Chapter - I

INTRODUCTION

Chapter Overview

This chapter begins with its introductory part, highlighting the background of study, problems of the statement, objectives of study, research questions, statement of hypothesis, significance of the study, delimitation of the study and definition of related terms.

Background of the Study

Mathematics developed from society. The history of mathematics education reflects that the contemporary society has served today's situation in the field of mathematics. It was developed to fulfill the necessities of the society. Mathematics is developed in different societies in their own means and ways for their requirements (Best and Khan, 1999). Basically it is very much older which begins in 11th century as well known as for the first mathematician of any note was a Greek named zero. Zero of Elea is memorable for arguments like racecourse (Stephen and Sue, 2001).

Mathematics and mathematics education are two separate disciplines in the field of education. Mathematics primarily focuses on the process and product of what mathematics does. The focus of mathematics is on creating mathematics with understanding its basic structure. It does not give much concern on how mathematics should be taught, what mathematics should be taught, who can learn mathematics and why one can't learn mathematics like issues. Mathematics education deals with mathematics from perspective of education. It is concerned with the development and implementation of appropriate mathematics curriculum and with all issues associated with the teaching and learning of mathematics. In keeping with concept of lifelong learning, mathematics education covers learners of all ages and at all levels

from early childhood to adult. Thus, mathematics education is not solely concerned with curricula, classrooms, teachers and learner in school, nevertheless, issues associated with school mathematics will major focus. The area of mathematics education is curriculum, teaching, learning and evaluation. Five foundations philosophies, psychology, sociology, mathematics and technology guide these three areas. Hence mathematics education is applied discipline that deals with the wider application of mathematics in different sector and fields. Mathematics carrying full marks 100 along with optional mathematics 100 marks in both private and public school in secondary level.

Mathematics directly deals with human life. It is believed that the development of mathematics and development of human civilization go together. Mathematics was crated to fulfill the human needs. Through mathematics was introduced later in the education system, it has been developed simultaneously with the development of society. Mathematics is not only through and practiced through the formal institution, the contemporary societies have been practicing it with own ideas and belief system.

Historically, literature shows that mathematics originated from practical experiences. It was used in which building bricks, house, gutter, bridges, temples, pyramids, different handicrafts, and planed cities. This is found from the evidence of Babylonia and Egypt civilization at around 3000 BC to 200 A.D. to you and to me for its method content as well as characterized by order and internal consistency. It is queen of all sciences. Elementary mathematics including ancient in most ancience civilization including ancient Greek, the Roman empire, Vedic society and ancient Egypt. Inmost cases, a formal education was only available to male children with a sufficiently high states wealth or caste (Hann, 1961).

Plato divided the liberal arts into the tritium and equadriuium comprised the field of arithmetic and geometry. Later, Plato gave the structure but it was

modified and developed in medicinal Europe. Teaching of geometry as almost university based on Euclid's elements.

In the renaissance, the academic status of mathematics was declined because it was strongly associated with trade and commerce. Although, it was almost universally based on Euclid's elements but it continued to be taught in European Universities. It was seen as subservient to the study of natural, metaphysical and moral philosophy. This trend was some what reversed in the seventeenth century, science of dynamics, fields of pure geometry, modern analytic geometry number theory and theory of probability were found.

In the eighteen and nineteenth century, the industrial revolutions led an enormous increase in urban population. Basic numeric skills, such as the ability to tell the time, count money and carryout simple arithmetic, because essential in this new urban life style. Within the new public's education system, mathematics became a central part of the curriculum from the early age of 20th century. However diverse and changing ideas about the purpose of mathematical education led to little overall consistency in content or methods that where adopted.

In the context of Nepal, when Rana Regmi came to power, they established a durbar school in Thapathali, Kathmandu and started to teach mathematics but there were not good planned programmes in Nepal. Mathematics in its real sense, started only after the dawn of democracy in 1951 A.D. College of education was established in 1956 and it played a crucial role to bring improvement in mathematics teaching. In 1961, a teacher educator workshop revised the course of study and added method of teaching mathematics at primary level in 1965, mathematics course was against revised in order to make it relevant to the school mathematics programme. In 1968, some concrete efforts were made to modernize the mathematics course for perspective teachers.

Statement of the Problem

Actually in grade XII in management stream. There are two choose of selecting subjects. One is business mathematics and another is marketing. Most of the students are run toward marketing. Only few selected students choose business mathematics. Researcher wants to know the attitude of students towards business mathematics. Also the most of girls go toward marketing. Among them researchers interested toward the business mathematics why students feel that? What are the attitudes of students towards business mathematics? Do the boys and girls have the different attitude towards it. So the researcher keen excited towards this topic. He selected the comparison of community and private grade XII student's attitude towards business mathematics. Although, there is quite a lot of anecdotal information showing this study is an attempt to evaluate the attitude of the management students of XII towards business mathematics.

Objectives of the Study

Every research needs the objectives. Without the destination nothing can be achieved. So the researcher was keen interested to meet the following objectives:

i) To assess the grade XII students' attitude towards business mathematics as well as attitude of community students and private based students.

ii) To compare the attitude of boys and girls towards business mathematics.

