beta value is a measure of how strongly each predictor influences the dependent variable. The beta is measured in units of standard deviation, the higher the beta value the greater the impact of the predictor variable on the dependent variable. The beta coefficient is the degree of change in the outcomes variable for every 1-unit of change in the predictor variable. If the beta coefficient is positive, the interpretation is that for every 1-unit increase in the predictor variable, the outcome variable will increase by the beta coefficient value. If the beta coefficient is negative, the interpretation is that for every 1-unit increase in the predictor variable, the outcome variable will decrease by the beta coefficient value (statistics.www.com).

The above table (VIII) illustrates the information of the result analyzed based on the multiple regression of independent factors that contribute to the prediction model of the mathematics achievement rural schools students. The above shows R-value (0.730) which indicates a good level of prediction and R^{2s}-value (0.533) which shows that proportion of variance in mathematics achievement that can be explained by the independent variable with adjusted R^2 (0.521) which shows that only 52.1% effect was found in urban schools students achievement by their independent factors.

However, independent factors contribute significantly to the prediction model of rural school students and other factors that might contribute to their achievement 47.9%. From the finding the prediction model can be written as the multiple linear regression lines.

$$Y= -13.224+ 0.462\ X_1+ 0.447\ X_2 + 1.363\ X_3 + 1.927\ X_4 + 1.550\ X_5$$

Where,

Y= Dependent variable, X_1 = Class size, X_2 = Extra-Curricular activities

X_3 = Time schedule, X_4 = Unit test, X_5 = Home assignment

In the regression line, the constant value -13.224 represents the y-intercept that means the above regression line cut the y-axis at -13.224. Among them, the regression coefficient of the unit test is 1.927 which is the highest, so it most influential factor to increase mathematics achievement of the urban school students. Likewise, the regression coefficient of the unit test is 1.927which was also found to be positively associated with mathematics achievement of the students and standardized coefficient of unit test is 0.309 which is implied that only 30.9% effect of the unit test was found in mathematics achievement. This means the mathematics achievement of students is increased in mathematics taken the unit test by the teacher at the end of each lesson.

Similarly, the regression coefficient of home assignment is 1.550 which was also found to positively associated with mathematics achievement of students the standardized coefficient of home assignment is 0.247 it is implied that only 24.7% effect was found on students mathematics achievement .This means the mathematics achievement of students is increased with the incresament of home assignment.

Similarly, the regression coefficient of class size is 0.462 which was also found to be positively associated with mathematics achievement of the students. Class size was found to be effective in mathematics achievement and standardized coefficient of class size is the 0.076 it is implied that only 7.6% effect of the class size was found in Students mathematics achievement. This means mathematics' achievement of the Students is increased with the management of suitable class size.

Similarly, the regression coefficient of extra-curricular activities is 0.447 which was also found to be positively associated with mathematics achievement of the students and the standardized coefficient of extracurricular activities is 0.071 it is

implied that only 7.1% effect of the extracurricular activities which was found in their Students mathematics achievement. This means the mathematics achievement of students is increased with the increasement of the mathematics related puzzles, games, and quizzes are organized in the school.

Similarly, the regression coefficient of the time schedule is 1.363 which was also found to be positively associated with mathematics achievement of the students. The standardized coefficient of time is 0.224 it is implied that the only 22.4% effect of time schedule was found in mathematics achievement. This means the mathematics achievement of students is increased with the study at home according to the time table. From the overall analysis of the above table (VIII) the variable unit test, home assignment, extracurricular activities, time schedule have more effect than class size, extracurricular activities. It means extracurricular activities, time schedule, class size and unit test have a positive relationship between the mathematics achievements of urban schools students. This study concluded that the above factors analysis by multiple linear regression model influence variables on mathematics achievement of rural schools student’s more than urban schools students.

CHAPTER V

Summary, Findings, Conclusion and Recommendations

After the analysis and interpretation of collected data and per the design of the study. This chapter provides a brief summary of the study, states the findings of the study and conclusion. Finally, the last section presents recommendations for educational implication and further study.

Summary of the Study

This study was carried out to compare the Students achievement in mathematics in rural and urban schools, to find out the crucial factors that play roles in the achievement gap of students between rural and urban areas schools and to achieve the objectives of the study, the researcher collected data by mark ledgers (2074 A.Y.) and questionnaires. The researcher used to questionnaires under the Likert five-point scale in survey design of quantitative method to get responses of Students' towards various factors i.e. class size, extra-curricular activities, time schedule, unit test and home assignment used in this study. The population of the study was considered as all the students in grade X (IX completed) at Rupandehi district in the academic year 2075. The researcher has taken 445 students from five rural and five urban schools as sample of the study chosen randomly.

A set of questionnaires developed consisting fifteens statements to find out the responses of students towards the factors affecting mathematics achievement. The questionnaires were based on Likert five-point scale. To compare Students achievement in mathematics using statistical tools such as mean, standard deviation and t-value was used at 0.05 level of significance. The responses of students towards

the various factors which influences in students mathematics achievement were analyzed by multiple linear regression model using Microsoft Excel and SPSS 16.0.

After the analysis of mean, standard deviation and t-value of students' achievement it was seen that there is significant difference between the mean achievement of rural and urban secondary school students. Also, the various factors such as class size, extra-curricular activities, time schedule, unit test and home assignment have positive relationship between the mathematics achievements of rural school students and class size, extra-curricular activities, time schedule, unit test and home assignment have been found out positive relationship between the mathematics achievements of urban school students.

Findings of the Study

In this study, the researcher has selected five rural and five urban areas community secondary schools by random sampling strategy from Rupandehi district for the fulfilment of the objectives of this present study. The number of total students was 445of grade X (IX completed) were considered as the sample. The date was analyzed by mean, standard deviation, t-value and multiple linear regression model. After the statistical analysis and interpretation using Microsoft Excel and SPSS software of the collected data the researcher yielded the following results as findings of the study.

- The mean scores of rural and urban school students 44.74 and 51.50 respectively. The standard deviation of rural and urban community secondary schools students are 7.26 and12.06 respectively.

