CHAPTER - I

1. Introduction

Education is for all. It is a natural, progressive and Systematic development of all powers, which consists of giving to the body and soul all the perfection of which are susceptible. It is also defined as the complete development of individuality so that he can make an original contribution to human life according to his best capacity. Education makes a personal advancement and improvement. So, every one needs to learn it. It is must needed for all caste and ethnic groups

No subject has a utility in itself, but every subject has a bearing on life. If a particular subject is able to help the life, it is important. The problems and the difficulties of life are solved through the knowledge of different subjects. So mathematics is also one subject which helps directly to solve the daily life problems. It helps in business, farming, household work, industry etc. We, while solving several problems of life, take help from mathematics. The teacher of mathematics should try to correlate the subject matter of mathematics with the problems of daily life. Such a correlation would help the students to keep their interest a live in the subject matter. The students shall be able to realize the knowledge of mathematics is helpful for their future life "mathematics has been interpreted and explained in various ways. It is the numerical and calculation part of man's life and knowledge. It explains that science is a by product of our empirical knowledge. It is also defined as the science of abstract form.

Understanding of mathematics for different level of students from different cast of students is very essential for everyday life as well as for higher studies. It is needed in the field of science and applied science also. It helps the students to understand and interpret the very important quantitative as well as qualitative aspect of living. It means that mathematics is an inseparable subject for human life. It has been developed through out the human civilization. Today mathematics is used in every

activity of mankind, So it has more significant to human life that no one can be away from it's use.

In our country, the school level education is considered as the foundation for the further studies. This education structure is falls under the formal Education. This level is divided in to four levels. They are primary level, lower secondary level, secondary level and higher secondary level. Mathematics is made one of the compulsory subjects in the former three levels but not so in higher level. If we overview the school mathematics curriculum, we can find the inclusion of the different topics or units in the horizontal and vertical arrangement of the learning items in different classes. Mathematics contents in lower secondary classes divide into three major headings viz. Arithmetic, Algebra and Geometry.

In our context, students from different caste and having different mother tongue, are reading together through same materials, methods and teacher at same class. Similarly, in the lower secondary level, mixed caste students are learning mathematics as well as other subjects. The overall attitude of the students who are from Jalari (pore) community is tried to study here. The attitude of Jalari students towards mathematics and their teachers at lower secondary level is focused in the study.

1.1 Background of the Study

Mathematics is an art, which is an inseparable subject from human civilization. It is defined as an organized body of knowledge in which proposition follows as a logical consequence of proved proposition or assumptions. Such mathematical structure is characterized by undefined terms assumptions and rules of logic. The term "Mathematics" has been derived from an ancient Greek Word "Mathematicia" inclined to learn. "Benjamin pierce one of the best of the American trained Mathematician said that mathematics is the science which draws necessary conclusions." Etymologically Mathematics is derived from two Greek words Manthanin means learning and Techne means art. So Mathematic is the art of learning. This etymological meaning of mathematics even signifies that mathematics

is the key to all sciences. Realizing the importance of mathematics, it has been accepted as a fundamental component of formal education from ancient period to the present day all over the world. It is essential for every day life as well for higher study in the field of science and technology. Today, mathematics is used in every activity related to the mankind mathematics is so such, Significant to human life that no one can be away from its used. The importance of mathematics has been accepted since the beginning of school education system mathematics is taught formally or informally.

Mathematics has played a very important role in building up modern civilization by perfecting all sciences. Even though, people have only vague, idea that all progress made by man in the result of scientific progress, they are strongly in favour of scientific and industrial education. This emphasis is confirmed to science such as physics, chemistry, biology, medicine and engineering. Mathematics, which is a science by any criterion and which rightfully belong this group, has not been accepted and emphasized as a science. It is an efficient and necessary tool which is employed by all these sciences and without which these sciences would not have made much progress. It has been very properly said about mathematics, "it is a science of all sciences and art of all arts." It is the pivot of the sciences and arts. (Sidhu, K.B., P. 27)

The world of today demands more mathematical knowledge on the part of more people than the world of yesterday and the world of tomorrow will make still greater demands. Our society learns more and more heavily on science and technology. The number of our citizens skilled in the mathematics must be greatly increased and understanding the role of mathematics in our society is a pre requisite for intelligent citizenship. It is important that mathematics be so taught that students will be able in later life to learn the new mathematical skills which the future will surely demand of many of them. Focusing on the importance of mathematics a report of UNESCO describes "Mathematics is one of the principle disciplines to have determined the evolution and accelerated development of the technology." For this reason science

places primary emphasis of the development of mathematical theory and an improving it's effectiveness when applied to practical ends. Dealing with this problems requires that due emphasis in mathematics studies be placed on the exposition of mathematics studies be placed on the exposition of mathematical ideas, concepts and methods with their application to real life situation." (UNESCO 1986, P. 27).

"Mathematics is around us. So are the opportunities to make mathematics come a live for our children? We should work with children to be sure that they develop a comfortable relationship with numbers. This involves the child not only acquiring basic mathematics skills, but even more importantly, understanding how to use them" (Junes 1988). Jones is entirely optimistic towards mathematics and believes that mathematics is the only way to have greater success in the life. Therefore, the situation for children to learning mathematics should be life like. The children should take mathematics comfortably to acquire the basic skills and later should be able to use them in the necessary context. This logic again revels the necessity of mathematics to some extent. From the evidence of the origin of mathematics through human efforts concerning to need and the application of mathematics at present. We conclude that mathematics is the essential part of human civilization.

History tells us that all civilizations have always striven, towards the development of mathematics. Whatever its sources, mathematics has comedown to present by two main stems of numbers and from. The first developed along with arithmetic and algebra and the second along with geometry (Bell, 1978). The concept of numbers and the process of counting developed so long before the time of recorded history that the manner of this development is largely conjectural. It is not difficult thought to imagine how it probably came about. It seems fair to argue that humans even in most primitive times had some number sense at least to the extent of recognizing more or less when some objects were added to or taken from a small group for studies have

shown that some animals posses such a sense with the gradual evolution of society. Simple counting becomes imperative.

Historical literature shows that mathematics originated from practical experiences. It was used on building bricks, house, gutters bridges, temples pyramids, different handicrafts and planned cities etc. from the evidence of Babylonia and Egypt Civilization at about 3000 B.C. to 260 A.D. It supported to live a highly organized life. But Hindu mathematics of Mohanjo- Dara and Harapa civilization were the most ancient, strong and advanced than the other civilizations of the world. But it has not evidenced to be proved because there was weak recording system. In statement they are far in advance of any other people of that period, which have helped to make up the modern civilization. Here we can find that beginning of the science of mathematics (Arithmetic, Algebra, Geometry and Astronomy). According to the evidence of the historical records, it shows that mathematics has been developed on social philosophy since the advent of human civilization. Therefore field of mathematics is accepted as the heritage of human civilization. Thus the history of mathematics can be equated with the history of human civilization because history of mathematics proves that the mathematical civilization is developed together with human civilization. The mathematics for their daily life so that they creatively thought do develop mathematical civilization also. The mathematical civilization and mathematical thinking are developed about 3000 B.C. to the present time, which is the most important and essential for human life. (An introduction to the History of mathematics).

Every society in the world has given due importance to mathematics in the school education. Nepal is not detached from this mainstream of felt needs of mathematics. The significance of mathematics has been accepted since the beginning of school education system in Nepal. The National Education system plan (NESP-2028) as well as other plans or commissions have realized that a well grounded understanding of mathematics is an essential for everyday life and for higher study in the field of

science and technology. So in the implementation of NESP- 2028 BS. Mathematics has been given a significant place at all levels of school education. Mathematics curriculum (NESP 2028 BS) states the importance of mathematics in the following words.

> "Mathematics like language is a basic tool of communication. Daily translation and communication involves the frequent use of mathematics concepts. Thus, it is quite natural that mathematics be given a very important place, second to language, in school education".

To provide the students with necessary foundation of mathematics textbook is a necessary reading and practice mathematical to the students textbook clarifies mathematical ideas and concept offers stimulating content and helps students for intelligent participation in their self- study and problem solving.

1.1.1 The History of Mathematics Education in Nepal

Mathematics has been given a priority in school level curriculum around the world including Nepal. In Nepal, the history of mathematics shows that mathematics in its modern sense is influenced by India and British Education system, even though mathematics was taught during the Vedic era. The formal education of Nepal was started from Durbar school in Ashwin 27, 1910 B.S. established by Janga Bahadur Rana. Before the establishment of Durbar School mathematics had not been any particular formal curriculum, but there might have so many mathematics practitioners. We see those mathematical features were used in many aspects of human behavior and social function. There was not any specific course at national level in both ancient and medieval period. During the Rana period after the establishment of Durbar school, mathematics had taught in school followed by Indian curriculum prescribed by the colonial British Government. This school was at first opened especially for royal family only. At that time, Basic Arithmetic at lower level, Algebra and Geometry at upper level were taught.

The informal education system in Nepal was started about "Vedic Period" from 1200 BC to 1000 BC. During that period four Vidas like Riga, Yjur, Sama and Ather were taught. Which were composed by the Hindus? At that time Rigveda that treats mathematics and "Gurukul" was the educational system of the Vedic era. During this period, they studied ganita for mathematics consisting of Jyotisha for Astronomy, Kalpanasutra for different groups of science and Ksetra- Ganita for geometry But in Nepal, after many years later the formal and organized modern education system was started. According to historical records, it was started in 1853 A.D. by establishing the British type of school. "Gol Baithak" The place of Thapathali for only families of Rana Rular Janga Bahadur by appointing European and Indian teachers. During that period the school introduced some subjects including mathematics. After few years, similar type of lower secondary school was established in place of "Hanuman Dhoka" for Royal families and including subjects like, mathematics, literature (Gadhya, Padhya), writing and also other books. After death of Janga Bahadur "Golbaithak" school transferred into present Darbar high school and it was opened for the study to other Rana's family also. Then the curriculum designed in favour of Calcutta University Later Rana Prime Minister Dev Shamser was opened to free study for public also in 1901 A.D. and free distribution of teaching and learning materials for them. After the establishment of S.L.C Board in 1934 A.D. the secondary level course was systematized at first included 8 subjects with 800 full marks. There included 100 marks of compulsory mathematics and 100 marks of optional mathematics also. During this period basic education of vocational training was started in 1947. This program gave important place of mathematics curriculum. This curriculum of lower secondary level was designed. But in its true sense regular basis of mathematics education started only after the dawn of democracy in 1951 A.D. and college of education was also established in 1956 A.D. It played a important role to bring improvement in mathematics teaching. The teacher, educator workshop revised the course of study and method of teaching mathematics at the primary level in 1961 AD. In 1963 Mathematics course was again revised in order to make relevant to the school mathematics program and it implements in our country in 1964.

The higher education of mathematics in Nepal was started from Tri-Chandra College. At that time, there were two faculties namely Humanities and Social Sciences, Science and Technology in which mathematics was included at intermediate or pre-bachelor level. A mathematics class at bachelor level was started in 1932 A.D. (Humanities) and 1942 A.D. (Science) respectively at the same college.

In our country there are comments that school subjects including mathematics were not taught meaningfully and systematically before the rise of democracy 2007 B.S. There was few schools and curriculum was not made. The books written by foreign writers were taught optionally. After the rise of democracy the number of school increased rapidly in the initial years various publishers came into being and played an active role to remove the shortage of textbooks. By 2028 books were first printed and then used as text books after being approved by the government. The establishment of the college of education in 2013 B.S, creation and publication of textbooks were taken in hand in 2014 B.S. since the setting up of T.U. steps had to be taken to produce text books for higher education. The Nepal National Education Planning Commission (NNEPC) was established in 1914 to create an education system. The plan proposed by the NNEPC was to "advice a uniform pattern of education for the country." It had included mathematics education as an important subject. The All Round National Education Committee (ARNEC) developed a second education plan 1961 A.D. (2018). The conclusion of the plan was "There is lack of education opportunities for all section of the people and the prevailing education system was completely unrelated to the objectives of the national development plan (Sharma, 1982).

The National Education system plan (NESP 1971- 76 (2028 B.S.) as well as other education commissions has realized that a well- grounded understanding in mathematics is essential in every life as well as for higher studies in the field of science and technology. So the NESP stated about the need and important of mathematics in school curriculum as:

"A well ground understanding of mathematics is essential for every day life as well as for higher studies in the field of science and technology. Mathematics like language is a basic of communications, involve the frequent use of mathematical concept."