Research Questions

i) What is the attitude of management students of grade XII towards business mathematics?

ii) Do they have positive attitude towards business mathematics?

iii) What is the relation of boys and girls attitude towards business mathematics?

Statement of Hypothesis

On the basis of the above objectives the following statistical hypothesis was formulated for this study. For this researcher made the following hypothesis:

Null Hypothesis: There is no significance difference between attitude of boys and girls students in business mathematics.

Alternative Hypothesis: There is significance difference between attitude of boys and girls in business mathematics.

i.e. H_0 : They favor the statement

H_1 : They do not favor the statement

Where, H_1 and H_2 are the parametric means of score obtained in attitude test by girls and boys students.

Significance of the Study

In this scientific and technological era, every nation has to be competent as not to be lagging behind in the path of development. It is clear that no nation can survive without mathematics. Without mathematics no substantial progress could be achieved in the field of science & technology. A well ground understanding of mathematics is an essential for everyday life as for higher study in the field of science and technology. As such mathematics helps the students to determine how and in what aspect they could contribute to the welfare of the community and to the development of the nation.

Individually, for the sake of better life everyone can study mathematics and gain better achievement. There are positive attitude from every aspect toward mathematics except from dangerous situation of every movements.

The significance of this study can be stated in the following points.

i) The results of this study intended to determine the higher secondary level management students toward business mathematics.

ii) It also helped to improve the teaching learning situation in the context of negative attitude towards business mathematics.

iii) The result of the study showed the clear figure of boys and girls attitude towards business mathematics. So this study would help to compare the attitude of boys and girls towards business mathematics.

iv) The study showed the different attitude towards business mathematics of community school and private school's students.

v) It is helpful for national policy marker, mathematics curriculum administrations and all other concerned personal denotes to it.

Delimitation of the Study

Due to the certain, time, expenses and other related factors the researcher cannot carry his research in the total population. Therefore he selected the some specific sample to meet his objectives. For this he selected the some +2 high schools of Kathmandu district. By the information gathered from the sampled is generalized in the total population. For this, the following are the delimitation of the study.

i) This study is limited only in Kathmandu district.

ii) The population of this study is limited to grade XII management students of Kathmandu district.

Definition of Related Terms
Attitude Scale

Information from that attempt to measure the attitude or belief of an individual is known as attitude scale according to best and khan, attitude scale is an inquiry form or scale used to obtain the measure of attitude of an individual towards some phenomenon, in this study attitude. Scale was used by researcher to obtain the measure of attitude of student in higher secondary level which was developed by Fennema and Sherman entitled "A modified Fennema-Sherman mathematics attitude scale."

Chapter - II

REVIEW OF RELATED LITERATURE

Chapter Overview

The review of related literature is an important and essential for guideline of research planning. It helps to give better idea of research and helps to teach hypothetically nearly about the conclusion; some of the related literatures of this study are listed below.

Research in any sector of skill wants a suitable studied with the works in which there many have many research been done in the same area. We get deep knowledge from research which must have already developed theories and researches which is approximately connected with the problem chosen by him or her. From review of literature we became identify of what has been established known or studied & what has not been try to be found yet. It also provide knowledge find out the difference in research for further study. The purpose of review literature is to spread upon the text and background of the study. There are so many books, report and related studies have been reviewed in order to explain the present problem of the study.

Haan (1961) writes that the teacher's attitude as well as the understanding of mathematics influences the pupil's achievement. He further added that the large number of teachers who dislike or fear mathematics has become a factor in children's attitude towards the subject. The effect of teachers attitude are widespread like all to her attitudes, dislike of mathematics is readily communicated to children either directly or unconsciously.

Margaret (1987) states attitude of students and pre-service teachers toward geometry as there is a historical record of the negative anxious attitude of many students towards geometry when college students with such an attitude are asked to trace the origin of their anxiety, they are usually identify on or

more of following, too much memorization, little or no attempt to relate the subject to the real world and the rigid attitude of the teachers towards alternative approaches. Unfortunately these reasons mirror the way to many teachers have interpreted the discipline of geometry. In the name of rigor, rigidity occurs. Euclid's hard-von deductive structure is presented as if there had been to human errors or longwinded proofs. Preserve teachers of mathematics are aware of this dislike of geometry by some of their non-teaching friends and are often-fearful that their first teaching assignments many include this course. Neither the college instructor nor the secondary school teacher can dismiss the effect of negative attitude and anxiety on the learning of geometry. For the college teacher of pre-service teachers, the first task is to help these students face their fears understand the attitude of others and learn a different view of discipline of geometry.

Tiwari (1984) in his study entitled "A study of boys and girls attitude toward mathematics' concluded that both boys and girls held positive attitude toward the place of mathematics in society. Comparing the attitudes of different genders, girls seemed to determine boys in response to this view. Since the correlation between students and their parents attitude was statistically significant. It was concluded that they are closely correlated. The mean measure of attitude of boys and girls parents did not differ significantly. This indicates that parents of both sexes hold the same attitude toward mathematics. The correlation between students' attitude towards mathematics and their achievement in this subject were found to be significant. It proves that they were closely related to teach other.

