

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The word 'mathematics' has been derived from the ancient Greek word "Mathencian" which meant 'to learn' (Schaff, 1972) which shows that mathematic is selected as a process of learning. Mathematics, an essential discipline of human life relating to every step, is initiated through the ancient human civilization. In those days, when men started living in a colony. They started to release the necessity of mathematics then the concept of number was gradually developed. The ancient civilization viz Babylonian and Egyptian had contributed a lot on development of mathematic as in existable discipline. Generally engineering Surveying and counting were the basic subject matter of those days. The Babylonian well developed about engineering and surveying for its protection from the Euphrates and Tigris River as well as their dense population. The Egyptian also has contributed on astronomy and surveying. The development of mathematics passed its consecutive phases as the time passed. The subject matter of mathematics was also included in the teaching as a vital need of development of human mind. It shows that mathematics has been developed through the human effort in different period and has attempted this state still on the process of development.

Mathematics is an important subject, which is inseparable discipline of human life because of its usefulness in each and every human activity. Mathematics has direct impact for the development of physical and social science. It is the base of scientific development of modern technology. It's also very useful tool in the commercial as well as industrial field. All scientific discoveries depend upon the mathematics because it is the backbone of studying science. It

supports are the concentration of the related study. Mathematics provides techniques in reading very useful information of figures, tables, charts, and diagrams, graphs geometrical technical drawing and so on.

Supporting about the importance of mathematics for the human life, The School Mathematics Study Group America", published progressive report in 1959 has stated the role of mathematics.

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 leans more and more heavily on science and technology. The number of our citizens, skilled in mathematics must be greatly increased and understanding of the role of mathematics in our society is now pre-requisite for the intelligent citizen (ship). Since no one can predict his future, certainly profession. It is important that mathematics so taught makes students able in later life to learn the new mathematical skills and the future will surely demand many of them. Mathematics knowledge is essential to human life for better living in modern scientific and technological period.

Now a day's, mathematics and mathematics education have the separate objective and processes in the field of academy. The mathematics is involved in developing theory and abstracting it to other disciplines and fields. But the mathematics education is involved with the appropriate methods, materials and presentation in every field of living beings. Going together both played a very important role in building up modern civilization by perfecting all sciences.

Mathematics education is a modern discipline in the world. In the beginning, it was thought that mathematics and mathematics education were same. Now mathematics and mathematics education by nature are considered as the two distinct disciplines. Mathematics education deals with mathematics from the philosophical aspect, psychological aspect and sociological aspect of education.

The first international Congress of mathematics education held at Lyons in August 1969 established mathematics education as a discipline.

Mathematics education in a contemporary society is related to the invention of science and technology in to it along with socio -political situation of the society. Therefore mathematics education tries to answer the more valuable questions such as what is the value of mathematics in the total education of individual. What type of relevance exists between mathematic and human life. Why should mathematic be taught for our school children? How can it be learned by them surely?

In the ancient period 'Gurukul' was the education system in Nepal. There was no special training program. The Vedic term "Gurus" for teacher was given the worthy social prestige and recognition as "Guru Brahma, Guru Bishnu, Guru Dev Maheshwor". In this period students served teacher and his family. There weren't formal education institution as present. During this period, the Guru imparted the instructional orally to his disciplines. The students were trained to listen to the Guru's word attentively. The teacher was considered to be enlightened .So he alone was capable in teaching the pupil about the supreme in the era, little mathematics knowledge is involved wonder of wonder in the topic astronomy.

The 'Gurukul' education system continued for many years after Vedic period. Some Sanskrit scholars used to open Sanskrit school in more populated area to teach Sanskrit and astronomy as mathematics.

The English system of education was first introduced in Nepal by Jung Bahadur Rana after he had returned from a visit to England. He established Durbar School in 1953. Gradually, with the passage of time, the number of schools in the country increased slowly. At that time, the school introduced some subject including mathematics.

With the dawn of democracy in Nepal in 1951, the flood gate of education got opened. There was the rush for education all over the country. Nepal National Education Planning Commission (N.N.E.P.C) was constituted on 1953 A.D. Special emphasis was given to arithmetic aiming to tackle domestic account.

Mathematics curriculum was made more scientific after the implementation of the National Education System Plan (1971-1976). Mathematics was made compulsory at all levels of school education. Two hundred full marks was allotted for Primary School mathematics which was 30% of the whole subject of teaching work load. This indicates that mathematics was accepted as an indispensable subject for literacy. In the lower secondary and secondary level mathematics was given as 20% and 12% total time with 150 and 100 full marks respectively. At the secondary level, for the students who were interested to deepen knowledge in mathematics, an optional mathematics (full marks 100) was also introduced.

Following the recommendations made by the National Education Commission (N.E.C, 1992.A.D), school mathematics education was made more practical and useful for the contemporary society. Mathematics education is made more practical and contemporary in the society. The curricula were framed and implemented as suggested by NEC (1992.A.D). The present school level curriculum has been divided in to three parts such as primary curriculum (1993), lower secondary level curriculum (1994A.D.) and secondary level curriculum (1997 A.D) of mathematics.

2055B.S. report of higher level education commission give some suggestion for secondary education if categorizes three types of secondary education six to eight grades lower secondary, nine to ten grades secondary and eleven to twelve grade higher secondary. It also suggested that mathematics should be compulsory subject of 100 marks and an optional subject of 100 marks for the mathematics' to the interested students should be included in curriculum.

It has been given 100 full marks out of total 800 to mathematic education. Thus in each class of secondary level 15.4% credit hours in allocated in total credit hours and 12.5% full marks of total full marks is given for mathematics education. According to Government of Nepal, Ministry of education web site www.moe.gov.np

Table 1.1
S.L.C Result in 2067

Types of school	Appeared	Passed	Total passed %	Distinction	1 st	2 nd	3 rd
Total	397759	220766	55.5	0.09	37.42	49.73	3.73
Girls	187506	96461	51.44	4.33	15.32	22.81	1.68
Boys	210253	124305	59.12	5.70	21.90	26.92	2.05

Table 1.2
Community Schools

Types of school	Appeared	Passed	Total passed %	Distinction	1 st	2 nd	3 rd
Total	307611	143400	46.62	0.01	25.04	68.25	5.43
Girls	14952	64402	43.06	.44	22.81	70.67	5.50
Boys	158059	78998	49.98	.75	26.89	66.29	5.36

Table No. 1.3
Institutional school

Types of school	Appeared	Passed	Total passed %	Distinction	1 st	2 nd	3 rd
Total	90148	77366	85.82	.24	60.38	15.41	.59
girls	37954	32059	84.47	19.67	61.05	15.15	.52
Boys	52194	45307	86.80	20.71	59.91	15.59	.64

Table No. 1.4
Literacy Rate by sex

Male	Female	Total
70.7	43.3	55.6

Table No. 1.5
Total Enrollment according to New Education Structure

Total		Basic		Secondary	
Girls	Total	Girls %	Total	Girls %	Total
50%	7782219	50.2	6651883	49.3	1130336

In 2067 B.S, literacy rate are 43.3 of female, 70.7 of male and 55.6 percent of total. There is variety between female and male literacy. According to new Education structure, 50.2% of base education, 49.3% of secondary , 50.1% of total are enrollment of girls, S.L.C result in 2067, 55.50% total pass of total appeared students, 51.44% girls ,59.12% boys are passed of appeared girls and boys respectively. 85.82%, 46.62% pass percent of appeared institutional school and community school respectively only.84.47%, 43.06% are pass percent of institutional and community school of girls students. There is variety seen in pass percent between girls and boys, community and institutional school literacy rate in Nepal.

Since N.E.S. P. consider compulsory mathematics as an essential component of secondary school education. Observing the result of S.L C emanations of the last three years, no more then 60% of the girl students have passed as whole girl students and nearly 60% student have failed in mathematic. This failure percent is high in comparison to others objects. In such situation, it's common that students, parents, teachers along with others are seriously thinking. Only one reason may not be responsible behind the high rate of failure in mathematics. Curriculum, text books, teacher training and its preparation teaching materials and it use, teaching methods language social culture and

economical status may be the other responsible factors behind high failure rate in mathematic. Several studies have shown that the achievement in mathematics is affected by variable of language, ethnicity, gender, socio-economic condition of the students' families. (Rama Kumari K.C 2001) Thus the researcher in this present study is interested in finding out how far the variable in ownership of school, areas, education of parents, occupation Of parents and their relationship of girl students in Kaski district.