A NESP (2028 B.S.) gave a new model to the education system of the country. This plan determined the national wise, level wise, class wise and subject wise objectives. In order to achieve the goals, text books in Nepali Language, teachers guide, teaching materials etc are prepared. Similarly, curriculum implementation plan 2038B.S. improved curriculum of 2028 B.S. as well as text books.

Significant changes in the field of education have taken place in Nepal with introduction of multiparty democracy in 2047 B.S. The National Education Commission (2049) recommended that the school curriculum should be revised in the context of recent political change and needs of the context of recent political change and needs of the society to meet the demands of the modern time. Several other programmes such as teacher training, training of the school Headmaster and formative researchers for the improvement of the education system have been conducted. As per the recommendations of NESP mathematics was given the significant place in the school curriculum of Nepal, out of the total time for instruction of the school 30% was allotted for mathematics in the primary level, 20% was allotted in the lower secondary level and 12% was allotted for the compulsory mathematics in the secondary level. Pass mark of mathematics was determined 32% of the total value of mathematics. After the reformation in curriculum as suggested by National Education Commission 2049 B.S., 18% time was allotted for mathematics in the primary level 15% in the lower secondary level and 12% in the secondary level.

Almost all research findings have shown that we can not identify a unique determinate of pupil's achievement but it is widely accepted that there may be many factors that are related to mathematics achievement. Some factors of variables such as students gender, age, parents education, status of parents, location of school, prior knowledge, motivation, home environment, teacher's academic qualification, teachers

teaching experiences, availability of learning materials medium of instruction, class size socio-economic level of community absence or irregularity of teachers, low class attendance of students, attitude toward mathematics etc that effects mathematics achievement are manipulative in Nepal. But very few studies have been done regarding the impact of low caste student's attitude in Mathematics. However the attitude toward Mathematics from the Jalari Students and their teacher's at lower secondary level of Kaski district is not still studied. So the researcher himself motivated to study about the mathematics attitude from Jalari students and their teachers at lower secondary level.

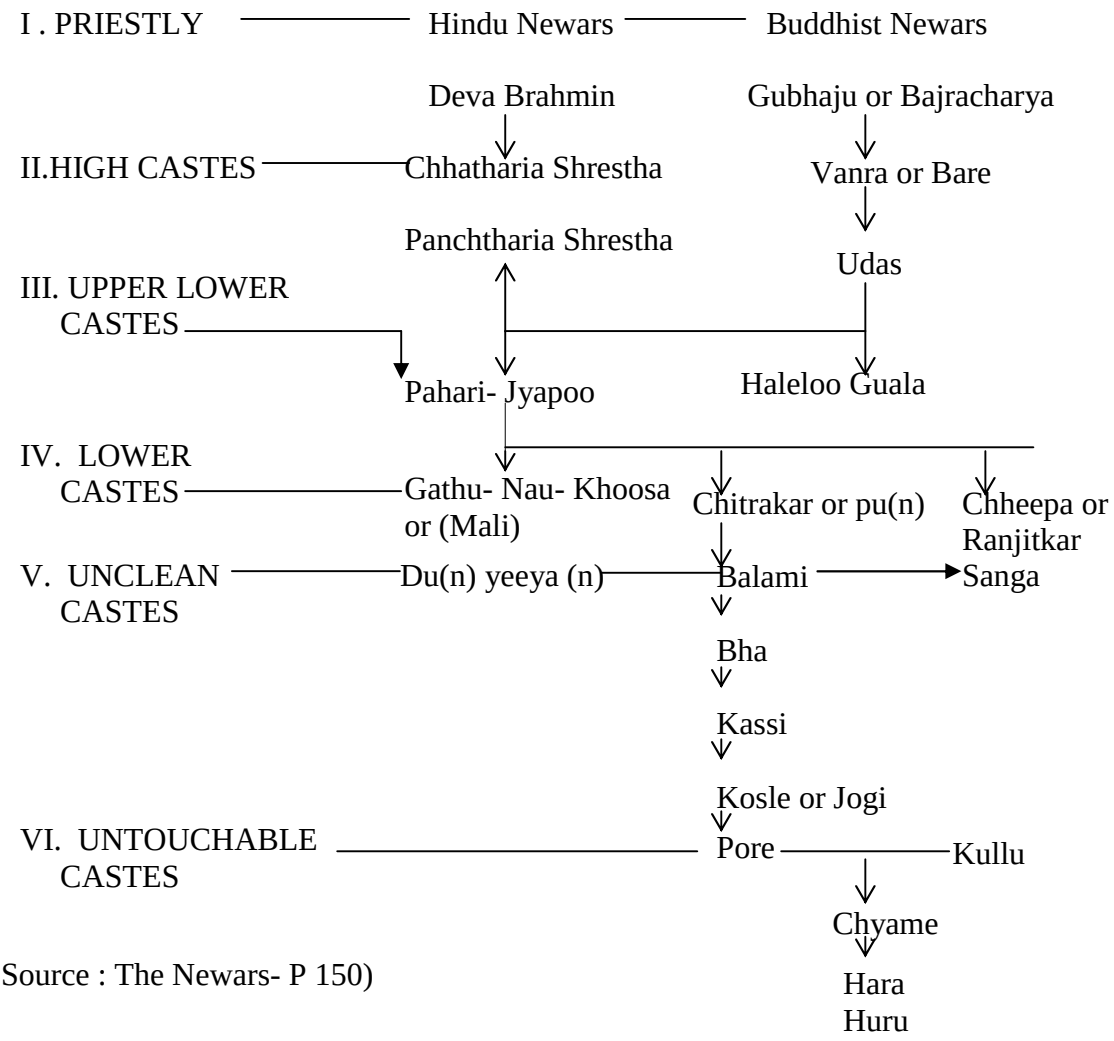
1.1.2 Understanding Caste Pore (Jalari)

Caste is the principal basis of social hierarchy among the Newars. Irrespective of whether an individual is the follower of Buddhism (Buddha-Margi) or Hinduism (Siva- Margi), he must be born into his caste. Caste cuts across religion and brings both the religious sections of the Newars under one single scheme of hierarchy. In theory the Newar caste organization is based on the same Hindu principle which stipulates the five-fold division of society headed by the Brahmin and to be followed in order by the Kshatriya, the vaisya, the Sudra and the untouchable. It represents the former. Hindu society of Kathmandu valley , which has become modified through the historical process covering a span of several centuries.

The following scheme of caste hierarchy is generally accepted in the valley or Kathmandu. However it may be remarked that from the view point of a particular caste, it may be disputed.

The reasons for the present gradation are imply given while dealing subsequently with the ethnographic descriptions of the various cast.

NEWAR CASTE HIERARCHY



Source : The Newars- P 150)

Pore (Pode) are the keepers of the temples of Tantric deities in addition to being sweepers. Kulu, Pore, Chame and Hara, Huru are considered the lowest of the Newar caste hierarchy. The Pore (public executioner and skinner) comes in to contact with others as the seller of Basket and fish. Fishing is one of his main occupations. In Kirtipur, when an animal is sacrificed to goddess Indrani, he has to be given 360 pieces of its meat as share before any body else could have a share.

Pore (Jalari) is the low untouchable caste originated by the Newar, it is the failing and backward cast of Newar, which shows by above hierarchs. The term 'pore' is derived from the hereditary calling of public executioner. The principal occupation of the pore are fishing, basket making and skinning of dead animals. Anyway, pore belongs to

Newar out caste and is not allowed to have their dwelling places with in the village boundaries. So they become far from their original Newari community and remain near the bank of river, steam lake, pond etc. in the process of searching food and settlement. Of this untouchable caste none has, however any special ritual relationship with the high caste Newars.

The pore, whose main residence at the bank of Fewa lake are found in more than 90 families. According to them other at few numbers are in Begnas tal of Kaski district. They do not have any information about their origin place and they are remain in the bank of water source, near Jungle in the process of traveling and hunting of fish. They use to speak Newari language. At past, they had not participated in Education. But now days, the poor (Jalari) children are started to learn. They are studying from Primary level to higher level due to the awareness of their parents towards the education. However, they still in backward in the field of Education while comparing to others.

The main occupation of this cast is fishing in the Fewa tal and Begnas tal. They have kept their own cage also. They sell fish in the market. So the income source of pore is fishing. They are satisfied from their occupation and can manage their daily needs like food, medicine, shelter, cloth, education etc. They have improved their economic condition also. So they have sent their child in private school as well as public schools and have made permanent settlement. They have opened their organization named" Fewa fishing committee, Suiated at Khapudi.

In the era of science and technology, the pore is still limited in number and backward in education as well as other sector. They are in the beginning stage of education because of no one is involved from their caste in higher post of state as well as in education sector. So the researcher realizes that there must more important to know about the attitude of Jalari students and their teacher toward mathematics at lower secondary level. What is the attitude of Jalari students towards mathematics? What is the achievement in mathematics? What is the attitude of Jalari student's teachers

towards mathematics? etc question are raised. To find the solution of these questions, there must do field work. So researcher decides to study about attitude of Jalari students and their teachers at lower secondary level.

1.2 Statement of the Problems

Among various caste, Jalari students from untouchable caste have involved at lower secondary level education. They are reading with other students through same text books, curriculum, same total teaching periods, same evaluation system by the same teacher. Even though attitude in mathematics of pore (Jalari) students and their teachers towards mathematics at lower secondary level is not studied up to now. This study was mainly concern with the Jalari students attitude and their teacher attitude in mathematics education at lower secondary level. This study was centralized to find the answer of the following questions:

a. What is the attitude of Jalari students toward mathematics at lower secondary level?
b. Does talent Jalari student has positive attitude in mathematics?
c. Do the attitude of boys and girls Jalari students toward mathematics is significantly different?
d. What is the attitude of Jalari students' teachers toward mathematics at lower secondary level ?
e. Do the attitude of Jalari students and their teachers' toward mathematics is different?
f. Does Jalari students' attitude towards mathematics is related with their mathematics achievement?

In order to answer these questions the study will be formally stated as: "A STUDY OF ATTITUDES OF JALARI STUDENTS AND THEIR TEACHERS TOWARDS MATHEMATICS IN LOWER SECONDARY LEVEL AT KASKI DISTRICT."

1.3 Significance of the Study

Mathematics is a compulsory subject at lower secondary level having same curriculum, similar evaluation system and same text books. But different castes students are reading together at same class. So their attitude towards mathematics will

be different. Among them, only Jalari students attitude and their teachers in mathematics at lower secondary level is focused here. So the study has following implication.

i. It would provide necessary information about attitude of Jalari students and their teachers toward mathematics at lower secondary level.
ii. The study would help to know the attitude on mathematics.
iii. The study would help to improve teaching learning situation in the context of negative attitude towards mathematics of lower secondary level.
iv. It would help the teacher to provide the positive attitudes in Mathematics to the students.
v. The study would useful for the people working in the field of education like teachers, curriculum designers, students, experts, policy maker, parents and social worker, related to the field of education.

1.4 Objectives of the Study

Every programme, that shall be conducted, most have some goals and aims. With out aims and goals, the expectation desire will not achieve. To fulfill the required achievement and expectation, the researcher must prepare objectives. So the researcher will keep the following objectives to complete the study for getting expected results.

i. To determine the attitude of Jalari students toward mathematics at lower secondary level.
ii. To compare boys and girls attitude toward mathematics at lower secondary level.
iii. To find the Jalari students' teachers attitudes towards mathematics at lower secondary level.
iv. To compare the attitude of Jalari students' and their teachers towards mathematics at lower secondary level.
v. To find the relationship between attitude and achievement of Jalari students.

1.5 Statement of the Hypothesis

1.5.1 Research Hypothesis

i. There is no positive attitude of Jalari students toward mathematics.

ii. There is no significant different between attitudes of boys and girls toward mathematics of lower secondary level.

iii. There is no significant difference between attitude of Jalari students and their teachers' towards mathematics of lower secondary level.

iv. There is no significant difference relationship between Jalari students attitude and achievement in mathematics.

