CHAPTER - V

SUMMARY, OBSERVATIONS, CONCLUSIONS AND SUGGESTIONS.

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CHAPTER - V
SUMMARY, OBSERVATIONS, CONCLUSIONS AND SUGGESTIONS.

5.1 INTRODUCTION

A child studies various subjects in the school. They learn various skills from the different subjects and co-curricular activities in the school. Education is a process of all-round development of a child. Sometimes it is found that a child has more interest and positive attitude towards certain subject than the other. However, mathematics is a compulsory subject in the schools but it is a general observation that children do not like study much or they find it to be difficult. Many researchers have proved that attitude is an important factor that influences on the students’ achievement in mathematics. And such, a positive attitude of the students towards mathematics is most desirable. Attitude is a characteristic that can be developed and improved.

In the present research class, category, sex, area and achievement of the students of science stream of higher secondary schools of Gujarat were the independent variables and attitude was dependent variable. Considering all these variables, summary of the study, the main observations, conclusions and suggestions for further research are presented in this chapter.

5.2 SUMMARY

In our country, the educational planning took place during the second half of the eighteen century. However, there was proper planning for the Science Stream in school. In 1857 three universities were functioning at Mumbai, Calcutta and Madras which were providing education through two major branches of science, medical and engineering. Science along with Mathematics appeared in school curriculum during the beginning of the nineteenth century. Following the recommendations of Kothari Commission, the Higher Secondary Schools started with three main streams- Science, Commerce and Arts. In Science Stream, the subjects of Physics, Chemistry, Biology, Mathematics and two languages were compulsory.

The Gujarat Secondary and Higher Secondary Board introduced a new curriculum design consisting three groups of subjects in the Science Stream of Higher Secondary Schools of Gujarat. Among these groups, Group-A included, Mathematics, Physics and Chemistry; Group-B included Biology, Physics and Chemistry while Group-AB included
Biology, Mathematics, Physics, Chemistry all subjects. The main choice of the students is between Group-A which is Mathematics group and Group-B which is Biology group because Physics and Chemistry are common in both the groups. According to the students’ career aspirations, they choose their group of subjects. Yet it is interesting to study the attitude of students for opting a specific group of subjects. The researcher being a teacher in Higher Secondary School has experience of teaching Mathematics in the Higher Secondary Classes. The researcher has observed for several years of his teaching that the students face difficulties in making their choice of the subjects. Sometimes they opt for Mathematics at their liking and interest but sometimes they are forced by certain agencies like parents, friends and others. Hence, the researcher has decided to undertake a scientific study to find out the attitudinal facts regarding students’ opting for Mathematics group in the Higher Secondary Schools of Gujarat.

IMPORTANCE OF THE STUDY

Students’ success in mathematics depends upon attitude towards mathematics. It also influences the participation rate of learners. In the present study, the researcher has decided to undertake a scientific study to find out the attitudinal facts regarding students’ opting for Mathematics group in the Higher Secondary Schools of Gujarat. Through this, teachers could know the students’ trend towards opting the group during their study in higher secondary science stream. This will consequently help the concerned persons to know the students’ trend towards their choice of the fields of career. This study can also motivate the teachers and educationists to inquire into the reasons of their likes and dislikes and make modifications in methodology, resources and support services provided to the students.

RESEARCH PROBLEM

THE ATTITUDE OF HIGHER SECONDARY STUDENTS OF SCIENCE STREAM OF GUJARAT TOWARDS OPTING MATHEMATICS GROUP

DEFINITIONS OF SOME OF THE TERMS

STUDY: The word ‘Study’ here means compilation of information about the attitudes of higher secondary students of science stream of Gujarat towards opting Mathematics group.
ATTITUDE: The examination of various definitions reveals that attitude is by and large concerned with the feeling aspect. For the present study, the score achieved on the attitude scale will be considered as attitude of an individual.

SECONDARY TEACHERS: Teachers, teaching in secondary schools.

HIGHER SECONDARY STUDENTS: Students who are studying in Std. XI and XII

SCIENCE STREAM: One of the three streams leading to the choice of specific careers like medical, engineering and so on.

GUJARAT: Gujarat is one of the states of India.

