

CHAPTER ONE

INTRODUCTION

1.1 General Background

English is an international language and very common language of the modern era. People use it in various fields of life such as economy, politics, e-commerce, medicine, science, technology, education. In addition, it is widely used in the tourism and travel. For this reasons people are motivated towards learning English language and it is spread extensively around the world. In some countries, it is mother tongue and in other countries, people learn it as second language because they have to communicate with people around the world.

Nepal is rich in ethnic diversity where numbers of languages are spoken as mother language but English is second language for all. Almost all literate people learn English through formal education in their school life. There is no any evidence on when English language was introduced in Nepal formally, however, Sharma and Phyak (2007) have stated that English has been used by elite and educated people as medium of communication since Rana Regime. “English has almost achieved the status of global language. Educational policies in many countries are intensifying teaching of English as an essential part of the school curriculum to meet the challenges of globalization and internationalization. English is taught as a Foreign Language (FL) or Second Language (SL) in many countries”(Shinde and Karekatti 2012, p.70). Nowadays, English language is being taught from elementary level to university level in Nepal. There are many schools and universities where teaching learning activities are conducted in English medium. Government of Nepal has also included English as compulsory subject in school and even in undergraduate degree.

Teaching language is the opportunity to make students able to understand and use the taught language correctly and appropriately, which also applies to

teaching English language too. However, due to insufficient authentic resources and the need to use the target language, English as foreign language (EFL) learners generally encounter difficulties developing communicative competence in English (Larsari, 2011 p. 165).

In Nepal there are two types of education: public or government schools and Private or boarding schools. I have experienced teaching English at both types of schools in Nepal. When teaching in boarding schools I have experienced that Boarding schools aim at providing quality education to the wealthy families, and the students have to pay high fee to attend the school. English is taught from the Beginning of school, and all subjects except Nepali are taught in English. Boarding schools are often English medium schools, and both students and teachers are forced to speak English within the school area. The students in this kind of school come from well-to-do homes, where they can hear and read English in various media. Over all, one can say that these children have a very good environment for developing their English. The classes are quite small, maximum 30 students, so the teacher can give individual help to the students.

People with low-income cannot afford to pay the school fee. Therefore, the government has invested money in the project "Education for All". The government provides schools with money so that the parents do not have to pay school fees in government schools. Students in government schools start to learn English from grade one. Except English all other subjects are taught in Nepali medium. Around Forty minutes, once a day, they learn to speak, read and write English. Their home environment contains no English media, so they will neither hear nor see English outside school. Government schools cannot afford to employ enough teachers, so the classes are overcrowded, between 40 to 50 pupils in each class. In such situation students cannot get any individual attention from the teacher. A large number of students in government schools fail their SLC -exam. They do not have the same qualifications as students in boarding schools, their results cannot be compared.

I teach in remote area of Chitwan district of Nepal. In my class there are lots of students. I found different native languages of their own. Similarly, many students have come from different primary and lower secondary schools with different abilities. It is very difficult to teach English in this large class with mixed abilities. Their own native languages have also created problems in correct pronunciation as well. Teaching English as a foreign language is a challenging career choice. As an ESL (English as a Second Language) teacher, many times, we have to deal with a variety of problems in the classroom. While teaching English as a foreign language the most common problem is that students use their first language instead of using English language. Students become overly dependent on teachers. Many times they look at the teacher for correct answers instead of trying themselves. Dominance of the students of different learning capabilities and language skills is also another common problem in a classroom. While it is good to have some students who are strong in learning in the classroom, it is important that they don't take away from others.

However, I feel proud of being a teacher of English language for secondary level students. Teaching English as a compulsory subject at secondary level is very different to teaching English to other classes. As a compulsory subject, I have to teach language aspects and language skills, through the use of different teaching aids and materials. I have experienced that student's ability in understanding English varies so widely. It could be due to their previous background in teaching learning process, medium of language to teach different courses, family environment and may be due to difference in gender of the students

1.1.1 Grammar

Generally speaking, grammar refers to the rules of language which govern the configuration that syntax and morphology of language assume. It is the set of formal patterns in which words of a language are arranged to convey meaning. It means grammar is the description of the structure of a language, consisting of

the sounds (phonology); the meaningful combinations of these sounds into words or parts of words, called morphemes; and the arrangement of the morphemes into phrases and sentences, called syntax. There are two perspectives in teaching grammar: learning and acquisition. Learning of grammar refers to learning of grammatical rules which results into learning about language and being able to explain the grammatical rules explicitly. Acquisition of grammar refers to acquiring the ability to practice the language or to make use of grammatically correct language without any conscious attention to the grammatical rules of language.

Phonetics/Phonology: The branch of linguistics which studies the use of sound in human language. Phonetics is the study of the physical nature of speech sounds and speech production: how sounds are produced by the human body, what they are like as sound waves, and how the human ear processes speech. Phonology is the study of how sound is structured in languages -- for instance, which of all possible speech sounds a language uses to build its words, how syllables are built in a particular language, and other phenomena. The mission of phonology is to understand how speech sounds and phonetic features are organized in a language so that they can be used to create contrast, the differences between sounds that allow the creation of different words, which can then serve the purpose of symbolizing the thousands of concepts that constitute our mental world. The job of phonemes in language is to differentiate words from one another. For instance, the difference between the /s/ and /z/ sounds of English signals that 'shoe' and 'zoo' are different words.

Morpheme – Morpheme is a minimal unit of meaning or grammatical function. The word "*reopened*" consists of three morphemes. One minimal unit of meaning is *open*, another minimal unit of meaning is *re-* (meaning 'again'), and a minimal unit of grammatical function is *-ed* (indicating past tense). A morpheme does not necessarily have to be a word. For example - the word *cats* has two morphemes. 'Cat' is a morpheme, and 's' is also a morpheme.

Every morpheme is either a base or an affix. An affix can be either a prefix or a suffix. Cat is the base morpheme, and s is a suffix.

Affix: A morpheme that comes at the beginning (prefix) or the ending (suffix) of a base morpheme is affix. An affix is a morpheme that cannot stand alone. Examples: -ful, -ly, -ity, -ness cannot have meaning in alone .

Base: A morpheme that gives a word its meaning. The base morpheme 'cat' gives the word cats its meaning: a particular type of animal.

Prefix: An affix that comes before a base morpheme. The 'in' in the word 'inspect' is a prefix.

Suffix: An affix that comes after a base morpheme. The 's' in 'cats' is a suffix.

Free morpheme: A morpheme that can stand alone as a word without another morpheme. It does not need anything attached to it to make a word. Cat is a free morpheme.

Bound morpheme: A sound or a combination of sounds that cannot stand alone as a word. The 's' in the word 'cats' is a bound morpheme, and it does not have any meaning without the free morpheme cat.

Syntax: Syntax is defined as a set of rules governing how a language is structured, and the relationships between words. In the study of language and linguistics, syntax refers to sentence structure. It is concerned with word order and the use of tenses. Syntax is the study of the principles and processes by which sentences are constructed in particular languages. "Syntactic investigation of a given language has as its goal the construction of a grammar that can be viewed as a device of some sort for producing the sentences of the language under analysis" (Chomsky, 1957).

Syntax is the arrangement of words in sentences, clauses, and phrases, and the study of the formation of sentences and the relationship of their component parts. In English, the main device for showing this relationship is word order; for example, "The boy loves his dog" follows standard subject-verb-object

word order, and switching the order of such a sentence would change the meaning or make the sentence meaningless.

Semantics: Semantics is a branch of linguistics dealing with the meaning of words, phrases and sentences. It is the field of linguistics concerned with the study of meaning in language.

1.1.2 Importance of Grammar

Grammar plays vital role in the language structure. “Language, either it is in the form of spoken or written, has some specific structure and that is not a hotchpotch of randomly distributed element. Instead, the linguistics ingredients that language is made up of are arranged in accordance with the set of rules. This set of rules we call the ‘grammar’ of the language” Aarts (1997, p.3).

Grammar shapes the language and the language is being governed by some rules of its own. Grammar helps in the production of indefinite number of sentences. To get mastery over any language, one needs to know its underlying grammar and its structures. As Lado (1977, p. 144) says ‘a grammatical pattern is more than any single utterance since it is the mould from which complex utterances can be produced’. So, from the definite set of grammatical rules we can produce indefinite number of utterances.

Grammar plays a significant role in the use of language either written or spoken through which many utterances can be produced. Chomsky in his book ‘Syntactic Structure’ (1957, p. 15) writes,

Any grammar of a language will project the finite and somewhat accidental corpus of observed utterances to a set (presumably infinite) of grammatical utterances. In this respect, a grammar mirrors the behavior of the speakers who, on the basis of a finite and accidental experience with language can be produced or understand an indefinite number of new utterances.

So, grammar can be a basis for the production of any grammatically correct utterances which makes the language meaningful. Grammar enables the learners to use the language accurately and appropriately in the meaningful situation. Each language has its own grammar. Hence, grammar is the core of language.

1.1.3 Language Skills

The main objective of teaching a language is to enable the learner to communicate using the language. Actually, language learning or teaching requires the development of four skills namely listening, speaking, reading, and writing. It is essential to give equal emphasis to all four skills of language to get mastery over it.

The four skills mentioned above can be divided into two groups: receptive and productive skills. According to the division, listening and reading are grouped under receptive skills and speaking and writing come under productive skills. Though listening and reading are considered receptive skills, sometimes they are also called passive skills. But in reality a listener or reader, during the period of listening and reading, does not stay passive but, receives something and it leads her/him towards productive skills. Without receiving anything, producing is not possible. Information and knowledge can be received either by listening or by reading any material. Thus we can say that receptive skills are the prerequisite for the productive skills. So they are interrelated to each other.

1.1.4 Reading Ability

Reading ability can be defined as the efficiency to draw meaning from the printed page and interpret this information appropriately (Grabe and Stoller, 2002, p.09). At the most basic level reading is the recognition of words. From simple recognition of the individual letters and combination of these letters to form a particular word to what each word means as part of a text is reading ability of students. In English, as in many other languages, different combinations of the same letters can be used to form different words with completely different meanings. So, the letters t, c, a, can make cat, and act

(which has a number of meanings from do something to behave in certain ways, to perform in a play or film). Recognition of the actual word is not enough on its own to constitute reading. Reading involves variety of skills like recognizing the script of language, deducing the meaning and use of unfamiliar lexical items, understanding cohesion between parts of text through grammatical cohesion device.

While checking e-mail, downloading songs in mobile, buying different commercial products, walking in street, we read different hoarding boards, even watching TV also we read different advertisements displayed on screen. The act of reading is an everyday activity. We do read every day, every hour, every minute. Reading is like breathing – it is so integral to our lives that we don't even realize we are doing it.

There are a number of reasons why we read and this will often influence what we read and how we read it. We might read for pleasure. In this case it is most likely that we will be reading a book of some sort, maybe a novel, or perhaps a poem. We could also be reading the lyrics to a song and our reasons for reading it may be slightly more complex than simply for pleasure. We could be reading it because we have heard the song, but didn't quite catch the words. In other words, there might be multiple reasons why someone might read a text. Why we are reading something will make a difference to how we read it, and in what depth.

We must also keep in mind the purpose of the text from the writer's point of view. Somebody wrote the text and they had a reason for doing so. The writer has a message s/he wants to convey and they encode this message in the words and style they choose. The reader then tries to decode the message by reading the same words. This encoding and decoding doesn't simply exist on the level of meaning, but also on the level of why the text was written.