- The |t| = 7.36 at 0.05 level of significance, which is greater than tabulated value 1.96 shows that there is significant difference between the mathematics achievement among the students of the rural and urban schools.
- The mean scores of rural school boys and urban school boys are 45.95 and 53.81 respectively. The standard deviation of rural school boys and urban boy's school are 8.78 and 12.28 respectively.
- The |t| = 5.32 at 0.05 level of significance, which is greater than tabulated value 1.96 shows that there is significant difference between the mathematics achievement among the boy's students of the rural and urban community secondary schools.
- The mean scores of rural and urban school girl's students are 43.65 and 48.98 respectively. The standard deviation of rural and urban school girl's students are 5.34 and 11.35 respectively.
- The |t| = 4.14 at 0.05 level of significance, which is greater than tabulated value 1.96 shows that there is significant difference between the mathematics achievement among the girl's student of the rural and urban secondary community schools.
- The mean scores of rural school boy's student and urban school girl's students are 45.95 and 48.98 respectively. The standard deviation of rural school boys and urban school girls students are 8.78 and 11.35 respectively.
- The |t| = 2.2 at 0.05 level of significance, which is greater than the tabulated value 1.96 shows that there is significance difference between the mathematics achievement among the boy's students of the rural community secondary schools and girls student of the urban community secondary schools.

- The mean scores of rural schools girls and urban schools boy's students are 43.65 and 53.28 respectively. The standard deviation of rural school girls' student and urban school boys' student are 5.34 and 12.28 respectively.
- The $|t| = 7.65$ at 0.05 level of significance, which is greater than the tabulated value 1.96 shows that there is significant difference between the mathematics achievement among the girls student of the rural secondary schools and boys student of the urban secondary schools.
- The R-value (0.842) which indicates a good level of prediction and R^2-value (0.709) which shows that proportion of variance on dependent variable mathematics achievement with adjusted-R^2 (0.704) which shows that the only 70.4% effect was found in rural school students achievement by their independent factors.
- Independent factors contribute significantly to the prediction model of rural school students and other factors that might contribute to their achievement 29.6%.
- The regression coefficient of class size, extra-curricular activities, time schedule, unit test and home assignment are 0.595, 0.755, 0.517, 0.226 and 1.040 respectively.
- Class size, extra-curricular activities, time schedule, unit test and home assignment have positive relationship between the mathematics achievement of rural school students.
- Class size, extra-curricular activities, time schedule, unit test and home assignment contribute for mathematics achievement around 18.2%, 22.9%, 15.8%, 7.4% and 29.9% respectively.

- The R-value (0.730) which indicates a good level of prediction and R^2-value (0.533) which shows that proportion of variance on dependent variable mathematics achievement with adjusted-R^2 (0.521) which shows that the only 52.1% effect was found in urban school students achievement by their independent factors.
- Independent factors contribute significantly to the prediction model of urban schools students and other factors that might contribute to their achievement 47.9%.
- Class size, extra-curricular activities, time schedule, unit test and home assignment have positive relationship between the mathematics achievements of urban school students.
- Class size, extra-curricular activities, time schedule, unit test and home assignment contribute for mathematics achievement around 7.6%, 7.1%, 22.4%, 30.9% and 24.7% respectively.

Conclusion

On the basis of finding of this study, it has been concluded that there is significant difference between the mean achievement score of rural and urban community secondary schools students in mathematics subject. In addition, there is significant difference between mathematics among the boys' students of rural and urban secondary schools. The mean achievement of rural school students is less than the mean achievement of urban schools students. Similarly, there is significant difference between mathematics achievements among the girl's students of rural and urban secondary schools. The mean achievement of rural schools students is less than the mean achievement of urban schools students. Even, there is significant difference between the mathematics achievement among the boys & girls and girls & boys

students of rural and urban secondary schools. It is concluded that the achievement in mathematics subject of urban secondary schools students is better than rural secondary schools students.

Furthermore, according to achievement and responses of students the variable parents' education, parents' occupation, Students regularity, class size, tuition/ tuition fees, home environment, role of the school administration, extra-curricular activities, time schedule, unit test, home assignment, quality of teacher and use of teaching aids are seen positive relationship between mathematics achievement of rural schools students. In urban schools parents' education, parents' occupation, Students regularity, class size, home environment, the role of the school administration, extra-curricular activities, time schedule, unit test, home assignment, tuition class and use of teaching aids factors are positively associated with mathematics achievement of students. So, these factors play significant role in the gap of mathematics achievement of urban and rural schools.

Recommendations

On the basis of finding and conclusion, the researcher would like to suggest some recommendations for the improvement in mathematics instruction to get better achievement in mathematics.

Recommendations for the educational implication

- The achievement score of rural schools students is lower than urban school students. Therefore, the stakeholders, educational policy-makers, and teachers in school management should pay special attention to the rural school instruction and design a better plan to improve their educational standard.

- The school must be provided with separate mathematics laboratory room with the necessary equipment, lab manuals, teachers' teaching guide and appropriate learning environment inside them. The materials provided should be used in classroom teaching.
- School should organize extra-curricular activities related to mathematics puzzles, games, and quizzes to improve mathematics academic performance.
- To improve mathematics achievement in rural school students, teacher and students should be regular in school.
- The teacher should take the unit test and give home assignment to the students for the improvement of mathematics achievement.
- The student should study at home according to the time table to improve their mathematics performance.
- Extra class of mathematics should be provided for the sake of poor and lower achiever students.
- On completion of lesson teachers should give feedback on how the problem can be solved in their level.

Recommendations for further study

- To establish the findings a similar study should be carried out in Province and National level.
- The study of this kind should be conducted at all levels of schools and in another district as well.
- The study could be done in a similar topic in different subject and compare each result.
- Effect of language difficulties in mathematics achievement/ learning

Reference

Acharya, B.R. (2017).*Diversity in Mathematics Education*. Kathmandu: Pinnacle Publication.

Acharya, K.P., Yadav, A.K., Khadka, S. & Paudel, J. (2016). *Statistical Methods*. . Kathmandu: Dhaulagiri Books and Stationery

Anastasi, A. (1976).*Psychological testing (3rd ed*.).New York: MacMillan Publishing Company, Inc.

Bosed .A .F & Emijou. A. A. (September, 2013).*Rural and Urban Differential in Students' Academic Performance among Secondary School Students*. Journal of Education and Social Research.Vol. 3(3).

Byerly, R. L. (1970). *The Use Multiple Regression and Path Analysis Success in Journalism at Iowa State University*. Retrieved from**;** https://lib.dr.iastate.edu/ rtd/ 4292

Carter .V. G, *Dictionary of education*, copy write (1945), McGraw-Hill Book Company, Inc, New Work.