MATHEMATICS GROUP: One of the elective Groups of subjects. This group is known as Group-A comprising Mathematics, Physics and Chemistry in the curriculum designed by Gujarat Secondary and Higher Secondary Education Board for Higher Secondary students of Science Stream.

OBJECTIVES OF THE STUDY

The present study will be undertaken keeping in view the following objectives.

1. To construct the attitude scale to measure the attitude of the Higher secondary students towards opting Mathematics group

2. To study the attitude of Higher secondary students towards opting Mathematics group.

3. To study the attitude of Higher secondary students towards opting Mathematics group with respect to their class.

4. To study the attitude of Higher secondary students towards opting Mathematics group with respect to their category.

5. To study the attitude of Higher secondary students towards opting Mathematics group with respect to their sex.

6. To study the attitude of Higher secondary students towards opting Mathematics group with respect to their area.

7. To study the attitude of Higher secondary students towards opting Mathematics group with respect to their achievement.
VARIABLES
The various variables and their levels at which they operate in this research study are given below.

i. Class-XI and Class-XII
ii. Category- Reserved and Non-reserved
iii. Sex- Male, Female
iv. Area- Rural and Urban where the school is situated.
v. Achievement- below 60 % and with 60 % or above 60 % achievements

The above described variables led to the following hypotheses.

HYPOTHESES
The following null hypotheses were formulated for the investigation.

1. There is no significant difference between the mean scores obtained by the students of class-XI and class-XII, on the attitude scale.
2. There is no significant difference between the mean scores obtained by the students of reserved category and non reserved category, on the attitude scale.
3. There is no significant difference between the mean scores obtained by the male and female students, on the attitude scale.
4. There is no significant difference between the mean scores obtained by the rural and urban students, on the attitude scale.
5. There is no significant difference between the mean scores obtained by the students with below 60 % achievements and students with 60 % or above 60 % achievements in Mathematics, on the attitude scale.

RESEARCH METHODOLOGY
The present study was undertaken using the survey method which is a research methodology gathering empirical data regarding certain phenomenon in a systematic way so as to interpret the data in a broader perspective for organization.

(A) SAMPLE
The investigator selected 300 Higher secondary students of Science Stream from the total population of Higher Secondary Schools of Gujarat on random selection bases as the target group of the study.

(B) TOOL
In the study of attitude, several tools can be used, e.g. direct questioning, direct observation, questionnaire and attitude scale. The tool which is usually used by the
researchers to measure attitude is attitude scale. To measure attitude of higher secondary students towards opting Mathematics group, a readymade tool is not available. Hence, the investigator will construct the attitude scale for assessing the attitudes of higher secondary students towards opting Mathematics group.

(C) STATISTICAL TECHNIQUES

The investigator will use the descriptive statistical techniques to analyze the data.

LIMITATIONS OF THE STUDY

It is necessary for the investigator to keep the limitations of the research in mind for doing research in the right way and getting proper results. The limitations of the present study will be as under:

(1) The present study will be limited only to Gujarat State.
(2) It will be limited only to Gujarati medium schools.
(3) It will be limited only to higher secondary schools.

In any research work the first task of the investigator is to look into the past work done in the area in which he proposes to take up research. The researcher has made an attempt to survey and review the related literature concerning his fields. However, it is a novice attempt of the researcher in this field, the reviewed the following research works for getting guidance and information related to the method and procedure of his research study.

IMPORTANCE OF THE REVIEW

A careful review of the related study enables the researchers to collect and synthesizes prior studies related to the present study. Thus in turn, help the researcher in building a better perspective for future research. A synthesized collection of prior studies also helps a researcher to identify the significant overlaps and gaps among the prior works. A review enables the researcher in discovering important variables relevant to the area of the present study. When significant variables are discovered, the relationship among them can be identified. Subsequently the identified relationship is incorporated into different hypotheses. Thus for conducting scientific study, the relationship between the different variables must be explored by reviewing the related study so that a good context may be built up for subsequent investigation. Realizing the stated necessity and purposes, the researcher has made an attempt to survey and review the related literature concerning his fields.
REVIEW OF RELATED LITERATURE

Among the studies reviewed either in abroad or in India either measure attitude or related to Mathematics in one way or other. The studies in abroad consist the studies from Portugal, U.K., Malaysia, Pakistan, Malavi and Maldives. Among these studies, all try to measure attitudinal facts. Each of these investigates students’ attitude towards Mathematics.