1.5.2 Statistical Hypothesis

i. $H_0: \mu_1 = \mu_2$ (Null Hypothesis)

$H_1: \mu_1 \neq \mu_2$ (Alternative Hypothesis)

Where, μ_1 and μ_2 are the corresponding parametric means of attitudes between boys and girls toward mathematics at lower secondary level.

ii. $H_0: \mu_3 = \mu_4$ (Null Hypothesis)

$H_3: \mu_3 \neq \mu_4$ (Alternative Hypothesis)

Where μ_3 and μ_4 are the corresponding parametric means of the attitude score of Jalari students' and their teachers'.

iii. $H_0: \rho = 0$ (Null Hypothesis)

$H_1: \rho \neq 0$ (Alternative Hypothesis)

Where, ρ is coefficient of correlation between attitudes and achievement of Jalari students in mathematics.

1.6 Delimitation of the Study

i. This study was delimited to the lower secondary Jalari students of Kaski district.

ii. It was focused to public and private lower secondary students.

iii. Students studying at class 6,7 and 8 were considered as population for the study.

iv. Equal number of Jalari boys and girls was randomly selected by using lottery method from total population.

v. This study was based on the samples selected from the Jalari students of grade six, seven and eight.

vi. This study was conducted for the subject of the mathematics only.

vii. Students' socio-economic, cultural and family background, caste and, their relation affect some extent the students achievement. In this study, these extreme variables were not controlled.

1.7 Definition of the Terms

Correlation : Correlation in general means the way in which two or more variables are connected. But here it means the relation between the students achievement and attitude in mathematics.

Public schools: In this study, those schools, which are established and sponsored by Government of Nepal.

Private schools: In this study, those schools which are established and sponsored by individual.

Attitude : Attitude toward mathematics is defined as a general emotional disposition toward the school subject of mathematics. This is not to be confused with attitude toward the field of mathematics, toward one's ability to perform in the field of mathematics or toward some specific area with in mathematics (e.g. geometry word problems). Generally, a positive attitude toward mathematics (as well as any other subject) is valued for the following reasons.

i. A positive attitude is an important school out comes and of itself.

ii. An attitude is often positively, although slightly related to achievement.

iii. A positive attitude toward mathematics may increase one's tendency to select mathematics courses in high school and college and possibly one's tendency to select careers in mathematics or mathematics related field. (Upadhyay, Dr. H.P, New Trends in Mathematics Education, P- 287).

Achievement : Achievement is the intellectual capacity or gain in certain subject during course of study through formal or informal education. Here, it means

the academic scores of the children in mathematics i.e. the scores obtained by the students of selected schools in an annual Examination of the mathematics.

Students: In this thesis students mean Jalari boys and Jalari girls, who are studying at lower secondary level.

Teacher: Teachers are those, who teach mathematics subject at lower secondary level.

Jalari: Jalari is a type of caste originated by the Newar community. Jalari are also called pore. Now a days, pore is called Pode', but they don't want to say Pode and putting Jalari as their surname.

Mathematics: Mathematics refers the lower secondary level mathematics, which is compulsory to all students.

CHAPTER - II

REVIEW OF RELATED LITERATURE

There have been several extensive reviews of the research on attitude toward mathematics. The last review revealed that the preponderance of the research has concentrated on associations between mathematics attitude and the variables of achievement, intelligence, family background and participation in innovative programs, few studies have dealt with teacher and learning environment variables. (Dr. Upadhyay, H. P, New Trends in mathematics Education, (P-287). Although Here, certain factors achievement and sex are known to correlate to some extent with attitude.

The positive attitude makes the learner to learn more and more. Moreover attitude in mathematics (or other subjects) is influenced by the factors like achievement, home environment, family background, teacher quality, students motivation, sex, social-psychological class climate, management organization class climate, participation in innovative programs, parents view etc.

So the researcher wanted to find the attitude of Jalari students and their teachers toward mathematics at lower secondary level and also wanted to compare attitudes and achievement of Jalari students.

Tom Haladyna, Joan Shaughnessy and J. Michacl had studied on "A CAUSAL ANALYSIS OF ATTITUDE TOWARD MATHEMATICS." concluded that the teacher quality, the social psychological and management organization climates affect the students attitude and each of these has a lesser effect on motivation, which is viewed as a more complex out come and as more resident to change as a result of classroom practices. Mainly this study was limited to grade 4, grade7 and grade 9. At grade 9, attitude toward mathematics seemed to be most influenced by teacher quality and the social psychological dimension, indicating a shirt to social aspects of schooling in

relation to attitude and a consistent growth of teacher quality as a factor in attitude. At grade 7, attitude toward mathematics was moderately related to student motivation, as was the social psychological dimension. At grade 4, the general finding was that attitude toward mathematics was not significantly affected by any variable. Also suggested that attitude toward mathematics was least influenced by the social psychological climate of the classroom and more influenced by teacher quality and the management organization climate. The student motivation variable was moderately influenced by teacher quality and only slightly influenced by other measures.

In that experimental studies, there was direct control of subjects, and causal determination was made over 2000 students in grades 4, 7 and 9 were participated in the study. The sample was varied widely with respect to family mobility socio-economic status, television- viewing habits and school attendance. The sample did not vary much with respect to family background and only 10.4% to 14.3% were non write, depending on grade. The sample was drawn by using a stratified random sampling plan that controlled at each grade for size of district size of school, and region of a state. The intent was to sample widely school that represented urban and rural locales and various school environments.

Class attitude toward mathematics, the major dependent variable was examined in relationship to student motivation (SM), teacher quality (TQ), the social-psychological class climate (SP), and management- organization class climate (MO). To investigate the validity of this model to explain causal determinants of mathematics attitude the technique of path analysis was used. Statistically, ordinary least- squares regression analyses were used to explain causal determinants of mathematics attitude the technique of path analysis was used. Statistically, ordinary least- squares regression analyses were used to estimate path coefficient standardized regression or beta coefficient for the analysis of data of that study. To show the relation between two variables, correlation coefficient was used.

Haan (1961) states the attitudes of students and teachers on understanding of mathematics as "The large number of teachers on understanding of mathematics as:" The large number of teachers who desired or fear mathematics has become a factor in children's attitudes toward the subject. The effects of teacher's attitudes are wide spread. Like all other attitudes, dislike of mathematics is readily communicated to children directly or unconsciously" (P.201).

Pandit (1960) conducted a study entitled, "Attitudes of secondary school students and their parents towards mathematics and other subject" focused that the students demonstrated positive attitudes towards mathematics as subject of study at school level. Further more, the mean measure of boys attitudes toward mathematics as a school subject was greater then that of the girls.

Pandit (1999) on his master thesis entitled "A study of attitude of secondary level students and teachers towards geometry", there were four major objectives and he selected fifteen teachers and two-hundred twenty four students from Tanahun district, concluded that:

i. The students studying in secondary level had a positive attitude towards geometry.
ii. The teachers had negative attitude towards secondary level geometry.
iii. The secondary level boys had better attitude than that of girls attitude towards geometry.
iv. The mean attitude scores of students towards geometry were significantly greater than that of their teachers.

Tiwari (1984) conducted a study "A comparative study of boys and girls attitude towards mathematics" to achieve the following objectives.

- To find students attitudes toward mathematics.
- To compare boys and girls attitudes toward mathematics.
- To determine the relationship between parents and their children attitude towards mathematics.

- To determine the relationship between boys and girls attitudes towards mathematics and their achievement in their subject.

All ninth grade students of secondary schools and respective parents of the students were considered the population of the study. The student sample consisted of 245 ninth grade students of seven secondary school. 100 male students and 86 female students parents were included in the parents sample. Separately developed questionnaire were used for tools. The study found that boys tendency of learning mathematics was significantly higher than that of girls.

Rai (2004) in his study, 'Attitude of teachers and students towards secondary level mathematics and students' achievement in Dhankuta district". There were nine objectives and he selected 240 students and 20 teachers by stratified random sampling method. Three sets of questionnaire were developed as the tools for collecting data for the study, Such as (a) attitude scale of mathematics teachers (b) attitude scale of students (c) Achievement test items. The attitude of teachers and students providing five category rating scales were as (i) strongly agree (ii) agree (iii) undecided (iv) disagree (v) strongly disagree for each item arranged in the Likert format. The analysis was based on the responses of 240 students and 20 mathematics teacher. The ranking scores of these scales were 2, 1, 0, -1, -2 in the favour of strongly agree, agree, undecided, disagree and strongly disagree for positive statement respond. He concluded that:

(i) Secondary level trained mathematics teacher had positive attitude than untrained teacher.

(ii) The students taught by trained teachers had high achievement than the students taught by untrained teachers.

(iii) The attitude of the students taught by trained teachers was good. But comparatively the attitude among the students taught by trained and untrained teachers, were not found significantly differ.

(iv) Trained teachers had good attitude than their students and so had untrained teachers.

(v) Secondary level students taught by trained teachers had similar attitude and students taught by untrained teachers had also similar attitude.

(vi) The urban students had positive attitude than rural students.

(vii) The attitude of urban teachers was good. But comparatively the attitude among urban and rural teachers were not found significantly differ.

(viii) Secondary level students, who have positive attitude had more achievement than those students who have negative attitude towards mathematics.

(ix) Most of the teachers were awareness on their teaching job, but they were not seriously awareness to apply appropriate teaching methods.

Baral, Shree Ram (2005); "A study of orphan students attitudes toward mathematics and its relation with their achievement concluded that orphan students had the positive attitude towards mathematics. Orphan boys had better attitude than orphan girls, Orphan boys' achievement status was better than the orphan girls' in mathematics. There is significance relationship between orphan student's attitude and achievement in mathematics. He choose 102 grade eight orphan students (60 boys and 42 girls) from five SOS Hermann Gmeiner schools of Bhaktapur, Kaski, Kathmandu, Kavre and Sunsari district. He used percentage, mean, t-test and correlation coefficient to analysis the data.

A study on "Attitude of ninth grade students towards geometry and its relationship with their achievement of Morang district," was held by Bhattari (2001). He selected 100 students and he concluded that boys and girls had similar attitude but boys achieved more than girls. The significant relationship is existed between students' attitude status and achievement status towards geometry correlation coefficient was found to be 0.718 and correlation figure indicates the positive correction between attitude and achievement. Better attitude of students secured better achievement.

Panta (2004) in her study, "Attitude of secondary level students and teachers towards geometry transformation." She selected 25 mathematics teachers and 260 students from 72 secondary schools in Chitwan district and she concluded that: (i) There was a positive attitude of secondary level students and mathematics teachers. (ii) Though the mathematics teacher had positive attitude towards geometric transformation, there should be conducted refresher training programme in this topic (iii). There was no gender-wise difference in attitude among students (iv). Both boys and girls had significantly better attitude than teachers towards in this subject.

Kafle (2001) in his thesis entitled "A study on attitude of secondary level students and teachers towards compulsory mathematics curriculum concluded that students had positive attitude and teachers had negative attitude towards compulsory mathematics. Also he concluded that there was no gender wise difference attitude of students towards mathematics and mean attitude score of students and teachers had same towards mathematics curriculum.

Bhandari (2005) in his study. "A study on attitude of secondary level students and Teachers towards instructional materials in teaching mathematics in Lamjung District". Concluded that: (i) The students studying in secondary level had positive attitude towards instructional material.

i. The teachers had positive attitude towards instructional materials
ii. There was no significance difference between boys and girls attitudes towards instructional material.
iii. The mean attitude scores of students towards instruction material was significantly greater than that of their teachers.

Besides, above mentioned of all studies reported that the attitudes of students and teachers towards secondary mathematics, instructional material and comparative study of boys and girls attitude and achievement in mathematics. But the attitude of Jalari students and their teachers towards mathematics in lower secondary level at Kaski district and the comparison of attitude with achievement of Jalari students has not been conducted in Nepal yet. So, the researcher has attempted to study on this field, therefore, it will be useful for these people who have interested in this domain.

CHAPTER - III

METHODOLOGY

3.1 Introduction

Research methodology is the heart of the research proposal. It is a sequential procedure and methods to be adopted in systematic study.

The study was focus on the attitude of Jalari students and their teachers toward mathematics at lower secondary level. This study was descriptive as well as quantitative in nature. So, the study can be considered as a survey type.

3.2 Research Design

As this study intends to find the attitude of Jalari students toward mathematics at lower secondary level, the study follows the descriptive research procedure. This study attempts to analyze the primary data as well as secondary data. Hence as per nature of the study both descriptive and analytical design have been followed to meet the objectives of this study.

3.3 Population of the Study

The target population for the study was the lower secondary Jalari students of Kaski district. The population of this study was all the Jalari students studying in grade 6, 7 and 8 in the academic year 2067. The list of Jalari students schools of Kaski district are given below.