Ghimire, P.(2017). *Cause of Low Achievement in Mathematics.* An Unpublished Master's Thesis, T.U; Kirtipur

Gregory, R.J. (2005). *Psychological Testing* Delhi: Pearson Education (Singapur) Pvt.Ltd. Indian Branch.

John, A. & Benjamin, J. (2013). *Rural and Urban Students Academic Achievement and Interest in Geometry*. Research Gate, Retrieved from https: www.researchgate.net/Profile/john- Ajai.

Kalauni,Y. R. (2016).*Students Belief and Mathematics Achievement Communities and Institutional Schools.* An Unpublished Master's Thesis, T.U; Kirtipur

Kalpan, R.M. & Saccuzzo, D.P. (2005). *Psychological Testing (6th ed.).*Deli: Language Learning India.

Khadka, M.L. (20017).*Comparative Study on Achievement of Private and Public School Students in Pythan District*. An Unpublished Master's Thesis, T. U., Kirtipur.

Khnal, B. (2016).*Tearning Strategies Used by Urban and Rural School Students in Mathematics.* Kathmandu: Tribhuvan University Mahindra Rathan Campus, Department of Mathematics Education.

Mehta, R. N. (2017). *Causes of Failure in Mathematics Santhal Students*. An Unpublished Master's Thesis, T.U.kirtipur

Neupane, B. (2001).*A Comparative Study of Achievement of Private and Public Secondary School Students in Algebra of Kathmandu District*. Asn Unpublished Master's, Thesis, T.U; Kirtipur.

Olive Joy, F. A. (2014). *Research World-Journal of Arts, Science & Commerce.*

[Online]. https // www. Statistics sptutions.com/directory of-statistics…regression.../regression.pdf

Parajuli, N. (2001). *A Comparative Study of Secondary Level students Achievement in Mathematics between private and public schools at Gulmi District*. An Unpublished Master's Thesis, T.U; Kirtipur

Paudal, B. (2006). *Achievement in Mathematics of +2 Students from Public and Private Secondary Schools*. An Unpublished Master's Thesis, T.U.Kirtipur

Pokhrel, M. (2001).*Mathematics Achievement in School S.L.C Examination Between in Public and Private School Kaski District of Nepal.* An Unpublished Master's Thesis, T. U., Kirtipur.

Sakota, K. (2005). *A Comparative Study of Mathematics Achievement on S.L.C. The result of Kathmandu and Kaski District of Nepal.* An Unpublished Master's Thesis, T. U., Kirtipur.

Sharma, S. (2015). *Impact of Home Environment on Mathematics Achievement of Tharu Students.* An Unpublished Master's Thesis, T. U., Kirtipur.

Sharma, S. (2015). *Impact of Home Environment on Mathematics Achievement of Tharu Students*. An Unpublished Master's Thesis, T. U., Kirtipur.

Singh, S.P. (2016). *Role of Home Environment on Learning Mathematics at Grade VII.*An Unpublished Master's Thesis, T. U., Kirtipur.

Surbhis, K. (2016). *Definition of Rural and Urban*, Retrieved from https: www.google.com

Yadav, D. K. (2001).*A Comparative Study of Secondary Level Students Achievement in Mathematicss between Public and Private* School *in Sirha District.* An Unpublished Master's Thesis, T. U., Kirtipur.

Appendix-A

Questionnaire for students

Dear students,

I am on the process of research. For this I need your help and support. Please help me giving your views and information. For this choose your option (Strongly agree, Agree, Neutral, Disagree and Strongly disagree) and tick (√) on the write column of statements.

Note:

SA = Strongly Agree, A= Agree, N = Neutral, D = Disagree, SD = Strongly Disagree.

Name of the Student:

Name of the School:

S.N	**Statements**	**Responses**				
		SA	**A**	**N**	**D**	**SD**
Class size						
1.	You are satisfying your class size.					
2.	Class size is one of the vital factors affecting on mathematics achievement.					
3.	Small class size and less students in mathematics class are better than large class size and students.					
Extra-curricular Activities						
4.	Extra-curricular activities support in learning mathematics.					
5.	Extra-curricular activities improve mathematics academic performance.					
6.	Extra-curricular activities related with mathematics puzzles, games and quizzes are organized your school.					
Time Schedule						

7.	I study at home according to time table.					
8.	Time schedule manage the time for mathematics understanding and learning to better performance.					
9.	Time schedule makes students to be time-able and get motivation.					
Unit Test						
10.	Your mathematics teacher unit tests are taken at the end of each lesson.					
11.	Unit test improves the students' performance/ achievement in mathematics.					
12.	Unit test helps to develop self-confidence in facing the examination.					
Home Assignment						
13.	Mathematics teacher gives sufficient course related problems for homework.					
14.	I complete all my homework given by mathematics teacher.					
15.	Home assignment plays important role for mathematics learning/ achievement.					

Thank you for your Co-operation

Appendix-B

Attitude Scale Form

Name of the student: Name of the school:

Variables	Labeled values for attitude														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Class size															
Extra-curricular activities															
Time Schedule															
Unit test															
Home assignment															

Appendix-C

Marks obtained by rural schools students in final exam of the academic yeas 2074 and score obtained from Attitude scale related to the following factors:

S.N.	School's Name	Boy/Girl	Marks in 100	Factors				
				Class Size	Extra-curricular Activities	Time Schedule	Unit Test	Home Assignment
1.	RS_1	RG_1	40	7	8	9	9	8
2.	RS_1	RG_2	51	13	12	13	13	12
3.	RS_1	RG_3	66	15	14	14	15	15
4.	RS_1	RG_4	61	13	14	15	14	14
5.	RS_1	RB_1	42	10	9	10	11	10
6.	RS_1	RG_5	48	12	12	12	11	12
7.	RS_1	RG_6	43	9	7	8	9	7
8.	RS_1	RG_7	40	7	8	9	6	8
9.	RS_1	RB_2	42	10	11	10	11	10
10.	RS_1	RG_8	51	12	13	12	12	13
11.	RS_1	RG_9	47	11	12	11	12	12
12.	RS_1	RG_{10}	47	12	12	11	10	12
13.	RS_1	RG_{11}	55	14	13	14	14	13
14.	RS_1	RG_{12}	54	13	12	13	12	13
15.	RS_1	RB_3	40	9	7	9	8	9
16.	RS_1	RG_{13}	43	10	11	10	11	10
17.	RS_1	RG_{14}	56	14	13	13	14	13
18.	RS_1	RG_{15}	40	7	9	9	8	8
19.	RS_1	RB_4	60	14	14	13	14	14
20.	RS_1	RG_{16}	56	14	14	13	14	14
21.	RS_1	RB_5	40	9	9	7	9	9
22.	RS_1	RB_6	40	8	7	8	9	7
23.	RS_1	RB_7	44	11	11	10	11	10
24.	RS_1	RG_{17}	51	13	14	13	13	14
25.	RS_1	RG_{18}	48	11	12	11	12	12
26.	RS_1	RG_{19}	40	9	8	7	9	7
27.	RS_1	RG_{19}	40	8	7	9	8	9
28.	RS_1	RB_8	43	10	11	10	11	11
29.	RS_1	RB_9	56	14	13	14	14	12
30.	RS_1	RB_{10}	44	10	11	10	11	10
31.	RS_1	RB_{11}	60	14	13	14	13	14
32.	RS_1	RB_{12}	65	14	14	14	15	15