Joao Pedro Ponte and at. el. try to find the students’ views and attitudes towards Mathematics teaching and learning. This study is a qualitative research. It is a case study of a curriculum experience. It states that the results were positive. The students reacted in a positive way towards new curricula and methodology.

Tim Barker’s study is an experimental research. This study tries to find suitable methodology to teach Mathematics by looking into interventions. The pre test –post test design of the study proved that the students preferred self study.

Muhammad Shhid Farook and Syed Zia Ullah Shah of University of Punjab, Lahore, Pakistan surveys the high school students’ attitude towards Mathematics. The students of both the gender constitute the population of this survey. The data collected through a questionnaire were analyzed and interpreted using descriptive statistical techniques.

Panji Catherine Chamdimba from Malawi reports a case study as part of Forum for African Women Educationalists (FAWE) aiming at improving the learning of girls in Science, Mathematics and Technology. The study ran for the one school calendar year. The girls seemed to be more improving than boys.

Lawsha Mohamed and Lawsha Mohamed of Maldives also studied the student’s attitude towards Mathematics with respect to gender difference in the selected schools of Maldives. The study finds positive attitude of the students with no gender difference.

Maria de Lourdes Mata and at. el. of Portugal studies the students’ attitude towards Mathematics in relation to students’ family background, their motivation to study mathematics, and the social support they received to study mathematics. The target group was comprised of 1719 students of grade V and grade XII. The study concluded that the students had positive attitude towards mathematics. The variable of sex had no effect on the achievement of the students.

Among the studies in India, the first study measured the mathematical problems of class-X residential and non-residential students. This study helped the researcher to have an insight about the researches in the area of Mathematics. In the second study, the researcher studied the influence of some factors on mathematical achievement. The third study is about teachers’ opinions about new educational approach. These studies cover either mathematical
problems or factors influencing mathematical achievement. The researcher found a great help regarding research procedure, sample, tools and techniques from the studies referred by him. The attitudinal facts about students’ opting mathematics group in the science stream of higher secondary schools are an innovative effort of the investigator.

Among other studies testing attitude in one or some other way, two studies measure attitude of parents and teachers, one measures attitude of parents, teachers and students and the other studies the attitude of parents, teachers and educational administrators.

Out of these studies, only two studies are undertaken in Gujarat and others out of the state of Gujarat that is in Varanasi, Punjab and Rajasthan. The study undertaken in Gujarat delimits the two districts of North Gujarat, Mehsana and Patan districts.

The tools used by the researchers of all referred studies are self constructed scale and questionnaire.

The findings of NAGRAJU M.T.V showed that there is significant difference between residential and non-residential school students in mathematics problems. The residential school students whose monthly family income is up to Rs. 2000 have the highest mean score on the problem of mathematics. To residential girls students have the highest mean score on mathematical problems. The residential school students from background community have the highest mean score in mathematical problems. The distribution of mathematics achievement score of the residential and non-residential school students is very near to normal distribution.

The major findings of SADIA MAHMOOD AND TAHIRA KHATOON were that the variable school type had the greatest influence on mathematical achievement (46%), the Mathematical anxiety comes second and the variable gender showed no influence on mathematical achievement.

Thus among all above studies, the first study measured the mathematical problems of class-X residential and non-residential students. This study helped the researcher to have an insight about the researches in the area of Mathematics. In the second study, the researcher studied the influence of some factors on mathematical achievement. The third study is about teachers’ opinions about new educational approach. These studies cover either mathematical problems or factors influencing mathematical achievement. Among all above studies, two studies measure attitude of parents and teachers, one measures attitude of parents, teachers and students and one studies the attitude of parents, teachers and educational administrators.

The researcher found a great help regarding research procedure, sample, tools and techniques from the studies referred by him. None of the study referred by the researcher
studied the attitudinal facts about students’ opting mathematics group in the science stream of higher secondary schools. So this is an innovative effort of the investigator which will be helpful to the students, teachers and policy makers of education.

Thus, this chapter described in detail the literature reviewed by the researcher to clarify the problem and understand the methodology and procedure. The following chapter narrates the research design of the present study in detail.