1. Shree Santa Secondary School, Bhakunde.
2. Shree Fewa Secondary Boarding English School, Lakeside.
3. Shree Tal Bahari Higher Secondary School, Baidam.
4. Shree Amar Shiddha Namuna Secondary School, Pachavaiya.

3.4 Sample of the Study

The sample of study was taken from the public/private lower secondary schools of Kaski district, where Jalari students are studying. Simple random sampling procedure was performed to select the students.

The total population of the Jalari students was 45. Among them 20 girls and 25 boys were found. By the lottery method, the researcher selected 30 Jalari students. Among them 15 girls and 15 boys were selected for the study. The sample was 66.67% of the total population. Also ten teachers, who teach Jalari students, were taken from the same school to gather attitudes of teachers to wards mathematics.

Table No. : 1

Number of Students

S.N	Name of schools	No of boys	No of girls	Total
1	Shree Santa Secondary School, Bhakundae	5	4	9
2	Shree Amar Shiddha Namuna Secondary School Pachavaiya.	5	6	11
3	Shree Fewa Secondary Boarding English School. Lakeside.	4	3	7
4	Shree Tal Bahari Higher Secondary School, Baidam.	1	2	3
	Total	15	15	30

*The name of selected students is given in Appendix (A).

Table No. : 2

Number of Teachers

S.N	Name of schools	Number of Teachers
1	Shree Santa Secondary School, Bhakundae	3
2	Shree Amar Shiddha Namuna Secondary School Pachavaiya.	2
3	Shree Fewa Secondary Boarding English School. Lakeside.	2
4	Shree Tal Bahari Higher Secondary School, Baidam.	3
	Total	10

* The name of selected teachers are given in Appendix (B).

3.5 Tools

Questionnaire form was developed for students and teachers to get required information about attitude toward mathematics. Questionnaire developed by George Levine (1971 A.D.) were used to gather students' attitude toward mathematics which has been already used in the context of Nepal by Tiwari Sukdeo on his master thesis (1984). Also same questionnaire were used by Baral Shree Ram on his master's thesis (2005). The set of questionnaire is given in Appendix (C).

Questionnaire developed by Rai Shamserman on his master thesis (2004), are used, to gather teachers attitudes towards mathematics. He used 34 positive statements to take the attitude of teachers. These same 34 positive statements are used here to gather the attitude of Jalari student's teachers towards mathematics. The set of questionnaire is given in Appendix (D). Both sets of questionnaire were approved by research supervisor of thesis.

The following are the reasons for choosing these questionnaires.

a. These students' questionnaire comprised different aspects of mathematics, i.e. attitude toward mathematics teaching, attitudes toward mathematics as a process, attitudes about the difficulty of learning mathematics and attitude toward the place of mathematics in society. Similarly teachers questionnaire comprised different area of teacher's attitude, which are mathematics curriculum and content, teaching method/pedagogy, as a mathematics teacher, creatively thinking about students, perspective creatively thinking about students, perspective on the teaching job and use of instructional materials.

b. These student's questionnaire originally was developed to measure the attitudes toward mathematics of thirteen to seventeen years old students which were best fitted to the population of the study.

c. The validity and reliability of these scales had already been tested so that directly same questionnaires are used to complete this study.

d. These questionnaires are used in this research after consulting and getting permission from the research supervisor.

Questionnaires are given in appendix (C and D).

3.6 Source of Data Collection

The data and information obtained from the questionnaire form was taken as primary source of data. The school records of the related students for the study consider as secondary source of data. Result records of each Jalari students were taken from school. The researcher visited each selected schools to collect data. After getting permission from headmaster of the school, the researcher requested to students and subject teacher to fill up the form.

3.6.1 Scoring Procedure

Weight age of 3, 2, 1 was assigned in the response of agree, disagree and Neutral respectively. This weight age procedure is called likert scale.

3.7 Data Collection Procedure

The purpose of the study is to find the attitudes of Jalari students and teachers toward mathematics at lower secondary level. To fulfill the required objectives of this study, primary as well as secondary data have been analyzed. To collect the both data, the researcher visited the schools, where Jalari students are studying of Kaski district. In this study mainly Fewa Tal and Begnas Tal Jalari are focused. The researcher met the headmaster and mathematics teachers of the respective school and requested for the research work. After getting permission from headmaster, Jalari students were selected with the help of class teacher and at the same time, the annual examination result of 2066 Chaitra was obtained from school record of related students. Before administering the attitude test, the researcher advised to fill up the students' bio-data from first and then he informed about the ways of respond to all items on each of the attitude scale. Then the questionnaires were administered to the students during their mathematics period. The time given to complete attitude scale was 45 minute. Similarly attitude scale on the mathematics teachers administered during the leisure period.

3.8 Data Analysis Procedure

For data analysis procedure percentage, mean, standard deviation, t-test and correlation co-efficient were applied. The descriptive method also was used for qualitative data.

For this study researcher has used questionnaire developed by George Levine (1971 A.D.). It has consisted 32 statements for obtaining the attitude of students. Similarly questionnaires used by Rai Shamserman on his master thesis (2004) for obtaining the attitude of teachers are used for this study. it has consisted 34 positive statements. Researcher quantified student attitude and teacher attitude by 3, 2, 1 in favour of agree, disagree and neutral response respectively, and analyzed the collected data by applying percentage, mean, standard deviation and two tailed t-test at 0.05 level of significant. Karl Pearson's product moment correlation coefficient was used to compute the correlation between Jalari students' attitude score and their achievement score.

CHAPTER - IV

ANALYSIS AND INTERPRETATION ON OF DATA

This chapter deals with the statistical analysis and interpretation of the data in order to help of the three sets of instruments. The data was collected from lower secondary level, Jalari students of grade 6, 7 and 8 and their teachers of Kaski district in the year 2066/ 2067. The first set was an attitude scale of students containing 32 statements from the four areas of student's attitudes towards mathematics such as views about teaching mathematics, attitude toward mathematics as a process, attitudes about difficulty of learning mathematics and attitudes towards the place of mathematics in society. The second set was an achievement score of students in the annual examination of the year 2066. The third set was also an attitude scale of mathematics teachers of lower secondary level, which contains 34 positive statements from the six areas of teacher's attitudes towards mathematics like as mathematics curriculum and content, teaching method/ pedagogy, as a mathematics teacher, Creativity thinking about students, perspective on the teaching job and use of instructional materials.

In order to present the analysis and interpretation systematically, this chapter has been divided in to following section.

a. Jalari students' attitudes toward mathematics.
b. Comparision of Jalari boys' and girls' attitudes toward mathematics.
c. Jalari students' teacher's attitudes towards mathematics at lower secondary level.
d. Comparison of Jalari students' attitude and their teachers' attitude toward mathematics.
e. Relationship between Jalari students' attitude and their achievement in mathematics.

4.1 Jalari Students' Attitudes Toward Mathematics

Attitudes numbers of students in percentages of each 32 items are shown in Appendix-E. Percentage of each item is found by applying following formula:

$$\text{Percentage of students} = \frac{No.\ of\ \ respondent}{total\ \ no.of\ \ respondent} \times 100$$

The statements from 1 to 32 are given in appendix C. With the help of appendix C and E. The attitude percentage of students' towards each item is described below.

1. For statement no. 1: 57 % students are in fovour of this statement. They agreed that their mathematics teacher like to pupils to ask questions after he has given an explanation.
2. For statement no. 2: 80% students are in favour of this statement. They agree that their mathematics teachers shows them different ways of solving the same problem. More students has supported this statement which shows that more teacher use different ways of solving the same problem.
3. For statement no 3 : 40% students are in favour of this statement. Other more students are in disfavour of the statement, which implies that their mathematics teacher wants pupils to solve problems only by the procedures he teaches.
4. For statement no 4: 80% students are in favour of this statement. They highly agreed that their mathematics teacher expects them to learn how to solve problems by themselves but helps when they have difficulties. Which shows that more students supported the positive attitude in teaching mathematics.
5. For Statement no. 5: 33% students are in favour of this statement. 50% students are in disfavour of the statement and other 17% students are in confusion. So more students had disagreed the statement, which implies the negative attitude toward it.
6. For statement no 6: 57% students are in favour of this statements they agree that their mathematics teacher requires the pupils not only to master the steps in solving problems but also to understand the reasoning involved.
7. For statement no. 7: 57% students have supported towards positive aspect. They agreed that their mathematics teacher encourages them to try to find several different methods for a solving a particular problem.
8. For statement no. 8: 40% students have agreed the statement. 47% disagreed and 13% remained in confusion. So more students viewed negative attitude towards this statement.
9. For statement no.9 : 53% students gave attitude in the favour of the statement. They agreed that Mathematics is subject of learning by doing. More than 50% students favour this statement.

10. For statement no. 10: 80% students are in favour of this statement. Most of the students have shown positive attitude towards it.
11. For statement no. 11: 73% students agreed that the most important reason for studying arithmetic in lower secondary school mathematics is that it help people to take care of their own financial affairs.
12. For statement no. 12: 63% showed the positive attitude toward this statement.
13. For statement no. 13: only 13% students agreed that almost all of present day mathematics was known at least a centaury ago. 53% were in confusion, which implies that most of the students did not know about it.
14. For statement no. 14: 67% students agreed that mathematics is very good field for creative people to enter, which shows that more number of students suggesting for creative people to enter in the field of mathematics. This is the positive tendency of students towards mathematics.
15. For statement no. 15: 30% students are in favour of it and 27% are in unfavourable response. 43% shows the neutral response, which indicates that more students are in confusion in it.
16. For statement no. 16: 47% students gave the favourable responses. Remaining 20% and 33% gave unfavourable and Neutral response respectively. It means they confused to say that mathematics will change rapidly in the near future.
17. For statement no. 17: 83% students agreed that in the study of mathematics if a pupil misses a few lessons, it is difficult to catch up.
18. For statement no. 18: 63% students viewed that any one can learn mathematics, which is positive tendency towards difficulty of learning mathematics.
19. For the statement no. 19: 27% students agreed that very few people can learn mathematics but 60% students disagreed, which shows that students have positive attitude toward mathematics. They viewed that all people can learn mathematics.
20. For the statement no. 20: 73% students are in favourable responses. It means they agreed that almost any one can learn mathematics if he/she is willing to study. Almost students have positive attitude toward it.
21. For the statement no. 21: 80% students viewed that any person of average intelligence can learn to understand a good deal of Mathematics. So we can say that Most of the students have positive tendency towards mathematics.

22. For the statement no. 22: 67% students favoured the statement. They hoped that even complex mathematics can be made understandable and useful to every high school pupil.
23. For the statement no. 23: 87% students agreed that almost all pupils can learn complex mathematics, if it is properly taught. This shows that most of the students have positive attitude toward complex mathematics also.
24. For the statement no. 24: only 20% students gave favourable response and 57% students gave unfavourable response, which shows that more students do not like to say "only people with a very special talent can learn mathematics". They want mathematics for all, which indicates the positive attitudes toward mathematics.
25. For the statement no. 25: 67% students expressed the positive view. They supported that more of the most people should be encouraged to become mathematicians and mathematics teachers.
26. For the statement no. 26: 70% students have given the favourable response. They agreed that outside of science and engineering there is little need for mathematics in most job. It implies that there is positive attitude towards the place of mathematics in society.
27. For the statement no. 27: 33% students supported the statements and 57% students have not supported the statement, which shows that more students are in favour of mathematics, which is useful for the problems of everyday life.
28. For the statement no. 28: 67% students agreed that mathematics is of great importance to a country's development. This shows that most of the students know the importance of mathematics in society and country.
29. For the statement no. 29: Only 50% i.e. half number of students gave the favourable responses. Other remaining some are in confusion and some are in disfavour of it.
30. For the statement no.30: 57% students agreed that it is important to known mathematics in order to get a good job, which shows that they have known importance of mathematics.
31. For the statement no. 31: 40% gave favourable response, 37% gave unfavourable response and 23% became neutral, which shows that no one area obtained 50% but more percentage are in favourable response, which shows the positive aspects toward mathematics.

32. For the statement no. 32: 50% students agreed that in near future most jobs will requires knowledge of advanced mathematics. It shows that students are aware towards the importance of mathematics.

From above item-wise percentage analysis has given the information that more than 80% items have obtained favourable responses by more than 50 percent students, which shows that more number of Jalari students have positive attitudes towards mathematics at lower secondary level.