33.	RS_1	RB_{13}	58	14	14	13	14	15
34.	RS_1	RB_{14}	47	12	12	11	12	12
35.	RS_1	RB_{15}	45	11	10	10	11	10
36.	RS_1	RB_{16}	40	7	8	9	9	7
37.	RS_1	RB_{17}	44	11	10	11	11	10
38.	RS_1	RB_{18}	60	14	14	13	14	13
39.	RS_1	RB_{19}	80	15	15	14	15	15
40.	RS_1	RB_{20}	40	7	8	9	8	7
41.	RS_1	RB_{21}	40	7	9	9	8	7
42.	RS_1	RB_{22}	55	14	13	13	14	13
43.	RS_1	RG_{20}	40	7	8	9	7	8
44.	RS_1	RG_{21}	43	10	9	11	10	9
45.	RS_1	RG_{22}	41	9	10	10	11	11
46.	RS_1	RG_{23}	40	7	8	8	9	7
47.	RS_1	RG_{24}	40	7	6	8	9	7
48.	RS_1	RB_{23}	40	7	9	9	9	8
49.	RS_1	RB_{24}	44	10	9	11	10	11
50.	RS_1	RB_{25}	45	11	10	11	11	10
51.	RS_1	RB_{26}	67	14	15	15	15	14
52.	RS_1	RB_{27}	40	7	9	8	7	9
53.	RS_1	RB_{28}	50	11	12	11	12	10
54.	RS_1	RG_{25}	40	8	8	9	8	7
55.	RS_1	RB_{29}	40	7	7	8	9	8
56.	RS_1	RB_{30}	42	9	8	10	8	9
57.	RS_1	RB_{31}	40	7	8	9	10	7
58.	RS_1	RB_{32}	42	9	8	7	8	9
59.	RS_1	RB_{33}	51	13	10	11	12	11
60.	RS_1	RG_{26}	44	9	10	11	12	11
61.	RS_1	RB_{34}	40	7	9	7	8	9
62.	RS_1	RG_{27}	40	8	9	9	6	7
63.	RS_2	RB_{35}	45	13	13	11	9	10
64.	RS_2	RB_{36}	40	7	5	11	8	9
65.	RS_2	RB_{37}	40	7	9	6	9	8
66.	RS_2	RG_{28}	40	9	7	8	8	9
67.	RS_2	RG_{29}	41	7	8	7	8	7
68.	RS_2	RG_{30}	40	7	6	8	8	9
69.	RS_2	RG_{31}	40	9	8	7	6	9
70.	RS_2	RG_{32}	40	7	9	9	9	10
71.	RS_2	RG_{33}	40	9	9	8	9	7
72.	RS_2	RG_{34}	42	9	11	8	7	9
73.	RS_2	RG_{35}	41	9	8	10	11	9
74.	RS_2	RG_{36}	40	6	7	6	10	5
75.	RS_2	RG_{37}	41	7	9	6	7	8
76.	RS_2	RG_{38}	44	8	9	10	8	9
77.	RS_2	RG_{39}	45	9	11	8	10	9
78.	RS_2	RG_{40}	43	10	8	12	11	9
79.	RS_2	RG_{41}	44	9	10	11	10	8
80.	RS_2	RG_{42}	47	11	12	11	12	11

81.	RS_2	RG_{43}	40	9	8	7	8	9
82.	RS_2	RG_{44}	56	14	14	13	14	13
83.	RS_2	RG_{45}	46	9	10	14	11	14
84.	RS_2	RG_{46}	40	9	8	7	8	9
85.	RS_2	RG_{47}	53	10	13	12	11	14
86.	RS_2	RG_{48}	48	10	11	12	11	12
87.	RS_2	RG_{49}	40	12	6	8	7	9
88.	RS_2	RB_{38}	40	7	8	9	6	7
89.	RS_2	RB_{39}	49	7	8	9	10	9
90.	RS_2	RB_{40}	43	9	10	11	12	9
91.	RS_2	RB_{41}	40	6	8	7	9	6
92.	RS_2	RB_{42}	60	15	14	15	15	11
93.	RS_2	RB_{43}	43	11	9	10	9	11
94.	RS_2	RB_{44}	40	6	7	8	9	8
95.	RS_2	RB_{45}	40	9	8	7	6	7
96.	RS_2	RG_{50}	41	10	9	7	8	9
97.	RS_2	RG_{51}	48	10	11	12	9	10
98.	RS_2	RB_{46}	42	10	9	11	10	9
99.	RS_2	RB_{47}	54	11	12	10	10	12
100.	RS_2	RB_{48}	40	5	6	7	8	9
101.	RS_2	RB_{49}	40	9	8	10	11	10
102.	RS_2	RB_{50}	40	11	9	10	11	9
103.	RS_2	RG_{52}	40	9	8	7	10	10
104.	RS_2	RG_{53}	40	10	11	11	7	9
105.	RS_2	RG_{54}	51	11	10	12	12	11
106.	RS_2	RG_{55}	40	11	10	9	7	8
107.	RS_2	RG_{56}	44	6	7	8	9	10
108.	RS_2	RB_{51}	40	9	8	7	8	9
109.	RS_2	RB_{52}	60	15	14	15	14	13
110.	RS_2	RB_{53}	44	10	11	11	10	9
111.	RS_2	RG_{57}	56	11	12	13	8	9
112.	RS_2	RB_{54}	40	9	6	7	8	9
113.	RS_2	RG_{58}	40	9	7	6	8	9
114.	RS_2	RG_{59}	40	7	9	8	9	9
115.	RS_2	RG_{60}	40	9	8	8	7	6
116.	RS_2	RG_{61}	40	5	4	6	7	8
117.	RS_2	RG_{62}	40	7	8	11	5	7
118.	RS_2	RG_{63}	44	11	10	9	10	11
119.	RS_2	RG_{64}	42	9	8	10	11	9
120.	RS_2	RG_{65}	40	10	8	11	8	10
121.	RS_2	RB_{55}	40	7	7	6	7	9
122.	RS_2	RB_{56}	40	9	7	11	8	10
123.	RS_2	RB_{57}	43	11	11	10	9	7
124.	RS_2	RB_{58}	40	6	8	9	8	7
125.	RS_2	RB_{59}	41	9	10	11	10	11
126.	RS_2	RB_{60}	44	11	12	11	10	9
127.	RS_2	RB_{61}	57	13	13	14	14	14
128.	RS_2	RB_{62}	40	9	8	9	8	7