PLANNING AND PROCEDURE

The research plan provides an inventory of what has to be done and what materials have to be collected as a preliminary step in the undertaking of the study.

The research plan is document that can be given to others for comment and criticism.

Research studies are distinguished on the basis of their purposes and approaches and that is what may be technically called difference in methods.

METHOD OF RESEARCH

Some steps like defining the problem, survey of the related studies, arriving at generalizations etc. are some of the common steps. Looking back at the problem and objectives of the study, the investigator has come to the conclusion that the present study falls under the area of descriptive research. This type of research involves the description, recording, analysis and interpretation of condition that exists.

TOOLS USED IN THE STUDY

The standard attitude scale was not available to measure attitude of student of science stream of higher secondary schools of Gujarat towards opting Mathematics group.

The investigator used the attitude scale for his research work prepared by himself.

ATTITUDE SCALE

The attitude scale was prepared of sixty two statements to study the attitude of students of science stream of higher secondary school towards opting Mathematics group. Thirty three statements are of favourable out of sixty two statements. Twenty nine statements are of unfavourable nature. Thus the attitude scale of sixty two statements were made ready to measure the attitude of the students of science stream of higher secondary schools of Gujarat.

SCORING KEY

The method of using the scale is simple. The user can use the scale as it is appended in appendix with its scoring key. The students should be asked to give their responses to each statement. There are sixty two statements in this scale.
The responses of the are given proper weightage by the scheme of scoring. There are sixty two statements in this scale. Maximum weight age to each statement is four. So, the maximum score of the scale would be 248. The neutral value of each statement two, so neutral value of the scale would be 124. If the test user finds total score of a student more than 124, it shows the positive attitude of a student. If he finds total score of a student less than 124, it shows the negative attitude of a student.

SELECTION OF THE SAMPLE

For the present study the stratified sampling method has been adopted. The following variables were considered at the time of selecting the sample.

1) Class-XI and Class-XII
2) Category- Reserved and Non-reserved
3) Sex- Male, Female
4) Area- Rural and Urban where the school is situated.
5) Achievement- below 60 % and with 60 % or above 60 % achievements

DATA COLLECTION AND DATA ANALYSIS

The scale has been administered to the sample selected by the investigator. The investigator also asked the students to provide necessary bio-data required for the study in the space provided in the scale. The collected data were analysed using statistical techniques. The next chapter describes data analysis.

ANALYSIS OF DATA

Analysis of data, thus, involves the breaking of complex factors into simple factors, into simple parts and putting them in arrangements for the purpose of interpretation

PROCEDURE OF ANALYSIS

This study was undertaken for measuring the attitude of students of science stream of higher secondary schools towards opting Mathematics group in relation to their class, category, sex, area and achievement. The dependent variable in the study is attitude. The attitude of the students towards opting Mathematics group in relation to their class, category, sex, area and achievement was measured with the help of attitude scale and interpreted.

The analysis of data was done in the following order.

vi. The frequency distribution of obtained score was made.
vii. The mean and S.D. of all groups were computed.
viii. The ‘t’ test is used to test the significance of difference between the means of various groups.

The data was analyzed in detail to study the main effect of independent variable i.e. class, category, sex, area and students' achievement towards opting Mathematics group.

5.3 GENERAL OBSERVATIONS

The main observations made during this process are noted below.

1. While administering the scale, it required a good deal of time, patience and perseverance on the part of the scale administrator.

2. The task of data collection was found much more time consuming. But the heads and teachers of the respective schools and students helped the investigator sincerely in collection of data.

3. The investigator could administered the 330 scales very well. But while sharing 310 found fully responded by checking the statement and giving complete bio-data. The investigator accepted 300 scales for study looking to the equal representation in the sample.

4. The investigator visited all the schools selected in the sample personally.

During the visit investigator received warm welcome from the heads, teachers and students of higher secondary schools of Gujarat and was well supported by them.

5.4 STATISTICAL OBSERVATIONS

During the investigation and data analysis, the following statistical observations were made.

Observation-1

There was a frequency distribution of the sample of the study that is of 300 selected students of the higher secondary schools of science stream. The score interval was of 10 ranging from 80 to 259. The highest number of frequency was 122 which fell between 160-179 following 62 which falls between 180-199. The lowest number of frequency was 06 which fell between 100-119 and 220-239. As the highest number of frequency was between 160-179, the computed Mean was 170.1.