Table No : 3

Percentage of students according to favourable, neutral and unfavourable responses are given below table.

	Jalari Students	Jalari Boys	Jalari Girls
Favourable Responses	56%	55%	57%
Neutral Response	12%	12%	13%
Unfavourable Response	32%	33%	30%
Total	100%	100%	100%

The above table state that more than half of the students were in favour of positive attitudes toward mathematics, very few of them were in confusion and nearly $\frac{1}{3}$ third of the students expressed their unfavourability toward this subject. The implication is that majority of the students liked mathematics and intended to emphasize this subject significantly. The same table shows that more than half of Jalari boys and girls held, positive attitude towards mathematics and minority of them showed their confusion and one third showed disfavour in this subject.

Now the attitude of the students held in different aspects of mathematics and mathematics teaching, such as views about mathematics teaching, attitudes towards mathematics as process, attitudes about difficulty of learning mathematics and attitudes toward the place of mathematics in society are presented in following table.

Table No : 4

Favourable Responses of student's According to the Aspects.

No	Aspects	Jalari students	Jalari Boys	Jalari Girls
I	Views about mathematics teaching (1-9)	55%	48%	62%
II	Attitude towards mathematics as process (10- 17)	46%	45%	47%
III	Attitudes about difficulty of learning mathematics (18- 24)	60%	62%	59%
IV	Attitudes towards the place of mathematics in society (25-32)	57%	59%	55%

Views about mathematics teaching includes 9 items and ranges from a view of mathematics as simply a teacher centered and student centered. These different aspects of mathematics teaching, the percentage of students response are given as follows.

Table No. : 5

View about Mathematics Teaching (Items 1 to 9)

	Statements	% of students
1	Teacher centered teaching (item 1, 2, 3)	62%
2	Students centered teaching i. Students Activity (Item 4, 7, 9) (Problems solving method) ii. Logical and dynamic thinking (Items 5, 6, 8)	 63% 43%

By analyzing above table, students give opinion that more teachers use teacher centered teaching. More over fewer students supported that the letter view logical and dynamic thinking. But more students supported the students' activity teaching.

Attitude towards "Mathematics as process" comprises eight items, the great majority of students (80%) were infavour of, in mathematics there is always several rules to follow in solving problems. Similarly, the second highly significant statement, (with favour of 83% students). In the study of, mathematics, of a pupil miss a few lessons, it is difficult to catch up 67% students are favour in the statements "Mathematics is a

very good field for creative people to enter." They also believed that mathematics help people to take care of their own financial affairs. Also 63% of the students supported the statement, "mathematics help one to think according to strict rules. It helps them to follow rule and regulation everywhere. It showed that they desired to follow strict rules in mathematics as well as other sector.

Attitude about difficulty of learning mathematics consist of seven items. More than half of the students (73%) supported the view that almost anyone can learn mathematics if he/she is willing to study. It shows that their confidence level for positive attitudes towards mathematics.

Attitudes towards the place of mathematics in society included last eight items, more than half of the students (67%) supported that mathematics is of great importance to a country's development and also student supported the statement - "It is important to know mathematics in order to get a good job. It shows that they have known the importance and value of mathematics in the existing society and more students willing to learn mathematics. Half (50%) of the students believed that in near future most job will require a knowledge of advanced mathematics. So we concluded that mathematics is helpful to solve the problems of every day life. So mathematics has placed a very important role in building up modern civilization of society. The place of mathematics in the society is high.

At last it is concluded that more of the Jalari students have positive attitude towards mathematics at lower secondary level.

4.2 Comparison of Jalari Boys' and Girls' Attitudes Towards Mathematics:

The second objective of the study was to compare Jalari boys' and girls' attitude towards mathematics. In order to achieve this objective hypothesis was formulated. The hypothesis state that: There is no significant difference between Jalari boys' and girls' attitude towards mathematics.

To verify this hypothesis the attitude raw score of Jalari boys and girls are given in table no. 6 (i) and 6 (ii)

Table No. : 6 (i)

Attitude scores obtained by Jalari Boys students

S.N.	Statement	Agree	Disagree	Neutral	Total
I					
1.	My Mathematics teacher does not like pupils to ask questions after he has given an explanation.	21	16	0	37
	My Mathematics teachers shows Us different ways of solving the same problem.	30	10	0	40
3.	My Mathematics teacher wants pupils to solve problems only by the procedures he teaches.	27	6	3	36
4.	My Mathematics teacher expects us to learn how to solve problems by ourselves but helps when we have difficulties.	39	4	0	43
5.	In my mathematics class, pupils who have original ideas get better marks than the pupils who are most careful and neat in their work.	12	20	1	33
6.	My Mathematics teacher requires the pupils not only to master the steps in solving problems, but also to understand the reasoning involved.	24	8	0	32
7.	My mathematics teacher encourages us to try to find several different methods for a solving a particular problem.	18	16	1	35
8.	My mathematics course requires more thinking about the methods of solving problems than memorization of rules and formulae.	18	14	2	34
9.	My Mathematics teacher wants us to discover mathematics principles and ideas for ourselves	27	12	2	33
II.					
10.	In Mathematics there is always rule to follow in solving problems.	30	10	0	40
11.	The most important reason for studying arithmetic in lower secondary school mathematics is that it help people to take care of their own financial affairs.	33	8	0	41
12.	Mathematics helps one to think according to strict	27	12	0	39

	rules.				
13.	Almost all of present day mathematics was known at least a century ago.	3	12	8	23
14.	Mathematics is a very good field for creative people to enter.	30	8	1	39
15.	There is little place for originality mathematics.	12	8	7	27
16.	Mathematics will change rapidly in the near future	24	8	3	35
17.	In the study of Mathematics if a pupil misses a few lessons, it is difficult to catch up.	39	2	1	42
III					
18.	Any one can learn Mathematics.	33	6	1	40
19.	Very few people can learn Mathematics	12	18	2	32
20.	Almost anyone can learn mathematics if he is willing to study.	30	6	0	42
21.	Any person of average intelligence can learn to understand a good deal of mathematics.	39	4	0	43
22.	Even Complex Mathematics can be made understandable and useful to every high school pupil.	27	12	0	39
23.	Almost all pupils can learn complex mathematics if it is properly taught.	39	4	0	43
24.	Only people with a very special talent can learn mathematics.	9	18	3	30
IV					
25.	More of the most people should be encouraged to be come Mathematicians and Mathematics teachers.	33	6	1	40
26.	Outside of science and engineering there is little need for mathematics in most jobs.	33	4	2	39
27.	Mathematics is not useful for the problems of everyday life.	15	16	2	33
28.	Mathematics is of great importance to a country's development.	36	4	1	41
29.	A through knowledge of advanced mathematics is the key to an understanding of our world in the 21st centaury.	18	6	6	24

30.	It is important to known mathematics in order to get a good job.	27	8	2	37
31.	Unless one is planning to become a mathematician or a scientist, the study of advanced mathematics is not very important.	24	8	3	35
32.	In near future most jobs will require a knowledge of advanced mathematics.	30	6	2	38
					∑X= 1165

Table No. : 6 (ii)

Attitude scores obtained by Jalari Girls students.

S.N.	Statement	Agree	Disagree	Neutral	Total
I					
1.	My Mathematics teacher does not like pupils to ask questions after he has given an explanation.	18	20	0	38
	My Mathematics teachers shows Us different ways of solving the same problem.	42	2	0	44
3.	My Mathematics teacher wants pupils to solve problems only by the procedures he teaches.	18	18	0	36
4.	My Mathematics teacher expects us to learn how to solve problems by ourselves but helps when we have difficulties.	33	8	0	41
5.	In my mathematics class, pupils who have original ideas get better marks than the pupils who are most careful and neat in their work.	18	10	4	32
6.	My Mathematics teacher requires the pupils not only to master the steps in solving problems, but also to understand the reasoning involved.	27	12	0	39
7.	My mathematics teacher encourages us to try to find several different methods for a solving a particular problem.	33	8	0	41
8.	My mathematics course requires more thinking about the methods of solving problems than	18	14	2	34

	memorization of rules and formulae.				
9.	My Mathematics teacher wants us to discover mathematics principles and ideas for ourselves	27	10	1	38
II.					
10.	In Mathematics there is always rule to follow in solving problems.	30	10	0	40
11.	The most important reason for studying arithmetic in lower secondary school mathematics is that it help people to take care of their own financial affairs.	33	2	3	38
12.	Mathematics helps one to think according to strict rules.	30	10	0	40
13.	Almost all of present day mathematics was known at least a century ago.	9	8	8	25
14.	Mathematics is a very good field for creative people to enter.	30	10	0	40
15.	There is little place for originality mathematics.	15	8	6	29
16.	Mathematics will change rapidly in the near future	18	4	7	29
17.	In the study of Mathematics if a pupil misses a few lessons, it is difficult to catch up.	36	6	0	42
III					
18.	Any one can learn Mathematics.	24	10	2	36
19.	Very few people can learn Mathematics	12	18	2	32
20.	Almost anyone can learn mathematics if he is willing to study.	30	6	2	38
21.	Any person of average intelligence can learn to understand a good deal of mathematics.	33	6	1	40
22.	Even Complex Mathematics can be made understandable and useful to every high school pupil.	33	4	0	37
23.	Almost all pupils can learn complex mathematics if it is properly taught.	39	4	0	33
24.	Only people with a very special talent can learn mathematics.	9	16	4	29
IV					
25.	More of the most people should be encouraged to be come Mathematicians and Mathematics teachers.	27	6	3	36

26.	Outside of science and engineering there is little need for mathematics in most jobs.	30	8	1	39
27.	Mathematics is not useful for the problems of everyday life.	15	18	1	34
28.	Mathematics is of great importance to a country's development.	24	10	2	36
29.	A through knowledge of advanced mathematics is the key to an understanding of our world in the 21st centaury.	27	4	4	35
30.	It is important to known mathematics in order to get a good job.	24	14	0	38
31.	Unless one is planning to become a mathematician or a scientist, the study of advanced mathematics is not very important.	9	16	4	29
32.	In near future most jobs will require a knowledge of advanced mathematics.	15	14	3	32
					$\sum X=$ 1152

On the basis of above tables No. 6 (i) and 6 (ii), the calculated value of mean, standard deviation of Jalari boys' and girls' attitude towards mathematics and t- test are given in Table No. 7.

Table No. : 7

Comparison of Jalari Boys' and 'Girls' Attitude

Towards mathematics.

Group Compared	N	$\overline{X}$	S.D	df	critical region	calculated t-value	Remark
Boys	15	36.40	5.17	28	$-1.96 < \|t\| < +1.96$	0.629	Accept Ho at $\alpha = 0.05$
Girls	15	35.93	4.45				

The analysis of the information mentioned in the table 7, represents that there were 15 Jalari boys students and 15 Jalari girls student. The mean attitude score of 15 Jalari boys was 36.40 and their standard deviation was 5.17 similarly, the mean attitude score of Jalari girls was 35.93 and their standard deviation was 4.45. We obtained the

calculated t-value 0.629, which lies between - 1.96<1t1<1.96 Thus the null hypothesis was accepted. Here we conclude that there is not significant difference between Jalari boys and girls attitude toward mathematics.

4.3 Jalari Student's Teachers' Attitudes Towards Mathematics.

The third objective of the study was to find the Jalari student's teachers' attitudes towards mathematics at lower secondary level.

Attitude score of teachers in percentage of 34 items are shown in Appendix F. Percentage of the Jalari student's teachers responses to attitude statements are given below table No. 8.

Table No. : 8

Jalari Students teachers' Responses to Attitude Statements.

Response area	Teachers
Favourable Response	75%
Natural Response	16%
Unfavourable Response	9%
Total	100%

The above table indicates that majority of the teachers were in favour of positive attitudes toward mathematics very few of them were in confusion and nearly one - tenth of the teachers expressed their unfavourability towards this subject. The implication is that majority of the teachers liked mathematics and intended to emphasize this subject significantly.

Now the attitude of the teachers held in different aspects such as mathematics curriculum and contents, teaching method/pedagogy, as a mathematics teacher, creatively thinking about students, perspective on the teaching job and use of instructional materials. The result of these area is given in Table.