1.1.5 Types of Reading

In reading, variety of skills are involved which can and should be developed through continuous and systematic reading practice. The true meaning of

reading skills resembles the recognition of the script of a language, deduction of meaning and use of unfamiliar lexical items, understanding conceptual meaning and relations between parts of a text through lexical cohesive devices. Reading skills comprises following types of reading.

Intensive reading: By intensive reading we mean careful study going through the passage very deeply and comprehending everything written in it. Intensive reading is primarily done for promoting detailed knowledge of language and acquiring its full meaning. It reinforces a reader to acquire a higher degree of understanding of language. For example the reader take a text, study it line by line, and refer at very moment to the dictionary about the grammar of the text itself.

Extensive reading: Extensive reading in, a true sense, is reading longer text usually for one's own pleasure. This is a fluent activity which involves mainly global understanding. It focuses on overall comprehension of a reading text. The readers read books after books where attention is paid to the meaning of the text itself not the language.

Skimming: Skimming is a kind of thorough reading to get the gist of the text. While skimming, the readers go through the reading materials quickly in order to get the gist of it. Readers not only get the gist of the text but also know how the text is organized and what the writer has intended to inform the reader. Readers look quickly through a text to see what it is about before deciding to read it. For example reader looks at the headlines of the newspaper articles to get gist of news. It increases mastering skills of the reader in predication.

Scanning: Scanning is done for finding out a particular piece of information. The reader reads to locate specific information. The reader does not read the entire text but reader's eyes keep on going through the text until finding what they are looking for. It is mainly carried out when the reader want to locate a particular piece of information without necessarily understanding the rest of text or passage. For example reader read the passage rapidly to find out information about a particular date, such as when someone was born.

1.1.6 Importance of Reading

Among the four language skills, reading is the third skill in order. It is regarded as the important skill for gaining more knowledge. The more we read, the more we gain. People can enjoy reading any text they like for getting pleasure and information of reading text.

Reading is regarded as the cheapest and best way of getting information. It is basically and entirely necessary for increasing one's own knowledge and keeping oneself update with the things happen around him/her. That is why we hardly can minimize its importance. Besides, reading is not a mechanical exercise which interprets the written symbol into spoken words. We can say that meaningful reading involves association of written words with meaning. Reading, actually, broadens the horizon of knowledge and builds backgrounds to read any literary text. Reading provides entertainments by supplying information to the readers. Furthermore, reading helps to develop moral and spiritual values and stimulates language development.

1.1.7 Grammar and Reading Comprehension

Grammar indicates the underlying structure or pattern of language. It is also called the frame or skeleton of language. And thus, grammar test generally indicates testing grammatical structures but specifically, it indicates the testing of grammatical units, grammatical functions, grammatical categories and grammatical transformation. Therefore, grammar test is discrete point test in nature, as it attempts to test one element at a time, item by item. Discrete point test items take language skills apart attempting to test knowledge of language one bit at a time.

On the other hand, reading comprehension test is integrative in nature as it measures global skills. In integrative test all components of language are integrated and tested in combination in a meaningful context. It is regarded as a measure of overall language proficiency as it tests linguistic, textual, and pragmatic knowledge at the same time. Linguistic knowledge is the ability to select semantically appropriate lexical item and to use it grammatically

acceptable way. Textual knowledge is the ability to perceive the cohesive relationship of one item with the rest of the sentence in a text. It involves knowledge of several aspects, skills and components of a language at a time. It tests language skill in general.

1.1.8 Correlation

The term correlation is used to measure the strength of association or relationship of two or more variables to each other. In general, a correlation study is a quantitative method of research in which the two variables from the same group of subjects, taken under study were, examined to determine whether there exist significant relationship between them or not. The researcher looks at things that already exist and determines if and in what way those things are related to each other. The purpose of doing correlations is to allow researchers to make a prediction about one variable based on what known about another variable. For example, there is a positive positive correlation between income and education; we find that people with higher income have more years of education. When we know there is a correlation between two variables, we can make a prediction. If we know a group's income, we can predict their years of education. An increase in one variable may cause an increase in the other variable or a decrease in one variable may cause decrease in other variable

There are three possible results of a correlation study: a positive correlation, a negative correlation, and no correlation. The correlation coefficient is a measure of correlation strength and can range from -1.00 to $+1.00$.

Positive correlation: In a positive correlation, as the values of one of the variables increase, the values of the second variable also increase. Likewise, as the value of one of the variables decreases, the value of the other variable also decreases. A correlation coefficient close to $+1.00$ indicates a strong positive correlation. The example above of income and education is a positive correlation. People with higher incomes also tend to have more years of education. People with fewer years of education tend to have lower income. A

score of 1 is a perfect positive correlation, which does not really happen in the “real world.”

Negative correlation: In a negative correlation, as the values of one of the variables increase, the values of the second variable decrease and vice versa like an “inverse”. A correlation coefficient close to -1.00 indicates a strong negative correlation. For example; there is a negative correlation between TV viewing and class grades - students who spend more time watching TV tend to have lower grades (or phrased as students with higher grades tend to spend less time watching TV).

No Correlation: in no correlation, there is not any relationship between value of the two stated variables. A correlation coefficient of 0 indicates no correlation

1.2 Review of Related Literature

Wagle (Chapagain) (2002) has carried out a research work entitled ‘Correlation between written and spoken answer: A study on tests results.’ This research was an attempt to find out the correlation between the students` proficiency in written English and their level of difficulties. The researcher found that the results of the written and spoken test were positively correlated. The correlation coefficient was 0.69.

Humagain (2006) conducted ‘A study on the effectiveness of language games in learning reading comprehension’. The study showed that teaching students using games was relatively more effective than teaching them without using it for teaching reading comprehension in general

Bajrachrya (2008) carried a research entitled ‘Effectiveness of teaching grammar through discovery technique’. The research revealed that discovery technique was effective in teaching Grammar.

Chhetri (2010) has carried out a research work entitled ‘A correlation study on the achievement of the students in English.’ His study showed that there is not any group with negative correlation. All comparing groups have positive

correlation with different degrees of correlation. The students have better achievement in English in grade 8 than that of Grade Nine, however, there is not any group with perfect positive correlation.

Khadka (2010) carried out a research entitled ‘Correlation between linguistic intelligence and proficiency in reading and writing in the EFL classroom’. He found that the effect of linguistic intelligence in the EFL classroom is highly influential and related to each other. Linguistic intelligence appears to be a determinant of linguistic proficiency.

Although many studies have been done in the field of grammar proficiency and reading comprehension of the students, no research has been done on the correlation between grammar proficiency and reading abilities. The present study is different from the rest of the study in the sense that no study has been done yet on this topic. It attempts to find out the correlation between discrete point test and integrative test. Grammar test is discrete point test. It attempts to test knowledge of a language one bit at a time while reading comprehension is integrative in nature as it measure more than one skills or aspects at a time. Thus it is a new venture in itself.

1.3 Objectives of the Study

The objectives of the study were as follows:

1. To find out the correlation between grammatical proficiency and reading ability of grade nine students.
2. To compare the findings on the basis of following variables
 - i. Private vs. public schools
 - ii. Rural vs. urban area
 - iii. Male vs. female students
2. To suggest some pedagogical implications.

1.4 Significance of the Study

This study attempts to find out the correlation between grammar proficiency and reading ability of grade nine students. So, the findings of the study will be significant in the field of English language teaching and learning. It would be significant to language students, teachers, textbook writers, curriculum and syllabus designers, methodologist and those who are directly or indirectly involved in teaching and learning English language.

CHAPTER TWO

METHODOLOGY

The researcher adopted the following methodology to carry out the purposed study.

2.1 Sources of Data

In order to carry out the study both primary and secondary sources of data were used.

2.1.1 Primary Sources

This study was mainly based on the primary source of data. The primary sources of data were the students of Grade Nine studying in four different schools of Chitwan district.

2.1.2 Secondary Sources

Different related research reports, textbooks, articles and journals were used as secondary sources of the data for this study.

2.2 Sampling Procedure

Random sampling procedure was applied to select four different schools; two private schools and two public schools of urban area and rural area of Chitwan district. In total, eighty students studying in grade nine from four different schools were selected randomly. Similarly, stratified random sampling method was used to select twenty students; both male and female in equal number from each selected school.

2.3 Tools for Data Collection

Two sets of test items, each carrying 20 marks, were used as the tools for data collection. They were grammar test items and reading test items. Grammar included 20 objective questions from a. Article b. Preposition c. Question Tag d. Tense e. Transformation f. Reported Speech g. Connectives h. Subject-Verb agreement i. If sentences and j. Causative verbs. Reading comprehension

includes both subjective and objective test items from seen and unseen texts in equal number i.e, 17 questions in each passage. Out of 17 questions, 16 questions were from objective test and the rest one was from subjective test.

The test items were constructed as follows:

1. Objective test items
 - a. Multiple choice (28)
 - b. Completion (8)
 - c. True false (8)
 - d. Ordering (8)
2. Subjective test item
 - a. Short questions (2)

(See appendix I.)

2.4 Process of Data Collection

The researcher went through the following process to collect data.

-) Test items required to test grammar proficiency and reading ability were prepared on the basis of the textbook of Grade Nine.
-) In total, 54 questions were designed under 2 types of tests items viz subjective and objective test items.
-) Four schools were selected. One government and one private school from urban area and one government and one private school from rural area of the same district.
-) The principals of those schools were contacted and asked for their permission to carry out the study.
-) Study was started after getting the permission.

) The researcher visited the selected school, took the selected students in a separate room, instructed them very carefully about the time limitations and the activities they need to do and then administered the test.

2.5 Limitations of the Study

The study had the following limitations:

- a. This study was limited to only four schools from urban and rural area of Chitwan district
- b. This study was limited to only eighty students from the selected four schools
- c. This study was limited only to the grammar proficiency and reading ability of the students studying in grad Grade Nine.

CHAPTER THREE

ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data obtained from the students under study. The collected data were analyzed and interpreted by using the formula developed by Carl Pearson to find out the extent of correlation coefficient. The formula for the correlation coefficient using raw data is:

$$\frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}}$$

Where,

r = Carl Pearson correlation coefficient

n = number of students

x = marks obtained by students in grammar test

Y = marks obtained by students in reading test

The value of Carl Pearson's correlation coefficient always varies between ± 1 , where +1 indicates perfect positive correlation and -1 indicates perfect negative correlation between two variables. Other value of correlation between ± 1 shows different degree of correlation. Similarly, mean score are used to find out the mean difference between variables.

Test items were the tools of the study. The test items are presented in Appendix I.

The analysis and interpretation of the data are made under the following headings and sub-headings.

3.1. Correlation between grammar proficiency and reading ability of the students of Grade Nine

One of the objectives of the study was to find out the overall correlation between grammatical proficiency and reading ability of the students of Grade Nine. For this, the researcher analyzed on the basis of marks obtained by the students of Grade Nine in grammar and in reading as a whole.

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and reading, their squares and product is calculated and presented in appendix III (1) and the summary is presented in table 1.

Table No. 1

Overall coefficient of correlation, mean and mean difference of the students of Grade Nine

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
80	Marks in Grammar	10.63	-1.31	0.627
	Marks in Reading	11.94		

The above table shows that the mean score of Grade Nine students in grammar is 10.63 and the mean score of same students in reading ability is 11.94 with mean difference 1.31. This indicates that the grade nine students did better in reading than grammar.

The calculated 'r' value is (+) 0.627 which is 0.373 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammar proficiency and reading ability of the students of Grade Nine as a whole.

3.2 Correlation between grammatical proficiency and reading ability of the students with respect to school, area and gender

The objective of the study is to find out the correlation between grammar and reading with respect to school, area and gender. That is why the researcher divided this section into the following sub headings.