1.2 Statement of the problem

The study was attempted to explore analysis of the achievement of girl students between public and private, urban and rural, educated and non educated parent, occupation of parents, teacher and other, Brahmin and non Brahmin among their relation in the grade XI. This study intends to answer the following questions.

1. Is there any different mathematics achievement of girl students in between public and private school of grade 9?
2. Is there any different mathematics achievement of girl students in between rural and urban areas in grade 9?
3. Is there any different mathematics achievement of girl students in between Brahmin and non Brahmin caste of grade 9?
4. Is there any different mathematic achievement of girl students in between educated and non educated parents of grade 9?
5. Is there any different mathematic achievement of girl students in between teachers' daughter and daughters of other profession of grade 9?
6. Is there any different mathematic achievement of girl students in between Public and private in rural areas Of grade 9?
7. Is there any different mathematic achievement of girl students in between public and private in urban areas of grade 9?

8. Is there any different mathematic achievement of girl students in between rural and urban areas of private school of grade 9?
9. Is there any different mathematic achievement of girl students in between rural and urban areas of public school of grade 9?
10. What are the causes of low mathematics achievement of girl students?

1.3 Objectives of the study

This study was intended to accomplish the following objectives:-

(I) To compare the mathematic achievement of girl students with respect of ownership of school, areas, castes, education of parents, occupation of parents, among their relation.

Comparable Groups:

- a. Girl students in public and private schools.
- b. Girl students in rural areas and urban areas.
- c. Girl students of Brahmins and non Brahmin castes.
- d. Girl students of educated parents and non educated parents.
- e. Girl students of teachers' daughters and daughters of other professionals.
- f. Girl students of public and private school in rural areas.
- g. Girl students of public and private school in urban areas.
- h. Girl students in rural and urban areas of private school.
- i. Girl students in rural and urban areas of public school.

(II) To identify the causes of low mathematics achievement of girl students.

1.4 Significance of the study

Mathematics has occupied significant role place at all level of school education in Nepalese education system. 15.4 % of the total schools hour has been allocated to mathematics at secondary level now. Mathematics is taught from primary level to secondary level as a compulsory subject. Besides the compulsory mathematics there is optional mathematics offered at secondary level.

We have heard that girl cover half of sky but girl enrollment is less than boy enrollment in Nepal. Parents think that investing for girls in education is invains. Many problems have been faced by girl student in rural and urban areas. Again they think mathematics is difficult subject. It requires sufficient time and labour study mathematics. However, female do not get sufficient time for studying in most society. It is also one of the major researches for female to be back in mathematics. During the study of mathematics many problems were faced by the girls. So this study signifies the problem getting low girl students achievement.

General Significance of this study has been mentioned below:

1. This helps to compare the achievement level of students in coming years.
2. To provide the information to the concerned persons, agencies and government about mathematics achievement of girl in secondary school of Kaski district.
3. To provide hints to the administrator and mathematics teachers of Kaski district in improving the achievement and competency level of students in mathematics
4. This research would be useful for the students who are interested to do same type of research in this area.

5. The study contributes to identify many problems for making policy.
6. The study contributes to analysis of girl result.
7. The study signifies the necessary of re-thinking on the mode of instruction of mathematics.

1.5 Definition of Terms

1. **Achievement:** Achievement in this study is defined in term of score obtained by the students on taking test conducted by researcher in secondary level in compulsory mathematics.
2. **School Leaving Certificate (S.L.C):** Students who have completed their study in secondary level course have to pass, respectively, the secondary level examination which are conducted annually taken by Ministry of education and office of controller of examinations.[Education Information Of Nepal 2000,Page48]
3. **Municipality:** The area has been declared by Government of Nepal as having the minimum population of 20 thousand, 50 lakhs rupees annual income, transportation, drinking water and sufficient urban facilities are categorized as municipality. [Nepal Gazette published by Government of Nepal, Ministry of Law and Justices 2056, page 82]
4. **Village Development Committee (VDC):** Any area within the district demarcated by the His Majesty the Government is categorized as village development committee on the basics of equal distribution of population and geographical region. Every village development committee is divided into nine wards.[Nepal Gazette, Published by Government of Nepal, ministry of law and Justice2056,page10]
5. **Public school:** The school that are established and sponsored by government(Education Act-2028with-6th amendment)
6. **Private School:** The school which without any aid from the government are run by private investment by individuals, unions , agencies and any particular group.[Report of higher education commission2055,page 35]

7. **Educated parent:** - Those parent who have passed S.L.C or above reference educated.
9. **Non educated:** - Those parent who haven't passed S.L.C.
10. **Urban:** - those area which are in municipality.
- 11 **Rural:-** those areas which are in V.D.C.

1.6 Limitations of the Study

The study has the following limitations:

1. The study is limited in Kaski district.
2. The study is limited to compulsory mathematics achievement.
3. The study is limited to score of marks of examination (achievement test) in class 9.
4. The study is limited to unstructured questionnaire.

1.7 Statement of Research Hypothesis

1. There is no significant difference mathematics achievement of girl students between Public and private school.
2. There is no significant difference mathematics achievement of girl students between rural and urban areas in grade 9.
3. There is no significant difference mathematics achievement of girl students between Brahmin and non Brahmin caste.
4. There is no significant difference mathematics achievement of girl students between educated and non educated parents.
5. There is no significant difference mathematics achievement of girl students between teachers' daughter and daughters of other professionals.
6. There is no significant difference mathematics achievement of girl student between public and private school in rural areas.
7. There is no significant difference mathematics achievement of girl students between public and private school in urban areas.

8. There is no significant difference mathematics achievement of girl students in rural and urban areas of private school.
9. There is no significant difference mathematics achievement of girl students in rural and urban areas of public school.

1.8 Statement of Statistical Hypothesis

The following are statistical hypothesis for the above research hypothesis.

a) $H_0: \mu_1 = \mu_2$ Null hypothesis

$H_1: \mu_1 \neq \mu_2$ Alternative hypothesis

Where, μ_1 and μ_2 are parametric mean of compulsory mathematics achievement of girls between private and public school at grade 9 in Kaski district.

b) $H_0: \mu_3 = \mu_4$

$H_1: \mu_3 \neq \mu_4$

Where, μ_3 and μ_4 parametric means of compulsory mathematics score in rural and urban areas of girl students.

c) $H_0: \mu_5 = \mu_6$

$H_1: \mu_5 \neq \mu_6$

Where, μ_5 and μ_6 are the parametric mean mathematics score of girls in Brahmin and non Brahmin girl students.

d) $H_0: \mu_7 = \mu_8$

$H_1: \mu_7 \neq \mu_8$

Where, μ_7 and μ_8 are the parametric mean of compulsory mathematics score of girl students between educated and non educated parents.

e) $H_0: \bar{X}_9 = \bar{X}_{10}$

$H_1: \bar{X}_9 \neq \bar{X}_{10}$

Where, \bar{X}_9 and \bar{X}_{10} are the parametric mean of compulsory mathematics score of girl students between teachers' daughter and daughters of other professionals.

f) $H_0: \bar{X}_{11} = \bar{X}_{12}$

$H_1: \bar{X}_{11} \neq \bar{X}_{12}$

Where, \bar{X}_{11} and \bar{X}_{12} are the parametric mean of compulsory mathematics score of girl students between public and private school in rural areas.

g) $H_0: \bar{X}_{13} = \bar{X}_{14}$

$H_1: \bar{X}_{13} \neq \bar{X}_{14}$

Where, \bar{X}_{13} and \bar{X}_{14} are the parametric mean of compulsory mathematics score of girl students between public and private school in urban areas.

h) $H_0: \bar{X}_{15} = \bar{X}_{16}$

$H_1: \bar{X}_{15} \neq \bar{X}_{16}$

Where, \bar{X}_{15} and \bar{X}_{16} are the parametric mean of compulsory mathematics score of girl students between in rural and urban areas of private school.

i) $H_0: \bar{X}_{17} = \bar{X}_{18}$

$H_1: \bar{X}_{17} \neq \bar{X}_{18}$

Where, \bar{X}_{17} and \bar{X}_{18} are the parametric mean of compulsory mathematics score of girl students between in rural and urban areas of public school.