Table No. : 9

Responses of Teachers According to the Aspects

No	Aspects	Favourable Response	Neutral Response	Unfavourable Response
I	Mathematics curriculum and contents (item 1 to 6)	77%	17%	7%
II	Teaching method/pedagogy (item 7 to 12)	58%	25%	17%
III	As a mathematics Teacher (Item 13 to 18)	80%	13%	8%
IV	Creatively Thinking About students (Item 19-24)	87%	2%	0%
V	Perspective on the teaching job (item 25 to 29)	84%	12%	4%
VI	Use of instructional materials (Item 30- 34)	66%	14%	20%

From above table we analyzed that most of the teachers have favourable response in different aspects. Attitude towards, "Mathematics Curriculum and Contents" comprise 6 items. 77% teachers have given favourable response on this aspect. It implies that they like mathematics and they have positive attitude toward mathematics. All 100% teachers are well familiar with the text book of lower secondary level and more than two third teacher are well familiar with mathematics curriculum and contents.

Attitude towards "Teaching method Pedagogy" comprises 6 items. 58% teachers gave favourable response for this aspect. It implies that more than half teachers are well familiar with teaching method/ pedagogy and they can apply while teaching other rest 17% gave unfavourable response and 25% showed their confusion.

Attitude towards "As a mathematics teachers" comprise 6 items. All teachers are in favour of favourite subjects and would like to present its subjects matter in interesting and logic manner and 90% teachers feel that mathematics is the foundation of socialistic development and modern technology and also 90% teachers accept

mathematics subjects as own life. So that they much prefer this subject than other subjects. Therefore, it showed that teachers have positive attitude being a mathematics teacher.

Attitude towards creatively thinking about students comprises 6 items. Here 80% teachers would like to give mathematical concept in psychological manner after finding out the student discrimination and they want to give creative advise after finishing to check students home task and class task. All 100% teachers advised to the students to ask their problems after preferring home work and class work. 87% teacher have favour response in this aspects. So we conclude that most of teachers have positive attitude in this area also.

Attitude about the perspective on the teaching job, comprises 5 items. 84% teachers gave the response on the favour of this aspect which indicates that teachers are careful on their job. 80% teachers expressed that they like to devote in teaching profession with satisfactory as well as they want teaching profession prestigious and respectful. All teachers (100%) are dutiful on their teaching job. In this aspect also most of the teachers have positive attitudes about mathematics.

Attitude towards "use of instruction materials" comprises 5 statements. Here only two third teachers want to use materials while teaching but 100% agree that teaching materials play important role on effective teaching. So, they have given positive response towards use of instructional materials.

At last it is concluded that the Jalari students teachers' have positive attitudes towards mathematics at lower secondary level.

4.4 Comparison of Jalari students' and their Teachers' Attitude Towards Mathematics

The fourth objective of the study was to compare Jalari students attitude and their's teachers attitudes in mathematics. To achieve this objective, following hypothesis was formulated. There is no significant difference between attitude of Jalari students and their teachers towards mathematics of lower secondary level.

To verify this hypothesis, the attitude raw score of Jalari students is taken from previous table no. 6: (i) and 6 (ii). But teachers' attitude raw score is given below.

Table No. : 10

Attitude Score Obtained by Jalari Students Teachers.

S.N.	Statements	Agree	Disagre	Neutral	Total
I.	Mathematics Curriculum and contents				
1.	I have studied the textbooks of Lower Secondary Level in Detailed and I'm well familiar with its strength and weakness.	30	0	0	30
2.	I much like the mentioned subject matter in mathematics curriculum so I teach these with happily in simple manner.	24	2	1	27
3.	I'm clear with the all objectives of mathematics curriculum so that I always study well in every units then I teach orderly for enable to objectives.	18	0	4	22
4.	Added new subject matters in mathematics curriculum are more useful and appropriate of time so that I become serious while I'm teaching.	24	0	2	26
5.	A successful mathematics teacher should be clear on subject matter and it's objectives so she/he can be taught without text book.	21	6	0	27
6.	I would like to revise the subject matters of curriculum in the context of times.	21	0	3	24
	Total				
II.	Teaching Method /Pedagogy				
1.	I always teach mathematics after seeking new methods.	15	2	4	21
2.	I have studied well the learning theories of Jean Piaget's, Bruner and Robert Gangne, therefore I teach Through those Methods.	12	6	3	21
3.	It has own systematic methods in teaching mathematics.	24	2	1	27
4.	It has effective methods in teaching mathematics.	15	6	3	24
5.	I have been presenting the mathematical concept to the students studied their psychological thought.	15	6	3	24
6.	I much like learning by doing activities so I have to be done much student activities.	24	2	1	27

III	As a Mathematics Teacher				
1.	Mathematics is my favourrite subject since my school life.	30	0	0	30
2.	I would like to present its subject matter in interesting and logic manner.	30	0	0	30
3.	I think that mathematics is the foundation of socialistic development and modern technology.	27	0	1	28
4.	Though mathematics is not more interesting than other subject. I would like to have enjoy it's subject matter.	18	6	1	25
5.	I always ready to use it's every sector after analyzed in psychological manner.	12	6	4	22
6.	I accept this subject as own life so that I much prefer this subject than other subject.	27	0	1	28
	Total				
IV	Creatively Thinking About Students				
1.	I would like to give mathematical concept in psychological Manner after finding out the student discrimination.	24	0	2	26
2.	I should be given creative advise after finished to check home task and class task.	24	0	2	20
3.	I would like to solve their difficulties by themselves.	24	0	2	26
4.	I always provide new knowledge for talent and labourious students.	24	0	2	26
5.	I always prefer to be done home task and class task.	30	0	0	30
6.	I think that students should be asked their problems.	30	0	0	30
	Total				
V	Perspective on the Teaching Job				
1.	I would like to devote in teaching profession with satisfactory .	24	0	2	26
2.	I would like to get teaching profession prestigious and respectful.	24	0	2	26
3.	I always like to complete my duty with dutiful.	30	0	0	30
4.	I wish to create good relationship among students and parents complete my duty. I want to actively by creating good relationship among students and	27	0	1	28

	parents for the change of school and students future.				
5.	I prefer to work continuously for getting new identity in teaching profession comparatively than others profession.	21	4	1	26
	Total				
VI	Use of Instructional Materials				
1.	I always teach with instructional Materials	9	10	2	21
2.	I think that teaching without instructional materials is impractical.	24	2	1	27
3.	Teaching materials play important/vital role on effective teaching, so I think that teaching in mathematics is not complete.	30	0	0	30
4.	I always prepare teaching materials myself and also I make the students to prepare materials.	21	2	3	26
5.	I make the students to select materials and to solve problems for this I always play the role as a guider.	15	6	2	23
	Total				∑X= 884

Table No. : 11

Comparison of Jalari Students and their Teachers

Attitude Towards Mathematics

Group compared	N	Mean	S.D	df	Critical Region	Calculated t-value	Remark
Jalari students	30	35.62	6.23	38	-1.96 |<|t| < 1.96	16.20	Rejected H_0 at 0.05
Teachers	10	26	2.9				

From above table, the calculated value is greater than the table value. Here the null hypothesis is rejected and concluded that there is a significant difference between Jalari students' and their teachers' attitude towards mathematics.

4.5 Relationship between Jalari students Attitude and Achievement in Mathematics.

The last objective of this research was to find the relationship between attitude and achievement of Jalari students. To achieve this hypothesis, the following hypothesis was formulated. There is no significant difference relationship between Jalari students attitude and achievement in mathematics.

To verify this hypothesis the attitude raw score of students and achievement marks in mathematics of annual exam is given below table.

Table No. 12

Attitude Score and Mathematics Achievement

Marks of Boys Students

S.N	Name	Mathematics score	Attitude score
1	Dhiran Jalari	48	53
2	Rajesh Jalari	62	47
3	Milan Jalari	32	52
4	Raj kumar Jalari	32	53
5	Rabin Jalari	32	54
6	Ashish Jalari (A)	32	44
7	Sujan Jalari	32	49
8	Bikaram Jalari	32	54
9	Krishna Jalari (A)	32	37

10	Krishna Jalari (B)	32	45
11	Sudip Jalari	33	49
12	Saroj Jalari	35	49
13	Prakash Jalari	41	48
14	Ashish Jalari (B)	35	49
15	Yuba Raj Jalari	32	57

Table No. : 13

Attitude score and Mathematics Achievement Marks of Jalari Girls Students.

S.N	Name	Mathematics score	Attitude score
1	Binita Jalari	55	51
2	Rupa Jalari	60	56
3	Shila Jalari (A)	32	38
4	Dipa Jalari	32	46
5	Niruta Jalari	32	39
6	Muna Jalari	32	54
7	Sunita Jalari	32	38
8	MonicaJalari	32	48
9	Mamata Jalari	55	55
10	Shila Jalari (B)	32	53
11	Rina Jalari	32	49
12	Renu Jalari	32	52
13	Jamuna Jalari	32	46
14	Reena Jalari	41	56
15	Srijana Jalari	35	57

The researcher used Karl Pearson's product movement method to compute the correlation coefficient between mathematics score and attitude score of Jalari students. The process of finding correlation coefficient is presented in appendix G, H and I. with the help of above data, the calculated value of 'r' and it's interpretation are as follows.

Table No. : 14

Correlation between Jalari Students' Attitudes Score and Achievement Score

Correlation between	N	correlation coefficient (r)	Relationship
Jalari student's attitude and achievement	30	0.2732	Low
Jalari boys' attitude and achievement	15	-0.04	Negative
Jalari girls' attitude and achievement	15	0.479	moderate

Here, we found correlation coefficient between Jalari students' attitude and achievement is 0.27. This indicates that there is low relationship between Jalari student's attitude and achievement, which implies that they have positive attitude on towards mathematics, but they have poor conditions in achievement of mathematics test. Similarly, the correlation coefficient between Jalari boys' attitude and their achievement is -0.04, which indicate that there is negative negligible relationship between attitude and achievement, which implies that they have positive attitude towards mathematics but they have very poor conditions in achievement of mathematics test. Likewise, the correlation coefficient between Jalari girls' attitude and achievement is 0.479, which indicate that there is moderate Relationship between their's attitude and achievement.

To test the hypothesis of an observed correlation coefficient, the following formula was used.

$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$, where r is the correlation coefficient between students attitudes and achievement.

Table No: 15

Testing correlation coefficient between attitude and achievement of students.

Tested Group	N	Correlation	df	Critical Region	Calculated t value	Remarks
Students attitude and achievements	30	0.2732	28	-2.048</t/<2.046	1.5621	Accept H_0

From above table, it is found that the calculated t- values lies between critical region. So it is concluded the null hypothesis is accepted, which informed that there is not significant difference relationship between Jalari students attitude and achievement in mathematics.

At last we conclude that more of the Jalari students have positive attitude toward mathematics at lower secondary level, but they have poor achievement in mathematics test. By observing the result of Annual Examination 2066, most of the Jalari students were promoted to (32%) mark to make pass them. While analyzing the achievement score, It was found that 67% Jalari students were promoted to pass line. It showed that most of the Jalari students are weak in mathematics but they have positive attitude toward mathematics at lower secondary level.

CHAPTER – V

SUMMARY, FINDINGS, CONCLUSIION AND RECOMMENDATIONS

This chapter presents the summary, major findings and conclusion of the study and recommendations for the further study.

5.1 Summary

The purpose of the study was to find out the attitudes of Jalari students and their teachers towards mathematics at lower secondary level. Mainly, it aims at finding out and analyzing the attitude of Jalari students and their teachers' toward mathematics at lower secondary level. This study was perfomed at the Kaski district. It was limited on the attitude of Jalari students and their teachers towards mathematics at lower secondary level.

The objectives of the study were.

i. To determine the attitude of Jalari students toward mathematics at lower secondary level.
ii. To compare Jalari boys and girls attitude toward mathematics at lower secondary level.
iii. To find the Jalari students' teachers attitudes towards mathematics at lower secondary level.
iv. To compare the attitudes of Jalari students' and their teachers towards mathematics at lower secondary level.
v. To find the relationship between attitude and achievement of Jalari students.

For achieving these objectives the researcher used questionnaire developed by George Levine (1971 A.D). It consisted 32 statements. These were related to students attitude. Similarly, the researcher used the questionnaire developed by Rai Shamer man on his master thesis (2004) for gathering the attitudes of Jalari students teachers. It consisted 34 statements.