3.2.1 Correlation between grammatical proficiency and reading ability of the students of private schools

One of the objectives of the study was to find out the correlation between grammatical proficiency and reading ability of the students of private schools as a whole. For this, the researcher analyzed the marks obtained by the students of Grade Nine in grammar and in reading from private schools.

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students of private schools in grammar and in reading, their squares and product is calculated and presented in appendix III (2) and the summary is presented in Table No. 2

Table No. 2

Coefficient of correlation, mean and mean difference of the students of private schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
40	Marks in Grammar	11.05	-2.06	0.676
	Marks in Reading	13.11		

The above table shows that the mean score of the students of private schools in grammar is 11.05 and the mean score of same students in reading ability is 13.11 with mean difference 2.06. This indicates that students of the private schools did better in reading than grammar.

The calculated 'r' value is (+) 0.676 which is 0.324 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the students of private schools.

3.2.2 Correlation between grammatical proficiency and reading ability of the students of public schools

One of the objectives of the study was to find out the correlation between grammatical proficiency and reading ability students of public schools as a whole. For this, the researcher analyzed the marks obtained by the students of public schools in grammar and reading. To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and in reading, their squares and product is calculated and presented in Appendix III (3) and the summary is presented in Table No. 3

Table No. 3

Coefficient of correlation, mean and mean difference of the students of public schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
40	Marks in Grammar	10.20	-0.56	0.563
	Marks in Reading	10.76		

The above table shows that the mean score of the students of public schools in grammar is 10.20 and the mean score of same students in reading ability is 10.76 with mean difference 0.56. This indicates that the students of public schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.563 which is 0.437 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the students of public schools.

3.2.3 Correlation between grammatical proficiency and reading ability of the students of urban area schools

One of the objectives of the study was to find out the correlation between grammatical proficiency and reading ability of the students of urban area schools as a whole. For this, the researcher analyzed the marks obtained by the students of urban area schools in grammar and reading.

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and reading, their squares and product is calculated and presented in Appendix III (4) and the summary is presented in Table No.4

Table No. 4

Coefficient of correlation, mean and mean difference of the students of urban area schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
40	Marks in Grammar	10.78	-1.49	0.643
	Marks in Reading	12.26		

The above table shows that the mean score of students of urban area schools in grammar is 10.78 and the mean score of same students in reading ability is 12.26 with mean difference 1.49. This indicates that the students of urban area schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.643 which is 0.375) deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the students of urban area school.

3.2.4 Correlation between grammatical proficiency and reading ability of the students of rural area schools

One of the objectives of the study was to find out the correlation between grammatical proficiency and reading ability of the students of rural area schools as a whole. For this, the researcher analyzed the marks obtained by the students of rural area schools in grammar and reading. To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and in reading, their squares and product is calculated and presented in Appendix III (5) and the summary is presented in Table No. 5

Table No. 5

Coefficient of correlation, mean and mean difference of the students of rural area schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
40	Marks in Grammar	10.48	-1.14	0.612
	Marks in Reading	11.61		

The above table shows that the mean score of the students of rural area school in grammar is 10.48 and the mean score of same students in reading ability is 11.61 with mean difference 1.14. This indicates that the the students of rural area schools did better in reading than in grammar. The calculated 'r' value is (+) 0.612 which is 0.388 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the students of rural area schools.

3.2.5 Correlation between grammatical proficiency and reading ability of the students of private school of urban area

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and in reading, their squares and

product is calculated and presented in Appendix III (6) and the summary is presented in Table No.6

Table No. 6

Coefficient of correlation, mean and mean difference of the students of private school of urban area

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	12.80	-3.20	0.194
	Marks in Reading	16.00		

Similarly, the above table shows that the mean score of the students of private school of urban area in grammar is 12.80 and the mean score of same students in reading ability is 16.00 with mean difference 3.20. This indicates that the students of private school of urban area did far better in reading than in grammar.

The calculated 'r' value is (+) 0.194 which is 0.806 Deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates weakly positive correlation between grammatical proficiency and reading ability of the students of private school of urban area.

3.2.6 Correlation between grammatical proficiency and reading ability of the students of public school of urban area

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and reading, their squares and product is calculated and presented in Appendix III (7) and the summary is presented in Table No.7

Table No. 7

Coefficient of correlation, mean and mean difference of the students of public school of urban area

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	8.75	0.23	0.321
	Marks in Reading	8.53		

The above table shows that the mean score of the students of public school of urban area in grammar is 8.75 and the mean score of same students in reading ability is 8.53 with mean difference 0.321.

This indicates that the students of public school of urban area did better in grammar than in reading. The calculated 'r' value is (+) 0.321 which is 0.679 deviated from the perfect positive correlation (+1). But the obtained coefficient of correlation value indicates weak positive correlation between grammatical proficiency and reading ability of the students of public school of urban area.

3.2.7 Correlation between grammatical proficiency and reading ability of the students of private school of rural area

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students in grammar and reading, their squares and product is calculated and presented in Appendix III (8) and the summary is presented in Table No. 8

Table No. 8

Coefficient of correlation, mean and mean difference of the students of private school of rural area

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	9.30	-0.92	0.605
	Marks in Reading	10.23		

The above table shows that the mean score of the students of private school of rural area in grammar is 9.30 and the mean score of same students in reading ability is 10.23 with mean difference 0.92. This indicates that the students of private school of rural area did better in reading than in grammar.

The calculated 'r' value is (+) 0.605 which is 0.395 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the students of private school of rural area.

3.2.8 Correlation between grammatical proficiency and reading ability of the students of public school of rural area

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the students of rural area in grammar and in reading, their squares and product is calculated and presented in Appendix III (9) and the summary is presented in Table No. 9

Table No. 9

Coefficient of correlation, mean and mean difference of the students of public school of rural area

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	11.65	-1.35	0.482
	Marks in Reading	13.00		

The above table shows that the mean score of the students of public school of rural area in grammar is 11.65 and the mean score of same students in reading ability is 13.00 with mean difference 1.35. This indicates that the students of public school of rural area did better in reading than in grammar.

The calculated 'r' value is (+) 0.482 which is 0.518 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates

positive correlation between grammatical proficiency and reading ability of the students of public school of rural area.

3.2.9 Correlation between grammatical proficiency and reading ability of the male students as a whole

One of the objectives of the study was to find out the correlation between grammatical proficiency and reading ability of the male students as a whole. For this, the researcher analyzed the marks obtained by the male students in grammar and in reading.

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the male students in grammar and reading, their squares and product is calculated and presented in Appendix III (10) and the summary is presented in Table No. 10

Table No.10

Overall Coefficient of correlation, mean and mean difference of male students

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
40	Marks in Grammar	10.65	-1.46	0.661
	Marks in Reading	12.11		

The above table shows that the mean score of male students in grammar is 10.65 and the mean score of same students in reading ability is 12.11 with mean difference 1.46. This indicates that the male students did better in reading than in grammar. The calculated 'r' value is (+) 0.661 which is 0.339 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the male students.

3.2.10 Correlation between grammatical proficiency and reading ability of the male students of private schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the male students in grammar and reading, their squares and product is calculated and presented in Appendix (III 11) and the summary is presented in Table No. 11

Table No. 11
Coefficient of correlation, mean and mean difference of the male students of private schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	10.80	-2.20	0.714
	Marks in Reading	13.00		

The above table shows that the mean score of male students of private schools in grammar is 10.80 and the mean score of same students in reading ability is 13.00 with mean difference 2.20. This indicates that the male students of private schools did far better in reading than in grammar.

The calculated 'r' value is (+) 0.714 which is 0.286 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the male students of private schools.

3.2.11 Correlation between grammatical proficiency and reading ability of the male students of public schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the male students of the public schools in grammar and in reading, their squares and product is calculated and presented in Appendix III (12) and the summary is presented in Table No.12

Table No. 12

Coefficient of correlation, mean and mean difference of the male students of public schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	10.50	-0.73	0.625
	Marks in Reading	11.23		

The above table shows that the mean score of male students of public schools in grammar is 10.50 and the mean score of same students in reading ability is 11.23 with mean difference 0.73. This indicates that the male students of public schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.625 which is 0.37 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the male students of public schools.

3.2.12 Correlation between grammatical proficiency and reading ability of the male students of urban area schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the male students of urban area schools in grammar and in reading, their squares and product is calculated and presented in Appendix III (13) and the summary is presented in Table No.13

Table No. 13

Coefficient of correlation, mean and mean difference of the male students of urban area schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	10.75	-1.58	0.632
	Marks in Reading	12.33		

The above table shows that the mean score of male students of urban area schools in grammar is 10.75 and the mean score of same students in reading ability is 12.33 with mean difference 1.58. This indicates that the male students of urban area schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.632 which is 0.368 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the male students of urban area schools.

3.2.13 Correlation between grammatical proficiency and reading ability of the male students of rural area schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the male students of rural area school in grammar and in reading, their squares and product is calculated and presented in Appendix III (14) and the summary is presented in Table No. 14

Table No. 14

Coefficient of correlation, mean and mean difference of the male students of rural area schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	10.55	-1.35	0.724
	Marks in Reading	11.90		

The above table shows that the mean score of male students of rural area schools in grammar is 10.55 and the mean score of same students in reading ability is 11.90 with mean difference 1.35. This indicates that the male students of rural area schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.724 which is 0.276 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates

positive correlation between grammatical proficiency and reading ability of the male students of rural area schools.

3.2.14 Correlation between grammatical proficiency and reading ability of the female students as a whole

One of the objectives of the study was to find out the correlation between grammatical proficiency and reading ability of female students as a whole. For this, the researcher analyzed the marks obtained by the female students in grammar and in reading.

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the female students in grammar and in reading, their squares and product is calculated and presented in Appendix III (15) and the summary is presented in Table No.15

Table No.15

Overall coefficient of correlation, mean and mean difference of the female

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
40	Marks in Grammar	10.60	-1.16	0.587
	Marks in Reading	11.76		

The above table shows that the mean score of female students in grammar is 10.60 and the mean score of same students in reading ability is 11.76 with mean difference 1.16. This indicates that the female students did better in reading than in grammar. The calculated 'r' value is (+) 0.587 which is 0.413 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the female students.

3.2.15 Correlation between grammatical proficiency and reading ability of the female students of private school

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the female students of private school in grammar and in reading, their squares and product is calculated and presented in Appendix III (16) and the summary is presented in Table No.16

Table No. 16

Coefficient of correlation, mean and mean difference of the female students of private schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	11.30	-1.93	0.636
	Marks in Reading	13.23		

The above table shows that the mean score of female students of private schools in grammar is 11.30 and the mean score of same students in reading ability is 13.23 with mean difference 1.93. This indicates that the female students of private schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.636 which is 0.364 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the female students of private schools.

3.2.16 Correlation between grammatical proficiency and reading ability of the female students of public schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the female students of public schools in grammar and in reading, their squares and product is calculated and presented in Appendix III (17) and the summary is presented in Table No.17

Table No. 17

Coefficient of correlation, mean and mean difference of the female students of public schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	9.90	-0.40	0.476
	Marks in Reading	10.30		

The above table shows that the mean score of female students of public schools in grammar is 9.90 and the mean score of same students in reading ability is 10.30 with mean difference 0.40. This indicates that the female students of public schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.476 which is 0.524 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the female students of public schools.