CHAPTER - II

REVIEW OF THE RELATED LITERATURE

Several studies can be cited which are directly and indirectly related to the comparative achievement in second mathematics. The review of related literature helped to make the concept clear for the study and also directly to analyze and interpret the data. Sufficient literature related to this study in Nepalese content could not be found. Such a study so far as the researcher knowledge concerned has not yet been made in the achievements of secondary level examination, despite the fact few related literature has been reviewed as follows.

There were many contributions on the researches about gender differences in mathematics learning. Most of them findings contradictory findings and overviews, published in the journals for research in mathematics education can be summarized as below:

The second international mathematics study (1964)

The first international mathematics study and the second international mathematics study (1964) found that the mathematic achievement of Japanese students was higher than American students of grade 8. Further, they studied mathematic achievement of 12th grade students of Japanese and American students. They conclude that mathematics achievement of Japanese students were higher than American students.

Fennema and Sherman (1978)

The data presented are part of a large study. Previously, sex-related differences in mathematics achievement and cognitive and affective variables related to

these differences had been explored in 9th -12th grades. This study follows that theme in grades 6-8 measured were computational skills, knowledge of concepts, problem solving ability, verbal ability, spatial visualization skills and attitudes to mathematics. The authors concluded "when relevant factors are controlled, sex-related differences in favor of males do not appear often, and when they do and not large."

ICME IV

The 4th ICME was held on 1980. In the USA, Barkley with the 73 Nations was participants and 2100 delegate were participated in the ICME. A major standing at the Fourth International Conference on Mathematics Education was about women and mathematics. The issue is one of the most widely talked about in the mathematics education community since the "New Math" In short, knowledge, about the importance of mathematics to females and the inequitable education in mathematics that females have received is easily found.

Swafford (1980)

Changes in achievement, attitude and applied problem solving skills that occurred while studying first year algebra were measured. While "Female achieved and in some instances better than males" on the standardized first year algebra test, the latter stereotyped math's as male domain more strongly than females.

Wolleat, Pedro, Becker and Fennema (1980)

The authors used the specially devised mathematics attribution scale to examine the relevance of causal attribution theory of achievement in mathematics. They found that females are more strongly than males attributed

success and failure in mathematics according to a pattern described as learned helplessness. Females were more likely to use effort but less likely to give ability as explanations for success ability and tasks were more often perceived as the reasons for failure. The attribution patterns of high achieving females were found to be particularly dysfunctional. "Sex differences in attribution to effect in response to success events are most pronounced at the highest level of achievement."

Armstrong (1981)

The findings of two national surveys (The women in mathematics study (1977-1978) and the national assessment of education progress data) were used to describe males and females achievement and participation in mathematics. Difference in mathematics achievement at the beginning and end of high school and differences in intended and actual participation in high school mathematics courses are presented and summarized as bellow:

Females enter with high mathematics skills the same as or grater than males. Sometime during the high school years, males catch up with and even surpass the females in certain area of achievement. The differences are observed, according to Armstrong, nor are they a function of sex difference in spatial visualization.

Rahaman (1981)

Rahaman (1981) did a study on sex difference in mathematics achievement of seventh grade students in selected schools of Kathmandu valley. He found that the boys performed better than the girls in each of the four levels of cognitive domain (knowledge, skill, comprehension and application) and in three areas of mathematics (Algebra, arithmetic and geometry). He also concludes that both

sexes got higher score in arithmetic. In algebra, they were equally good but in geometry both groups achieved poor score.

Armstrong and Price (1982)

A national survey of high school seniors was used to identify factors that affect women participates in mathematics. Results are presented in three areas; The relative importance of factors that affected student's decision to take mathematics, the correlation between students' attitudes and participation in mathematics and the findings from predictive models of student's participation in mathematics. Attitudes towards mathematics, the perceived usefulness of mathematics for educational and career goals, and the positive influences of key references groups parents, teachers, counselors, and peers were found to be particularly important intervention programs should be pained.

Schultz and Austin (1983)

The authors examined the effects of transformation type and directions on students (first, third, and fifth graders) understanding of transformations slide, flip and turn tasks were presented. No differences were found in the performance of boys and girls on the tasks.

Ethingon and Wolfle (1984)

Data from the national longitudinal "High school and Beyond" study were used to examine differences in mathematics achievement between men and women. A covariance structures causal model of mathematics achievement was used to examine the effect of selected variables (measures of general intelligence, socio-economic background, sex, spatial visualization, attitudes towards prior course work and prior achievement in mathematics) on each other and on mathematics achievement. The authors reported, "Women scored, somewhat

lower than men on a combined test of mathematics even after controlling for the effects of parental education spatial and perceptual ability, high school grades attitudes towards mathematics and exposure towards courses". They concluded that there is a complex interaction between sex, selected other variables and mathematics achievement.

Tiwari (1984)

In another study entitled "A comparative study of boy's and girl's attitude towards mathematics" Tiwari found that the attitude of boys was more positive than the attitude of girls towards mathematics (Sukder Tiwari "A comparative study of boys and girls attitude towards mathematics, Kathmandu unpublished master thesis, Department of Mathematics Education. T.U. 1984)

Femma and Tartre (1985)

The study used a longitudinal design to explore the relationship between mathematics problem solving performances, spatial visualization verbal skills and sex related differences in mathematics performances. The authors focused on students with discrepant useful data. They summarized the finding of their complex study as follows: "Students who differed in spatial visualization scene did not differ in their ability to find correct problem solution, but student with a higher level of spatial visualization skill tended to use spatial skills in problem solving more often than student with lower level skill. Girls tended to use pictures more during problem solving than boys did, but this did not enable them to get as many correct solution. Low spatial visualization skill may be more debilitating to girls' mathematics problems solving than boys".

Neupane (1985)

Neupane (1985) did a study on achievement in mathematics by location and sex. He concluded that students studying in urban school achieved better marks in mathematics than students in rural schools in terms of four cognitive levels. He also found that boys achieved better than girls in mathematics in terms of four cognitive levels.

Hanna (1986)

Hanna (1986) conducted a study in sex differences in mathematics achievement of Canadian students of grade eight using the data for the Second International Mathematics Study in the five areas: arithmetic, algebra, probability, statistics, geometry and measurement and showed that no significant difference in performance of boys and girls on the arithmetic, algebra and probability. For the geometry and measurement the boys' performance was found higher than that of the girls. It is still a question why such result is possible, whereas girl's performance in mathematics is lower than the boys in achievement in rural and poor communities.

Ferrini Mundy (1987)

The effects of spatial training on calculus achievement, spatial visualization ability and use of visualization in solving problem on solids of revolution were investigated in this study. Students enrolled in a calculus course individually completed six spatial training modules over an eight week period. No differences were found. In females and males performance on variety of measures administered before the training sessions began. The females however performed better on calculus exam administered after the training sessions. "Perhaps the most interesting findings are that practice on partial tasks

enhanced women's ability and tendency to visualize while doing solid of revolution problems."

Smith and Walker (1988)

An analysis of data from three 1979 New York State Regents mathematics examinations revealed that females performed slightly better than males on ninth and eleventh grade papers. While males did better on grade 10 papers. No substantial differences were found in the participation rates of female and male students in these examinations. The authors concluded that males and females "appear to perform as well as curriculum specific tests" provided the two groups have a similar history of previous course taking in mathematics.

Hacket and Betz (1989)

The relationship between performance and self-efficacy in mathematics, attitudes toward mathematics and the choice of mathematics related major were examined in this study for a group of undergraduate students. The authors reported that both mathematics performance and self-efficacy (measured using an instrument previously developed by them) were positively and significantly correlated with attitudes towards mathematics and masculine sex role orientation. They also concluded that differences in females and females mathematics self-efficiency expectations were correlated with performance differences between the two groups that males and to a slightly lesser extent females, tended to overestimate their performance, and that mathematics related self-efficiency expectations rather than past or current mathematics performance predicted mathematics related educational and career choices.

Whider and Powell (1989)

They found advantage for male on the geometry scale for grade 7th and 11th whereas on measurement for the 3rd grade levels girls performed better in the areas of knowledge. The study further conclude in favour of male in the area of higher levels of application and mathematical reasoning or problem-solving but female scored higher when computation and algorithm.