Judith (1994) on his research paper 'shedding some new light or old truth" students attitude to school in term of year level and gender" indicates that middle school and high school girls have positive attitude towards school put negative attitude towards mathematics. It focuses on the gendering the separation of boys and girls of Australian school' through the study of seventh, eighth and tenth grades in co-educational school programs as well as girls only

school despite some authors beliefs that separating boys and girls, for mathematics, the result indicates that even when girls are taught in all girls school they still have towards mathematics with regards to teacher. The paper suggest the separating boys and girls during mathematics instruction does not improve girls, negative attitude towards mathematics.

Daniel (1995), on his research paper `Rural elementary students" attitude towards mathematics p. 20-22 indicates that girl's positive attitude towards, mathematics decline as they. grow older. Initially girls have more positive attitude towards mathematics than boys do, but as they continue in school, girl's attitude become more negative. In order to improve girl performance in mathematics teachers need to facilitate positive attitude in girl s towards mathematics.

Tartre & Fennema (1995) reported that the pupil's perceptions about the usefulness of mathematics showed minimal if any differences between males and females, and showed to be independent of the other attitudinal variables. In this study, only in the sub scale girls rating slightly surpassed some of the values of boys apparently showing that girl agreed equally with boys that mathematics is useful. Kenschaft (1991) reported that parents support or lack of support in an important in student's attitude and participation in mathematics instruction. Similarly dossey (1992) considered teachers to play an important role in shaping attitude towards mathematics.

Narton & Rennie (1998) supported that boys were more confident in working in mathematics than girls. Solar (1995) & Relich (1996) have consistently found that from the beginning of the secondary level female perceive their mathematical ability to be lower than that males are significantly more confident of themselves as learners of mathematics and this pattern was supported by the findings of present study.

Stepen and Lonie (1998) did a study on the topic "Students attitude towards mathematics in single sex and co-education schools. This discussed

student's attitudes towards mathematics at the secondary school level. The attitude of boys and girls in grade 8 to 12 in four schools were compared single sex boys and single sex girl's private school and private co-educational. This study was an exploration of how student's attitude varied according to grade, sex and educational setting. They concluded that there were no difference between students in two coeducational schools, in general students attitude were found to be positive in more senior grades, and overall boys had more positive attitudes than girls.

Pandit (1999) on his master thesis "a study of attitude of secondary level students, and teachers towards geometry" concluded that the students' studying in secondary level had a positive attitude towards geometry but the teachers have negative attitudes towards this subject. The secondary level boys had better attitude than those of girls' attitudes towards geometry, the mean attitude score of students towards geometry was significantly greater than that of their teachers.

Subedi (2000) in his study "a study on effectiveness of mathematics teacher attitudes towards the visually impaired/blind students' achievement in integrated school" concluded that specially trained teachers held significantly better attitude towards the blind students than that of untrained teachers. Similarly, the untrained teachers showed their favorable attitude then that of trained teachers.

Bhattrai (2001) studied on his master thesis `a study of teachers' opinion on secondary school mathematics curriculum" the selected thirty secondary schools of Tanahun district and concluded that there was a positive opinion of secondary school mathematics teachers towards secondary school mathematics curriculum. The secondary school mathematics curriculum_ is useful as well as appropriate and some topics such as probability, statistics, set etc. all useful as well as sufficient for the present need of the society. The society the public schools teachers' opinion about the mathematics curriculum is better than that

of private school teachers. The rural public school teachers have positive opinion than that of the urban public school.

Khadka (2006) did a study on the title "Factor influences the attitudes towards the learning mathematics to the children of Ex-Kamaiyas." The objectives of the study were to find out the factor influencing the attitudes towards learning mathematics to the children of ex-Kamaiyas in Kailali district and to find out liking and disliking factors of mathematics to the focused group, interview and observation are applied together with related information and data. Physical condition, socio-economic status of Ex-Kamaiyas teachers attribution and usefulness of mathematics mechanism distribution of incentive, average children, low involvement in education found that most influencing attitudes in learning mathematics. Similarly low family income trend of tuition, trend of math system, trained teacher and non-experience teachers, high gap of school and community relation.

Similarly other different research and research paper shows diverse conclusion likewise Catsambis (1995) indicated that difference attitude begin in the middle grades with boys begin positive while girls are negative. Milonas (1990) started that no serious differences were detected in the attitude of boys and girls towards mathematics. Since boys and girls exhibited the same enthusiasm or faced the same difficulties on different topics.

Above mentioned of all studies reported that the attitude of students and their parents toward mathematics and comparative study of that's student toward mathematics was not conducted in Nepal yet. So the researcher bank attempted to study on his field; therefore it was useful for those who have interested on his domain.

Chapter - III

METHODS AND PROCEDURES

Chapter Overview

This chapter begins with its design of the study, population of the study, sample and sampling strategy, study area/field, data collection tools and techniques, data collection procedure and Data Analysis and Interpretation of Data.

The chapter presents the design of the study, which carried out to achieve the objectives of the problem. This chapter delineated designs of study the population, the method of sampling and sample of the study and the instrument used to collect the information. It explained the statistical procedures used in analysis and interpretation of the result.

Design of the Study

Kerlinger writes "Research design is a plan, structure and strategy of investigation concerned so as to obtain answer to research question and to control variance. The plan is the overall scheme and programme of the research. It includes an outline of what the investigator form writing and the hypothesis and their operational implications to the final analysis of data. The design of the research is survey type.