The attitude of students' and teachers providing three category of rating scales were as: (i) agree (ii) disagree (iii) neutral. The rating scores of these scales were 3, 2, 1 for the responses of agree, disagree and neutral respectively. Both questionnaires and attitude scale were approved by research supervisor. The researcher used annual

exam report (2066, Chaitra) of required students for students' achievement in mathematics.

For this study, the researcher selected 30 Jalari students (15 Jalari boys and 15 Jalari girls) from four schools of Kaski district, where Jalari students are studying. The sample was 66.67% of total population of the study and 10 teachers were taken from the same schools. The data obtained from the research were analyzed by using percentage, mean, standard deviation, two- tailed t-test and correlation coefficient under the following headings.

a. Jalari students' attitudes towards mathematics.
b. Comparison of Jalari boys and girls attitudes toward mathematics.
c. Jalari students' teachers' attitudes towards mathematics at lower secondary level.
d. Comparison of Jalari students attitude and their teachers attitude toward mathematics.
e. Relationship between Jalari students' attitudes and their achievement in mathematics.

5.2 Findings of the Study

The statistical analysis of the collected data adapted the following findings.

i) Lower Secodnary Jalari students had positive attitude towards mathematics.
ii) The mean attitude score of Jalari boys was 36.40 and their standard deviation was 5.17. Similarly, the mean attitude score of Jalari girls was 35.93 and their standard deviation was 4.45. We found that there is not significant difference between Jalari boys and girls attitude toward mathematics.
iii) Lower Secondary Jalari students' teachers' have positive attitude towards mathematics.
iv) The mean attitude score of Jalari students was 35.62 and their standard deviation was 6.23. Similarly, the mean attitude score of Jalari students teachers was 25 and their standard deviation was 2.94, we found that there is a significant difference between Jalari students and their teachers' attitude toward mathematics.
v) There was not significance relationship between Jalari students attitude toward mathematics and achievement in this subject because the correlation coefficient between Jalari students' attitude and achievement is 0.27, which is low relationship between them and null hypothesis was accepted.

5.3 Conclusion

On the basis of analysis, following conclusions were drawn about the attitude of Jalari students and their teachers towards mathematics.

1. Lower Secondary Jalari students had positive attitudes.
2. There was not significant difference between attitudes of Jalari boys and girls towards mathematics.
3. Lower secondary Jalari students teachers had positive attitudes.
4. There was significant difference between attitudes of Jalari students and their teachers toward mathematics of lower secondary level.
5. There was low relationship between Jalari student's attitude and achievement.
6. There was negative negligible relationship between Jalari boys' attitude and achievement.
7. There was moderate relationship between Jalari girls' attitude and achievement.
8. There was not significant relationship between students' attitude and achievement in mathematics.

5.3 Recommendation for further Study

Due to limitations of this study, this study may not be generalized to all area and all levels. Thus, after analyzing the conclusion of this study, the researcher makes the following recommendations.

i. This study was done only in Jalari student and their's teachers in Kaski, district. So the similar study should be performed to other caste students as district wise or regional wise or national wise.
ii. Further study should be done on the topic comparison on Jalari and non- Jalari students' attitude toward mathematics.
iii. Further researcher should be studied on in which factors affecting the attitude of Jalari students.
iv. This study was limited to the lower secondary level's Jalari students and their teachers toward mathematics. So further similar type of study should be studied in the other level like primary, secondary and higher secondary level.
v. This study has studied the relationship between Jalari students' attitude and achievement in mathematics, further research should be done in the area of arithmetic, set, algebra, statistics etc.

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Appendix A

List of the Selected Students

S.N.	Name of the Students	Name of School
1.	Dhiran Jalari	Shree Shanta Secondary School
2.	Raj Kumar Jalari	Shree Shanta Secondary School
3.	Sudip Jalari	Shree Shanta Secondary School
4.	Ashish Jalari	Shree Shanta Secondary School
5.	Youbaraj Jalari	Shree Shanta Secondary School
6.	Muna Jalari	Shree Shanta Secondary School
7.	Shila Jalari	Shree Shanta Secondary School
8.	Rina Jalari (A)	Shree Shanta Secondary School
9.	Rina Jalari (B)	Shree Shanta Secondary School
10.	Srijana Jalari	Shree Shanta Secondary School
11.	Raj Kumar Jalari	Shree Amar Siddha Namuna Ma. Vi.
12.	Ashish Jalari	Shree Amar Siddha Namuna Ma. Vi.
13.	Sujan Jalari	Shree Amar Siddha Namuna Ma. Vi.
14.	Bikram Jalari	Shree Amar Siddha Namuna Ma. Vi.
15.	Krishna Jalari	Shree Amar Siddha Namuna Ma. Vi.
16.	Shila Jalari	Shree Amar Siddha Namuna Ma. Vi.
17.	Deepa Jalari	Shree Amar Siddha Namuna Ma. Vi.
18.	Niruta Jalari	Shree Amar Siddha Namuna Ma. Vi.
19.	Renu Jalari	Shree Amar Siddha Namuna Ma. Vi.
20.	Jamuna Jalari	Shree Amar Siddha Namuna Ma. Vi.
21.	Krishna Jalari	Shree Tal Barahi Higher Secondary School
22.	Sunita Jalari	Shree Tal Barahi Higher Secondary School
23.	Monika Jalari	Shree Tal Barahi Higher Secondary School
24.	Milan Jalari	Fewa Secondary Boarding English School
25.	Rabin Jalari	Fewa Secondary Boarding English School
26.	Saroj Jalari	Fewa Secondary Boarding English School
27.	Prakash Jalari	Fewa Secondary Boarding English School
28.	Binita Jalari	Fewa Secondary Boarding English School
29.	Rupa Jalari	Fewa Secondary Boarding English School
30.	Mamata Jalari	Fewa Secondary Boarding English School

Appendix B

List of Teachers

S.N.	Name of the teachers	Name of school	Qualification
1.	Laxmi Shrestha	Shree Tal Bahari Higher Secondary School, Baidam – 6	B.Ed./BA
2.	Mina Parajuli	Shree Tal Bahari Higher Secondary School, Baidam – 6	B.Ed
3.	Gobinda Prasad Paudel	Shree Tal Bahari Higher Secondary School, Baidam – 6	B.A/B.Ed.
4.	Basu Ram Adhikari	Shree Amar Siddha Namuna Ma.Vi., Pachabhaiya -11, Begnas	B.A.
5.	Nir Bahadur Nepali	Shree Amar Siddha Namuna Ma.Vi., Pachabhaiya -11, Begnas	Diploma
6.	Damodar Timilsina	Shree Shanta Secondary School Bhakundae	B.Ed
7.	Surya Prasad Timilsina	Shree Shanta Secondary School Bhakundae	B.Ed.
8.	Dinesh Sharma	Shree Shanta Secondary School Bhakundae	B.Com/B.Ed.
9.	Nayan Bhandari	Fewa Secondary Boarding English School	I.Ed.
10.	Prakash Neupane	Fewa Secondary Boarding English School	B.Ed.

Appendix C

Questionnaire About Jalari Students Towards Mathematics at Lower Secondary Level

Dear Students,

I am an M.Ed. Student. I am going to conduct a study for the thesis paper, which is concerned with titled, "A Study of Attitudes of Jalari Students and their Teachers Towards Mathematics in Lower Secondary Level at Kaski district". I hope that I will get your kind help.

Here, I have tried to know your attitude about compulsory mathematics with your valuable help. There are 32 statements concerned with attitude. There is no right or wrong answer. Any one alternative answer must be selected according to your view. More than one answer wouldn't valid. So, please, read the given statements carefully and tick (√) in your vision or response.

Example.

S.N.	Statement	Agree	Disagree	Neutral
	Mathematics is necessary for daily life.	√		

Student's Name _____ Date: _____

School's Name,_____

Address _____ Roll No. _____

S.N	Statement	Agree	Disagre	Neutral
I.	Views about teaching Mathematics			
1.	My Mathematics teacher does not like pupils to ask questions after he has given an explanation. [D]			
2.	My Mathematics teachers shows Us different ways of solving the same problem.			
3.	My Mathematics teacher wants pupils to solve problems only by the procedures he teaches. [D]			
4.	My Mathematics teacher expects us to learn how to solve problems by ourselves but helps when we have difficulties.			
5.	In my mathematics class, pupils who have original ideas get better marks than the pupils who are most careful and neat in their work.			
6.	My Mathematics teacher requires the pupils not only to master the steps in solving problems, but also to understand the reasoning involved.			

7.	My mathematics teacher encourages us to try to find several different methods for a solving a particular problem.			
8.	My mathematics course requires more thinking about the methods of solving problems than memorization of rules and formulae.			
9.	My Mathematics teacher wants us to discover mathematics principles and ideas for ourselves			
II.	Attitude Toward Mathematics as a Process			
10.	In Mathematics there is always rule to follow in solving problems. [D]			
11.	The most important reason for studying arithmetic in lower secondary school mathematics is that it help people to take care of their own financial affairs.			
12.	Mathematics helps one to think according to strict rules. [D]			
13.	Almost all of present day mathematics was known at least a century ago.			
14.	Mathematics is a very good field for creative people to enter.			
15.	There is little place for originality mathematics. [D]			
16.	Mathematics will change rapidly in the near future.			
17.	In the study of Mathematics if a pupil misses a few lessons, it is difficult to catch up.			
III	Attitudes about Difficulty of Learning Mathematics			
18.	Any one can learn Mathematics.			
19.	Very few people can learn Mathematics. [D]			
20.	Almost anyone can learn mathematics if he is willing to study.			
21.	Any person of average intelligence can learn to understand a good deal of mathematics.			
22.	Even Complex Mathematics can be made understandable and useful to every high school pupil.			
23.	Almost all pupils can learn complex mathematics if it is properly taught.			

24.	Only people with a very special talent can learn mathematics. [D]			
IV	Attitudes Towards the place of Mathematics in Society.			
25.	More of the most people should be encouraged to be come Mathematicians and Mathematics teachers.			
26.	Outside of science and engineering there is little need for mathematics in most jobs. [D]			
27.	Mathematics is not useful for the problems of everyday life. [D]			
28.	Mathematics is of great importance to a country's development.			
29.	A through knowledge of advanced mathematics is the key to an understanding of our world in the 21st centaury.			
30.	It is important to known mathematics in order to get a good job.			
31.	Unless one is planning to become a mathematician or a scientist, the study of advanced mathematics is not very important. [D]			
32.	In near future most jobs will require a knowledge of advanced mathematics.			

Note: For Response of "Disagree" is considered a favourable response where the item is followed by a 'D'.

Appendix 'D'

Questionnaire about Teachers Attitude toward Mathematics at Lower Secondary Level

Date: _____

Name of Mathematics Teacher: _____

Name of School: _____

Dear, respectable teachers.

I am an M.Ed. student. I am going to conduct a study for the thesis paper. Which is concerned with titled "A Study of Attitudes of Jalari Students and Their Teachers Towards Mathematics In Lower Secondary Level at Kaski District". I hope that I will get your kind help.

I have divided the given questionnaires in to six areas of statements and has included in five or six questions in each area of statement and each question has three alternative answers. Given answers have no any right and wrong. Any one alternative answer must be selected according to your view. More than one answer wouldn't be valid because your thought and view is to be taken for this study. So I would like to request to tick (√) under the rating your attracted of every statements in following table.

S.N.	Statements	Agree	Disagree	Neutral
I.	Mathematics Curriculum and contents			
1.	I have studied the textbooks of Lower Secondary Level in Detailed and I'm well familiar with its strength and weakness			
2.	I much like the mentioned subject matter in mathematics curriculum so I teach these with happily in simple manner			
3.	I'm clear with the all objectives of mathematics curriculum so that I always study well in every units then I teach orderly for enable to objectives.			
4.	Added new subject matters in mathematics curriculum are more useful and appropriate of time so that I become serious while I'm teaching			
5.	A successful mathematics teacher should be clear on subject matter and it's objectives so she/he can be taught without text book.			
6.	I would like to revise the subject matters of curriculum in the context of times.			