Battista (1990)

The extents to which spatial visualization and logical reasoning on skills, gender and teacher-linked differences affect performance in geometry were examined in this study. Briefly for both males and female's spatial visualization and logical reasoning were important determinations of geometry achievement, success in problem solving and strategies used. However, spatial visualization and logical reasoning appeared to contribute differentially to the performance of females and males. While no evidence was found of gender difference in logical reasoning or use of geometry problem solving strategies, male high school students on average scores significantly higher than their female peers on spatial visualization, geometry achievement and geometric problems solving tasks. The author argues that the teacher effects observed suggests that certain instructional practices may either exacerbate or minimize gender differences in geometry learning.

Shrestha (1991)

He conducted comparative study on topic, "Six difference in achievement in mathematics of grade9 students in Gorkha district" consisting 200 students (100 boys and 100 girls) as a sample and it concluded that boys achievement was higher than girls, in terms of whole test and in terms of level of mathematics and areas of mathematics. He also concluded that boy's

achievement was higher than girls, in terms of whole test and in terms of level of mathematics and areas of mathematics. He also concluded that both boys and girls performed best in computation better in comprehension and relatively poor in application. The difference in achievement among the cognitive level was found significant in both sexes.

TIMSS (1995)

The Third International Mathematics and Science Study (TIMSS) 1995 is the largest and most ambitious of the international comparative studies by the international association for the Evaluation of Education Achievement (IEA). In 1995, students in 41 countries around the world were tested in both mathematics and science. The TIMSS results have been disseminated to the public in a series by gender. Specifically, this result presents difference in mean achievement by gender for mathematics and science at the 4th and 8th grades for students in the final year of secondary school.

In most countries, male and females in the fourth grade had approximately the same average mathematics achievement. The few were statistically significant differences that were observed favored male rather than females (Korea, Japan and Netherlands).

Christiance, et al. (1997)

He did a study on gender differences in learning achievement and found that gender difference in ability and achievement are mainly due to social and cultural influences and not the biological causes. This indicates that the true intellectual potential of women would only be revealed if women receive a similar education as men and have opportunity to choose similar careers to men.

An international research report (2000)

An international research report (2000) about achievement differences between types of school and groups of school concluded that pupils in urban areas performed better than their counterparts in rural areas. The reason generally provided fact that big cities and mid-sized urban areas have relatively large proportions of high socio-economic status families. Schools in such areas often have better facilities and are in a favorable position to attract good teachers. (UNESCO, 2000)

Tharu (2004)

(Tharu 2004) did his research entitled “Impact of socio- economic status on Mathematic achievement” with the objective to find the level of mathematic achievement of students with respect to their socio-economic status and to determine the correlation between socio-economic status and mathematics achievement by gender. The tools for the study were administered to the sample of 140 students of Bardiya district and multiple regressions were applied to conclude the follow result.

Mathematic achievement status of girls and girls were found consistently positive associated with three variable father education, father’s occupation and family income that positively affected on girls and girl Mathematic achievement and family size and birth order of child had negative correlated that adversely affected girls and girls achievement in Mathematics .

Khanal (2004)

A study entitled "A comparative study of mathematics achievement of students between Girl's and Co-educational Schools in Kathmandu district" was made

by Khanal (2004). He concluded that Girl's school students were superior to Co-educational School in Kathmandu district.

After analyzing and reviewing these studies, the researcher arrive at the conclusion that the research study would be fruitful to find the causes of low achievement of girl students of ownership of school, areas, caste, education, occupation of their parents, among their relation. So this study intended to compare the mathematics achievement of girl students among various sector

CHAPTER III

METHODOLOGY

For validity and standard of quality of research, the research methodology must be appropriate as required by the nature of the study problem and it should be objective. So, the researcher should be clear about population, sample, tools required for researcher, procedure of data collection and statistical procedure to be used therefore, the above mentioned points are dealt sequentially in this chapter.

3.1 Population

The population of the study was the students from public school and private schools of Kaski district at grade IX who were still studying at Grade X in 2068 B.S. There are altogether 5232 girls and 5228 boys at class 10 in Kaski district.

3.1 Statistics of school in Kaski district

S.N.	Types of schools	Primary	Lower Sec- ondary	Secondary	Higher Sec- ondary	Total
1	Public schools	280	49	59	48	436
2	Private schools	19	32	119	33	204

3.2 Number of students in Kaski district at grade 10

SN	Types of school	boys	girls	total
1	Public schools	2472	3132	5604
2	Private schools	2756	2100	4856
	Total	5228	5232	10460

3.2 Sample

3.3 Number of sample schools and students

S N	School	Rural		Urban		Total	
		School	Students	School	Students	school	Students
1	Public	2	5	2	5	4	20
2	Private	2	5	2	5	4	20
	Total	4	10	4	10	8	40

Each school I was selected 8 class teachers, 40 parents for sample.

3.3 Instrument

An achievement test was main tool of this study. Names and address of sample schools are given in appendix C. First researcher was made a question sheet piloting test in Shree Gauri Shanker higher secondary school Hemja -9 kaski which result is equivalent final result in that school. Semi- structured interview are also main instruments for interview.

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3.3.1 Semi structured interview schedule

An interview is a conversation between two or more people where questions are asked to obtain about the interview. Interviews can be divided in to rough types for assessment and interviews for information (Available www.en.wikipedia.org)

Interview is also one means of data collection. Formal face to face meetings, in which the interviewer asked some questions with clients and replied by them

interviewees, were encouraged to respond toward the questions after better report. There were many types of interview; especially direct interview was conducted with clients in this study. In this technique the researcher not only asked the questions but also observed all behavior and answering ways of respondents. The interview schedule was managed with the support of supervisor. The semi-structured interview schedule is shown in Appendix A.

The interview being based on:

i) Area of semi- structured interview schedule for Teacher

- Regularity of students
- Willingness for learning
- Peer relationship
- Participation on classroom activates
- School provided facilities

ii) Area of semi- structured interview Schedule for parents

- Family background
- Parents' education
- Parent's income
- Study hour at home
- Expectation and influence
- Social behavior and facilities

iii) Area of semi- structured interview Schedule for Studer

- Peers influence and behavior
- Teacher behavior
- Society behavior
- School provided facility
- Society provided facility
- Study hour four mathematics.

3.3.2 Achievement test

Achievement test was considered the principals tool through which was gathered. First of all, researcher prepared a question sheet. The test constituted of 20 items (10 short and 10 long) types spread across the unit and sub-units of the Mathematics syllabus of grade IX according to the prescribed curriculum of Government of Nepal(Appending -B)

3.3.3 Procedure of data collection

The research has visited each of the sample school. The researcher informed the purpose to all the schools before hand. After visiting the school, Researcher conducted written test at each school and checked copy by using answer sheet. To compare the girl students over ownership school, areas, caste teachers' daughter and daughters of other profession, among their relations etc.

Researchers conducted written test, collecting all require information in attendances sheet and checked the answer papers. All information and scores obtained by sample students are presented on appendix D. Researcher has conducted interview for teachers, parents, students and collected responses as well.

3.3.4 Data Analysis Procedure

The statistical tool of t-test was used to find out the significant difference between mean scores of Mathematics achievement on girl students.

Comparing mathematics achievement with respect to ownership of school, areas, caste, education, occupation of their parents among their relationship. In

the case of two normal populations with unknown variance for independent sample, the T-test was used to compare the mathematic achievement in the form

$$t = \frac{\bar{x}_1 - \bar{x}_2}{Sp \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

$$Sp = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

Where, \bar{x}_1 = mean of first sample

\bar{x}_2 = mean of second sample

n_1 = number of items in first sample

S_1^2 = variance of first sample

S_2^2 = variance of second sample

The level of significance of the researcher study was 0.05 with $(n_1 + n_2 - 2)$ degree of freedom where n_1 and n_2 are the number of respondents in the first and second sample respectively.

CHAPTER IV

ANALYSIS AND INTERPRETATION

The data collected from the informal were analyzed and interpreted to find out the mathematics achievement of girl students. Questionnaire is a tool of studies Descriptive analysis had been done to describe the data from questionnaire. t -test was applied to compare the mathematics achievement between the comparable groups.

This chapter deals with analysis and interpretation of data obtained from sampled population of the study. The analysis of the study was carried out under the following major sections.