Survey research studies large universe by selection and samples chosen from the population to discover the relative incidence distribution and interrelations of sociological and psychological variable (Kerlinger, 1973 : 410). Survey research is probably best accepted to obtaining personal and social facts, beliefs and attitude.

Population of the Study

Every research needs the population. Without population research can not be conducted. It has the crucial role. So the researcher made the population where studied. The population study was consisted XII level management students of KTM district studied business mathematics on the academic year 2014/2015, studying with management stream.

Sample and Sampling Strategy

Due to certain time, money, resources, it creates the problem in the taken population. So the researcher took the sample which meet the all the characters of population. So, the researcher made the list of higher secondary school was prepared from the list maintained by the district education office. According to the education statistics available from district education office of KTM district there are altogether higher Secondary school running with the management stream in the academic year 2014/2015. From the list there are 4 higher secondary of southern part of this district selected by method of convenience sampling. Hundred students were selected, sixty of them were boys, and 40 were girls.

Study Area/Field

Every study needs study area. Researcher chose four higher secondary schools of Kathmandu district. It included Janasewa Higher Secondary School, SS Higher Secondary School, Mangal Higher Secondary School and Bernhardt Higher Secondary School.

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Figure 1
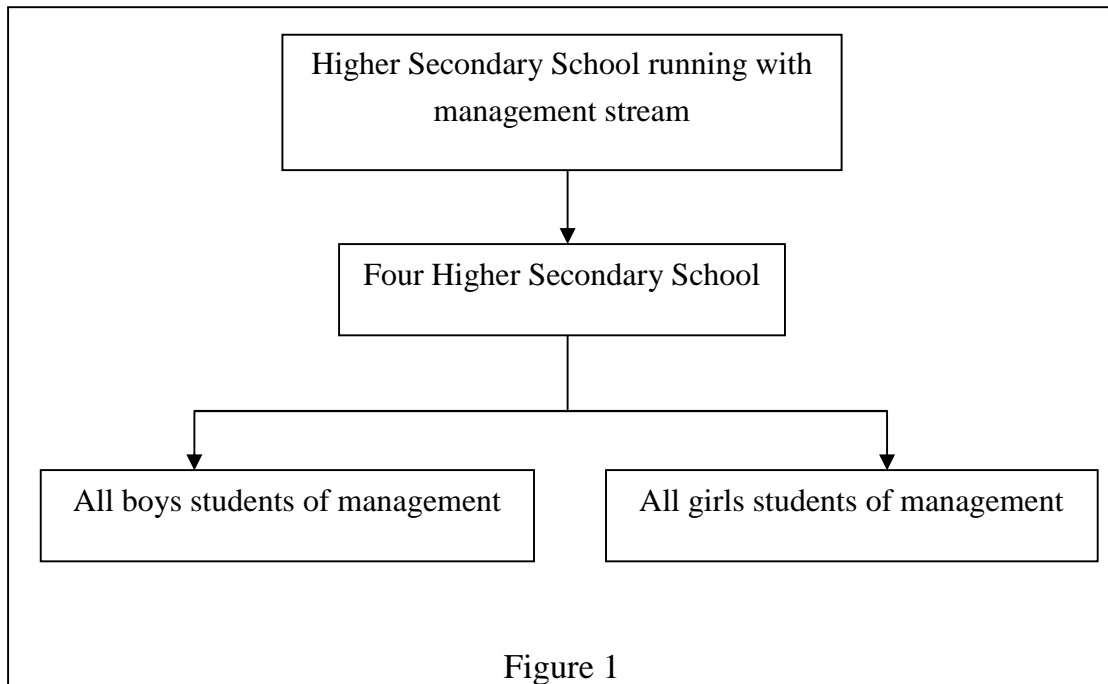
Data Collection Tools and Techniques

Every study needs to collect data. Likewise for this study one set of questionnaire test paper and one set of interview schedule were instrument. The construction process and validation of the tools in this study are described below.

i)   Questionnaire Form

A list of question entitled "A modified Fenema Sherman mathematics attitude scale" was employed as an instrument for getting needed data. That scale was recently developed in the standard from the measure of attitude of higher secondary level students of age group (16-21) years which consisted of 30 statements had five option strongly agree, agree, neutral, disagree and strongly disagree for each item.

This scale was comprised different aspect of mathematics like personal confidence about subject matter, usefulness of subject content, object was perceived as a main domain. The applied attitude scale consisted of twenty five positive statements and five negative statement. The scoring procedure were mentioned. According to the value of five points to strongly agree response, four points for three and two points for disagree and one points for strongly disagree statement. Similarly, for negative statement five points to strongly disagree, four point for disagree, three point for neutral two points for agree and one point for strongly agree.

ii)   Interview Schedule

In any research only tool is not sufficient, and the data obtained from interview is to be more reliable and accurate. So the researcher developed interview schedule in semi-structured from according to the guidance of supervisor. It was carried out among four mathematics teacher from four samples XII school. Interview schedule covered the same main factor containing their opinion.