129.	RS_2	RG_{66}	40	5	6	7	9	9
130.	RS_2	RG_{67}	40	8	9	6	5	7
131.	RS_2	RG_{68}	40	9	7	6	6	7
132.	RS_2	RG_{69}	40	11	6	8	9	7
133.	RS_2	RG_{70}	40	10	9	8	10	7
134.	RS_2	RG_{71}	42	12	11	10	9	9
135.	RS_2	RG_{72}	40	7	9	5	5	6
136.	RS_2	RG_{73}	40	9	7	7	8	9
137.	RS_2	RB_{63}	40	5	5	7	7	9
138.	RS_2	RB_{64}	40	7	9	8	6	9
139.	RS_2	RB_{65}	49	9	10	11	9	10
140.	RS_2	RB_{66}	46	10	10	9	10	11
141.	RS_3	RG_{74}	40	7	8	9	9	8
142.	RS_3	RB_{67}	41	9	7	7	8	9
143.	RS_3	RB_{68}	44	9	8	7	9	10
144.	RS_3	RB_{69}	45	10	11	9	10	11
145.	RS_3	RB_{70}	40	7	9	8	7	8
146.	RS_3	RG_{75}	42	7	8	7	9	9
147.	RS_3	RB_{71}	43	9	10	11	10	11
148.	RS_3	RG_{76}	40	8	9	7	7	9
149.	RS_3	RG_{77}	40	9	8	8	7	9
150.	RS_3	RG_{78}	41	11	7	8	10	9
151.	RS_3	RG_{79}	42	11	11	10	11	9
152.	RS_3	RG_{80}	40	7	6	8	9	9
153.	RS_3	RB_{72}	40	10	9	8	7	7
154.	RS_3	RG_{81}	43	9	8	7	6	11
155.	RS_3	RG_{82}	46	12	11	7	8	9
156.	RS_3	RG_{83}	40	9	9	8	7	11
157.	RS_3	RB_{73}	43	12	11	7	8	9
158.	RS_3	RB_{74}	42	10	11	10	11	11
159.	RS_3	RB_{75}	45	11	10	11	10	9
160.	RS_3	RB_{76}	46	11	11	10	11	11
161.	RS_3	RB_{77}	72	14	14	15	15	15
162.	RS_3	RB_{78}	43	9	8	7	9	8
163.	RS_3	RB_{79}	40	7	8	6	7	7
164.	RS_3	RB_{80}	41	6	7	9	9	8
165.	RS_3	RB_{81}	55	11	10	12	13	12
166.	RS_3	RB_{82}	40	9	8	7	6	9
167.	RS_3	RB_{83}	47	12	10	12	11	10
168.	RS_3	RB_{84}	44	9	10	11	12	11
169.	RS_3	RB_{85}	46	11	12	10	12	11
170.	RS_3	RG_{84}	48	12	12	12	12	12
171.	RS_3	RG_{85}	60	14	15	13	14	14
172.	RS_3	RG_{86}	42	9	10	11	22	10
173.	RS_3	RG_{87}	43	11	9	11	10	10
174.	RS_3	RG_{88}	42	9	10	11	11	12
175.	RS_3	RG_{89}	44	8	10	10	11	9
176.	RS_3	RG_{90}	40	9	8	8	7	9

177.	RS_3	RB_{86}	41	9	9	7	8	9
178.	RS_3	RB_{87}	45	11	12	12	11	12
189.	RS_3	RB_{88}	40	9	9	8	9	7
180.	RS_3	RG_{91}	40	7	8	9	11	10
181.	RS_3	RG_{92}	40	9	7	9	7	8
182.	RS_3	RG_{93}	46	11	12	11	12	12
183.	RS_3	RG_{94}	43	10	12	11	10	9
184.	RS_3	RG_{95}	44	11	12	11	12	10
185.	RS_3	RB_{89}	60	10	15	15	15	14
186.	RS_3	RG_{96}	40	8	7	6	5	9
187.	RS_3	RB_{90}	40	7	6	8	10	9
188.	RS_3	RB_{91}	59	12	12	14	13	13
189.	RS_3	RG_{97}	44	12	12	9	8	9
190.	RS_3	RG_{98}	40	7	8	11	8	9
191.	RS_3	RG_{99}	47	10	12	11	10	9
192.	RS_3	RG_{100}	40	6	8	9	7	7
193.	RS_3	RG_{101}	41	11	8	10	8	9
194.	RS_4	RB_{92}	53	12	13	12	11	12
195.	RS_4	RB_{93}	43	11	12	10	11	12
196.	RS_4	RB_{94}	55	13	14	13	13	13
197.	RS_4	RB_{95}	41	6	11	6	8	7
198.	RS_4	RB_{96}	40	8	9	7	6	8
199.	RS_4	RB_{97}	55	14	13	13	14	12
200.	RS_4	RG_{102}	48	11	12	11	12	13
201.	RS_4	RB_{98}	50	11	12	14	13	13
202.	RS_4	RB_{99}	41	9	10	11	12	10
203.	RS_4	RB_{100}	40	12	7	7	8	9
204.	RS_4	RB_{101}	43	6	8	10	12	13
205.	RS_4	RB_{102}	85	15	15	15	15	15
206.	RS_4	RB_{103}	45	9	10	11	12	13
207.	RS_4	RG_{103}	46	12	12	11	10	12
208.	RS_4	RG_{105}	51	11	12	13	14	13
209.	RS_4	RG_{106}	42	9	12	11	10	9
210.	RS_4	RB_{104}	62	12	13	14	13	13
211.	RS_4	RG_{107}	52	12	13	12	13	12
212.	RS_4	RG_{108}	42	11	10	11	10	9
213.	RS_4	RG_{109}	47	11	9	10	11	12
214.	RS_4	RG_{110}	40	7	8	7	9	9
215.	RS_4	RG_{111}	41	8	11	11	10	9
216.	RS_4	RG_{112}	40	5	6	7	7	9
217.	RS_4	RB_{105}	40	9	7	6	8	7
218.	RS_4	RG_{113}	40	7	9	10	8	9
219.	RS_4	RG_{114}	41	10	11	10	6	9
220.	RS_4	RG_{115}	40	9	7	9	7	8
221.	RS_4	RG_{116}	40	7	8	13	9	9
222.	RS_4	RB_{106}	41	11	9	8	10	8
223.	RS_4	RB_{107}	45	12	11	10	10	10
224.	RS_4	RG_{117}	40	7	9	6	8	4