Mean attitude score of the students was 170.1. The neutral value of the scale was 120. Hence, it can be concluded that the students possess positive attitude towards opting Mathematics group.
**Observation-2**

The frequency distribution of the scores obtained by the students of class XI and class XII of the higher secondary schools of science stream of Gujarat was showed. The number of class XI students was 150 and that of class XII students was also 150. The score interval was of 10 ranging from 100 to 239. The highest number of frequency of class XI students was 69 and class XII students was 53 which fell between 160-179 following 35 of class XI students which fell between 180-199 and 39 of class XII students which fell between 140-159. The lowest number of frequency of class XI students was 02 which fell between 220-239 and that of class XII students was 02 which fell between 100-119. As the highest number of frequency of class XI students and class XII students was between 160-179, the computed Mean of the scores achieved by class XI students was 178.3 and that by the class XII students was 167.37. To know the frequencies deviating from Mean, the standard deviation was computed which was 20.46 for the scores of class XI students and 23.91 for the scores of class XII students.

The observed ‘t’ value was 3.01 and the ‘t’ value from the ‘t’ table at 0.01 significant level was 2.58. So the observed ‘t’ value was more than 2.58. So the difference between two means was significant at 0.01 level. Hence it is concluded that class difference prevails in the attitude of class-XI and class-XII students towards opting Mathematics group.

**Observation-3**

The frequency distribution of scores obtained by reserved and non reserved students of the higher secondary schools of science stream of Gujarat was showed. The number of reserved students is 100 and that of non reserved students was 200. The score interval was of 10 ranging from 100 to 239. The highest number of frequency of reserved students was 44 and non reserved students was 72 which fell between 160-179 following 25 of reserved students which fell between 180-199 and 52 of non reserved students which fell between 140-159. The lowest number of frequency of reserved students was 02 which fell between 220-239 and that of non reserved students was 04 which fell between 100-119 and 220-239. As the highest number of frequency of reserved students and non reserved students was between 160-179, the computed Mean of the scores achieved by reserved students was 175.5 and that by the non reserved students was 167.5. To know the frequencies deviating from Mean, the standard deviation was computed which was 22.18 for the scores of reserved students and 23.41 for the scores of non reserved students.
The ‘t’ value was computed and it was found 2.13 and the ‘t’ value from the ‘t’ table at 0.05 significant level was 1.96. So the observed ‘t’ value was more than 1.96. So the difference between two means was significant at 0.05 level. Hence it is concluded that category difference prevails in the attitude of reserved and non-reserved students towards opting Mathematics group.

Observation-4

The frequency distribution of scores obtained by male and female students of the higher secondary schools of science stream of Gujarat was showed. The number of male students was 150 and that of female students was also 150. The score interval was of 10 ranging from 100 to 239. The highest number of frequency of male students was 66 and female students was 58 which fell between 160-179 following 30 of male students and 40 of female students which fell between 180-199. The lowest number of frequency of male students was 02 which falls between 220-239 and that of female students was 02 which fell between 100-119. As the highest number of frequency of male students and female students was between 160-179, the computed Mean of the scores achieved by male students was 170.83 and that by the female students was 174.83. To know the frequencies deviating from Mean, the standard deviation was computed which was 22.47 for the scores of male students and 23.17 for the scores of female students.

The observed ‘t’ value between two groups was 1.05 and ‘t’ value from the ‘t’ table at 0.05 significant level was 1.96. So the observed ‘t’ value was less than 1.96. So, the difference between two means was not significant. Hence, it is concluded that sex difference of students does not prevail in the attitude of male and female students towards opting Mathematics group.

Observation-5

The frequency distribution of scores obtained by rural and urban students of the higher secondary schools of science stream of Gujarat was showed. The number of rural students was 150 and that of urban students was also 150. The score interval was of 10 ranging from 100 to 239. The highest number of frequency of rural students was 64 and urban students was 56 which fell between 160-179 following 26 of rural students which fell between 140-159 and 180-199 and 32 of urban students which fell between 140-159. The lowest number of frequency of rural students was 04 which fell between 100-119 and 220-239 and that of urban students was 02 which fell between 220-239. As the highest number of frequency of rural students and urban students was between 160-179, the computed Mean of the scores achieved
by rural students was 167.9 and that by the urban students was 166.83. To know the
frequencies deviating from Mean, the standard deviation was computed which was 24.61 for
the scores of rural students and 24.95 for the scores of urban students.