Data Collection Procedure

After selecting the sampled of higher secondary school randomly, the research was invited the related XII school running with management stream with instrument to collect data. Before administration of the tools, investigator meet the authorities and explained the objectives of the study in detail. The principal of that school was agreed to allow the study to be carry out for the researcher. After arranging the data and time for administrating the instrument, the students and teachers assembled ready to participate in the study. The researcher explained its purpose and relevance and researcher tools administrated in group with direct supervision. The data was achieved by administrating the attitude test paper among the sampled students. For the opinion of XII students, the researcher distributed questionnaire the sampled students. After getting response of all the students, the questionnaire was taken back with thanks.

With the help of semi-structured schedule, the interview was conducted with mathematics teacher of each sample XII class.

The response given by teacher was arranged in different code.

Data Analysis and Interpretation of Data

To analyze the guttered information was used the χ^2 test and t-test. By the help of χ^2 test the attitude of higher secondary level student was identified and through the use of t-test researcher compare the attitude of boys and girls at 0.05 level of significance.

Chapter - IV

ANALYSIS AND INTERPRETATION OF DATA

Chapter Overview

This chapter begins with attitude of higher secondary level students towards mathematics, influence of teaching learning activities' and home environment on attitude.

This chapter presents the result of statistical analysis of gathered data, which were collected from the students of higher secondary school of Kathmandu district for analyzing data distinctly. The investigator presents the analyzing process and results with respect to the objectives which are as follows.

(i)   To asses the grade XI students attitude towards business mathematics.

(ii)   To compare the attitude of boys and girls towards mathematics.

Attitude of Higher Secondary Level Students towards Mathematics

The first objective of the study was to find out the attitude of higher secondary level students towards mathematics. In order to achieve this objective the χ^2 value of 30 statements at 0.05, level of significance has been calculated and analyzed the responses, which was tabulated in the following table.

Influence of Teaching Learning Activities' and Home Environment on Attitude

Theoretically, it was assumed that students attitude in business mathematics is depended on teaching activities, teacher's qualification, and interest of learner, expectation, view and beliefs towards business mathematics.

Teacher's qualification as determined by education, experience and expertise has shown to be the single most significant factor contributing to student. Interest is also an important determining factor in students' attitude. If the students do not have curiosity to learn the teacher cannot teach. The expectations of teacher, parents and students themselves have a significant effect on attitude level. Different research shows those students who are more likely to achieve in 10+2 schools. It has been shown that teachers generally tend to have lower expectations for minority children and children from poor families (Gems and Davies, 1990). The student's activities and beliefs were affected. Many articles suggest that students have negative attitudes and expectation for their performance in mathematics. Teachers teaching style such as their use of co-operative rather than comprehensive learning also play a pivotal role with mathematics.

The following 30 statements are all related with the course of study. It was depended on the teacher, student, parents and their environment. Parents' education, socio-economic condition of family, study hour at home practices time gender bias in family. Generally considered the home environment. Parents' awareness, interest and knowledge about handling and guiding their children at home. The economic status of parents directly affects the child learning. Various researches have shown that higher the socio-economic status of family also affected their children's attitude. The role, responsibilities, constrains opportunities, and practice factor depend on students views.

Table No. 1

t^2- Values of Statements of Administrated Attitude Scale to Higher Secondary Students on Business Mathematics

S.N.	Statements	SA	A	N	D	SD	χ^2-Values	Decision
1	I am sure that I can solve all the problem of set theory	23	18	24	17	18	0.10	NS
2	I understand very well function and graph.	26	17	21	15	21	3.6	NS
3	Function is more hard than graph.	22	20	17	21	20	0.7	NS
4	Sequence is not based on the secondary school level	30	25	15	10	20	12.5	S
5	Permutation and combination are hard than probability	10	15	25	20	30	12.5	S
6	I can solve the all problem of co-ordinate geometry.	35	29	17	16	3	26	S
7	I understand the question of distance	27	22	15	17	19	4.4	NS
8	System of linear inequalities is easy than system of linear equation.	35	24	12	13	16	18.5	S
9	I can't understand properties of determinants.	10	12	30	14	34	24.8	S
10	Matrix is easy chapter for me.	22	19	24	17	18	2.10	NS

11	Complex number is combination of real number and imaginary number.	23	18	24	17	18	2.10	NS
12	The logarithm is new chapter for me.	27	22	20	13	18	5.5	NS
13	Probability question is difficult to understand.	24	17	24	17	18	2.7	NS
14	Limit should put in secondary level.	26	21	21	13	19	4.4	NS
15	Limit is necessary for the continuity exists but not reverses.	17	18	24	18	23	2.1	NS
16	Derivative is difficult to solve the all problem for me.	24	23	18	17	18	2.1	NS
17	Simple interest is hard	38	22	22	16	3	31.1	S
18	Two dimensional coordinate have 2 planes	18	23	17	24	18	2.10	NS
19	Business mathematics is easy subject	27	23	21	16	13	6.2	NS
20	Business maths is little waste of time	15	18	24	17	26	7.1	NS
21	Business maths is interest subject	24	17	24	18	17	2.1	NS
22	Business mathematics is necessary for human life	26	21	20	13	20	4.3	NS
23	I am sure that I can achieve 85% marks	25	20	22	15	18	2.1	NS