225.	RS_4	RG_{118}	51	13	14	13	13	12
226.	RS_4	RB_{108}	41	9	9	10	10	9
227.	RS_4	RG_{119}	43	11	11	11	10	9
228.	RS_4	RB_{109}	69	13	14	15	14	15
229.	RS_4	RB_{110}	46	10	11	10	11	11
230.	RS_5	RB_{111}	40	9	7	9	7	9
231.	RS_5	RG_{120}	41	9	9	8	11	9
232.	RS_5	RG_{121}	40	8	9	7	8	9
233.	RS_5	RB_{112}	40	7	9	9	8	9
234.	RS_5	RB_{113}	46	9	12	11	12	10
235.	RS_5	RB_{114}	40	7	10	7	9	8
236.	RS_5	RB_{115}	40	6	5	11	8	9
237.	RS_5	RG_{122}	40	10	10	9	6	7
238.	RS_5	RG_{123}	48	11	11	11	12	11
239.	RS_5	RG_{124}	50	13	12	12	13	12
240.	RS_5	RG_{125}	40	8	7	9	11	9
241.	RS_5	RG_{126}	60	14	13	15	15	15
242.	RS_5	RG_{127}	40	7	9	8	10	7
243.	RS_5	RG_{128}	40	9	9	7	9	9
244.	RS_5	RG_{129}	41	9	9	10	11	7
245.	RS_5	RG_{130}	40	9	9	8	9	7
246.	RS_5	RB_{116}	40	9	7	9	6	9
247.	RS_5	RB_{117}	41	9	11	10	9	10
248.	RS_5	RG_{131}	40	9	9	10	7	8
249.	RS_5	RG_{132}	40	8	10	10	10	9
250.	RS_5	RG_{133}	41	11	10	11	12	11
251.	RS_5	RG_{134}	40	9	9	8	7	6
252.	RS_5	RG_{135}	42	9	10	12	11	10
253.	RS_5	RB_{118}	40	6	8	7	8	9
254.	RS_5	RB_{119}	44	11	12	9	10	11
255.	RS_5	RB_{120}	40	7	6	9	9	8
256.	RS_5	RB_{121}	58	15	13	14	13	14
257.	RS_5	RB_{122}	40	6	7	10	11	8
258.	RS_5	RG_{136}	40	9	8	7	9	9
259.	RS_5	RB_{123}	40	9	8	9	9	7

Where,

RS_1 : Shree Tharki Secondary School Tharki

RS_2 : Shree Janta Secondary School Odwaliya

RS_3 : Shree Maryadpur Ma. Vi. Kothimai-3

RS_4 : Shree Kirshak Adarsh Ma.Vi. Betkuiya

RS_5 : Shree Gyan Jyoti Ma.Vi. Thumhawa

Rural Boys RB_1, RB_2, ……..

Rural Girls RG_1, RG_2, ……

Appendix-D

Marks obtained by urban schools students in final exam of the academic yeas 2074 and score obtained from Attitude scale related to the following factors:

S.N	School's Name	Boy/Girl	Marks in 1oo	Factors				
				Class Size	Extracurricular Activities	Time Schedule	Unit Test	Home Assignment
1.	US_1	UG_1	43	9	8	11	10	9
2.	US_1	UG_2	40	8	9	9	9	7
3.	US_1	UG_3	40	8	8	13	11	9
4.	US_1	UG_4	40	7	9	13	11	9
5.	US_1	UG_5	40	9	8	10	9	11
6.	US_1	UG_6	40	8	11	7	7	10
7.	US_1	UG_7	40	8	8	8	8	9
8.	US_1	UG_8	40	9	11	9	7	10
9.	US_1	UG_9	40	7	10	10	9	11
10.	US_1	UG_{10}	63	14	14	11	11	8
11.	US_1	UG_{11}	40	11	9	9	9	12
12.	US_1	UG_{12}	40	9	10	8	9	11
13.	US_1	UG_{13}	42	10	11	7	10	11
14.	US_1	UG_{14}	40	9	9	8	10	9
15.	US_1	UB_1	40	8	11	7	8	8
16.	US_1	UB_2	40	7	11	10	10	7
17.	US_1	UG_{15}	40	9	9	9	10	6
18.	US_1	UG_{16}	40	11	11	11	8	9
19.	US_1	UG_{17}	40	12	11	10	8	8
20.	US_1	UB_3	40	11	11	12	9	9
21.	US_1	UG_{18}	40	10	10	8	7	7
22.	US_1	UG_{19}	40	11	10	11	6	11
23.	US_1	UB_4	40	12	11	10	9	10
24.	US_1	UB_5	40	9	9	9	9	6
25.	US_1	UB_6	40	10	9	10	11	9
26.	US_1	UB_7	40	7	8	8	9	9
27.	US_1	UB_8	40	8	9	9	11	10
28.	US_1	UB_9	40	9	10	7	11	10
29.	US_1	UB_{10}	72	15	15	15	15	15
30.	US_1	UB_{11}	40	11	11	11	9	11
31.	US_1	UB_{12}	40	10	10	8	8	11
32.	US_1	UB_{13}	40	7	10	9	7	8
33.	US_1	UG_{20}	40	9	9	10	8	9
34.	US_2	UB_{14}	45	11	12	11	10	12