3.2.17 Correlation between grammatical proficiency and reading ability of the female students of urban area schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the female students of urban area schools in grammar and in reading, their squares and product is calculated and presented in Appendix III (18) and the summary is presented in Table No.18

Table No. 18

Coefficient of correlation, mean and mean difference of the female students of urban area schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	10.80	-1.40	0.659
	Marks in Reading	12.20		

The above table shows that the mean score of female students of urban area schools in grammar is 10.80 and the mean score of same students in reading ability is 12.20 with mean difference 1.40. This indicates that the female students of urban area schools did better in reading than in grammar.

The calculated 'r' value is (+) 0.659 which is 0.341 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the female students of urban area schools.

3.2.18 Correlation between grammatical proficiency and reading ability of the female students of rural area schools

To find out the coefficient of correlation, mean, mean difference, the raw scores obtained by the female students of rural area schools in grammar and in reading, their squares and product is calculated and presented in Appendix III (19) and the summary is presented in Table No.19

Table No. 19

Coefficient of correlation, mean and mean difference of the female students of rural area schools

Sample size	Compared test	Mean	Mean Difference (M.D.)	Coefficient of Correlation (r)
20	Marks in Grammar	10.40	-0.92	0.503
	Marks in Reading	11.33		

The above table shows that the mean score of female students of rural area schools in grammar is 10.40 and the mean score of same students in reading ability is 11.33 with mean difference 0.92. This indicates that the female students of rural area schools did better in reading than in grammar. The calculated 'r' value is (+) 0.503 which is 0.497 deviated from the perfect positive correlation (+1). The obtained coefficient of correlation value indicates positive correlation between grammatical proficiency and reading ability of the female students of rural area schools.

CHAPTER FOUR

FINDINGS AND RECOMMENDATIONS

The objectives of the study were to find out the correlation between grammatical proficiency and reading ability of the students of grade nine with respect to school, area and gender. The researcher used two sets of test items as tools for collecting primary data and used Carl Pearson's formula to calculate the coefficient of correlation (r). Then the collected information were analyzed in descriptive form.

4.1 Findings

The findings of the study based on the analysis and interpretation of data are as follows:

- i. It is found that all compared groups have positive correlation with different degrees. However, there is not any perfect positive and perfect negative correlation.
- ii. As a whole, the researcher found higher mean scores in reading ability than in grammar proficiency among grade nine students with mean difference 1.31 and the coefficient of correlation between grammar proficiency and reading ability of the students of grade nine is positive (0.627) with 0.377 deviations from perfect positive correlation (+1).
- iii. Comparing the coefficient of correlation by gender, it is found that there is higher degree of positive relationship among male students (+0.661) than that of female students (+0.587).
- iv. Compared across the school management systems, the coefficient of correlation is found higher in degree in private schools than that of public schools.
- v. Similarly, comparing the coefficient of correlation by spatial variation, it is found slightly higher in degree in urban area schools than rural area schools.

- vi. Out of different combined variables under study, the strong positive degree of coefficient of correlation (+0.724) is found among male students of rural area schools.
- vii. Among 19 different computations, weaker degree of coefficient of correlation (0.192) is found between the reading proficiency and grammatical knowledge in the students of private school of urban area.
- viii. The mean scores on both grammatical proficiency and reading ability are found higher in urban area schools than rural area schools. Highest mean scores on both test items are found in private schools of urban area.
- ix. Comparing the mean scores obtained by students of private schools and government schools, higher mean score in both test items is found among the students of private school of urban area than among the students of public school of urban area. Similarly, the higher mean score in both the tests is achieved by the students of public school of rural area than the students of private school of rural area which is even more than that of the students of public school of urban area.

4.2 Recommendations

On the basis of analysis, it is found that, the correlation between grammatical proficiency and reading ability of the students of Grade Nine is positive. As a whole, greater positive correlation is found in the reading and grammar scores of male students, private schools, and schools of urban area than that of the female students, public schools and schools of rural area. The close connection between grammar and reading is interesting fact for the people concerned with pedagogical area. So, to make connection strong following points should be considered

- i. Analysis of the tests results are important to find out the strength and weakness of the teaching learning activities.

- ii. Different degrees of correlation were found among the compared variables; so, gender, schools with lower degree of correlation should be provided with different facilities and instructional materials with effective teachers' training.
- iii. By the establishment of the correlation between grammar and reading ability of students, one can find out the effectiveness of teaching learning activities and the teacher can improve their teaching method.
- iv. Teaching should be concentrated on the needs of the students and it should be student centered.
- v. Teaching grammar inductively in meaningful situation and encouraging students to read as many texts as they can which are of their interests followed by comprehension questions enhance their learning.
- vi. Grammatical items should be taught not only in sentential level but also in super-sentential level.
- vii. The student should use English language as far as possible in English language class.
- viii. The curriculum designers should reform the curriculum according to the level of students by maintaining the balance and standard between grammar and reading skill of students.
- ix. This study was conducted in Chitwan district taking only two government schools and two private schools as sample. To get valid and reliable result, it should be extended to national level.

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APPENDIX I. Test Items

Time: 1 hrs

FM: 40

.....

Name of Student:..... M/F

Name of School:.....

Fill in the gaps with the correct word(s) from the bracket.

1. He has gotpencil. (a, an, the)
2. I finished my work2 o'clock. (in, on, at)
3. I am a student, ? (am I, aren't I, amn't I)
4. Go out immediately.....you? (will, don't, won't)
5. My brothera school teacher for the last five years. (is, was, has been)
6. He oftento brush his teeth. (forget, forgets, has forgotten)
7. Do farmersrice every year? (grows, grow, growing)
8. Did HariSLC exam? (passes, pass, passed)
9. She said, "I will go to school". Its indirect speech is: she said that she
.....to school. (will go, would go, would be gone)
10. "I am very sorry". He says, that(he is very sorry ,
he was very sorry, he has been very sorry)
11. "People speak English all over the world". Its passive is: English
.....all over the world. (is spoken, was spoken, was spoken by the people)
12. Hari didn't invite me. Iby Hari. (didn't invited, wasn't
invited, hadn't invited)
13.his strength, he could climb up the tree. (because of, because, though)
14. This is the house.....I was born. (which, who, where)
15. They didn'tthe film. (liked, like, likes)
16. The boysplayed hokey. (are, have, had)
17. If I were a fish, Iin the river. (would swim, would swam,
will swim)

18. If I you, I would never anger with my friends. (was, were, are)

19. My sister got memy beard. (to shave, shave, shaved)

20. I have my coat(washed, wash, to wash)

Read the following texts carefully and do the activities that follow.

Hariram Agrawal is a wealthy businessman. His wife phoned him an hour ago to tell him that their son hadn't returned home from school. Hariram told her not to worry and came home at once. He's just arrived to find his wife in tears.

"Chanda, what's wrong? Is Lokesh?" he asked.

"Yes. I found this note on his bed."

"What do u mean?"

She didn't say anything, just handed him a note.

"Mamma!my friends have planned a picnic and I have given my words to join it. When I asked for money papa did not listen to me. You know he pays no attention to me. Mamma, although I don't know where to go, I am looking for some ways out. Please don't try to look for me. I love you, Mama

Your loving son,

Lokesh"

"Lokesh!" Chanda started sobbing.

"Oh! Please be quiet,Chanda,"Hariram told his wife. "Have you phoned his friends. How about phoning them?"

"I have. Nobody knows where Lokesh is. Our only son! It's all your fault. I told you to give him money for picnic, but you never pay attention to what I say."

"Oh Chanda, Chanda, please! I realize that I've made a terrible mistake, but what should we do now?"

"if I were you, I'd go to the police. They can find him."

"That's good idea. The only thing is, I don't like going to the police. How about putting an advertisement in the newspaper saying "Dear son Lokesh, come back home. We won't ignore you again and we love you very much. Papa and Mama."

"You'd better put that on radio and TV as well, perhaps with Lokesh's photograph." Chanda said.

Just then the telephone rang. Hariram picked the receiver and asked who was speaking.

“my name is Ramesh . You don’t know me, but I’m a friend of Lokesh. He is here at my house. Do you want to speak to him?”

“Yes of course,” said Hariram.”Let me speak to him.”

A: Tick [] the best answer:

1. Chanda found
 - a. Lokesh on bed
 - b. note on bed
 - c. money on bed
 - d. books on bed
2. Lokesh asked for money.....
 - a. with his father
 - b. with his mother
 - c. with his friends
 - d. with his sister
3. Hariram Agrawal has
 - a. 2 sons
 - b. 3 sons
 - c. one son
 - d. 1 daughter
4. Lokesh was staying at.....
 - a. school
 - b. picnic
 - c. park
 - d. friend’s home

B: Write ‘T’ for correct statement and ‘F’ for wrong one in the given bracket

- a. Lokesh returned home from School. []
- b. Hariram gave money for picnic. []
- c. Chanda told to give money. []
- d. Lokesh is his parents’ only son. []

C. Fill in the blanks with appropriate words from the passage

- a. Hariram is a businessman
- b. Lokesh.....home from school.
- c. Hariram did notto Lokesh.
- d. Hariram don’t liketo the police.

D. Put he statements in correct order

- a. Lokesh friends planned a picnic. 1.....
- b. Hariram like to put an advertisement in newspaper. 2.....
- c. Chanda phoned Hariram to tell about their son 3.....
- d. Hariram found his wife in tears 4.....

E. Answer the following question in short

- a. why didn’t Lokesh return home from the school?

.....
.....

Read the following texts carefully and do the activities that follow

PARVATI CHETTRI – WORKING AT LOOMS

Voice of Child workers;
Issue no. 19&20, May- Sept. 1993

Parvati Chhetri is a 13 years old girl working in Luvu, Lalitpur. It has been almost a year since she started working here. Parvati shares a loom with four other children her. Together they produce 225X350” carpets. Parvati works more than 16 hours a day from 6 in the morning till past midnight with less than an hour break, seven days a week. Her uncle brought her here, keeps the money. Her uncle is a broker; who supplies laborers to the factory. Parvati stays with him and he feeds her two times a day and keeps her earnings for himself.

Parvati is from Sindhupalchok district. Her father is an agricultural laborer, owing only a small plot of land himself. She has four sisters and two brothers. She is the fourth child.

Parvati never got chance to go to school. None of her brothers and sisters did either. Her three elder sisters are already married. As for parvati, she just had too much work at home looking after the younger siblings and working around the house. She carried water and fodder for the cattle and sometimes even worked in the field with her mother.

One day, an uncle, her mother’s cousin, visited their home and talked to her parents about taking Parvati with him to Kathmandu to work. “She will learn the skill of carpet weaving and earn a lot of money”, he said. Her parents agreed.

For the first three months, she learnt carpet weaving. It was hard squatting in one place the whole day running her fingers through the tight loom. She soon developed a backache and knots appeared on her hands. She however had to be patient and learn weaving. Her uncle would have none of her complaining. She stayed with her uncle, the broker who had also brought in seven other kids. All of them stayed together in a single room, where they ate and slept. Once Parvati feels seriously ill. The uncle gave her some medicine and she was back to work within a week. Then she had to work doubly hard to catch up with the others. Her uncle was a strict man who didn’t allow the kids even to talk during the working hours.