		SA	A	N	D	SD	χ^2	
24	Business mathematics is useful than marketing	25	15	22	21	17	3.2	NS
25	Anti-derivative is reverse of derivatives	30	24	22	17	7	14.9	S
26	I cannot handle all questions in business mathematics	18	17	24	18	23	2.1	NS
27	Business mathematics has alternatives	30	25	10	15	20	12.5	S
28	Chain rule is necessary every where	24	18	23	17	18	2.1	NS
29	Business math's concept not enough	10	18	25	20	27	8.9	NS
30	Knowing mathematics may not help earn living	10	15	20	15	40	27.5	S

Note : SA = Strongly Agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly Disagree

S = Significance

N.S. = Not significance

$\chi^2_{0.05,4} = 9.488$

From the above table shows that χ^2 value of 22 statement out of 30 are favored of the statement but rest of 8 statement are unflavored. This shows that business mathematics is useful subject. It has not alternatives but in some content it is not usable. Students are not favoring in the statement like "it has no alternatives." But in some content like coordinate geometry, determinant they

gave unfavorable attitude. Some topics in XII are not linked up with lower graded. So they are in the same favoring. So the C.D.C. should make the syllabus appropriates in that content which is put in the suggestion and recommendation chapter as well. Attitude of students toward business mathematics is quite good. They are positive. But in some content like teachers attitude affect the attitude of students toward business mathematics may effect them. Parent's altitude similar takes vital role. Peer role has key factor attitude towards business mathematics.

Teacher is the mirror of society so every student have positive and negative attitude developed because of teacher, parents and peer. Sometimes teacher imposes the positive feeling but most of time they give negative fear to the students. Society eyes towards teacher are positive as well negative. Teacher is the driver of well-established society. If teacher themselves are quite happy with their earning then there may be developed positive attitude otherwise negative. Nepalese context, teachers are not busy in research oriented students task. So the government should think about this attitude of students is correlated with teachers attitude, lower graded syllabus, peer and parents thinking.

Table No. 2

t-test Value of Boys and Girls Attitude towards Mathematics

Comparison	N	Mean ($\overline{\text{X}}$)	SD	Calculated value	t-value	Decision
Boys students	60	3.08	0.23	-3.5	1.96	Significant
Girls students	40	3.15	0.15			

N = Sample size = 100

d.f. = degree of freedom ($N_1 + N_2 - 2$) = 100 - 2 = 98

Table No. 2 shows that there were 60 boys and 40 girls students from the table. The mean attitude score of boys was 3.08 and girls were 3.15 and their standard deviation of boys and girls are respectively 0.23 and 0.15 and the degree of freedom 98. The calculated t-value was -2.5 which is greater than tabulated t-value. Thus it concludes that is significantly different that boys and girls. From this, we analyze that girls in the +2 level are less interested in choosing business mathematics comparison of girls, boys are found stronger. Therefore, the government should formulate the policies; programme to attract the girls in the management streams. Therefore in the bachelor level girls are facing more problems in business statistics while studying because there are no choosing of mathematics subjects.

Chapter - V

SUMMARY, FINDINGS AND RECOMMENDATIONS

Chapter Overview

This chapter begins with summary of the study, findings, conclusion and recommendations.

The data was analyzed after gathering by investigator for the design of the study. This chapter represents the summary of the study with major findings and conclusion. Finally the last section presents recommendations for the further study.

Summary of the Study

This study was carried out to examine the attitude of higher secondary school level students towards business mathematics. Especially the objectives of this study were:

- To assess the 10+2 students attitude towards business mathematics.

- To compare the attitude of boys and girls towards business mathematics.

To achieve the objectives of the study, the investigator gathered data by method of questionnaire survey and used "Fennema-Sherman modified mathematics attitude scale" as a tool. The population of this study was considered as all the students of higher secondary school level of Kathmandu district. The sample of the study was considered the higher secondary school level students of four higher secondary schools listed in the appendix out of 100 students 60 were boys and 40 were girls from the urban and rural.

A set of questionnaire entitled "Fennema-Sherman modified mathematics attitude scale" was used for gathering needed data. The questionnaire considered four level of statement viz. personal confidence about subject matter, usefulness of the subject content, subject out of total 30 statements 24 were positive and 6 were negative. The questionnaire thus developed was administrated on the sample of students. According as the instruction described in chapter three, the score 5, 4, 3, 2 and 1 were allocated to strongly agree, agree, neutral, disagree and strongly disagree for positive statement and also 1, 2, 3, 4 and 5 to strongly disagree, disagree, neutral, agree and strongly agree for

negative statement respectively. The chi square values were found at 0.05 level of significance.

Due to the analysis of χ^2 - value of each statement, the majority of students were in favor of statements. It means they demonstrate positive attitude towards this subject. Furthermore, t-test was used to determine the significant difference between mean attitude score of boys and girls. It shows that they were significant difference between boys and girls student's attitude towards mathematics.

Conclusion

Through the analysis of the statistical method, yielded the following results.

• The higher secondary level students had a positive attitude towards mathematics.

• Higher secondary level boys and girls attitude towards mathematics is significant difference.

• Comparison of boys, girls have less positive attitude towards business mathematics.

• Most of the chapters are related to lower grade but few chapter are not matched.