The observed ‘t’ value was 0.26 and the ‘t’ value from the ’t’ table at 0.05 significant
level was 1.96. So, the observed ‘t’ value was less than 1.96. So the difference between two
means was not significant. Hence it is concluded that area difference does not prevail in the
attitude of rural and urban students towards opting Mathematics group.

Observation-6

The frequency distribution of scores obtained by students achieving below 60% and
students achieving 60% or above 60% was showed. The number of students achieving below
60% was 150 and that of students 60% or above 60% was also 150. The score interval was of
10 ranging from 100 to 239. The highest number of frequency of students achieving below
60% was 56 which fell between 160-179 and the highest frequency number of the students
achieving 60% or above 60% was 69 which fell between 160-179 following 33 of students
achieving below 60% which fell between 140-159 and 24 of students achieving 60% or above
60% which fell between 180-199. The lowest number of frequency of students achieving
below 60% was 06 which fell between 100-119 and that of the students achieving 60% or
above 60% was 03 which also fell between 100-119. As the highest number of frequency of
students achieving below 60% and students achieving 60% or above 60% was between 160-
179, the computed Mean of the scores achieved by the students achieving below 60% was
164.1 and that by the students achieving 60% or above 60% was 173.9. To know the
frequencies deviating from Mean, the standard deviation was computed which was 23.81 for
the scores of students achieving below 60% and 25.39 for the scores of students achieving
60% or above 60%.

The ‘t’ value observed was 2.27 and the ‘t’ value from the ’t’ table at 0.05 significant
level was 1.96. The observed ‘t’ was greater than 1.96. So the difference between two
means was significant at 0.05 level. Hence, it is concluded that achievement difference prevails in
the attitude of the students having below 60 % achievement and 60 % or above 60 %
achievement towards opting Mathematics group

5.5 TESTING OF HYPOTHESIS

The hypotheses stated in the first chapter were based on five independent variables.
They were,
1) Class-XI and Class-XII
2) Category- Reserved and Non-reserved
3) Sex- Male, Female
4) Area- Rural and Urban where the school is situated.
5) Achievement- below 60% and with 60% or above 60% achievements

This study was undertaken for measuring the attitude of students of science stream of higher secondary schools towards opting Mathematics group in relation to their class, category, sex, area and achievement. Hence class, category, sex, area and achievement of students are considered as independent variable. The dependent variable covered under the present research study was attitude of the students. So the attitude of the students towards opting Mathematics group in relation to their class, category, sex, area and achievement was measured by using the attitude scale. Then collected data were analyzed and interpreted applying some statistical techniques. The data were and interpreted.

The analysis of data was done in the following order.

1) The frequency distribution of obtained score was made.
2) The mean and S.D. of all groups were computed.
3) To test the significance of mean difference in the groups, t-test was used.

The hypothesis were tested for the study of attitude of the higher secondary students of science stream of the schools in Gujarat with respect to independent variables, class, category, sex, area and achievement of the students in mathematics. The testing of hypothesis based on the statistical observations is described below.

**Study - 1: Class Vs Attitude**

Data: 't' obs = 3.01

't' tab = 2.58

Level of Significance: 0.01 level

Hypothesis-1 There is no significant difference between the mean scores achieved on the attitude scale, of the students of class-XI and class-XII towards opting Mathematics group.

Testing of Hypotheses: The observed 't' value is greater than 't' table value. So our null hypothesis-1 is not accepted.
Conclusion:

1. There is significant difference between the attitude of Class-XI and Class-XII students.

2. The Class-XI students have better positive attitude than Class-XII students towards opting Mathematics group.

Study - 2: Category Vs Attitude

Data: \( t' \) obs = 2.13

\( t' \) tab = 1.96

Level of Significance: 0.05 level

Hypothesis-2 There is no significant difference between the means of the scores achieved on the attitude scale, of the students of reserved category and non-reserved category towards opting Mathematics group.