1. Comparison of mathematics achievement of girl students between public and private schools.
2. Comparison of mathematic achievement of girl students between rural and urban areas.
3. Comparison of mathematic achievement of girl students between Brahmins and non Brahmins caste.
4. Comparison of mathematic achievement of girl students between educated parent and non educated parents.
5. Comparison of mathematic achievement of girl students between teachers' daughters and daughters of other professionals.
6. Comparison of mathematic achievement of girl students between public and private school in rural areas.
7. Comparison of mathematic achievement of girl students between public and private schools in urban areas.
8. Comparison of mathematic achievement of girl students between rural and urban areas of private schools.

9. Comparison of mathematic achievement of girl students' rural and urban areas of public schools.

4.1 Comparison of mathematics achievement of girl students between private and public schools.

The first objective of the study was to compare the mathematics achievement between private and public school. For this purpose the researcher analyzed on the basis of marks of 40 students from 4 public and 4 private schools which are stratified randomly selected.

The mean, standard deviation and corresponding t-value of the score obtained by students are presented in table 4.1

Table 4.1

Mathematic achievement of girl students of public and private schools

Group compared	sample size	mean \bar{x}	standard deviation	$ t $	Conclusion
Public school	20	44.55	10.18	3.163	significant
Private school	20	55.72	12.53		

Critical value $|t_{0.025}| = 1.96$ (for n =40)

The table 4.1 shows that the mean score of girl students of private school is 55.72 and mean score of girl students of public school are 44.55 that gives the absolute mean difference between two groups is 11.17. That means achievement of girl students in private school is higher than girl students in public school in mathematics. The standard deviation of girl students in private school and public school are 12.53 and 10.18 respectively.

The obtained $|t|$ value is 3.163 which is greater than table t-value (1.96) at $\alpha=0.05$ level of significance and $\nu=38$ degree of freedom. Hence null hypothesis can be rejected. Hence, it concludes that the mean achievement of girl students between private and public school shows significant difference.

2. Comparison of mathematics achievement of girl students between rural and urban areas with respect to location

The second objective of the study was to compare the mathematics achievement of girl students with respect location rural and urban areas. For this purpose the researchers analyzed on the basis of mark of 40 girl students from 2 public and 2 private schools in rural, 2 private school 2 public in urban areas which are stratify randomly selected.

The mean, standard deviation and corresponding to t-value of the score obtained by students are presented in table 4.2.

Table 4.2

Mathematics achievement of girl students between in rural and urban area

Group compared	sample size	mean \bar{x}	standard deviation	$ t $	Conclusion
girl students in rural area	20	53.9	13.40	t = 2.008	significant
girl student in urban area	20	46.37	10.70		

Critical value $|t_{0.025}| = 1.96$ (for n =40)

The table 4.2 shows that the mean score and standard deviation of girl student in rural areas is 53.9 and 13.40 respectively and mean score and standard

deviation of girl students in urban areas is 46.37 and 10.70 respectively. That gives the absolute mean difference between two groups is 7.53. That means mathematics achievement of girl students in rural areas is higher than urban areas. The obtained t-valued in 2.008 which is greater than given t-value (1.96) $\alpha=0.05$ level of significance and $\nu=38$ degree of freedom. Hence Null hypothesis can be rejected. Hence, it is concluded that the mean achievement of girl students between in rural and urban areas shows significance difference.

4.3 Comparison of Mathematics Achievement of girl students between Brahmin and non Brahmin.

The third objective of the study was to compare the mathematics achievement of girl students between Brahmin and non Brahmin. For this purpose, the researcher analyzed on the basis of mark of 40 girl students from 2 public and 2 private school in rural and 2 public and private school which were stratify randomly selected.

The mean, standard deviation and corresponding value of the score obtained by students are presented in table 4.3.

Table 4.3
Mathematics achievement of girl students between Brahmin and non-Brahmin

Group compared	sample size	mean \bar{x}	standard deviation	$ t $	Conclusion
Brahmin girl students	19	53.73	14.79	1.761	in significant
non Brahmin girl students	21	47.07	9.29		

Critical value $|t_{0.025}| = 1.96$ (for $n = 40$)

The table 4.3 shows that the mean score and standard deviation of the Brahmin and the non Brahmin are 53.73, 47.07 and 14.79, 9.29 respectively that gives the absolute mean differences between two group is 6.66. That means, mathematics achievement of girl students of Brahmin have higher score than non Brahmin caste. The obtain t-value is 1.761 which is less than given table t-value (1.96) at $\alpha=0.05$ level of significance and $\nu= 38$ degree of freedom. Hence null hypothesis cannot be rejected. Hence, it is concluded that the mean achievement of girl students of Brahmin and non Brahmin shows insignificance difference i.e. mean achievement of Brahmin and non Brahmin are equal Difference be due to sample error.

4. Comparison of mathematics achievement of girl students between educated parent and non educated parent.

The fourth objective of the study was to compare the mathematics achievement of girl students of educated parents and non education parent. For this purpose, the researcher analyzed on the basis of marks of 40 students from 2 public and 2 private schools in rural and 2 public and 2 private schools in urban areas which are stratify randomly selected.

The mean, standard deviation and corresponding t-value of the score obtained by students are presented in table 4.4

Table 4.4

Mathematic achievement of girl students between educated parents and non- educated parents.

Group compared	sample size	mean \bar{x}	standard deviation	$ t $	Conclusion
Girl students of educated parents	17	53.35	15.16	1.467	in significant
Girls student of non educated parent	23	47.73	9.89		

Critical value $|t_{0.025}| = 1.96$ (for $n = 40$)

The table 4.4 shows that the mean score and standard division of girl students of educated and non educated parents are 53.35, 47.73 and 15.16, 9.89 respectively. That gives the absolute mean different between two groups is 5.62. That means girls students of educated parents have higher score than non-educated parents in mathematics. The obtained t-value 1.467 which less than given table t-value (1.96) $\alpha = 0.05$ level of significance and $\nu = 38$ degree of freedom. Hence null hypothesis cannot be rejected. Hence, conclude that the mean achievement of girl students of education parents and non educated parents show insignificance difference i.e. mean achievement of girl students between educated and non educated are equal difference be due to sample error.

4.5 Comparison of mathematics Achievement of Girls student of teachers' daughters and daughters of other professionals

The fifth objective of the study was to compare the mathematics achievement of girl students of occupation of their parent teacher and others. For this purpose, the researcher analyzed on the basis of mark 40 students from 2

public and 2 private in rural and 2 public and 2 private in urban which are stratify randomly selected.

The mean, standard deviation and corresponding t-value of the score obtained by students are presented in table 4.5.

Table 4.5

Mathematic Achievement of Girl Students of teachers' daughter and daughters of other professionals

Group compared	Simple size	Mean \bar{x}	Standard deviation	t	Conclusion
Girl student of occupation their parents teacher	6	63.41	13.14	3.13	significant
Girl students of occupation of their parents non teacher	34	47.76	11.10		

Critical value $|t_{0.025}| = 1.96$ (for n =40)

The table 4.5 shows that the mean score and standard deviation of girl students of teacher's daughters and daughter's of others professionals are 63.41, 47.76 and 13.14, 11.10 respectively. That gives the absolute mean difference between two groups is 15.65. That means girl students of teacher's daughters have higher score than daughter's of others professionals in mathematics. The obtained t-value (1.96) $\alpha=005$ level of significance and $\nu=38$ degree of freedom. Hence null hypothesis can be rejected. Hence conclude that the mean achievement of girl of teachers' daughters and daughters of other professionals shows significance difference.

4.6 Comparison of mathematics Achievement of girl students between public and private schools in rural areas

The sixth objective of the study was to compare the mathematics achievement of girl students between public and private school in rural areas. For this purpose the researcher analyzed on the basis of marks of 20 students from 2 public and 2 private schools in rural areas which were stratify randomly selected.

Mathematics Achievement of Girl Students between Public and Private Schools in Rural Areas

Group Compared	Simple size	Mean \bar{x}	Standard deviation	$ t $	Conclusion
Girl achievement of public school in rural	10	48.4	11.29	2.065	significant
Girl achievement of private in rural are as	10	59.4	13.08		

Critical value $|t_{0.025}| = 1.734$ (for n =20)

The table 4.6 shows that the mean score and standard deviation of girl student of public and private school in rural areas are 48.4, 59.4 and 11.29, 13.08 respectively. That gives the absolute mean difference between two group is 11.63 that means girl students of private school have higher score than public school in rural are in mathematics .The obtained i-value is 2.065 which greater than given table t-value (1.734) $\alpha = 0.05$ Level of significance and $\nu = 18$ degree of freedom. Hence null hypothesis can be rejected. Hence concluded that mean achievement of girl students of public and private school shows significance difference.