Recommendations

• To establish finding, similar study should be carried out in regional and national level.

• It should also be studied in lower and higher level for the same aspect.

• In the lower graded the syllabus should be matched with upgrade syllabus.

• Further research should be carried out to find "why there is significance difference in attitude of boys and girls ?"

• Government should make the new policies so that the attitude towards mathematics should be promoted.

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APPENDIX A

Questionnaire for + 2 Students

Dear Students,

I am going to study about "Attitude of +2 Students towards Business Mathematics." For this purpose I distribute 30 statements concerned with attitude. There is no right or wrong answer. The right answer is your opinion or feelings. Please study the statements carefully and give your own opinion by putting tick mark (√) on any one of the following three rating of each statements.

Name : ……………………………………………. Class : ………………

Sex : ………………….. Roll No. …………………………

College Name :

………………………………………………………………

S.N.	Statements	SA	A	N	D	SD	χ^2-Values	Decision
1	I am sure that I can solve all the problem of set theory	23	18	24	17	18	0.10	NS
2	I understand very well function and graph.	26	17	21	15	21	3.6	NS
3	Function is harder than graph.	22	20	17	21	20	0.7	NS
4	Sequence is not based on the secondary school level	30	25	15	10	20	12.5	S
5	Permutation and combination are hard	10	15	25	20	30	12.5	S

	than probability							
6	I can solve the all problem of co-ordinate geometry.	35	29	17	16	3	26	S
7	I understand the question of distance	27	22	15	17	19	4.4	NS
8	System of linear inequalities is easy than system of linear equation.	35	24	12	13	16	18.5	S
9	I can't understand properties of determinants.	10	12	30	14	34	24.8	S
10	Matrix is easy chapter for me.	22	19	24	17	18	2.10	NS
11	Complex number is combination of real number and imaginary number.	23	18	24	17	18	2.10	NS
12	The logarithm is new chapter for me.	27	22	20	13	18	5.5	NS
13	Probability question is difficult to understand.	24	17	24	17	18	2.7	NS
14	Limit should put in secondary level.	26	21	21	13	19	4.4	NS
15	Limit is necessary for the continuity exists	17	18	24	18	23	2.1	NS

	but not reverses.						
16	Derivative is difficult to solve the all problem for me.	24	23	18	17	18	2.1	NS
17	Simple interest is hard	38	22	22	16	3	31.1	S
18	Two dimensional coordinate have 2 planes	18	23	17	24	18	2.10	NS
19	Business mathematics is easy subject	27	23	21	16	13	6.2	NS
20	Business math is little waste of time	15	18	24	17	26	7.1	NS
21	Business math is interest subject	24	17	24	18	17	2.1	NS
22	Business mathematics is necessary for human life	26	21	20	13	20	4.3	NS
23	I am sure that I can achieve 85% marks	25	20	22	15	18	2.1	NS
24	Business mathematics is useful than marketing	25	15	22	21	17	3.2	NS
25	Anti-derivative is reverse of derivatives	30	24	22	17	7	14.9	S
26	I cannot handle all questions in business mathematics	18	17	24	18	23	2.1	NS
27	Business mathematics	30	25	10	15	20	12.5	S

	has alternatives						
28	Chain rule is necessary every where	24	18	23	17	18	2.1	NS
29	Business maths concept not enough	10	18	25	20	27	8.9	NS
30	Knowing mathematics may not help earn living	10	15	20	15	40	27.5	S

Note: SA = Strongly Agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly Disagree

S = Significance

N.S. = Not significance

$\chi^2_{0.05,4} = 9.488$

APPENDIX B

Guideline for Interview with Mathematics Teachers

School Name:

Teachers Name:

Qualification:

Teaching Experiences:

The interviews with teachers were taken on the basis of following main topic.

1.   Salary and other facilities in teaching profession.

2.   Point of view of the society to see teacher and teaching profession.

3.   Reasons of holding of teaching profession.

4.   Career Development from teacher or teaching profession.

5.   Positive or negative aspect of teaching profession.

6.   Role of teacher in the society.

APPENDIX C

Name of College Selected for Samples

- ➢ Janasewa Higher Secondary School, Kathmandu.

- ➢ Mangal Higher Secondary School, Kathmandu

- ➢ S.S. College, Kathmandu

- ➢ BernHart College, Kathmandu

APPENDIX D

Statistical Formula Used for Data Analysis

(1) $\quad \chi^2 = \dfrac{\Sigma\left[\left(f_0 - f_e\right)\right]^2}{f_e}$

Where, F_0 = Observed frequency

f_e = Expected frequency

(2) $\quad \chi^2 = \dfrac{\Sigma\left[\left|f_0 - f_e\right| - 0.5\right]^2}{f_e}$

For the cell no. is less than 5

(3) $\quad t = \dfrac{\overline{X}_1 - \overline{X}_2}{S_P\sqrt{\left(\dfrac{1}{N_1} + \dfrac{1}{N_2}\right)}} \qquad S_p = \dfrac{(N_1 - 1)\,S_1^2 + (N_2 - 1)S_2^2}{N_1 + N_2 - 2}$