Testing of Hypotheses: The observed 't' value is greater than 't' table value. So our null hypothesis is not accepted.

Conclusion:

1. There is no significant difference between the attitude of the reserved and non-reserved students.

2. The category difference does not prevail in the attitude of reserved and non-reserved students towards opting Mathematics group.

Study - 3: Sex Vs Attitude

Data: \( t' \) obs = 1.05

\( t' \) tab = 2.61

Level of Significance: 0.05 level

Hypothesis-3 There is no significant difference between the means of the scores achieved on the attitude scale, of the male and female students towards opting Mathematics group.

Testing of Hypotheses: The observed 't' value is less than 't' table value. So our null hypothesis is accepted.

Conclusion:
1. There is no significant difference between the attitude of the male and female students.

2. The sex difference does not prevail in the attitude of male and female students towards opting Mathematics group.

**Study - 4: Area Vs Attitude**

Data: 't' obs = 0.26

't' tab = 2.61

Level of Significance: 0.05 level

Hypothesis-4 There is no significant difference between the means of the scores achieved on the attitude scale, of the rural and urban students towards opting Mathematics group.

Testing of Hypotheses: The observed 't' value is less than 't' table value. So our null hypothesis is accepted

Conclusion:

1. There is no significant difference between the attitude of the rural and urban students.
2. The area difference does not prevail in the attitude of rural and urban students towards opting Mathematics group.

**Study - 5: Achievement Vs Attitude**

Data: 't' obs = 2.27

't' tab = 2.61

Level of Significance: 0.05 level

Hypothesis-5 There is no significant difference between the mean scores achieved on the attitude scale, of students with below 60 % achievements and students with 60% or above 60% achievement.

Testing of Hypotheses: The observed 't' value is less than 't' table value. So our null hypothesis is accepted

Conclusion:

1. There is no significant difference between the attitude of the students having below 60 % achievement and 60 % or above 60 % achievement.
2. The achievement difference does not prevail in the attitude of the students having below 60% achievement and 60% or above 60% achievement towards opting Mathematics group.

5.6 FINDINGS

Some of the major conclusions drawn from the present research study are mentioned in the following section.

1. The students have positive attitude towards opting Mathematics group.

2. The independent variable class affects on the attitude of the students. The Class-XI students have better positive attitude than Class-XII students towards opting Mathematics group.

3. The independent variable category does not affect on the attitude of the students.

4. The independent variable sex does not affect on the attitude of the students.

5. The independent variable area does not affect on the attitude of the students.

6. The independent variable achievement does not affect on the attitude of the students.

5.7 IMPLICATIONS OF THE STUDY

The implications of the study are self evident and self explanatory. However the following are some implications of this study.

1. The teacher should pay more attention to develop the attitude towards opting Mathematics group.

2. The students of class-XII should be motivated to develop the positive attitude towards opting Mathematics group.

3. The teachers should find the reasons behind students’ choice of their group of subjects.

4. More emphasis should be laid on the development of the mathematical skills among the students during the course of their study.

5. The learning environment of the classroom and the school should be conducive.

6. The teachers should adopt suitable methods and techniques to create interest among the students and make the content easy to understand for the students.
5.8 SUGGESTIONS FOR THE FURTHER RESEARCH

Research is an ongoing activity which not only answers your research question but also directs you to more research questions. The present research was merely an exploratory effort based on 't' test. Hence, the recommendation cannot be generalized beyond the sample. But more intensive and reliable research work is desired to be undertaken by the research worker in the directions suggested by the investigator. A few selected studies are suggested for a further research. They are as;

1. A study of the attitude of students of science stream of higher secondary schools towards opting Mathematics group in relation to their psychological traits such as their interest, aptitude, intelligence etc.

2. A study of the attitude of the students towards opting Mathematics group in relation to teacher’s effectiveness.

3. A study of the attitude of the students towards opting Mathematics group in relation to the school environment.

4. A study of the attitude of the students towards opting Mathematics group in relation to facilities provided by the schools.

5. A comparative study of the attitude of the students towards opting subject group.

6. An inquiry into the factors affecting the attitude of the students towards opting Mathematics group.

These suggestions for further research work only mean that research on any subject has no end. Further research starts where the previous research stops.