CHAPTER - II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION:

The review of related literature is a crucial aspect in any research. No research begins in vacuum. Knowledge of what has already been done or being done is essential for doing research in any field. Researcher takes advantage of the knowledge, which has accumulated in the past as a result of constant human endeavour.

Review of related literature allows the researcher to acquaint himself or herself with the current knowledge in his or her field and it will be an effective search for specialised knowledge possible.

"Practically all human knowledge can be found in books and libraries. Unlike other animals that must start a new with each generation, man builds upon the accumulated and researched knowledge of the past."

- John W. Best (1988)

A familiarity with the research on any problem area helps the researcher to discover what is already known, what other have attempted
to find out, what methods of attack have been promising or disappointing and what problem remains to be solved. It provides a background for the research process and makes the researcher aware of the status of the issues. It enables the researcher to know the recommendations of previous researchers listed in these studies as for further research. It also provides ideas, theories and explanation in formulating the problem.

Review of related literature provides valuable guidance in order to comprehend the problem holistically and the extent of advancement in research field on the topic. It envisages and explores the innovative insight for appropriate methodology and research design. According to Fox (1969) review of related literature encompasses the following functions;

❖ Gives conceptual frame of reference for the contemplated research;

❖ Helps in understanding of the status of research in the problem area;

❖ Provides sufficient insight to the research approach, method instrumentation and data analysis;

❖ Evaluates the probability of success of the contemplated research and the significance or usefulness of the findings; and

❖ Guides specific information needed to state the definitions, assumptions, limitations and hypotheses of the research.
The review of related literature involves the systematic identification, location and analysis of documents containing information related to the research problem. The review tells the researcher what has been done and needs to be done (Gay 1990).

The present study was designed to find out the effect of scientific aptitude and Scientific Attitude on academic achievement of secondary school students in science. At the beginning of the research study the investigator was faced with a number of issues related to the study. These issues have been posed in the form of research questions that are given below

1. To what extent the pupils of standard IX possess scientific aptitude
2. Is there any difference in the scientific aptitude and scientific attitude?
3. To what extent the pupils of standard IX possess Scientific Attitude?
4. Is there any difference in the Scientific Attitude of boys or girls?
5. Is there any association between scientific aptitude and academic achievement?
6. Is there any association between scientific attitude and academic achievement?
7. Is there any difference in the academic achievement of boys and girls?

In order to throw light on these issues a probe into the past knowledge was very necessary. Therefore, the investigator carefully reviewed research journals, survey books, encyclopaedias, dissertations, theses, and also browsed through various websites like www.ericresearch.com, www.google.com, www.yahoo.com, www.altavista.com, www.rediffmail.com for the study.

The research studies related to present study have been presented in the following pattern.

- Related studies on Scientific Aptitude and Scientific Attitude in relation to Academic Achievements in Science
2.2 RELATED STUDIES:

Ghosh and Chatterji (1972) conducted an investigation into the validity of a Scientific Knowledge and Aptitude test. The main aim of the study was to find out the validity of a scientific knowledge and Aptitude test (Foron-1964) which was suitable for use at the higher secondary level was selected the test was already standardised on the basis of the data collected from the students who has just passed the secondary examination. Eight Bengali medium schools – four boys and four girls schools were selected from a list of such schools after dividing them areas-wise. The test was administered on 476 students studying in Class XI in these selected schools. The test was validated against the school examination marks. The findings were: 1 the test was quite valid and the test scores were highly related with the academic success for girls science group. 2. The scientific aptitude had no relation with the success in the commerce stream. 3. the relationship of the test scores with the total marks in the humanities group was significantly, positive though the magnitude was quite low. 4. the co-relation between the test scores and the total marks obtained by the boy’s science group was significant at 5% level 5. The correlation of the test scores with the marks obtained in general science by both the humanities groups was negative. 6. the co-relation between the test scores and the higher secondary total marks varied from 0.12 to 0.56 in the case of four girls schools and one boys school (N= 250)
Sharma (1975) conducted a comparative study of the Achievement of Boys and Girls in General Science at Delta Class in Rajasthan, SIERT, Rajasthan. The main objective of this study was to compare the achievement of pupils of delta class in general science and mathematics. The institutions selected for the administration of the tests comprised 24 each of the four types of institutions, viz. rural, urban, boys' and girls' of the state of Rajasthan. The final form of the test in general science had 149 items and that in mathematics 100 items. The reliability of the tests was calculated by the application of split-half method on the scores of 200 boys and 200 girls. Guttman formula and Kuder-Richardson-21 formula were used. The coefficients of concurrent and congruent validities of the tests were obtained by correlating test scores with marks of pupils in the annual examination, and also with the ratings of the pupils made by their respective teachers on a predetermined five-point rating scale. The coefficient of correlation was calculated by the application of product-moment correlation technique taking the entire sample of 1708 pupils into consideration. In order to find out the variance in attainment of the different strata of the samples, analysis of variance was used. The study revealed that there was a significant difference between the performance of boys and girls on the test in general science. The girls were superior to the boys in the subject.
Giri (1976) conducted a research on measurement of Aptitude for the Study of Physics of the High School Science Seniors of the State of Bihar with special reference to the Students of Chota Nagpur Division. The main purpose of the study was to develop a test battery to measure the aptitude for the study of physics of the high school science seniors of the state of Bihar. A battery of tests having four main parts (Parts I, II, III, IV A and IV B) covering different areas (viz. functional knowledge, conceptual understanding of physics, creative thinking in physics, knowledge of the nature and structure of physics, and scientific attitude) was developed. Difficulty level, discriminative power and internal consistency of items were found out. The final version of Parts I, II, III, IV A and IV B included 30, 30, 30, 16 and 16 items, respectively. The standardization sample was derived from seven institutions of Palamau, Ranchi, Patna, Dhanbad and Singhbhum by adopting the purposive-incidental sampling technique. The scores on the full test battery were available for 177 students. Central tendency, variance and nature of distribution of scores were computed. Reliability was calculated through spilt-half, K-R formula-20 and Flanagan's formula. Content, criterion-related and factorial validity were determined. Scales and norms (standard scale, T-scale, P.R., Percentile, Stanine and letter gradings) were prepared. Multiple correlation(R) was computed and prediction equations were prepared. Forecasting efficiency of the test was
Shinde (1982) conducted a Study of Non-formal Science Activities in Secondary Schools of Maharashtra State with Special Reference to Their Impact on Scientific Attitude and Achievement in Science. The objectives of the enquiry was to study the scientific attitudes of secondary students. The sample comprised 1600 secondary students of Maharashtra selected on a random basis from all the regions of the state. It also included 300 experts. The tools used were a scale to measure involvement in scientific activities, scientific attitude scale, and a checklist. Descriptive statistics were used for data analysis. The study revealed the following: 1. The boys and girls did not differ in their scientific attitudes. 2. Students with high academic achievement had high scientific attitude, students with average academic achievement had average scientific attitude, and the low achievers had a low scientific attitude. 3. Girls showed a better relationship between scientific attitude and academic achievement than boys. 4. Scientific attitude of the students differed from region to region. 5. The boys and the girls from the same cultural group did not differ significantly with respect to their scientific attitude.

Ansari (1984) studied on Construction and Standardization of Achievement Tests in General Science for Standards, V, VI and VII for
Children Studying through Hindi as the Medium of Instruction in Greater Bombay. The objectives of the study was to compare the achievement of boys and girls in science. The major finding was that the performance of boys was better than that of girls.