A: Tick [] the best answer

1. Parvati works in

- | | |
|---------------------|--------------|
| a. a carpet factory | b. her house |
| c. the field | d. a school |

APPENDIX II: Details of the sampled students with their raw scores

S.N	Name of Student	MoG (X)	MoR (Y)
1	Bipin Poudel	19	17.5
2	Niraj rijal	11	15
3	Prakash yadev	9	17
4	Abishek shrestha	15	16.5
5	Kiran mahat	10	16
6	Sujan kharel	10	16
7	Monish gurung	14	14.5
8	Sagar gaire	14	14
9	Diwesh kandel	15	17.5
10	Raunak Thapa	10	17
11	Barsha Sharma	15	16.5
12	Sujata Poudel	11	14.5
13	Sima Sapkota	12	15.5
14	Muna Sapkota	14	16
15	Samikahya Khanal	13	17
16	Sushmita Saha	16	16
17	Richa Acharya	12	14.5
18	Richa Baral	11	18
19	Purnima Gurung	14	17
20	Sonale Pradhan	11	14
21	Suraj Lamichhane	9	13
22	Aakash Lama	8	12
23	Sanjay Tamang	7	8
24	Bir bahadur Gurung	6	6.5
25	Rabin B.K	5	5.5
26	Nabin Tamang	15	14.5
27	Pushpa raj Uprety	11	6.5
28	Sanjib Shrestha	10	12
29	Dipsan Kumal	9	2.5
30	Shiva Pandit	8	5
31	Soniya Khatun	8	13.5
32	Bina B.C	7	10.5
33	Sarmila G.C	6	8.5

34	Kusum Pandey	9	11
35	Sapana Basram	8	7
36	Sophiya Kumal	8	7.5
37	Kabita Giri	7	5
38	Sushila Lama	9	7.5
39	Samjhana B.K	14	8.5
40	Chandra maya Giri	11	6
41	Parbin Bastakoti	9	8
42	Suraj Mahato	7	12
43	Durga Gurung	13	11.5
44	Anuj Mahato	11	13.5
45	Amrit Timilsina	4	5
46	Babis Mahato	8	8.5
47	Uttam Poudel	14	15
48	Ramesh Chaudhary	9	9
49	Sujan Mahato	8	10.5
50	Rohit Mahato	6	6
51	Roshani Mahato	7	10
52	Ashu Adhikari	14	15.5
53	Ruma Chaudhary	12	11.5
54	Sirjana Poudel	12	10
55	Jyoti Subedi	10	14
56	Ritika Mahato	10	9.5
57	Jeni Mahato	11	5.5
58	Laxmi Thapa	7	8.5
59	Shanti Bhujel	6	5.5
60	Nisha Pandey	8	15.5
61	Sagar Poudel	16	15
62	Uttam Dhakal	14	14.5
63	Sunil Ghale	12	18
64	Binod Bot	11	13
65	Sudip Dawadi	11	15.5
66	Ujwal Tiwari	12	14.5
67	Deepak Acharya	8	13
68	Keshav Pariyar	9	11

69	Jeetu Nepali	12	11
70	Sunil Mahato	17	13.5
71	Kabita Sapkota	15	18
72	Pabitra Dawadi	15	16
73	Alisha Mahato	11	11
74	Muna Chalise	12	12
75	Gaumaya Magar	8	12
76	Pooja Adhikari	7	14
77	Sadhana Bhushal	12	11
78	Vidya Mahato	10	12.5
79	Bhagawati Kshetri	6	4.5
80	Uma Mahato	15	10
	Sum	850	955

Note: MoG=marks obtain in grammar,

MoR=marks obtained in reading

APPENDIX III (1)

1. Overall marks obtained by the students of grade nine in grammar and reading

S.N	Name of Student	MoG (X)	MoR (Y)	x^2	y^2	xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170
11	Barsha Sharma	15	16.5	225	272.25	247.5
12	Sujata Poudel	11	14.5	121	210.25	159.5
13	Sima Sapkota	12	15.5	144	240.25	186
14	Muna Sapkota	14	16	196	256	224
15	Samikahya Khanal	13	17	169	289	221
16	Sushmita Saha	16	16	256	256	256
17	Richa Acharya	12	14.5	144	210.25	174
18	Richa Baral	11	18	121	324	198
19	Purnima Gurung	14	17	196	289	238
20	Sonale Pradhan	11	14	121	196	154
21	Suraj Lamichhane	9	13	81	169	117
22	Aakash Lama	8	12	64	144	96

23	Sanjay Tamang	7	8	49	64	56
24	Bir bahadur Gurung	6	6.5	36	42.25	39
25	Rabin B.K	5	5.5	25	30.25	27.5
26	Nabin Tamang	15	14.5	225	210.25	217.5
27	Pushpa raj Uprety	11	6.5	121	42.25	71.5
28	Sanjib Shrestha	10	12	100	144	120
29	Dipsan Kumal	9	2.5	81	6.25	22.5
30	Shiva Pandit	8	5	64	25	40
31	Soniya Khatun	8	13.5	64	182.25	108
32	Bina B.C	7	10.5	49	110.25	73.5
33	Sarmila G.C	6	8.5	36	72.25	51
34	Kusum Pandey	9	11	81	121	99
35	Sapana Basram	8	7	64	49	56
36	Sophiya Kumal	8	7.5	64	56.25	60
37	Kabita Giri	7	5	49	25	35
38	Sushila Lama	9	7.5	81	56.25	67.5
39	Samjhana B.K	14	8.5	196	72.25	119
40	Chandra maya Giri	11	6	121	36	66
41	Parbin Bastakoti	9	8	81	64	72
42	Suraj Mahato	7	12	49	144	84
43	Durga Gurung	13	11.5	169	132.25	149.5
44	Anuj Mahato	11	13.5	121	182.25	148.5
45	Amrit Timilsina	4	5	16	25	20
46	Babis Mahato	8	8.5	64	72.25	68
47	Uttam Poudel	14	15	196	225	210
48	Ramesh Chaudhary	9	9	81	81	81
49	Sujan Mahato	8	10.5	64	110.25	84
50	Rohit Mahato	6	6	36	36	36
51	Roshani Mahato	7	10	49	100	70
52	Ashu Adhikari	14	15.5	196	240.25	217
53	Ruma Chaudhary	12	11.5	144	132.25	138
54	Sirjana Poudel	12	10	144	100	120
55	Jyoti Subedi	10	14	100	196	140
56	Ritika Mahato	10	9.5	100	90.25	95
57	Jeni Mahato	11	5.5	121	30.25	60.5
58	Laxmi Thapa	7	8.5	49	72.25	59.5
59	Shanti Bhujel	6	5.5	36	30.25	33
60	Nisha Pandey	8	15.5	64	240.25	124
61	Sagar Poudel	16	15	256	225	240
62	Uttam Dhakal	14	14.5	196	210.25	203
63	Sunil Ghale	12	18	144	324	216
64	Binod Bot	11	13	121	169	143
65	Sudip Dawadi	11	15.5	121	240.25	170.5
66	Ujwal Tiwari	12	14.5	144	210.25	174
67	Deepak Acharya	8	13	64	169	104

68	Keshav Pariyar	9	11	81	121	99
69	Jeetu Nepali	12	11	144	121	132
70	Sunil Mahato	17	13.5	289	182.25	229.5
71	Kabita Sapkota	15	18	225	324	270
72	Pabitra Dawadi	15	16	225	256	240
73	Alisha Mahato	11	11	121	121	121
74	Muna Chalise	12	12	144	144	144
75	Gaumaya Magar	8	12	64	144	96
76	Pooja Adhikari	7	14	49	196	98
77	Sadhana Bhushal	12	11	144	121	132
78	Vidya Mahato	10	12.5	100	156.25	125
79	Bhagawati Kshetri	6	4.5	36	20.25	27
80	Uma Mahato	15	10	225	100	150
	Sum	$x = 850$	$y = 955$	$x^2 \text{ X}9822$	$y^2 \text{ X}12665$	$xy \text{ X}10773.5$

Using the Carl Pearson's formula:

$$r = \frac{n \cdot xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{80 \cdot 10773.5 - 850 \cdot 955}{\sqrt{80 \cdot 9822 - 850^2} \cdot \sqrt{80 \cdot 12665 - 955^2}}$$

$$= \frac{861880 - 811750}{\sqrt{63260} \cdot \sqrt{101175}} = \frac{50130}{80002.07} \dots r = 0.627$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{850}{80} = 10.63$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{955}{80} = 11.94$$

APPENDIX III(2)

2. Marks obtained by the students of Private Schools

S.N	Name of Student	MoG (X)	MoR (Y)	x^2	y^2	xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170

11	Barsha Sharma	15	16.5	225	272.25	247.5
12	Sujata Poudel	11	14.5	121	210.25	159.5
13	Sima Sapkota	12	15.5	144	240.25	186
14	Muna Sapkota	14	16	196	256	224
15	Samikahya Khanal	13	17	169	289	221
16	Sushmita Saha	16	16	256	256	256
17	Richa Acharya	12	14.5	144	210.25	174
18	Richa Baral	11	18	121	324	198
19	Purnima Gurung	14	17	196	289	238
20	Sonale Pradhan	11	14	121	196	154
21	Parbin Bastakoti	9	8	81	64	72
22	Suraj Mahato	7	12	49	144	84
23	Durga Gurung	13	11.5	169	132.25	149.5
24	Anuj Mahato	11	13.5	121	182.25	148.5
25	Amrit Timilsina	4	5	16	25	20
26	Babis Mahato	8	8.5	64	72.25	68
27	Uttam Poudel	14	15	196	225	210
28	Ramesh Chaudhary	9	9	81	81	81
29	Sujan Mahato	8	10.5	64	110.25	84
30	Rohit Mahato	6	6	36	36	36
31	Roshani Mahato	7	10	49	100	70
32	Ashu Adhikari	14	15.5	196	240.25	217
33	Ruma Chaudhary	12	11.5	144	132.25	138
34	Sirjana Poudel	12	10	144	100	120
35	Jyoti Subedi	10	14	100	196	140
36	Ritika Mahato	10	9.5	100	90.25	95
37	Jeni Mahato	11	5.5	121	30.25	60.5
38	Laxmi Thapa	7	8.5	49	72.25	59.5
39	Shanti Bhujel	6	5.5	36	30.25	33
40	Nisha Pandey	8	15.5	64	240.25	124
	Sum	$\Sigma x = 442$	$\Sigma y = 524.5$	$\Sigma x^2 = 5278$	$\Sigma y^2 = 7452.8$	$\Sigma xy = 6117.5$

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \Sigma xy - \Sigma x \cdot \Sigma y}{\sqrt{n \cdot \Sigma x^2 - (\Sigma x)^2} \cdot \sqrt{n \cdot \Sigma y^2 - (\Sigma y)^2}} = \frac{40 \cdot 6117.5 - 442 \cdot 524.5}{\sqrt{40 \cdot 5278 - 442^2} \cdot \sqrt{40 \cdot 7452.8 - 524.5^2}}$$

$$= \frac{244700 - 231829}{\sqrt{15756} \cdot \sqrt{23009.75}} = \frac{12871}{19040.53} \dots r = 11.05$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\Sigma x}{n} = \frac{440}{40} = 11.05$$