4.7 Comparison of mathematic Achievement of Girl students between public and private schools in urban areas.

The seventh objective of the study was to compare the mathematics achievement of girl students of public and private school in urban areas. For this purpose, the researcher analyzed on the basis of marks of 20 students from 2 public and 2 private in urban areas which were stratify randomly selected.

The mean, standard deviation and corresponding t-value of the score obtained by students are presented in table 4.7.

Table 4.7
Mathematic Achievement of Girl students of public and private schools in urban areas

Group Compare	Simple size	Mean \bar{x}	Standard deviation	t	Conclusion
Girl students of public in urban areas	10	41.1	7.28	2.67	significant
Girl students of private in urban area	10	52.05	10.77		

Critical value $|t_{0.025}| = 1.734$ (for n =20)

The table 4.7 shows that the mean score and standard deviation of girl students of public and private school in urban areas 41.1, 52.05 and 7.28, 10.77 respectively. That gives the absolute mean difference between two groups is 10.95. That means girl students of private school have higher score than public school in urban areas in mathematics. The obtained t-value is 2.67 which is greater than table t-value (1.734) $\alpha = 00.5$ level of significant and $\nu = 18$ degree of freedom. Hence null hypothesis can be rejected. Hence conclude that the

significance difference between the mean achievement of girl students public and private school in urban areas.

4.8 Companion of mathematics Achievement of Girls students in rural and urban areas of private schools.

The eight objective of the study was to compare the mathematic achievement of girl students in rural and urban areas of private school. For this purpose, the researcher analyzed on the basis of marks of 20 students. From 2 in rural and 2 urban areas of private school which were stratify randomly selected.

The mean, standard deviation and corresponding t-values of the score obtained by students are presented in table 4.8.

Table 4.8

Group Compared	Simple size	Mean \bar{x}	Standard deviation	$ t $	Conclusion
Girl Student in rural areas of private schools	10	59.4	13.08	1.37	insignificant
Girl students in urban areas of private schools	10	52.05	10.771		

Critical value $|t_{0.025}| = 1.734$ (for n =20)

The table 4.8 shows that the mean score and standard deviation of girl students in rural and urban areas of private school are 59.4, 52.05 and 13.08 and 10.771 respectively. That gives the absolute mean difference between two groups is 7.35. That means girl students in rural areas have higher score than urban areas of private school in mathematics. The obtained t-values is 1.373 is less than given table t-values (1.734) $\alpha = 00.5$ level of significant and $\nu = 18$ degree of freedom. Hence null hypothesis can be accepted. Hence conclude that the mean

achievement of girl students in rural and urban areas of private shows insignificance difference i.e. mean achievement of girl students between in rural and urban areas of private school are equal, difference be due to sample error.

4.9 Companion of mathematics Achievement of Girls students in rural and urban areas of Public schools.

The ninth objective of the study was to compare the mathematic achievement of girl students in rural and urban areas of public school. For this purpose, the researcher analyzed on the basis of marks of 20 students. From 2 in rural and 2 urban areas of private school which were randomly selected.

The mean, standard deviation and corresponding t-values of the score obtained by students are presented in table 4.9.

Table 4.9

Group Compared	Simple size	Mean \bar{x}	Stan dard deviation	t	Conclusion
Girl Student in rural areas of public school	10	48.9	11.29	1.30	in signifi- cant
Girl students in urban areas of public school	10	41.1	7.29		

Critical value $|t_{0.025}| = 1.734$ (for n =20)

The table 4.9 shows that the mean score and standard deviation of girl students in rural and urban areas of public school are 48.9, 41.1 and 11.29 and 7.29 respectively. That gives the absolute mean difference between two groups is 7.8. That means girl students in rural areas have higher score than urban areas of public school in mathematics. The obtained t-values is 1.30 is less than

given table t-values (1.734) $\alpha = 0.05$ level of significant and $\nu = 18$ degree of freedom. Hence null hypothesis can't be rejected. Hence, it is concluded that the mean achievement of girl students in rural and urban areas of public school shows insignificant difference i.e. mean achievement of girl students between in rural and urban areas of public school are equal difference be due to sample error.

4.10 Some causes of low Achievement in mathematic

It is already mentioned that semi structured interview schedule for teachers, parents and students were applied to collect the information. From the information collected in the semi-structured interview schedule, the researcher finally arrived at the conclusion as mentioned:-

a) Personal Causes

Person should be self active and has willingness to learn something new. Most of the girl students are concerned for their studies but some of them have hesitation for their studies. The concept 'higher education isn't a need for us' is attached in their mind. Girl students of private school are confident and self dependent than public school girl students. In rural areas they are confident and self dependent than urban areas. Most of girls are involve in the domestic work. Most of girl students have been already married. So they are not interested for higher education. They need to pass S.L.C for their marriage. They give less priority to education. So they show less willingness to learn some thing in school. Hence these are the main cause for low achievements in mathematics from the part of girl students.

b) Home Related Causes

Home is the first school for students. The family members can play important role for their children's education. Parents' income and education encourage the betterment of students' achievement. But most of the parents of girl students are uneducated and some of their seniors are literate. So students are not influenced academically from their family members. Hence there is no such learning home environment. Most of the parents have more children and they are busy on their work. So, they cannot care and guide for their children education. Most students of public school suffered from poverty. They hope some work from their children for their bread. Most girls' involve domestic work. Most girls couldn't do home work well. Hence, these causes are also responsible for low achievement in mathematics.

c) Socio -Culture Causes

Society is a mini school for students. Human beings can't live without society. Society also plays a vital rule for students' education. How does society looks for girl students and their children? Now days, it can be heard that different awareness programs have been launched but only very macro level programs are launched there. So, society's attitude towards them should be positive. Government and different types of NGOs / INGOs provide difference types of facilities and materials, but it is only limited for urban and elite people. So, it should maintain equity and equality and empower the remote and rural areas peoples girls student get married at younger age and they couldn't continue their education. So, all of these are the causes of low achievement in mathematics.

d) School related cause

School is the main place for getting formal education .Most of the students pass the reading times in school. School environment is one element of students' learning. Most of the schools show little emphasis towards girl students. Because of the great pressure of students, they have not special time to focus on them. Most of the teachers show equal behavior for all students but they cannot change their mind totally towards girl students yet. In comparison girl students feel more difficulty than boy students in class. School provides scholarship to students' parents and parents expend this money for their own purpose. They don't spend the money for educating their children. That means the scholarship is named for students but students have not reached to them. So, these are some of the causes of low achievement in mathematics in Nepal.

e) Government policy and implementation

Government made various policies but all of them have been are implemented yet. It can be learnt from different mass media that various events occurred concerning with lower student number. Government should focus those types of students specially. There is equity and equality provision in Nepalese constitution but practically has not been translated yet.

CHAPTER: V

SUMMARY FINDINGS CONCLUAIONS AND RECOMMENDATION

After analyzing and interpreting the data the research has tried to summarize, drawing, findings, deriving, conclusion and recommendations for future study. The first section of this chapter reveals the summary of study. The second section list the finding, the third describes conclusion derive on the basis of research analysis and the fourth section present the recommendation for further study.

5.1 Summary

Mathematic was one of abstract subject in the comparison of other subject. Most of the students dislike mathematics. So, it indicates that the attitude of students towards mathematics was not positive. The study was focused on the problem that girl students achievement in mathematics at grade IX. The main objectives were:-

It is compare of mathematic achievement of girl students between public and private school, rural and urban areas, Brahmin and non Brahman caste, educated and non educated parents, teachers' daughter and daughters of other profession, public and private school in rural areas, public and private school in urban areas, in rural and urban areas of private school, in rural and urban areas of public school.

The population of the study was selected from those studying gradeX in Kaski district, mathematics teachers and parents whose children were studying in secondary level have been included for the population. The researcher selected 2 public and 2 private schools in rural areas and 2 public and 2 private schools in urban areas. From these school, researcher has conducted an examination by setting own question for comparison. From each school 5 girl students stratified randomly selected corresponding parents, teachers were included for interview.