Bandyopadhyay, (1984) studied on environmental Influence, Academic Achievement and Scientific Aptitude as Determinants of Adolescents' Attitude towards Science Stream. The objects of the study were (i) to assess adolescent students' attitude towards science, and (ii) to find out the environmental and academic factors that influenced their attitude towards science. The dependent variable was attitude towards science, and three categories of independent variables were environmental influence measured by parental education, income and socioeconomic status, influence of teachers and peers, and vocational value of science; achievements in language, physical science, life science and social study; and scientific aptitude measured by numerical ability, mechanical reasoning and space relations. The hypothesis was: There is no significant difference between the pupils having a highly positive attitude towards science and those having a highly negative attitude towards science with respect to any of the independent variables stated above either in isolation or in interaction. The sample, drawn on the basis of stratified random technique, consisted of 420 adolescent students, 221 boys and 199 girls, from 21 schools of Calcutta. The tools
used were a researcher-made Information Schedule to know the respondents' generalities, leisure activities, family background, relations with parents, peers and teachers, and social influences, and sub-tests of the DAT battery on numerical ability, mechanical reasoning and space relation. Achievements in school subjects were obtained from the annual examination records for last three years. The scientific attitude was measured by Science Attitude Scale of Avinash Grewal (Published). The data were represented by charts and tables, and analysed by statistical tools like t-test, ANOVA and Chi-square test. The major findings of the study were: 1. Pupils having a high positive attitude towards science and a negative attitude towards science were different with respect to the independent variables either in isolation or in interaction. 2. The obtained causal factors were environmental, attitudinal and achievement related. Parent education, and SES led to favourable attitude towards science. Teachers' influence, peers' influence, vocational value of science and future aim of life were other contributory factors. The pupils who had a favourable attitude to science possessed higher ability in mechanical comprehension and visualization of objects in space. They were higher achievers in physical and life sciences. 3. There existed significant interactions between (a) source of inspiration and achievement in physical science, (b) source, achievement in physical science and space relations, (c) source, achievement in life science and space relations.
Ghosh (1986) investigated on Critical Study of Scientific Attitude and Aptitude of the Students and Determination of some Determinants of Scientific Aptitude. The main purposes of the study were (i) to ascertain the aptitude of the students in science with the help of a specially developed scientific aptitude test, (ii) to appraise the extent of scientific attitude of the students with the help of a specially developed attitude test, (iii) to find out the extent of academic motivation of the students with the help of a standardized test, and the SES of the parents of the students with the help of an SES questionnaire, (iv) to find out sex-wise and strata-wise differences, if any, in the scientific aptitude and scientific attitude of the students, (v) to determine relationships between the scientific aptitude and variables such as scientific attitude and academic motivation of the students, and (vi) to develop a regression equation of the scientific aptitude on the independent variables identified by the researcher. A scientific aptitude test was standardized on 620 boys and girls (Out promoted to class IX) reading in 13 schools situated in urban and rural areas in different districts of West Bengal. A scientific attitude test was also developed (N=200). Bhattacharya's Academic Motivation Test, Kuppuswamy's (Urban) and Pareek's (Rural) SES scales were used. Central tendency, variability, ANOVA, correlation, F-test, and t-test were used. Some of the major findings were: 1. Urban students did not show better performance in the scientific aptitude test than rural students. 2. Boys did not possess more, scientific aptitude than
3. Boys did not possess better scientific attitude than girls. 4. There was a positive relationship between scientific aptitude and scientific attitude; scientific aptitude and academic motivation; and scientific attitude and academic motivation. Scores in the scientific aptitude test could be predicted from scores in scientific attitude, academic motivation, and socioeconomic status of parents through multiple regression equation. 6. Students having high scientific attitude were superior to those having low scientific attitude with respect to their scientific aptitude. 7. Urban students belonging to the high SES group had more scientific aptitude than urban students belonging to the low SES group. 8. Rural students belonging to the high SES group did not show better scientific attitude than rural students belonging to the low SES group.