Mean score of the students in reading test

$$\bar{y} = \frac{\Sigma y}{n} = \frac{524.5}{40} = 13.11$$

APPENDIX III(3)**3. Marks obtained by the students of public schools**

S.N	Name of Student	MoG (X)	MoR (Y)	x^2	y^2	Xy
1	Suraj Lamichhane	9	13	81	169	117
2	Aakash Lama	8	12	64	144	96
3	Sanjay Tamang	7	8	49	64	56
4	Bir bahadur Gurung	6	6.5	36	42.25	39
5	Rabin B.K	5	5.5	25	30.25	27.5
6	Nabin Tamang	15	14.5	225	210.25	217.5
7	Pushpa raj Uprety	11	6.5	121	42.25	71.5
8	Sanjib Shrestha	10	12	100	144	120
9	Dipsan Kumal	9	2.5	81	6.25	22.5
10	Shiva Pandit	8	5	64	25	40
11	Soniya Khatun	8	13.5	64	182.25	108
12	Bina B.C	7	10.5	49	110.25	73.5
13	Sarmila G.C	6	8.5	36	72.25	51
14	Kusum Pandey	9	11	81	121	99
15	Sapana Basram	8	7	64	49	56
16	Sophiya Kumal	8	7.5	64	56.25	60
17	Kabita Giri	7	5	49	25	35
18	Sushila Lama	9	7.5	81	56.25	67.5
19	Samjhana B.K	14	8.5	196	72.25	119
20	Chandra maya Giri	11	6	121	36	66
21	Sagar Poudel	16	15	256	225	240
22	Uttam Dhakal	14	14.5	196	210.25	203
23	Sunil Ghale	12	18	144	324	216
24	Binod Bot	11	13	121	169	143
25	Sudip Dawadi	11	15.5	121	240.25	170.5
26	Ujwal Tiwari	12	14.5	144	210.25	174
27	Deepak Acharya	8	13	64	169	104
28	Keshav Pariyar	9	11	81	121	99
29	Jeetu Nepali	12	11	144	121	132
30	Sunil Mahato	17	13.5	289	182.25	229.5
31	Kabita Sapkota	15	18	225	324	270
32	Pabitra Dawadi	15	16	225	256	240
33	Alisha Mahato	11	11	121	121	121
34	Muna Chalise	12	12	144	144	144
35	Gaumaya Magar	8	12	64	144	96
36	Pooja Adhikari	7	14	49	196	98

37	Sadhana Bhushal	12	11	144	121	132
38	Vidya Mahato	10	12.5	100	156.25	125
39	Bhagawati Kshetri	6	4.5	36	20.25	27
40	Uma Mahato	15	10	225	100	150
	Sum	$\Sigma X=408$	$\Sigma Y=430.5$	$\Sigma X^2=4544$	$\Sigma Y^2=5212.3$	$\Sigma XY=4656$

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \Sigma xy - \Sigma x \cdot \Sigma y}{\sqrt{n \cdot \Sigma x^2 - (\Sigma x)^2} \cdot \sqrt{n \cdot \Sigma y^2 - (\Sigma y)^2}} = \frac{40 \cdot 4656 - 408 \cdot 430.5}{\sqrt{40 \cdot 4544 - 408^2} \cdot \sqrt{40 \cdot 5212.3 - 430.5^2}}$$

$$= \frac{186240 - 175644}{\sqrt{15296} \cdot \sqrt{23159.75}} = \frac{10596}{18821.571} \dots r = 0.563$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\Sigma x}{n} = \frac{408}{40} = 10.20$$

Mean score of the students in reading test

$$\bar{y} = \frac{\Sigma y}{n} = \frac{430.5}{40} = 10.76$$

APPENDIX III(4)

4. Marks obtained by the students of urban area schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170
11	Barsha Sharma	15	16.5	225	272.25	247.5
12	Sujata Poudel	11	14.5	121	210.25	159.5
13	Sima Sapkota	12	15.5	144	240.25	186
14	Muna Sapkota	14	16	196	256	224
15	Samikahya Khanal	13	17	169	289	221
16	Sushmita Saha	16	16	256	256	256
17	Richa Acharya	12	14.5	144	210.25	174
18	Richa Baral	11	18	121	324	198
19	Purnima Gurung	14	17	196	289	238
20	Sonale Pradhan	11	14	121	196	154
21	Suraj Lamichhane	9	13	81	169	117
22	Aakash Lama	8	12	64	144	96
23	Sanjay Tamang	7	8	49	64	56

24	Bir bahadur Gurung	6	6.5	36	42.25	39
25	Rabin B.K	5	5.5	25	30.25	27.5
26	Nabin Tamang	15	14.5	225	210.25	217.5
27	Pushpa raj Uprety	11	6.5	121	42.25	71.5
28	Sanjib Shrestha	10	12	100	144	120
29	Dipsan Kumal	9	2.5	81	6.25	22.5
30	Shiva Pandit	8	5	64	25	40
31	Soniya Khatun	8	13.5	64	182.25	108
32	Bina B.C	7	10.5	49	110.25	73.5
33	Sarmila G.C	6	8.5	36	72.25	51
34	Kusum Pandey	9	11	81	121	99
35	Sapana Basram	8	7	64	49	56
36	Sophiya Kumal	8	7.5	64	56.25	60
37	Kabita Giri	7	5	49	25	35
38	Sushila Lama	9	7.5	81	56.25	67.5
39	Samjhana B.K	14	8.5	196	72.25	119
40	Chandra maya Giri	11	6	121	36	66
	Sum	ΣX 431	ΣY 490.5	ΣX^2 5049	ΣY^2 6806.8	ΣXY 5649.5

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \Sigma xy - \Sigma x \cdot \Sigma y}{\sqrt{n \cdot \Sigma x^2 - (\Sigma x)^2} \cdot \sqrt{n \cdot \Sigma y^2 - (\Sigma y)^2}} = \frac{40 \cdot 5649.5 - 431 \cdot 490.5}{\sqrt{40 \cdot 5049 - 431^2} \cdot \sqrt{80 \cdot 6806.8 - 490.5^2}}$$

$$= \frac{225980 - 211405.5}{\sqrt{16199} \cdot \sqrt{31679.75}} = \frac{14574.5}{22653.48} \dots r = 0.643$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\Sigma x}{n} = \frac{430.5}{40} = 10.78$$

Mean score of the students in reading test

$$\bar{y} = \frac{\Sigma y}{n} = \frac{490.5}{40} = 12.26$$

APPENDIX III(5)

7. Marks obtained by the students of rural area schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x^2	y^2	Xy
1	Parbin Bastakoti	9	8	81	64	72
2	Suraj Mahato	7	12	49	144	84
3	Durga Gurung	13	11.5	169	132.25	149.5
4	Anuj Mahato	11	13.5	121	182.25	148.5
5	Amrit Timilsina	4	5	16	25	20

6	Babis Mahato	8	8.5	64	72.25	68
7	Uttam Poudel	14	15	196	225	210
8	Ramesh Chaudhary	9	9	81	81	81
9	Sujan Mahato	8	10.5	64	110.25	84
10	Rohit Mahato	6	6	36	36	36
11	Roshani Mahato	7	10	49	100	70
12	Ashu Adhikari	14	15.5	196	240.25	217
13	Ruma Chaudhary	12	11.5	144	132.25	138
14	Sirjana Poudel	12	10	144	100	120
15	Jyoti Subedi	10	14	100	196	140
16	Ritika Mahato	10	9.5	100	90.25	95
17	Jeni Mahato	11	5.5	121	30.25	60.5
18	Laxmi Thapa	7	8.5	49	72.25	59.5
19	Shanti Bhujel	6	5.5	36	30.25	33
20	Nisha Pandey	8	15.5	64	240.25	124
21	Sagar Poudel	16	15	256	225	240
22	Uttam Dhakal	14	14.5	196	210.25	203
23	Sunil Ghale	12	18	144	324	216
24	Binod Bot	11	13	121	169	143
25	Sudip Dawadi	11	15.5	121	240.25	170.5
26	Ujwal Tiwari	12	14.5	144	210.25	174
27	Deepak Acharya	8	13	64	169	104
28	Keshav Pariyar	9	11	81	121	99
29	Jeetu Nepali	12	11	144	121	132
30	Sunil Mahato	17	13.5	289	182.25	229.5
31	Kabita Sapkota	15	18	225	324	270
32	Pabitra Dawadi	15	16	225	256	240
33	Alisha Mahato	11	11	121	121	121
34	Muna Chalise	12	12	144	144	144
35	Gaumaya Magar	8	12	64	144	96
36	Pooja Adhikari	7	14	49	196	98
37	Sadhana Bhushal	12	11	144	121	132
38	Vidya Mahato	10	12.5	100	156.25	125
39	Bhagawati Kshetri	6	4.5	36	20.25	27
40	Uma Mahato	15	10	225	100	150
	Sum	$x \times 419$	$y \times 464.5$	$x^2 \times 4773$	$y^2 \times 5858.3$	$xy \times 5124$

Using the Carl Pearson's formula:

$$r = \frac{n \cdot xy - Z_x \cdot Z_y}{\sqrt{n \cdot x^2 - (Z_x)^2} \cdot \sqrt{n \cdot y^2 - (Z_y)^2}} = \frac{40 \times 5124 - 419 \times 464.5}{\sqrt{40 \times 4773 - 419^2} \cdot \sqrt{40 \times 5858.3 - 464.5^2}}$$

$$= \frac{204960 - 194525.5}{\sqrt{15359} \cdot \sqrt{18569.75}} = \frac{10334.5}{16888.24} \dots r = 0.612$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{419}{40} = 10.48$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{464.5}{40} = 11.61$$

APPENDIX III(6)

5. Marks obtained by the students of private school of urban area

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170
11	Barsha Sharma	15	16.5	225	272.25	247.5
12	Sujata Poudel	11	14.5	121	210.25	159.5
13	Sima Sapkota	12	15.5	144	240.25	186
14	Muna Sapkota	14	16	196	256	224
15	Samikahya Khanal	13	17	169	289	221
16	Sushmita Saha	16	16	256	256	256
17	Richa Acharya	12	14.5	144	210.25	174
18	Richa Baral	11	18	121	324	198
19	Purnima Gurung	14	17	196	289	238
20	Sonale Pradhan	11	14	121	196	154
	Sum	x X256	y X320	x ² X3398	y ² X5149	xy X4107.5

Using the Carl Pearson's formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \cdot \sqrt{n \sum y^2 - (\sum y)^2}} = \frac{20 \times 4107.5 - 256 \times 320}{\sqrt{20 \times 3398 - 256^2} \cdot \sqrt{20 \times 5149 - 320^2}}$$

$$= \frac{82150 - 81920}{\sqrt{16199} \cdot \sqrt{31679.75}} = \frac{230}{1185.71497} \dots r = 0.612$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{256}{20} = 12.80$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{320}{20} = 16.00$$

APPENDIX III(7)

6. Marks obtained by the students of public school of urban area

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Suraj Lamichhane	9	13	81	169	117
2	Aakash Lama	8	12	64	144	96
3	Sanjay Tamang	7	8	49	64	56
4	Bir bahadur Gurung	6	6.5	36	42.25	39
5	Rabin B.K	5	5.5	25	30.25	27.5
6	Nabin Tamang	15	14.5	225	210.25	217.5
7	Pushpa raj Uprety	11	6.5	121	42.25	71.5
8	Sanjib Shrestha	10	12	100	144	120
9	Dipsan Kumal	9	2.5	81	6.25	22.5
10	Shiva Pandit	8	5	64	25	40
11	Soniya Khatun	8	13.5	64	182.25	108
12	Bina B.C	7	10.5	49	110.25	73.5
13	Sarmila G.C	6	8.5	36	72.25	51
14	Kusum Pandey	9	11	81	121	99
15	Sapana Basram	8	7	64	49	56
16	Sophiya Kumal	8	7.5	64	56.25	60
17	Kabita Giri	7	5	49	25	35
18	Sushila Lama	9	7.5	81	56.25	67.5
19	Samjhana B.K	14	8.5	196	72.25	119
20	Chandra maya Giri	11	6	121	36	66
	Sum	x X 175	y X 170.5	x ² X 1651	y ² X 1657.8	xy X 1542

Using the Carl Pearson's formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}} = \frac{20 \times 1542 - 175 \times 170.5}{\sqrt{20 \times 1651 - 175^2} \sqrt{20 \times 1657.8 - 170.5^2}}$$

$$= \frac{30840 - 29837.5}{\sqrt{2395} \sqrt{4084.75}} = \frac{1002.5}{3127.777} \dots r = 0.321$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{175}{20} = 8.75$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{170.5}{20} = 8.53$$