The researcher visited each sample school. The researcher has informed the purpose to all the school before hand. After visiting the school, with the permission of principals, conducting examinations using own question. The researcher conducted the interview with teachers, parents and students on the basis of semi- structure interview schedule. The responses giving by them were copied in paper. The statistical tool of t- test was used to find out the significant difference between mean score of mathematics achievement of girl students on public and private, rural and areas, Brahmin and non-Brahmin, educated and non educated parents, occupation of their parent teacher and teacher's daughters and daughter's of others professionals others, public and private in rural, public & private in urban, in rural and urban of private school and in rural and urban of public. In the case, two normal population with unknown variance in the independent sample. The t-test was used to compare the mathematics achievement. The collected information was analyzed in descriptive forms abstained by semi-structured interview schedule for teachers, parents and students.

5.2 Finding of the Study

Statistical analysis of collected data has depicted the following results as the findings of the study:-

- The mean achievement of girl students of private school is not equal to the mean achievement of girl students' from public school.
- The mean achievement of girl students in rural areas is not equal to in urban areas in mathematics.
- The mean achievement of girl students of Brahman is equal non-Brahmins.
- The mean achievement of girl students in mathematic of educated parents is equal to mean achievement of non educated parents.
- The mean achievement of girl students of teachers' daughters are not equal to mean achievement of daughters of other professionals.

- The mean achievement of girl students of public school is not equal to mean achievement of private school in rural areas.
- The mean achievement of girl students of public school is not equal to mean achievement of private school in urban areas.
- The mean achievement of girl students in rural areas is equal to mean achievement of girls students in urban areas of private school.
- The mean achievement of girl students in rural areas is equal to mean achievement of girl students in urban areas of public school.

5.3 Conclusion

The statistical analysis of grade 9 in the Subject of Mathematics varies between public and private, rural and urban areas Brahmin and non Brahmin, educated parents and non educated parents, teachers' daughters and daughters of other professionals, public and private schools in rural areas, public and private schools in urban areas, in rural and urban areas of private, in rural and urban in public school. Some very significant conclusions are given below.

- i) There are variations as seen regarding the achievement of girl students between public and private, in rural area and urban areas, teachers' daughter and daughters of other professionals, public and private school in urban areas, public and private school in rural areas.
- ii) There are no variations as seen achievement of girl students between Brahmin and non Brahmin Students, education and non- educated' parents in rural and urban areas of private school and in rural and urban areas of public School.

This study sources out area reality that students could do more contribution in achievement difference in mathematic. It can be seen from the students score that they got low achievement in mathematics. Student herself and home both

do not give less priority to education nor does the society, school and the government focusing to promote them as their rules.

5.4 Recommendations for further study

The conclusion of this study cannot be generalized to national level due to the limitations in this study. Considering the limitations analyzing the conclusion the following recommendation and suggestion are made:

- i. This study was conducted in Kaski district to get more valid and reliable result it would be extended to Nation wise.
- ii. A similar study would be appropriate for primary, lower secondary and higher level.
- iii. It is recommended to carry out study on achievement of girl students varies sector likewise: every caste, every occupation of their parent teacher and other professionals etc.
- iv. To improve their achievement in Mathematics student herself, school, society, home and the government should encourage and provide special treatment for studying environment.
- v. This study can be a path shower that further in depth study is required to identify the factors influencing Mathematic achievements of girl's among difference, communities of the countries.

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APPENDIX- A

The interview being based on:

i) Area of semi structured interview schedule for Teacher

- Regularity of Students
- Willingness for learning
- Peer relationship
- Participation on classroom activates
- School provided facilities

ii) Area of semi structured interview Schedule for parents

- Family background
- Parent's education
- Parent's income
- Study hour at home
- Expectation and influence
- Social behavior and facilities

ii) Area of semi structured interview Schedule for students

- Peers influence and behavior
- Teacher behavior
- Society behavior
- School provided facilities
- Society provided facilities
- Study hour mathematics.

APPENDIX -B
ACHIEVEMENT TEST: 2068

Name of Student:	Time: 1.30 hrs.
Education of Father:	School Name:
Occupation of Father:	Medium: English
Class: 10 (Ten)	F.M-100
Subject: Comp. Math's	P.M- 32

- 1) Factorize : $x^4 - 27x$
- 2) Factorize: $9p^4 - 15p^2q^2 + q^4$
- 3) Simplify: $\frac{x^{2m+2n} \times x^{3m+2n}}{x^{5m+2n}}$
- 4) Solve: $x^2 + 2x - 24 = 0$
- 5) Out of 540 students, a school has 60% boys. Find the number of girls.
- 6) Find volume of prism where base area 150 cm^2 and height 12cm.
- 7) Find the value of $(\sin 60^\circ \cdot \cos 30^\circ) + \sin 30^\circ$
- 8) Find the mean of the given data.

x	4	8	12	16	20
f	2	1	5	3	4

- 9) Find the Q_1 of given data.

Income in Rs.	4	8	12	16	20
No. of person	2	1	5	3	4

- 10) A bag contains 8 Blue and 4 Black marbles. Find the probability of getting a blue marbles.

Group - B

- 11) In a Survey 75% like milk and 60% like ghee neither dislikes both. Show the given information in Venn diagram and to find percentage of both like?
- 12) 6 women or 8 boys can do a work in 30 days. When will 5 women and 4 boys complete the work if they work together?
- 13) If the monthly salary of an employee is Rs. 13000, find the tax to be paid at the rate of 15% for the income more than Rs. 125000.
- 14) A sum of money double itself in 20 years, how long will be tripled at the same rate of interest?
- 15) The charge for 1 call of 2 minutes duration is Rs 4.50, if a person makes a call for 5 minutes how much does he have to pay including 10% TSC and 13% VAT?
- 16) Value of a square room is 2000 m^3 . If its height 5 m find the cost of plastering its floor at the rate of Rs 5 per square meter.
- 17) If $\frac{a}{b} = \frac{b}{c} = \frac{c}{d}$ then prove that $\frac{a^2 + b^2 + c^2}{b^2 + c^2 + d^2} = \frac{a}{b}$
- 18) Prove that: Base angle of Isosceles triangle are equal.
- 19) A line joining the middle point of two sides of triangle is parallel to the third side and one half of it.
- 20) $AB = 5.5 \text{ cm}$, $BC = 3.5 \text{ cm}$, $CD = 4.0 \text{ cm}$ $DA = 3.5 \text{ cm}$ and $\angle BAD = 60^\circ$ construct quadrilateral ABCD.

Excellent 1st, 2nd, 3rd & 4th students will be rewarded.

Thank You

ACHIEVEMENT TEST -2068

Name of Student:	Time: 1.30 hrs.
Education of Father:	School Name:
Occupation of Father:	Medium: Nepali
Class: 9 (nine)	F.M-100
Subject Comp. Maths	P.M-32

Group A

१. खण्डिकरण गर : $x^4 - 27x$
२. खण्डिकरण गर: $9p^4 - 15p^2q^2 + q^4$
३. सरल गर: $\frac{2x^2 + 3x - 2}{x^2 - 2x}$
४. हल गर: $x^2 + 2x - 24 = 0$
५. कुनै एक समुहमा ५४० विद्यार्थी मध्ये ६० प्रतिशत केटा छन् भने केटी कति छन्?
६. एउटा प्रिज्मको आधारको क्षेत्रफल 950 cm^2 र उचाई 92 cm भए त्यस प्रिज्मको आयतन पत्ता लगाऊ ।
७. मान निकाल: $(\sin 60^\circ \cdot \cos 30^\circ) + \sin 30^\circ$
८. दिइएको तथ्यांकको आधारमा मध्यक निकाल ।

x	4	8	12	16	20
f	2	1	5	3	4

९. दिइएको तथ्यांकको आधारमा Q_1 निकाल ।

Income in Rs.	4	8	12	16	20
No. of person	2	1	5	3	4

१०. ८ ओटा निला र ४ ओटा काला गुच्चाहरू भएको एउटा बाक्सबाट नहेरी एउटा गुच्चा निकाल्दा निलो गुच्चा पर्ने सम्भावना कति हुन्छ ?