Mehna (1986) studied an Investigation into Some Factors Affecting Academic Achievement in Science of Standard IX Students of Greater Bombay. The major objectives of the study were (i) to find out the predictors of achievement, in science as a whole, physics, chemistry and biology, and (ii) to study sex differences in case of predictors of achievement in science as a whole, physics, chemistry and biology. The independent variables selected for the study were nonverbal intelligence, verbal intelligence, abstract reasoning, mechanical comprehension, numerical ability, scientific aptitude, interest in medicine, engineering,
commerce, arts, fine arts, motivation for learning science, physics, chemistry, biology and students' liking for teachers of science, physics, chemistry and biology. The criterion variables were achievement in science, physics, chemistry and biology. The various tools used were Nafde's Non-verbal Test of Intelligence, OTIS Self-Administering Test of Mental Ability Bennett's Mechanical Comprehension Test-Form A A, Abstract Reasoning Test-Form A of the D.A.T., Numerical Ability Test of D.A.T., Mascarenhas Interest Inventory, Chatterjee and Mukherjee Test of Scientific Knowledge and Aptitude-Form 1064, Students Liking Scale by S.P. Malhotra and B.K. Passi, Rating Scale on Motivation for learning science and achievement tests in physics, chemistry and biology constructed by the researcher. The sample comprised 308 girls and 376 boys of class IX of English medium schools of Greater Bombay selected through the cluster sampling method. Stepwise multiple regression analysis was applied for data analysis. The major findings of the study were: 1. Six variables, viz. verbal intelligence, motivation for learning general science, scientific knowledge and aptitude, numerical ability, liking for teachers of science and interest in medicine were significant predictors of achievement of class IX students in general science ($R = 0.5773$). The significant predictor variables for boys were scientific knowledge and aptitude, motivation for general science, verbal intelligence, interest in commerce, numerical ability and liking for science teachers ($R = 0.5463$). The significant predictors of achievement
in general science for girls were verbal intelligence, motivation for general science, scientific knowledge and aptitude, liking for teachers of general science and numerical ability (R=0.6500). 2. The significant predictor variables for achievement in physics for students of class IX were the same as those found in the case of general science with the addition of one more variable- abstract reasoning. The significant predictors of achievement in physics in the case of boys were scientific knowledge and aptitude, motivation for learning physics, verbal intelligence, interest in commerce, motivation for learning general science (other than physics), and numerical ability (R = 0.5798). In the case of girls, the predictors for physics achievement were scientific knowledge and aptitude, motivation for learning general science other than physics, verbal intelligence, numerical ability and liking for physics teachers (R=0.6184). 3. The significant predictors of achievement in chemistry of students of class IX were verbal intelligence, motivation for learning chemistry, scientific knowledge and aptitude, numerical ability, interest in medicine, liking for chemistry teachers and interest in fine arts (R=0.5573). In the case of boys, all the above variables with the exception of interest in medicine were found to be significant predictors of achievement in chemistry (R=0.5283). In the case of girls, the predictor variables were the same with the exception of numerical ability and interest in fine arts (R=0.6026). 4. Six significant predictors of achievement in biology in the case of students of class IX were verbal
intelligence, liking for biology teachers, motivation for general science subjects other than biology, scientific knowledge and aptitude, interest in medicine, interest in commerce \( R = 0.4938 \). Significant predictors of achievement in biology in the case of boys were verbal intelligence, motivation for learning biology, liking for biology teachers and interest in commerce \( R=0.4191 \). In the case of girls the predictor set included verbal intelligence, liking for biology teachers, motivation for general science subjects other than biology, scientific knowledge and aptitude and interest in medicine \( R=0.6066 \). 5. Abstract reasoning was found to be a significant predictor only for physics achievement. Numerical ability was a significant predictor of achievement in physics and chemistry but not biology. The research findings imply that the pupils' performance in science subjects can be improved, (1) if teachers succeed in generating a feeling of liking for them among pupils, (2) if teachers develop aptitude for science among children by providing scientific' information, and (3) if teachers can motivate children to learn science subjects. This needs adequate training for teachers in making science teaching interesting and in training them in the techniques of arousing pupils' motivation for learning science.

Darchingpui (1989) A study of science achievement, science attitude and problem solving ability among secondary school students in Aizawal. This study examines the relationships among variables such as achievement in science, attitudes towards science and problem-solving ability under certain
conditions such as location, socio-economic status, parental education, occupation and typology of school among secondary school children. The objectives of the study were i. To study the science achievement, attitude towards science and problem solving ability of high school students. ii. To find out the interrelationships of science achievement, attitude towards science achievement, attitude towards science vis-à-vis problem-solving ability and, iii. To examine the relative effect of sex, socio-economic status, parental education, parental occupation, family facility and type of school on science achievement, science attitude and problem solving ability. The study sample comprised 812 students of class IX selected randomly after giving weightage to outside factors such as location and typology of school attended. The tools used to collect the data were the science test developed by the investigator. The Science Attitude Scale developed by Grewal and problem solving ability test developed by the investigator. The findings of the study were 1. The study indicated significant relationship between scores on scientific attitude and achievement in science. 2. Significant sex difference in achievement in science and problem solving ability existed. 3. High socio-economic status, family facility and type of school attended favoured achievement in sciences, scientific attitudes and problem-solving ability.

Ghosh (1989) A critical study of scientific attitude and aptitude of the students and determination of some determinants of scientific attitude. The present study attempts to draw the attention of science educations ‘scientific enquiry’ in the teaching of science and help them with scientific aptitude test and a scientific attitude test for facilitating
their job. The objectives of the study were i. To find out the extent of academic motivation of the students, sex and state-wise differences in scientific attitude and aptitude, if any, and ii. To find out the relation between scientific aptitudes, the above stated independent variables and a regression equation of the scientific aptitude on other independent variables. The sample of the study comprised 613 students drawn from 13 schools belonging to different localities; rural-urban, boys’ schools, girls’ schools and co-educational schools. The tools used were Scientific Attitude Test, Academic motivation test by Bhattacharya, and socio-economic status scale of Kuppuswamy along with structured interview. Correlation, ANOVA and regression analysis were employed to treat the collected data. The findings of the study were 1. It was found that scientific aptitude was significantly related to scientific attitude and academic motivation. 2. No significant difference was observed with respect to sex, socio-economic conditions or place of habitation.