APPENDIX III(8)

8. Marks obtained by the students of private school of rural area:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Parbin Bastakoti	9	8	81	64	72
2	Suraj Mahato	7	12	49	144	84
3	Durga Gurung	13	11.5	169	132.25	149.5
4	Anuj Mahato	11	13.5	121	182.25	148.5
5	Amrit Timilsina	4	5	16	25	20
6	Babis Mahato	8	8.5	64	72.25	68
7	Uttam Poudel	14	15	196	225	210
8	Ramesh Chaudhary	9	9	81	81	81
9	Sujan Mahato	8	10.5	64	110.25	84
10	Rohit Mahato	6	6	36	36	36
11	Roshani Mahato	7	10	49	100	70
12	Ashu Adhikari	14	15.5	196	240.25	217
13	Ruma Chaudhary	12	11.5	144	132.25	138
14	Sirjana Poudel	12	10	144	100	120
15	Jyoti Subedi	10	14	100	196	140
16	Ritika Mahato	10	9.5	100	90.25	95
17	Jeni Mahato	11	5.5	121	30.25	60.5
18	Laxmi Thapa	7	8.5	49	72.25	59.5
19	Shanti Bhujel	6	5.5	36	30.25	33
20	Nisha Pandey	8	15.5	64	240.25	124
	Sum	x X 186	y X 204.5	x ² X 1880	y ² X 2303.8	xy X 2010

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{20 \times 2010 - 186 \times 204.5}{\sqrt{20 \times 1880 - 186^2} \cdot \sqrt{20 \times 2303.8 - 204.5^2}}$$

$$= \frac{40200 - 38037}{\sqrt{3004} \cdot \sqrt{4254.75}} = \frac{2163}{3575.09007} \dots r = 0.321$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{175}{20} = 8.75$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{204.5}{20} = 10.23$$

APPENDIX III(9)

9. Marks obtained by the students of public school of rural area:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Sagar Poudel	16	15	256	225	240
2	Uttam Dhakal	14	14.5	196	210.25	203
3	Sunil Ghale	12	18	144	324	216
4	Binod Bot	11	13	121	169	143
5	Sudip Dawadi	11	15.5	121	240.25	170.5
6	Ujwal Tiwari	12	14.5	144	210.25	174
7	Deepak Acharya	8	13	64	169	104
8	Keshav Pariyar	9	11	81	121	99
9	Jeetu Nepali	12	11	144	121	132
10	Sunil Mahato	17	13.5	289	182.25	229.5
11	Kabita Sapkota	15	18	225	324	270
12	Pabitra Dawadi	15	16	225	256	240
13	Alisha Mahato	11	11	121	121	121
14	Muna Chalise	12	12	144	144	144
15	Gaumaya Magar	8	12	64	144	96
16	Pooja Adhikari	7	14	49	196	98
17	Sadhana Bhushal	12	11	144	121	132
18	Vidya Mahato	10	12.5	100	156.25	125
19	Bhagawati Kshetri	6	4.5	36	20.25	27
20	Uma Mahato	15	10	225	100	150
	Sum	x X233	y X260	x ² X2893	y ² X3554.5	xy X3114

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{20 \cdot 3114 - 233 \cdot 260}{\sqrt{20 \cdot 2893 - 233^2} \cdot \sqrt{20 \cdot 3554.5 - 260^2}}$$

$$= \frac{62280 - 60580}{\sqrt{3571} \cdot \sqrt{3490}} = \frac{1700}{3530.27} \dots r = 0.482$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{233}{20} = 11.65$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{260}{20} = 13.00$$

APPENDIX III (10)

10. Marks obtained by the male students of all four schools:

S.N.	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170
11	Suraj Lamichhane	9	13	81	169	117
12	Aakash Lama	8	12	64	144	96
13	Sanjay Tamang	7	8	49	64	56
14	Bir bahadur Gurung	6	6.5	36	42.25	39
15	Rabin B.K	5	5.5	25	30.25	27.5
16	Nabin Tamang	15	14.5	225	210.25	217.5
17	Pushpa raj Uprety	11	6.5	121	42.25	71.5
18	Sanjib Shrestha	10	12	100	144	120
19	Dipsan Kumal	9	2.5	81	6.25	22.5
20	Shiva Pandit	8	5	64	25	40
21	Parbin Bastakoti	9	8	81	64	72
22	Suraj Mahato	7	12	49	144	84
23	Durga Gurung	13	11.5	169	132.25	149.5
24	Anuj Mahato	11	13.5	121	182.25	148.5
25	Amrit Timilsina	4	5	16	25	20
26	Babis Mahato	8	8.5	64	72.25	68
27	Uttam Poudel	14	15	196	225	210
28	Ramesh Chaudhary	9	9	81	81	81
29	Sujan Mahato	8	10.5	64	110.25	84
30	Rohit Mahato	6	6	36	36	36
31	Sagar Poudel	16	15	256	225	240
32	Uttam Dhakal	14	14.5	196	210.25	203
33	Sunil Ghale	12	18	144	324	216
34	Binod Bot	11	13	121	169	143
35	Sudip Dawadi	11	15.5	121	240.25	170.5
36	Ujwal Tiwari	12	14.5	144	210.25	174
37	Deepak Acharya	8	13	64	169	104
38	Keshav Pariyar	9	11	81	121	99
39	Jeetu Nepali	12	11	144	121	132
40	Sunil Mahato	17	13.5	289	182.25	229.5
	Sum	x X426	y X484.5	x ² X4988	y ² X6527.3	xy X5520.5

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{40 \cdot 5520.5 - 426 \cdot 484.5}{\sqrt{40 \cdot 4988 - 426^2} \cdot \sqrt{40 \cdot 6527.3 - 484.5^2}}$$

$$= \frac{220820 - 206397}{\sqrt{18044} \cdot \sqrt{26349.75}} = \frac{14423}{21804.93} \dots r = 0.661$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{426}{40} = 10.65$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{484.5}{40} = 12.11$$

APPENDIX III(11)

11. Marks obtained by the male students of private schools

S.N	Name of Student	MoG (X)	MoR (Y)	x^2	y^2	xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170
11	Parbin Bastakoti	9	8	81	64	72
12	Suraj Mahato	7	12	49	144	84
13	Durga Gurung	13	11.5	169	132.25	149.5
14	Anuj Mahato	11	13.5	121	182.25	148.5
15	Amrit Timilsina	4	5	16	25	20
16	Babis Mahato	8	8.5	64	72.25	68
17	Uttam Poudel	14	15	196	225	210
18	Ramesh Chaudhary	9	9	81	81	81
19	Sujan Mahato	8	10.5	64	110.25	84
20	Rohit Mahato	6	6	36	36	36
	Sum	$\sum x = 216$	$\sum y = 260$	$\sum x^2 = 2582$	$\sum y^2 = 3678$	$\sum xy = 3002.5$

Using the Carl Pearson's formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}} = \frac{20 \times 3002.5 - 216 \times 260}{\sqrt{20 \times 2582 - 216^2} \sqrt{20 \times 3678 - 260^2}}$$

$$= \frac{60050 - 56160}{\sqrt{4984} \cdot \sqrt{5960}} = \frac{3890}{5450.19633} \dots r = 0.714$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{216}{20} = 10.80$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{260}{20} = 13.00$$

APPENDIX III (12)

12. Marks obtained by the male students of public schools

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Suraj Lamichhane	9	13	81	169	117
2	Aakash Lama	8	12	64	144	96
3	Sanjay Tamang	7	8	49	64	56
4	Bir bahadur Gurung	6	6.5	36	42.25	39
5	Rabin B.K	5	5.5	25	30.25	27.5
6	Nabin Tamang	15	14.5	225	210.25	217.5
7	Pushpa raj Uprety	11	6.5	121	42.25	71.5
8	Sanjib Shrestha	10	12	100	144	120
9	Dipsan Kumal	9	2.5	81	6.25	22.5
10	Shiva Pandit	8	5	64	25	40
11	Sagar Poudel	16	15	256	225	240
12	Uttam Dhakal	14	14.5	196	210.25	203
13	Sunil Ghale	12	18	144	324	216
14	Binod Bot	11	13	121	169	143
15	Sudip Dawadi	11	15.5	121	240.25	170.5
16	Ujwal Tiwari	12	14.5	144	210.25	174
17	Deepak Acharya	8	13	64	169	104
18	Keshav Pariyar	9	11	81	121	99
19	Jeetu Nepali	12	11	144	121	132
20	Sunil Mahato	17	13.5	289	182.25	229.5
	Sum	x X210	y X224.5	x ² X2406	y ² X2849.3	xy X2518

Using the Carl Pearson's formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}} = \frac{20 \times 2518 - 210 \times 224.5}{\sqrt{20 \times 2406 - 210^2} \sqrt{20 \times 2849.3 - 224.5^2}}$$

$$= \frac{50360 - 47145}{\sqrt{4020} \sqrt{6584.75}} = \frac{3215}{5144.96793} \dots r = 0.625$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{210}{20} = 10.50$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{224.5}{20} = 11.23$$

APPENDIX III (13)

13. Marks obtained by the male students of urban area schools

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Bipin Poudel	19	17.5	361	306.25	332.5
2	Niraj rijal	11	15	121	225	165
3	Prakash yadev	9	17	81	289	153
4	Abishek shrestha	15	16.5	225	272.25	247.5
5	Kiran mahat	10	16	100	256	160
6	Sujan kharel	10	16	100	256	160
7	Monish gurung	14	14.5	196	210.25	203
8	Sagar gaire	14	14	196	196	196
9	Diwesh kandel	15	17.5	225	306.25	262.5
10	Raunak Thapa	10	17	100	289	170
11	Suraj Lamichhane	9	13	81	169	117
12	Aakash Lama	8	12	64	144	96
13	Sanjay Tamang	7	8	49	64	56
14	Bir bahadur Gurung	6	6.5	36	42.25	39
15	Rabin B.K	5	5.5	25	30.25	27.5
16	Nabin Tamang	15	14.5	225	210.25	217.5
17	Pushpa raj Uprety	11	6.5	121	42.25	71.5
18	Sanjib Shrestha	10	12	100	144	120
19	Dipsan Kumal	9	2.5	81	6.25	22.5
20	Shiva Pandit	8	5	64	25	40
	Sum	x X215	y X246.5	x ² X2551	y ² X3483.3	xy X2856.5

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{20 \cdot 2856.5 - 215 \cdot 246.5}{\sqrt{20 \cdot 2551 - 215^2} \cdot \sqrt{20 \cdot 3483.3 - 246.5^2}}$$

$$= \frac{57130 - 52997.5}{\sqrt{4795} \cdot \sqrt{8902.75}} = \frac{4132.5}{6533.65795} \dots r = 0.632$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{215}{20} = 10.75$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{246.5}{20} = 12.33$$

APPENDIX III (14)

14. Marks obtained by the male students of rural area schools

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	xy
1	Parbin Bastakoti	9	8	81	64	72
2	Suraj Mahato	7	12	49	144	84
3	Durga Gurung	13	11.5	169	132.25	149.5
4	Anuj Mahato	11	13.5	121	182.25	148.5
5	Amrit Timilsina	4	5	16	25	20
6	Babis Mahato	8	8.5	64	72.25	68
7	Uttam Poudel	14	15	196	225	210
8	Ramesh Chaudhary	9	9	81	81	81
9	Sujan Mahato	8	10.5	64	110.25	84
10	Rohit Mahato	6	6	36	36	36
11	Sagar Poudel	16	15	256	225	240
12	Uttam Dhakal	14	14.5	196	210.25	203
13	Sunil Ghale	12	18	144	324	216
14	Binod Bot	11	13	121	169	143
15	Sudip Dawadi	11	15.5	121	240.25	170.5
16	Ujwal Tiwari	12	14.5	144	210.25	174
17	Deepak Acharya	8	13	64	169	104
18	Keshav Pariyar	9	11	81	121	99
19	Jeetu Nepali	12	11	144	121	132
20	Sunil Mahato	17	13.5	289	182.25	229.5
	Sum	x X211	y X238	x ² X2437	y ² X3044	xy X2664