35.	US_2	UB_{15}	53	12	12	11	10	13
36.	US_2	UB_{16}	57	14	13	12	10	13
37.	US_2	UB_{17}	61	14	14	15	14	14
38.	US_2	UB_{18}	49	12	13	11	12	12
39.	US_2	UB_{19}	61	14	14	13	11	14
40.	US_2	UB_{20}	40	9	10	9	12	9
41.	US_2	UG_{21}	44	11	13	12	13	11
42.	US_2	UG_{22}	51	12	12	14	11	12
43.	US_2	UG_{23}	55	13	15	12	12	13
44.	US_2	UG_{24}	60	14	14	12	12	14
45.	US_2	UB_{21}	59	13	13	11	13	13
46.	US_2	UG_{25}	47	13	14	11	11	11
47.	US_2	UG_{26}	48	14	13	13	10	12
48.	US_2	UG_{27}	46	12	12	11	12	13
49.	US_2	UG_{28}	40	14	11	9	12	12
50.	US_2	UG_{29}	72	15	15	14	15	15
51.	US_2	UG_{30}	41	10	11	10	10	11
52.	US_2	UG_{31}	43	10	14	11	11	12
53.	US_2	UG_{32}	49	11	14	13	13	12
54.	US_2	UG_{33}	40	9	12	9	9	10
55.	US_2	UG_{34}	40	8	7	11	8	8
56.	US_2	UG_{35}	42	12	13	14	11	11
57.	US_2	UG_{36}	58	15	12	15	11	13
58.	US_2	UB_{22}	56	11	11	13	12	12
59.	US_2	UB_{23}	52	12	11	13	13	11
60.	US_2	UG_{37}	63	12	11	14	12	13
61.	US_2	UB_{24}	55	13	11	11	13	12
62.	US_2	UG_{38}	40	9	7	10	7	9
63.	US_2	UB_{25}	45	11	10	10	10	13
64.	US_2	UB_{26}	66	14	10	13	13	13
65.	US_2	UG_{39}	65	11	12	14	12	14
66.	US_3	UG_{40}	53	12	14	12	12	11
67.	US_3	UB_{27}	63	13	11	14	12	14
68.	US_3	UB_{28}	45	14	14	13	11	11
69.	US_3	UB_{29}	57	14	12	15	14	14
70.	US_3	UG_{41}	40	9	10	10	8	10
71.	US_3	UB_{30}	47	11	13	11	10	12
72.	US_3	UG_{42}	40	9	12	12	8	12
73.	US_3	UB_{31}	40	9	11	11	9	13
74.	US_3	UB_{32}	73	14	10	14	14	14
75.	US_3	UB_{33}	67	13	13	13	14	14
76.	US_3	UB_{34}	81	15	14	13	12	15
77.	US_3	UB_{35}	62	13	13	14	13	12
78.	US_3	UG_{43}	59	12	14	15	12	13
79.	US_3	UG_{44}	80	15	13	15	15	12
80.	US_3	UG_{45}	45	11	12	11	11	12
81.	US_3	UB_{36}	50	13	10	13	14	11
82.	US_3	UB_{37}	46	8	10	13	11	13

83.	US_3	UB_{38}	55	12	12	13	10	13
84.	US_3	UB_{39}	62	15	11	13	13	14
85.	US_3	UB_{40}	77	14	14	14	14	15
86.	US_3	UB_{41}	85	15	14	14	15	14
87.	US_3	UG_{46}	45	13	10	11	12	15
88.	US_3	UG_{47}	69	14	12	12	12	13
89.	US_3	UG_{48}	44	13	13	10	14	11
90.	US_3	UB_{42}	46	9	12	11	12	11
91.	US_3	UG_{49}	56	13	14	10	14	14
92.	US_3	UG_{50}	40	13	14	10	15	10
94.	US_3	UG_{51}	65	15	14	14	15	14
95.	US_3	UB_{43}	40	14	12	9	11	9
96.	US_3	UB_{44}	47	14	14	11	14	8
97.	US_3	UG_{52}	40	14	13	10	13	7
98.	US_3	UG_{53}	41	10	10	12	8	9
99.	US_3	UB_{45}	43	10	10	11	8	11
100.	US_3	UG_{54}	44	13	12	11	11	11
101.	US_3	UG_{55}	67	12	13	14	15	10
102.	US_3	UB_{46}	76	14	13	13	15	15
103.	US_3	UB_{47}	59	12	12	10	13	12
104.	US_3	UB_{48}	55	11	11	10	13	12
105.	US_3	UG_{56}	61	13	13	12	15	12
106.	US	UB_{49}	58	14	3	13	13	11
107.	US_4	UB_{50}	44	13	10	13	13	11
108.	US_4	UB_{51}	59	11	10	13	11	11
109.	US_4	UG_{57}	64	13	11	12	14	13
10.	US_4	UG_{58}	63	13	11	10	13	12
110.	US_4	UB_{52}	40	11	11	9	9	10
111,	US_4	UG_{59}	40	10	9	7	9	9
112.	US_4	UB_{53}	58	11	12	13	12	11
113.	US_4	UG_{60}	73	11	10	12	13	13
114.	US_4	UB_{54}	60	13	12	15	13	12
115.	US_4	UG_{61}	45	11	12	13	11	10
116.	US_4	UB_{55}	82	11	10	13	13	10
117.	US_4	UB_{56}	56	11	12	11	11	10
118.	US_4	UB_{57}	47	11	13	8	11	10
119.	US_4	UB_{58}	57	11	10	12	13	11
120.	US_4	UB_{59}	55	12	12	12	11	10
121.	US_4	UB_{60}	52	11	13	11	11	10
122.	US_4	UB_{61}	63	11	10	11	12	13
123.	US_4	UB_{62}	85	12	11	11	12	15
124.	US_4	UB_{63}	61	12	13	11	12	13
125.	US_4	UB_{64}	46	11	10	12	11	11
126.	US_4	UB_{65}	41	11	12	10	11	11
127.	US_4	UB_{66}	43	10	9	11	10	10
128.	US_4	UG_{62}	54	11	11	13	12	11
129.	US_4	UB_{67}	59	11	11	10	9	12
130.	US_4	UG_{63}	55	12	11	11	12	11