Srinivasacharyulu (1989) conducted a study on the Relation of Anxiety and Superstitious beliefs to Scientific Attitude. He found that there was a significant negative correlation between the scores of scientific Attitude and Anxiety. He also found that there was a significant positive correlation between the score of anxiety and superstitious beliefs.
Rao (1990) conducted comparative study of Scientific Attitude, Scientific Aptitude in Secondary schools pupils is average and there was no influence of sex on Scientific Attitude. It is an attempt to compare scientific attitude, scientific aptitude and achievement in biology at the secondary school level. The objectives of the study were i. To find out the scientific attitude and scientific aptitude possessed by the secondary school pupils among with their achievements in biology. ii. To find out the association among scientific attitude, scientific aptitude and achievement in biology of secondary school pupils, and iii. To compare scientific attitude, scientific aptitude and biology achievement of boys versus girls. English medium versus Telugu medium schools, private versus government schools, residential versus non-residential schools and rural versus urban schools. The sample of the study comprised 600 pupils studying in class IX, who were selected through stratified sampling method. The tools used in the study included Scientific Attitude Scale of J.K good and R.P. Sandhya and Kerala University Science Aptitude Test of Nair, et.al. The statistical techniques used in this study were mean, S.D, ‘t’ test, critical ratio and correlation. The findings were 1. It was observed that scientific attitude in secondary school pupils were average. There was no influence of sex on scientific attitude. But the pupils studying in private schools, rural schools, English medium schools, and residential schools held relatively better scientific attitudes than their counterparts. 2. The scientific aptitude in
secondary school pupils was also average. The pupils of private schools, urban schools, English medium schools and residential schools held a bit more scientific aptitude. 3. The achievement in biology was average. The rural schools, government schools, English medium schools and residential schools were better in achievement. 4. There was a highly significant and positive association among scientific attitude. Scientific aptitude and biology achievement.

Benny (1990) undertook a study of the relationship of critical thinking, Science aptitude and socio-economic status to the science achievement of second year PUC students. The development of sound thinking is prized in any scheme of education anywhere in the world. The present study attempts to determine relationship among critical thinking, scientific aptitude and socio-economic status to achievement in science as measured by marks obtained by PUC students. The objectives of the study were (i) To see whether significant differences in the SES, critical thinking science aptitude of the second year PUC students would account for significant difference in their science achievement, ii) to see whether there is a significant difference in the science achievement of male and female second year PUC students. iii) to examine whether SES, critical thinking and scientific aptitude of the second year PUC students would correlate significantly, with their science achievement, iv) to find out the amount of variance accounted for by each of the
variables namely SES critical thinking and scientific aptitude of the second year PUC students in their science achievement, v) to find out the amount of variance accounted for by all the predictors put together in the science achievement of second year PUC students, and vi) to develop regression equation that would help in promoting the science achievement levels of the second year PUC students. The sample of the study comprised 400 second year PUC students studying in Bangalore, who were selected using stratified proportional random sampling technique from 13 colleges, viz, government, corporation and private. The tools used in the study included Scientific Aptitude and Scientific Knowledge Test by Chatterji; Kerala cognitive Reasoning Test Series developed by the Kerala University, Socio-economic status urban scale by Kuppuswamy and science achievement marks were drawn from PUC students’ public examination. The data so collected were analyzed by two wars ANOVA and multiple regression techniques. The findings of the study were 1. High Scores on critical thinking, scientific achievement and socio-economic status favoured achievement in Science. 2. The three predictors, namely scientific aptitude, critical thinking, and socio-economic status contributed a variance of 15.4%, 8%, and 3.36% to the total variance in achievement respectively. 3. Sex differences in achievement in science favouring males existed. 4. No significant interaction effect between each of the independent predictors taken separately favoured achievement in science.
Kar (1990) A study of relationship between attitude towards and achievement in general science of class IX students of Cuttack City. The study examines the problem of relationship between attitude and achievement in general science of class IX students. The objective of the study was to assess the relationship between the attitude and achievement in general science of class IX students of Cuttack City. The sample of the study comprised 700 students studying in class X from 10 high schools of Cuttack City, and also included 74 science teachers and some science experts, professors, educationists, and headmasters of the schools who were selected through random stratified sampling method. The tools used to collect the data were questionnaire, interview schedule, achievement test in science and attitude scale. The collected data were analyzed statistically using measures of central tendency variability and correlation coefficient. The major findings of the study were 1. It was found that the distribution of the attitude score was negatively skewed. 2. Boys were found to be more favourably disposed towards science than girls. 3. There was positive relationship between attitude and achievement.