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{20 \cdot 2664 - 211 \cdot 238}{\sqrt{20 \cdot 2437 - 211^2} \cdot \sqrt{20 \cdot 3044 - 238^2}}$$

$$= \frac{53280 - 50218}{\sqrt{4219} \cdot \sqrt{4236}} = \frac{3062}{4227.49145} \dots r = 0.724$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{211}{20} = 10.55$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{238}{20} = 11.90$$

APPENDIX III (15)

15. Marks obtained by the female students of all four schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x^2	y^2	Xy
1	Barsha Sharma	15	16.5	225	272.25	247.5
2	Sujata Poudel	11	14.5	121	210.25	159.5
3	Sima Sapkota	12	15.5	144	240.25	186
4	Muna Sapkota	14	16	196	256	224
5	Samikahya Khanal	13	17	169	289	221
6	Sushmita Saha	16	16	256	256	256
7	Richa Acharya	12	14.5	144	210.25	174
8	Richa Baral	11	18	121	324	198
9	Purnima Gurung	14	17	196	289	238
10	Sonale Pradhan	11	14	121	196	154
11	Soniya Khatun	8	13.5	64	182.25	108
12	Bina B.C	7	10.5	49	110.25	73.5
13	Sarmila G.C	6	8.5	36	72.25	51
14	Kusum Pandey	9	11	81	121	99
15	Sapana Basram	8	7	64	49	56
16	Sophiya Kumal	8	7.5	64	56.25	60
17	Kabita Giri	7	5	49	25	35
18	Sushila Lama	9	7.5	81	56.25	67.5
19	Samjhana B.K	14	8.5	196	72.25	119
20	Chandra maya Giri	11	6	121	36	66
21	Roshani Mahato	7	10	49	100	70
22	Ashu Adhikari	14	15.5	196	240.25	217
23	Ruma Chaudhary	12	11.5	144	132.25	138
24	Sirjana Poudel	12	10	144	100	120
25	Jyoti Subedi	10	14	100	196	140
26	Ritika Mahato	10	9.5	100	90.25	95
27	Jeni Mahato	11	5.5	121	30.25	60.5
28	Laxmi Thapa	7	8.5	49	72.25	59.5
29	Shanti Bhujel	6	5.5	36	30.25	33
30	Nisha Pandey	8	15.5	64	240.25	124
31	Kabita Sapkota	15	18	225	324	270
32	Pabitra Dawadi	15	16	225	256	240
33	Alisha Mahato	11	11	121	121	121
34	Muna Chalise	12	12	144	144	144
35	Gaumaya Magar	8	12	64	144	96
36	Pooja Adhikari	7	14	49	196	98
37	Sadhana Bhushal	12	11	144	121	132
38	Vidya Mahato	10	12.5	100	156.25	125
39	Bhagawati Kshetri	6	4.5	36	20.25	27
40	Uma Mahato	15	10	225	100	150
	Sum	$x \times 424$	$y \times 470.5$	$x^2 \times 4834$	$y^2 \times 6137.8$	$xy \times 5253$

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{40 \times 5253 - 424 \times 470.5}{\sqrt{40 \times 4834 - 424^2} \cdot \sqrt{40 \times 6137.8 - 470^2}}$$

$$= \frac{210120 - 199492}{\sqrt{13584} \cdot \sqrt{24139.75}} = \frac{10628}{18108.41} \quad \therefore r = 0.587$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} \quad \bar{x} = \frac{424}{40} \quad \bar{x} = 10.60$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} \quad \bar{y} = \frac{470.5}{40} \quad \bar{y} = 11.76$$

APPENDIX III (16)

16. Marks obtained by the female students of private schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	xy
1	Barsha Sharma	15	16.5	225	272.25	247.5
2	Sujata Poudel	11	14.5	121	210.25	159.5
3	Sima Sapkota	12	15.5	144	240.25	186
4	Muna Sapkota	14	16	196	256	224
5	Samikahya Khanal	13	17	169	289	221
6	Sushmita Saha	16	16	256	256	256
7	Richa Acharya	12	14.5	144	210.25	174
8	Richa Baral	11	18	121	324	198
9	Purnima Gurung	14	17	196	289	238
10	Sonale Pradhan	11	14	121	196	154
11	Roshani Mahato	7	10	49	100	70
12	Ashu Adhikari	14	15.5	196	240.25	217
13	Ruma Chaudhary	12	11.5	144	132.25	138
14	Sirjana Poudel	12	10	144	100	120
15	Jyoti Subedi	10	14	100	196	140
16	Ritika Mahato	10	9.5	100	90.25	95
17	Jeni Mahato	11	5.5	121	30.25	60.5
18	Laxmi Thapa	7	8.5	49	72.25	59.5
19	Shanti Bhujel	6	5.5	36	30.25	33
20	Nisha Pandey	8	15.5	64	240.25	124
	Sum	x X 226	y X 264.5	x ² X 2696	y ² X 3774.8	xy X 3115

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{20 \times 3115 - 226 \times 264.5}{\sqrt{20 \times 2696 - 226^2} \cdot \sqrt{20 \times 3774.8 - 264.5^2}}$$

$$= \frac{62300 - Z 59777}{\sqrt{2844} \cdot \sqrt{5534}} = \frac{10628}{18108.41} \quad \dots r = 0.636$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{226}{20} = 11.30$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{264.5}{20} = 13.30$$

APPENDIX III (17)

17. Marks obtained by the female students of public schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Soniya Khatun	8	13.5	64	182.25	108
2	Bina B.C	7	10.5	49	110.25	73.5
3	Sarmila G.C	6	8.5	36	72.25	51
4	Kusum Pandey	9	11	81	121	99
5	Sapana Basram	8	7	64	49	56
6	Sophiya Kumal	8	7.5	64	56.25	60
7	Kabita Giri	7	5	49	25	35
8	Sushila Lama	9	7.5	81	56.25	67.5
9	Samjhana B.K	14	8.5	196	72.25	119
10	Chandra maya Giri	11	6	121	36	66
11	Kabita Sapkota	15	18	225	324	270
12	Pabitra Dawadi	15	16	225	256	240
13	Alisha Mahato	11	11	121	121	121
14	Muna Chalise	12	12	144	144	144
15	Gaumaya Magar	8	12	64	144	96
16	Pooja Adhikari	7	14	49	196	98
17	Sadhana Bhushal	12	11	144	121	132
18	Vidya Mahato	10	12.5	100	156.25	125
19	Bhagawati Kshetri	6	4.5	36	20.25	27
20	Uma Mahato	15	10	225	100	150
	Sum	x X198	y X206	x ² X2138	y ² X2363	xy X2138

Using the Carl Pearson's formula:

$$r = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{\sqrt{n \cdot \sum x^2 - (\sum x)^2} \cdot \sqrt{n \cdot \sum y^2 - (\sum y)^2}} = \frac{20 \cdot 2138 - 198 \cdot 206}{\sqrt{20 \cdot 2138 - 198^2} \cdot \sqrt{20 \cdot 2363 - 206^2}}$$

$$= \frac{42760 - 40788}{\sqrt{3556} \cdot \sqrt{4824}} = \frac{1972}{4141.75615} = \dots r = 0.476$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{198}{20} = 9.90$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{206}{20} = 10.30$$

APPENDIX III (18)

18. Marks obtained by the female students of urban area schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Barsha Sharma	15	16.5	225	272.25	247.5
2	Sujata Poudel	11	14.5	121	210.25	159.5
3	Sima Sapkota	12	15.5	144	240.25	186
4	Muna Sapkota	14	16	196	256	224
5	Samikahya Khanal	13	17	169	289	221
6	Sushmita Saha	16	16	256	256	256
7	Richa Acharya	12	14.5	144	210.25	174
8	Richa Baral	11	18	121	324	198
9	Purnima Gurung	14	17	196	289	238
10	Sonale Pradhan	11	14	121	196	154
11	Soniya Khatun	8	13.5	64	182.25	108
12	Bina B.C	7	10.5	49	110.25	73.5
13	Sarmila G.C	6	8.5	36	72.25	51
14	Kusum Pandey	9	11	81	121	99
15	Sapana Basram	8	7	64	49	56
16	Sophiya Kumal	8	7.5	64	56.25	60
17	Kabita Giri	7	5	49	25	35
18	Sushila Lama	9	7.5	81	56.25	67.5
19	Samjhana B.K	14	8.5	196	72.25	119
20	Chandra maya Giri	11	6	121	36	66
	Sum	x X216	y X244	x ² X2498	y ² X3323.5	xy X2793

Using the Carl Pearson's formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}} = \frac{20 \times 2793 - 216 \times 244}{\sqrt{20 \times 2498 - 216^2} \sqrt{20 \times 3323.5 - 244^2}}$$

$$= \frac{55860 - 52704}{\sqrt{3304} \sqrt{6934}} = \frac{3156}{4786.43249} = \dots r = 0.569$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{216}{20} = 10.80$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{244}{20} = 12.20$$

APPENDIX III (19)

19. Marks obtained by the female students of rural area schools:

S.N	Name of Student	MoG (X)	MoR (Y)	x ²	y ²	Xy
1	Roshani Mahato	7	10	49	100	70
2	Ashu Adhikari	14	15.5	196	240.25	217
3	Ruma Chaudhary	12	11.5	144	132.25	138
4	Sirjana Poudel	12	10	144	100	120
5	Jyoti Subedi	10	14	100	196	140
6	Ritika Mahato	10	9.5	100	90.25	95
7	Jeni Mahato	11	5.5	121	30.25	60.5
8	Laxmi Thapa	7	8.5	49	72.25	59.5
9	Shanti Bhujel	6	5.5	36	30.25	33
10	Nisha Pandey	8	15.5	64	240.25	124
11	Kabita Sapkota	15	18	225	324	270
12	Pabitra Dawadi	15	16	225	256	240
13	Alisha Mahato	11	11	121	121	121
14	Muna Chalise	12	12	144	144	144
15	Gaumaya Magar	8	12	64	144	96
16	Pooja Adhikari	7	14	49	196	98
17	Sadhana Bhushal	12	11	144	121	132
18	Vidya Mahato	10	12.5	100	156.25	125
19	Bhagawati Kshetri	6	4.5	36	20.25	27
20	Uma Mahato	15	10	225	100	150
	Sum	x X208	y X226.5	x ² X2336	y ² X2814.3	xy X2460

Using the Carl Pearson's formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2} \sqrt{n \sum y^2 - (\sum y)^2}} = \frac{20 \times 2460 - 208 \times 226.5}{\sqrt{20 \times 2336 - 208^2} \sqrt{20 \times 2814.3 - 226.5^2}}$$

$$= \frac{49200 - 47112}{\sqrt{3456} \sqrt{4982.75}} = \frac{2088}{4149.74505} \dots r = 0.503$$

Mean score of the students in grammar test

$$\bar{x} = \frac{\sum x}{n} = \frac{208}{20} = 10.40$$

Mean score of the students in reading test

$$\bar{y} = \frac{\sum y}{n} = \frac{226.5}{20} = 11.33$$