131.	US_4	UB_{68}	63	11	10	10	12	10
132.	US_4	UB_{69}	67	12	11	8	12	10
133.	US_4	UB_{70}	58	12	11	9	11	10
134.	US_4	UG_{64}	47	12	12	12	11	9
135.	US_4	UB_{71}	77	12	11	10	12	11
136.	US_4	UB_{72}	45	11	10	9	12	9
137.	US_4	UG_{65}	40	11	13	11	12	11
138.	US_4	UG_{66}	81	10	12	13	12	12
139.	US_4	UG_{67}	52	12	11	11	12	12
140.	US_4	UG_{68}	64	12	13	12	12	9
141.	US_4	UB_{73}	44	10	14	11	13	10
142.	US_4	UB_{74}	58	9	12	12	10	11
143.	US_4	UB_{75}	67	12	12	12	11	11
144.	US_4	UG_{69}	49	13	11	9	11	11
145.	US_4	UG_{70}	53	13	13	15	13	10
146.	US_4	UG_{71}	40	10	8	11	10	7
147.	US_5	UB_{76}	44	14	10	10	11	13
148.	US_5	UB_{77}	43	11	11	12	11	10
149.	US_5	UG_{72}	40	10	11	8	10	12
150.	US_5	UG_{73}	51	11	12	10	12	13
151.	US_5	UB_{78}	47	12	6	11	11	9
152.	US_5	UB_{79}	55	12	11	11	13	9
153.	US_5	UB_{80}	42	13	11	12	12	13
154.	US_5	UG_{74}	45	12	10	12	12	9
155.	US_5	UG_{75}	74	15	14	12	13	12
156.	US_5	UB_{81}	53	12	11	13	14	11
157.	US_5	UB_{82}	40	6	10	11	9	13
158.	US_5	UB_{83}	80	11	15	15	15	13
159.	US_5	UB_{84}	74	10	15	15	14	12
160.	US_5	UG_{76}	70	15	15	15	15	13
161.	US_5	UB_{85}	59	12	14	10	13	11
162.	US_5	UB_{86}	75	12	15	12	12	12
163.	US_5	UB_{87}	55	11	11	12	11	10
164.	US_5	UB_{88}	48	12	11	11	11	13
165.	US_5	UG_{77}	40	12	7	11	12	11
166.	US_5	UB_{89}	61	12	12	13	12	12
167.	US_5	UB_{90}	40	12	11	10	12	12
168.	US_5	UG_{78}	40	6	11	7	11	8
169.	US_5	UB_{91}	60	12	11	11	10	12
170.	US_5	UB_{92}	43	10	11	11	11	11
171.	US_5	UG_{79}	45	11	10	10	12	8
172.	US_5	UG_{80}	44	11	11	12	12	11
173.	US_5	UG_{81}	41	12	11	12	12	9
174.	US_5	UG_{82}	63	12	12	12	12	11
175.	US_5	UB_{93}	44	12	10	10	11	12
176.	US_5	UB_{94}	47	12	11	12	12	11
177.	US_5	UG_{83}	41	13	10	10	12	12
178.	US_5	UG_{84}	40	11	13	11	12	9

179.	US_5	UB_{95}	46	11	13	9	10	10
180.	US_5	UG_{85}	74	13	14	13	13	12
181.	US_5	UB_{96}	49	10	12	11	11	11
182.	US_5	UG_{86}	40	10	12	12	11	9
183.	US_5	UG_{87}	41	11	8	7	12	9
184.	US_5	UB_{97}	43	12	11	7	11	9
185.	US_5	UG_{88}	49	12	11	9	12	11
186.	US_5	UG_{89}	40	12	12	9	11	12

Where,

US_1 : Shree Bhanu Ma. Vi. Bhairahawa

US_2 : Shree Mahatma Buddha Ma.Vi., Bhairahawa

US_3 : Shree Su-sanskrit Ma. Vi., Bhairahawa

US_4 : Bhairahawa Model Secondary School

US_5 : Shree Rupandehi Lilaram Neupane Ma. Vi.

Urban Boys UB_1, UB_2, ………………………………………………..

Urban Girls UG_1, UG_2, ………………………………………………

Appendix-F

Mean and standard deviation from the data obtained from mark ledger of last year

S.N.	Schools	No. of the students	Mean	SD
1.	Rural school students total	259	44.74	7.26
2.	Rural school boys	123	45.95	8.78
3.	Rural school girls	136	43.65	5.34
4.	Urban school students total	186	51.50	12.06
5.	Urban school boys	97	53.81	12.28
6.	Urban school girls	89	48.98	11.35

Appendix-G

Date and time of visited different sample sites.

S.N.	Name of the Schools	Visiting Date	Visiting Time	Rural/Urban
1.	Shree Tharki secondary school Tharki	2075/11/1	11:00 am	Rural
2.	Shree Janta Secondary School Odwaliya-5, Marchwari	2075/11/5	11:30 am	Rural
3.	Shree Maryadpur Ma. Vi., Kothimai-3	2075/11/6	10:45 am	Rural
4.	Shree Bhanu Ma. Vi Bhairahawa	2075/11/7	11:30 am	Urban
5.	Shree Krishak Adarah Ma.Vi,Betkuiya	2075/11/8	10:20 am	Rural
6.	Shree Gyan Jyoti Ma. Vi. Thumhawa	2075/11/8	1:30 pm	Rural
7.	Shree Mahatma Buddha Ma. Vi, Bhairahawa	2075/11/9	10:45 am	Urban
8.	Bhairahawa Model Secondary School	2075/11/10	10:00 am	Urban
9.	Shree Susanskrit Ma .Vi Bhairahawa	2075/11/12	11:40 am	Urban
10.	Shree Rupandehi Lilaram Neupane Ma. Vi.	2075/11/13	11:30 am	Urban

Appendix-H

Statistical Techniques used for Data Analysis

- Mean $(\overline{X}) = \frac{\Sigma X}{N}$

- Standard deviation $(\sigma) = \sqrt{\frac{\Sigma (X-\overline{X})^2}{N}}$

- T-test to determine significant difference between the two means.

$$t = \frac{\overline{X_1}-\overline{X_2}}{Sp\sqrt{\frac{1}{N_1}+\frac{1}{N_2}}}$$

$$Sp = \sqrt{\frac{(N_1-1){S_1}^2+(N_2-1){S_2}^2}{N_1+N_2-2}}$$

Where,

Degree of freedom = $N_1 + N_2 - 2$

$\overline{X_1}$ = Mean score rural schools students.

$\overline{X_2}$ = Mean score urban schools students.

N_1 = Number rural schools students.

N_2 = Number urban schools students.

S_1 = standard deviation of rural schools students.

S_2 = Standard deviation of urban schools students.