Dani (1991) conducted a study on the Scientific Attitude and cognitive Styles of Higher Secondary Students. The study concluded that boys and girls did not differ in Scientific Attitude.
Kumar (1991) conducted a study on the teaching of General Science and development of Scientific Attitude in Secondary School Students. The study revealed that the Scientific Attitude scores did not differ in boys and girls of high group, while boys and girls of average group differed significantly.

Mukhopadhyaya (1991) conducted a cross sectional study on the Effect of Academic Motivation and Scientific Attitude on Science Aptitude of students. The study revealed that Scientific Attitude showed a highly significant positive relationship with Scientific Aptitude.

Neeliappan (1992) in his study on Scientific Attitude and Interest among Higher Secondary Biology Students in relation to their Learning Environment found that there was a strong relationship between the high and low learning environments of the higher secondary biology students and their Scientific Attitude and Scientific Interests.

Paulose (1995) conducted a study on the Influence of Scientific Attitude of University entrance on their Process Outcomes in Physics taking sex and residents of the subjects as control variables. The study revealed that the Scientific Attitude exerted a significant influence on process outcomes in physics. It has certain direct and indirect implication for educational practices. It was also concluded that all good
instructional strategies for teaching physics should attempt to provide conditions, which will augment the scientific attitude of students.

Rao (1996) conducted a study on the Scientific Attitude and Scientific Aptitude of the Pupils of Gunter District. The study revealed that

- The Scientific Attitude in school pupils was average and the distribution of Scientific Attitude in the tenth class pupils was normal
- The association between Scientific Attitude and Scientific Aptitude was highly significant by positive

Padmanabhan (1997) conducted a critical study of the Scientific Attitude of Secondary Science Teachers. The study revealed that most of the teachers were broad minded, one-third of the teachers were curious to know more about the things around them, none believes in superstitions and all of them believe in cause and effect relationship.

Rao (1997) conducted a study on the Scientific Attitude in Secondary School Pupils. The major finding of the study was that the Scientific Attitude in both boys and girls had no difference in the level of Scientific Attitude possessed by them.
Rani (2000) conducted a study on the Educational Aspirations and Scientific Attitudes possessed by the Urban Secondary and Senior Secondary Students. The study revealed that

- The level of Scientific Attitude was higher and it was not normal
- Sex has an influence on the overall Educational Aspiration level and the Education aspiration levels of boys were higher than that of girls. But it was not influenced by medium of learning, level of schooling and age
- Sex, medium of learning and level of schooling have no influence on the Scientific Attitude

Francis and John (2003) conducted a study on the Scientific Attitude and Reasoning ability of Computer Illiterate students. The study revealed that there was no difference in the Scientific Attitude of computer illiterate and computer literate pupils. Boys and girls were also found to have similar Scientific Attitude scores. It was also concluded that the correlation between Scientific Attitude and Reasoning Ability of computer illiterate boys was found negligible.

MacDonald (2005) studied on retaining girls in science. The purpose of this study was to explore the effects of Operation Minerva Programme across educational sectors (Public, Catholic alternative) with
respect to the intervention experience, course and career plans and factors influencing female science retention.

Spleke (2005) worked on sex differences in intrinsic aptitude for mathematics and science. The research considers three claims that cognitive sex differences account for the differential representation of men and women in high level careers in mathematics and science: a) males are more focused on objects from the beginning of life and therefore are predisposed to better learning about mechanics systems; b) males have a profile of spatial and numerical abilities producing greater aptitude for mathematics; c) males are more variable in their cognitive abilities and therefore predominate at the upper reaches of mathematical talent.

2.3 CONCLUSION:

Ganguli et al. (1972) validated a scientific knowledge and aptitude test. It was concluded a high degree of co-relation between achievements and aptitude for the technical stream. Bandyopadhyay (1984) revealed that highly positive aptitude towards science. Giri (1986) measured Aptitude for Physics in the high school seniors of Bihar through a battery of tests. Ghosh (1986) revealed that boys did not possess more, scientific aptitude than girls.


From the above studies, it can be noted that,

- Scientific Aptitude and Scientific Attitude are significantly associated.

- Academic Achievement and Scientific Attitude are significantly related to Scientific Aptitude.

- There is a significant relationship between Scientific Attitude and Achievement in Science.