II.	Teaching Method /Pedagogy			
7.	I always teach mathematics after seeking new methods			
8.	I have studied well the learning theories of Jean Piaget's, Bruner and Robert Gangne, therefore I teach Through those Methods.			
9.	It has own systematic methods in teaching mathematics			
10.	It has effective methods in teaching mathematics.			
11.	I have been presenting the mathematical concept to the students studied their psychological thought.			
12.	I much like learning by doing activities so I have to be done much student activities.			
III	As a Mathematics Teacher			
13.	Mathematics is my favourrite subject since my school life.			
14.	I would like to present its subject matter in interesting and logic manner.			
15.	I think that mathematics is the foundation of socialistic development and modern technology.			
16.	Though mathematics is not more interesting than other subject. I would like to have enjoy it's subject matter.			
17.	I always ready to use it's every sector after analyzed in psychological manner.			
18.	I accept this subject as own life so that I much prefer this subject than other subject.			
IV	Creatively Thinking About Students			
19.	I would like to give mathematical concept in psychological Manner after finding out the student discrimination.			
20.	I should be given creative advise after finished to check home task and class task.			
21.	I would like to solve their difficulties by themselves.			
22.	I always provide new knowledge for talent and labourious students.			
23.	I always prefer to be done home task and class task.			
24.	I think that students should be asked their problems			
V	Perspective on the Teaching Job			
25.	I would like to devote in teaching profession with satisfactory			

26.	I would like to get teaching profession prestigious and respectful			
27.	I always like to complete my duty with dutiful.			
28.	I wish to create good relationship among students and parents complete my duty. I want to actively by creating good relationship among students and parents for the change of school and students future.			
29.	I prefer to work continuously for getting new identity in teaching profession comparatively than others profession.			
VI	Use of Instructional Materials			
30.	I always teach with instructional Materials			
31.	I think that teaching without instructional materials is impractical			
32.	Teaching materials play important/vital role on effective teaching, so I think that teaching in mathematics is not complete.			
33.	I always prepare teaching materials myself and also I make the students to prepare materials.			
34.	I make the students to select materials and to solve problems for this I always play the role as a guider.			

Appendix 'E'

No. of Responses and Percentage of Students'

S. N.	No. of Students			Percentage of Students			No. of Boys Students			Percentage of Boys			No. of Girls			Percentage of Girls		
	F	U	N	F	U	N	F	U	N	F	U	N	F	U	N	F	U	N
1	57	13	0	57	43	0	8	7	0	53	47	0	9	6	0	60	40	0
2	24	6	0	80	20	0	10	5	0	67	33	0	14	1	0	93	7	0
3	12	15	3	40	50	10	3	9	3	20	60	20	9	6	0	60	40	0
4	24	6	0	80	20	0	13	2	0	87	13	0	11	4	0	73	27	0
5	10	15	5	33	50	17	4	10	1	27	66	7	6	5	4	40	33	27
6	17	13	0	57	43	0	8	7	0	53	47	0	9	6	0	60	40	0
7	17	12	1	57	40	3	6	8	1	40	53	7	11	4	0	73	27	0
8	12	14	4	40	47	13	6	7	2	40	47	13	6	7	2	40	47	13
9	16	11	3	53	37	10	7	6	2	47	40	13	9	5	1	60	33	7
10	24	6	0	80	20	0	14	1	0	93	7	0	10	5	0	67	33	0
11	22	5	3	73	17	10	11	4	0	73	27	0	11	1	3	73	7	20
12	19	11	0	63	37	0	9	6	0	60	40	0	10	5	0	67	33	0
13	4	10	16	13	33	53	1	6	8	7	40	53	3	4	8	20	27	53
14	20	9	1	67	30	3	10	4	1	67	27	7	10	5	0	67	33	0
15	9	8	13	30	27	43	4	4	7	27	27	46	5	4	6	33	27	40
16	14	6	10	47	20	33	8	4	3	53	27	20	6	2	7	40	13	47
17	25	4	1	83	13	3	13	1	1	87	7	7	12	3	0	80	20	0

18	19	8	3	63	27	10	11	3	1	73	20	7	8	5	2	53	33	13
19	8	18	4	27	60	13	4	9	2	27	60	13	4	9	2	27	60	13
20	22	6	2	73	20	17	12	3	0	80	20	0	10	3	2	67	20	13
21	24	5	1	80	17	3	13	2	0	87	13	0	11	3	1	73	20	7
22	20	10	0	67	33	0	9	6	0	60	40	0	11	4	0	73	27	0
23	26	4	0	87	13	0	13	2	0	87	13	0	13	2	0	87	13	0
24	6	17	7	20	57	23	3	9	3	20	60	3	3	8	4	20	53	27
25	20	6	4	67	20	13	11	3	1	73	20	7	9	3	3	60	20	20
26	21	6	3	70	20	10	11	2	2	73	13	13	10	4	1	67	27	7
27	10	17	3	33	57	10	5	8	2	33	53	13	5	9	1	33	60	7
28	20	7	3	67	23	10	12	2	1	80	13	7	8	5	2	53	33	13
29	15	5	10	50	17	33	6	3	6	40	20	40	9	2	4	60	13	27
30	17	11	2	57	37	7	9	4	2	60	27	13	8	7	0	53	47	0
31	11	12	7	40	37	23	8	4	3	53	27	20	3	8	4	53	20	27
32	15	10	5	50	33	17	10	3	2	67	20	13	5	7	3	33	47	20

Note: F= favourable response, U = Unfavourable response, N= Neutral response

Appendix 'F'

Number of Responses and Percentage of Teachers Toward Mathematics

S.N.	Number of Teachers			Percentage of Teachers		
	F	U	N	F	U	N
1	10	0	0	100	0	0
2	8	1	1	80	10	10
3	6	0	4	60	0	40
4	8	0	2	80	0	20
5	7	3	0	70	30	0
6	7	0	3	70	0	30
7	5	1	4	50	10	40
8	4	3	3	40	30	30
9	8	1	1	80	10	10
10	5	2	3	50	20	30
11	5	2	3	50	20	30
12	8	1	1	80	10	10
13	10	0	0	100	0	0
14	10	0	0	100	0	0
15	9	0	1	90	0	10
16	6	3	1	60	30	10
17	6	2	2	60	20	20
18	9	0	1	90	0	10
19	8	0	2	80	0	20
20	8	0	2	80	0	20
21	8	0	2	80	0	20
22	8	0	2	80	0	20
23	10	0	0	100	0	0
24	10	0	0	100	0	0
25	8	0	2	80	0	20
26	8	0	2	80	0	20
27	10	0	0	100	0	0
28	9	0	1	90	0	10
29	7	2	1	70	20	10
30	3	5	2	30	50	20
31	8	1	1	80	10	10
32	10	0	0	100	0	0
33	7	1	2	70	10	20
34	5	3	2	50	30	20

Note: F= Favourable response, U= Unfavourable response, N = Neutral response

Appendix (G)

Correlation Between Jalari Boys Students Attitude and Achievement in Mathematics

S.N.	Math Score X_1	Attitude Score Y_1	X_1Y_1	X_1^2	Y_1^2
1	48	53	2544	2304	2809
2	62	47	2914	3844	2209
3	32	62	1664	1024	2704
4	32	53	1696	1024	2809
5	32	54	1728	1024	2916
6	32	44	1408	1024	1936
7	32	49	1568	1024	2401
8	32	49	1568	1024	2401
9	32	54	1728	1024	2916
10	32	37	1184	1024	1369
11	33	45	1485	1089	2025
12	35	49	1715	1225	2401
13	41	49	2009	1681	2401
14	35	48	1680	1224	2304
15	32	57	1824	1024	3249
Total	$\Sigma X_1=542$	$\Sigma Y_1=740$	$\Sigma X_1Y_1=26715$	$\Sigma X_1^2=20584$	$\Sigma Y_1^2=36850$

$N_1 = 15$

$$r = \frac{N\sum X_1Y_1 - \sum X_1 \sum Y_1}{\sqrt{N.\sum X_1{}^2 - \left(\sum X_1\right)^2}.\sqrt{N\sum Y_1{}^2 - \left(\sum Y_1\right)^2}}$$

$$= \frac{15\times 26715 - 542\times 740}{\sqrt{15\times 20584 - (542)^2}.\sqrt{15\times 36850 - (740)^2}}$$

$= -0.0403$

Appendix 'H'

Correlation Between Jalari Girls Students' Attitude and Achievement in Mathematics

S.N.	Math Score X_2	Attitude Score Y_2	X_2Y_2	X_2^2	Y_2^2
1	55	51	2805	3025	2601
2	60	56	3360	3600	3136
3	32	38	1216	1024	1444
4	32	46	1472	1024	2116
5	32	39	1248	1024	1521
6	32	54	1728	1024	2916
7	32	38	1216	1024	1444
8	32	48	1536	1024	2304
9	55	55	3025	3025	3025
10	32	53	1696	1024	2809
11	32	49	1568	1024	2401
12	32	52	1664	1024	2704
13	32	46	1472	1024	2116
14	41	56	2296	1601	3136
15	35	57	1995	1225	3249
Total	$\Sigma X_2=566$	$\Sigma Y_2=738$	$\Sigma X_2Y_2=28297$	$\Sigma X_2^2=22796$	$\Sigma Y_2^2=36922$

$N_2=15$

$$r = \frac{N\sum X_2Y_2 - \sum X_2 \sum Y_2}{\sqrt{N.\sum X_2{}^2 - \left(\sum X_2\right)^2}.\sqrt{N\sum Y_2{}^2 - \left(\sum Y_2\right)^2}}$$

$$= \frac{15\times 28297 - 566\times 738}{\sqrt{15\times 22796 - (566)^2}.\sqrt{15\times 36922 - (738)^2}}$$

= -0.479

Appendix 'I'

Correlation Between Jalari Students' Attitudes and Achievement in Mathematics

Correlation Between Jalari Students Attitude and Achievement in Mathematics with the help of appendix 'G' and 'H' all Jalari students correlation between attitude and achievement is computed as follow:

$$\sum X = \sum X_1 + \sum X_2 = 542 + 566 = 1108$$
$$\sum Y = \sum Y_1 + \sum Y_2 = 740 + 738 = 1478$$
$$\sum X^2 = \sum X_1{}^2 + \sum X_2{}^2 = 20584 + 22796 = 43380$$
$$\sum Y^2 = \sum Y_1^2 + \sum Y_2^2 = 36850 + 36922 = 73772$$
$$\sum XY = \sum X_1Y_1 + \sum X_2Y_2 = 26715 + 28297 = 55012$$
$$N = N_1 + N_2 = 15 + 15 = 30$$
$$r = \frac{N\sum XY - \sum X.\sum Y}{\sqrt{N\sum X^2 - \left(\sum X\right)^2}.\sqrt{N\sum Y^2 - \left(\sum Y\right)^2}}$$
$$= \frac{30 \times 55012 - 1108 \times 1478}{\sqrt{30 \times 43380 - (1108)^2}.\sqrt{30 \times 73772 - (1478)^2}}$$
$$= 0.273$$

Appendix 'J'

Statistical Formula Used in the Thesis

Statistical Formula	Glossary of Statistical symbols
1. Mean $\overline{X} = \frac{\sum X}{N}$ Percentage = $\frac{\text{No of respondent}}{\text{Total No. Respondent}} \times 100\%$	$\overline{X} = Arithmetic\ Mean$ $\sum = Sum\ of\ Score$ $X = Score$ $N = No.of\ Score$
2. $t = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}}$	Where, $\overline{X_1} = Mean\ of\ I^{st}\ Group$ $\overline{X_2} = Mean\ of\ II^{nd}\ Group$ $s_1, s_2 = Standard\ Deviation\ of\ I^{st}\ \&\ II^{nd}\ Group\ Respectively$ $N_1, N_2 = No.\ of\ Score\ I^{st}\ \&\ II^{nd}\ Group\ Respectively$
3. Coefficient of Correlation $r = \frac{N\sum XY - \sum X.\sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}.\sqrt{N\sum Y^2 - (\sum Y)^2}}$	Where, $\sum X = Sum\ of\ X\ Scores$ $\sum Y = Sum\ of\ Y\ Scores$ $\sum X^2 = Sum\ of\ the\ squared\ of\ X\ Scores$ $\sum Y^2 = Sum\ of\ the\ squared\ of\ Y\ Scores$ $\sum XY = Sum\ of\ the\ product\ of\ X\ \&\ Y\ Scores$ $N = Number\ of\ paired$
4. t= $\frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$	Where, r = correlation coefficient between attitude and achievement of students.

Interpretation of a Correlation Coefficient

Coefficients (r)	Relationship
.00 to .20	Negligible
.20 to .40	Low
.40 to .60	Moderate
.60 to .80	Substantial
.80 to 1.00	High to very high

Source: Best and Kahn, P.308