Group B

११. एउटा समुदायमा गरिएको सर्भेक्षणमा ७५% प्रतिशत ले दुध र ६० प्रतिशत ले दहि मनपराउने गरेको पाइयो । यदि दुवै मन नपराउने कोहि थिएनन् भने उक्त तथ्यलाई भेनचित्रमा प्रस्तुत गरी देखाउ दुवै मन पराउने कति प्रतिशत थिए पत्ता लगाऊ ।
१२. ६ महिला वा ८ पुरुषले कुनै काम ३० दिनमा गर्न सक्दछन् यदि ५ महिला र ४ पुरुषले मिलि सो काम गरेमा कति दिनमा काम सिध्याउन सक्छन् ।
१३. कुनै कर्मचारीको मासिक आय १३,०००/- छ, १ लाख २५ हजार सम्मको आयलाई सरकारले छुट दिएको र सो भन्दा माथि १५ प्रतिशतको दरले कर बुझाउनु पर्छ भने सो कर्मचारीले वार्षिक कति कर बुझाउनु पर्ला ?
१४. २० वर्षमा आफै दोब्बर हुने व्याजदरका हिसाबले कति वर्षमा तेब्बर होला ?
१५. २ मिनेटको १ कल हुने गरी प्रति कल रु. ४.५० पैसा पर्छ र रकमको १० प्रतिशत टि.एस.सी. र १३ प्रतिशत भ्याट जोडी रकम लिने व्यवस्था भएकोमा यदि कुनै व्यक्तिले ५ मिनेट फोन गरेमा कति रकम दुरसञ्चारलाई बुझाउनु पर्ला ?
१६. उचाई ५ मिटर भएको एउटा आयातकार कोठाको २००० घन मिटर आयतन भए प्रति वर्गमिटर रु ५ का दरले भुईमा प्लाष्टर गर्दा कति खर्च लाग्ला ?
१७. यदि $\frac{a}{b} = \frac{b}{c} = \frac{c}{d}$ भए प्रमाणित गर्नुहोस् : $\frac{a^2 + b^2 + c^2}{b^2 + c^2 + d^2} = \frac{a}{b}$
१८. समद्विबाहु त्रिभुजका आधारका कोणहरु बराबर हुन्छन् प्रमाणित गर्नुहोस्:
१९. कुनै त्रिभुजको दुई भुजाको मध्य बिन्दु जोड्ने रेखा अर्को भुजासँग समानान्तर र सो भन्दा आधा हुन्छ भनी प्रमाणित गर ।
२०. यदि $AB = 5.5$ cm, $BC = 3.5$ cm, $CD = 4.0$ cm $DA = 35$ cm and $\angle BAD = 60^\circ$ हुने चतुर्भुजको रचना गर्नुहोस् ।

उत्कृष्ट प्रथम, द्वितीय, तृतीय, र चौथो हुने विद्यार्थीलाई पुरस्कृत गरिनेछ ।

सहयोगको लागि धन्यवाद ।

APPENDIX -C
NAME AND ADDRESSES OF SAMPLE SCHOOLS

- 1) SHREE GAURI SHANKAR HIGHER SECONDARY SCHOOL
HEMJA -9 KASKI
- 2) SHREE BARAHA HIGHER SECONDARY SCHOOL, DHITAL -1
KASKI
- 3) SHREE DHAULAGIRI BOARDING SCHOOL, HEMJA -9 KASKI
- 4) SHREE HEMJA BOARDING SCHOOL, HEMJA -5 KASKI
- 5) SHREE RATRIYA HIGHER SECONDARY SCHOOL, POKHARA -
1, KASKI
- 6) SHREE SHIVA SHAKTI HIGHER SECONDARY SCHOOL,
POKHARA-12 KASKI
- 7) SHREE KURUNA NIDHI HIGHER SECONDARY SCHOOL,
POKHARA-1 KASKI
- 8) SHREE GALAXY HIGHER SECONDARY SCHOOL, POKHARA -3
KASKI

APPENDIX –D
DETAIL INFORMATION OF SAMPLE

S.N.	Name of students	Name of Schools	Obtain marks in researcher test	Obtain marks in School	Name of father	Education of fathers	Education of students
1	Bhawana Subedi	K.E.F.H.S.S	32	60	mohan prasad subedi	M.A holder	Educated
2	Asmita Shai	K.E.F.H.S.S	50	62	Arjun Shai	10+2	Educated
3	Rekha Shreath	K.E.F.H.S.S	65	60	Saroj Kumar Shreath	Eight class	Non-Educated
4	Durga Adhikari	K.E.F.H.S.S	54	58	Shasi	Eight class	Non-Educated
5	Anisha Lamechhane	K.E.F.H.S.S	74.5	82	Ishwary	B.Ed	Educated
6	Ichhya Ghatane	New Gallexy H.S.S	47	55	Aita Bdr.	Eight class	Non-Educated
7	Kripa Katila	New Gallexy H.S.S	53	79	Hari krishna	10	Non-Educated
8	Samikshya Thakali	New Gallexy H.S.S	51	65	Yam Kumari	S.L.C	Educated
9	Srijana Udas	New Gallexy H.S.S	47	55	Sajan	8	Non-Educated
10	Anupa Pariyar	New Gallexy H.S.S	47	54	Ram Prasad	7	Non-Educated
11	Bhawana Shahi	Ratriya higher S.S.	44	40	Ashish	10+2	Educated
12	Sonika Gurung	Ratriya higher S.S.	41.5	41	Ram Prasad	10+1	Educated
13	Reeti Chapagain	Ratriya higher S.S.	47	42	Gopal	10+2	Educated
14	Sujita Bhusal	Ratriya higher S.S.	43.5	38	Resham	10+2	Educated

15	Saru Chapagai	Ratriya higher S.S.	30	35	Shiva	I.A	Educated
16	Yuci Nepali	Shiva shacti H.S.S	47	35	Narayan	6	Non-Educ
17	Manisa Nepali	Shiva shacti H.S.S	25	15	Gopal	6	Non-Educ
18	Susila Tamang	Shiva shacti H.S.S	42	27	Khum Bdr.	5	Non-Educ
19	Anisha Gurung	Shiva shacti H.S.S	49	34	Purna Bdr.	8	Non-Educ
20	Samjana S.K	Shiva shacti H.S.S	42	27	Shyam	9	Non-Educ
21	Ashrulata Bastola	Dhaulagari S.B.S	63	95	Krishna Udasee	M.Ed	Educated
22	Kusum Kunwor	Dhaulagari S.B.S	41	72	Durba Bdr.	8	Non-Educ
23	Bimala Kunwor	Dhaulagari S.B.S	35	71	Bishnu	8	Non-Educ
24	Sapana Gurung	Dhaulagari S.B.S	53	92	Surya Bdr.	10+2	Educated
25	Elize Bajagain	Dhaulagari S.B.S	79	96	Kamal Deep	B.Ed	Educated
26	Narayanani Tripathi	Hemja S.B.S	58	86	Madusudan		Non-Educ
27	Pabitra Timilsena	Hemja S.B.S	65	84	Krishna prasad	S.L.C	Educated
28	Susmita poudel	Hemja S.B.S	74.5	87	Keshav Sharan	M.B.S	Educated
29	Namrata Adhikari	Hemja S.B.S	57.5	82	Ram Prasad	I.A	Educated
30	Asmita Bhujel	Hemja S.B.S	68	81	Hit Bdr.	10	Non-Educ
31	Bimala Adhikari	Gaury Shanker H.S.S	35	46	Kheen Kumari	S.L.C	Educated
32	Puja Rana	Gaury Shanker H.S.S	54	68	Yam Rana	10	Non-Educ
33	Badana Sapkota	Gaury Shanker H.S.S	64	58	Bishnu Prasad	10	Non-Educ
34	Rafita Khatun	Gaury Shanker H.S.S	53	55	Amirbox miya	8	Non-Educ
35	Sabita Tripathi	Gaury Shanker H.S.S	71	82	Basanta	I.A	Educated

36	Gita Dawadi	Barah H.S.S	39	32	Tanka	10	Non-Educ
37	Bimala Adhikari	Barah H.S.S	42	35	Bodraj	10	Non-Educ
38	Nita Gurung	Barah H.S.S	37	25	Hitman	9	Non-Educ
39	Urmila B.K.	Barah H.S.S	44	35	Ram Bdr.	10	Non-Educ
40	Bishnu maya Adhi- kari	Barah H.S.S	45	36	Kedar	5	Non-Educ