Where

$df = N_1 + N_2 - 2$

$\overline{X}_1$ = Mean of first sample

$\overline{X}_2$ = Mean of second sample

N_1 = No. of items in first sample

N_2 = No. of items in second sample

S_1^2 = Variance of first sample

S_2^2 = Variance of second sample

APPENDIX E

Attitude Score Obtained by Boys Students

S.N.	Statements	SA	A	N	D	SD	Total Attitude Score
1	I am sure that I can solve all the problem of set theory	12	10	13	10	15	174
2	I understand very well function and graph.	17	11	13	8	11	195
3	Function is more hard than graph.	14	12	10	12	12	184
4	Sequence is not based on the secondary school level	20	14	9	6	11	206
5	Permutation and combination are hard than probability	6	9	14	13	18	152
6	I can solve the all problem of co-ordinate geometry.	22	17	11	9	1	230
7	I understand the question of distance	16	13	9	10	12	191
8	System of linear inequalities is easy than system of linear equation.	22	14	6	8	10	210
9	I can't understand properties of determinants.	3	7	13	9	28	128
10	Matrix is easy chapter	11	11	15	10	13	177

	for me.						
11	Complex number is combination of real number and imaginary number.	12	10	15	10	13	178
12	The logarithm is new chapter for me.	17	13	12	8	10	199
13	Probability question is difficult to understand.	15	12	14	9	10	193
14	Limit should put in secondary level.	15	13	12	7	13	190
15	Limit is necessary for the continuity exists but not reverses.	12	10	13	11	14	175
16	Derivative is difficult to solve the all problem for me.	16	13	11	10	10	195
17	Simple interest is hard	23	13	12	9	3	224
18	Two dimensional coordinate have 2 planes	11	13	10	14	12	177
19	Business mathematics is easy subject	16	13	12	8	11	195
20	Business math is little waste of time	9	10	13	11	17	163
21	Business math is interest subject	15	12	14	9	10	193
22	Business mathematics is necessary for human life	15	12	11	9	13	187

		SA	A	N	D	SD	
23	I am sure that I can achieve 85% marks	14	9	13	8	16	177
24	Business mathematics is useful than marketing	6	8	12	9	25	141
25	Anti-derivative is reverse of derivatives	14	9	13	12	12	181
26	I cannot handle all questions in business mathematics	18	14	12	10	6	208
27	Business mathematics has alternatives	11	10	14	12	13	174
28	Chain rule is necessary every where	17	16	6	9	12	197
29	Business math concept not enough	16	11	13	10	10	193
30	Knowing mathematics may not help earn living	8	11	14	11	16	164
	Total						**5551**

Note: SA = Strongly Agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly Disagree

S = Significance

N.S. = Not significance

$\chi^2_{0.05,4} = 9.488$

APPENDIX F

Attitude Score Obtained by Girls Students

S.N.	Statements	SA	A	N	D	SD	Total Attitude Score
1	I am sure that I can solve all the problem of set theory	11	9	10	7	3	138
2	I understand very well function and graph.	9	6	10	7	8	121
3	Function is harder than graph.	8	8	7	9	8	119
4	Sequence is not based on the secondary school level	10	10	6	4	9	130
5	Permutation and combination are hard than probability	4	6	11	7	12	103
6	I can solve the all problem of co-ordinate geometry.	13	12	6	7	2	147
7	I understand the question of distance	11	9	6	7	7	130
8	System of linear inequalities is easy than system of linear equation.	13	10	6	5	6	139
9	I can't understand properties of determinants.	7	4	12	5	12	109
10	Matrix is easy chapter	11	8	9	7	5	133

	for me.						
11	Complex number is combination of real number and imaginary number.	11	8	9	7	5	133
12	The logarithm is new chapter for me.	10	9	8	5	8	128
13	Probability question is difficult to understand.	9	5	10	8	8	119
14	Limit should put in secondary level.	11	8	9	6	6	132
15	Limit is necessary for the continuity exists but not reverses.	5	8	11	7	9	113
16	Derivative is difficult to solve the all problem for me.	8	10	7	7	8	123
17	Simple interest is hard	15	9	9	7	0	152
18	Two dimensional coordinate have 2 planes	7	10	7	10	6	122
19	Business mathematics is easy subject	11	10	9	8	2	140
20	Business maths is little waste of time	6	8	11	6	9	116
21	Business maths is interest subject	9	5	10	8	8	119
22	Business mathematics is necessary for human life	11	9	9	4	7	133

		SA	A	N	D	SD	
23	I am sure that I can achieve 85% marks	11	11	9	7	2	142
24	Business mathematics is useful than marketing	4	7	8	6	15	99
25	Anti-derivative is reverse of derivatives	11	6	9	9	5	129
26	I cannot handle all questions in business mathematics	12	10	10	7	1	145
27	Business mathematics has alternatives	7	7	10	6	10	115
28	Chain rule is necessary every where	13	9	4	6	8	133
29	Business math concept not enough	8	7	10	7	8	120
30	Knowing mathematics may not help earn living	2	7	11	9	11	100
	Total						**3782**

Note: SA = Strongly Agree

A = Agree

N = Neutral

D = Disagree

SD = Strongly Disagree

S = Significance

N.S. = Not significance

$\chi^2_{0.05,4} = 9.488$