CHAPTER – II

REVIEW OF RELATED LITERATURE

2.1 INTRODUCTION

This chapter will discuss in detail the review of the work regarding the identification of the gifted and talented and Enrichment programme for gifted and talented. The work of the gifted and talented in the 20th century is mainly focused in this review. The scientific basis of giftedness start with Galton research on Intelligence test. During the World War nations paid no attention to gifted education. In the wake of sputnik of Russia’s first satellite both USA and USSR competent to get more gifted in their country. The studies after 1970 are more on about the identification of giftedness and program planning for giftedness. Studies related to giftedness and talent are very less in the Indian context. A brief review related to different studies related to gifted are given below. This section divided in to five subsections. They are as follows

2.2 Studies related to identification of gifted students

2.3 Studies related to different types of gifted students

2.4 Studies related to enrichment programme for gifted students

2.5 Studies related to curriculum models of enrichment programme

2.6 Studies related to scientifically talented students

2.6 Studies related to giftedness in India
These studies are so comprehensive so that all the studies related to the above issues of gifted students cannot be represented in this chapter. Here the researcher overviews some studies related to recent years and to examine the extent to which the current projects are seeking solutions to perennial problems that have remained unsolved.

2.2 STUDIES RELATED TO IDENTIFICATION OF GIFTED STUDENTS

Young (1957) report the use of Teacher judgment, cumulative grade averages, and IQ score for identifying gifted students. Of the twenty four students included in their final selection, 90 percent would have been identified by teacher judgment alone. These findings suggest a higher degree relationship between teacher judgments and objective test scores than previous results. On further research, the use of multiple criteria is necessary in order to discover what identification devices proves to be the best predictors of success in specific talent areas, and in what combination these predictors are most effective.

Monore (1957) studies selected 150 gifted high school children in Lansing and Michigan by Standford-Binet scale testing found that 75 percent of gifted comes form homes of skilled, unskilled and white-collar workers. A small number of upper middle class, professional and high level managerial families having more percentage of gifted students compared to their population.

Renzulli and associates (1971) devised a rating scale for accurate identification. Four major areas are included for teacher rating or appraisal. Higher scores obtained in these areas suggest that giftedness components are present when
objectively evaluated in relation to comparatively lower ratings for more average students.

Janell Holle (1980) has given a separate criteria for the identification of gifted children for California. According to him IQ tests differs significantly for a population whose cultural, language and economic background rather than from middle class people to whom the these test are normed. He has developed a method of scoring ideational production for quality, instead of merely for unusualness, and demonstrated the relationship of quantity and quality of response in creative thinking (ideational production). Studies of the validity of ideational fluency were conducted with children and adolescents. In these studies the correlations between creativity test scores and two criterion measures were examined. One criterion consisted of self-reports on wide variety of socially valued areas of creative activity (Miligram and Milgram, 1976) and the other of performance type laboratory tasks of creative problem solving. Ideational fluency was found to be related to both criterion measures at every age level thus indicating hat it may be regarded as a necessary not sufficient, component of the creative process.

Joan Freeman (1996) investigated two aspects of giftedness 1) Manifested parental belief in their child’ giftedness 2) objective measurement of child’ abilities. He has selected Children who score at the 95th percentile and above on the Raven’s matrices non-verbal test of intelligence as gifted. The study was conducted for 210 students. The target children presented as gifted by parents were far more frequently described as difficult by parents as well as teachers, and were found to live in somewhat more emotionally disturbed home circumstances, such as having divorced
parents or moving house very frequently. They were clearly aware of their label and said that it made them feel indifferent: some who had few friends blamed this on their superior intelligence. However equally gifted children who were not labeled with that term did not have those problems. For all samples, their school achievements were found to be directly related to their intelligence, educational provisions and to the example rather than to expectations of their parents.

Lohman (2005) researched the Role of Non-verbal ability test in identifying Academically talented students. He compared the different Non-verbal ability test like CogAT, Raven Progressive Matrices, Naligeri Nonverbal ability test (NNAT). He concluded that in order to identify the gifted students, academic accomplishments is major evidence of academic giftedness, Moreover an aptitude of particular field is necessary in order to identify the gifted student in that particular area. According to him judgment of potential must be always be made relative to the circumstances.

Most of these studies used intelligence test and academic achievement to identify gifted. Some study reveals that non-verbal ability test can be used for identification of gifted students. Most of the study shows that in order to identify gifted in a particular field, It is necessary to administer the aptitude test in that particular field.

2.3 STUDIES RELATED TO DIFFERENT TYPES OF GIFTED STUDENTS

In Fox (1973) studied about “Values and Interest of Mathematically Precocious youth “The study has been conducted for 8th and 9th standard students (sample of 416 students) who have great deal of talents in Mathematics. The measures of career interest used were one-paper checklist of six categories of occupations from John
Holland’s (1970) self directed vocational instrument and the questionnaire asked for the student to list the current career choices. The investigative category of occupation was one, expected to be the most related to the precocity in Mathematics. The Allport-Vernon-Lindzey study of values was used to assess value of students. The study reveals that students having high level talent in mathematics and who are able to benefit from special educational tends to have values and interests which are highly consistent with their abilities. Students have same cognitive abilities but do not have same values and career interests are less apt to seek out or accept special advancement in the area of science and mathematics.

Milgram (1980) looked at some personality characteristics of gifted Israeli children and found that psychological maladjustments and gifted are highly correlated. Two groups, a gifted (IQs from 140) and non-gifted group of boys and girls, were compared on a number of indices of personality adjustment. The results showed that gifted group showed more positive self-concept, better self-motivation and a lower level of both general anxiety and test anxiety for both sexes.

Francis Preckel (2008) investigates gender differences in 181 gifted and 181 average ability sixth graders in achievement, academic self-concept, interest and motivation in mathematics. Giftedness has conceptualized the as nonverbal reasoning ability defined by a rank of at least 95% on nonverbal reasoning of German Cognitive abilities test. The mathematics achievement was measured by teacher-assigned grades and a standardized mathematics test. Self-concept, Interest, and motivation were assed by questionnaire. In both ability groups boys earned significantly higher test scores but there were no gender difference in grades. Girls scored lower on measures
of academic self concept, interest and motivation. Gender differences were larger in gifted rather than average ability students.

Stumpf (1998) studied about the Gender differences in academically talented students scores and use of time of test for Spatial ability. Spatial ability have been ascribed to a tendency of females to take more time in working on such tasks, which is believed to be to their disadvantage in time-limited tests. This hypothesis was examined in a population of academically talented students who took four subtests on the computer of the Spatial Test Battery of the Institute for the Academic Advancement of Youth. Males had higher scores on three of these tests, females on another test which was a measure of visual memory. Females tended to take more time to work on the tests, even when their scores were higher than those of males, but this difference was substantial only for two of the tests. The time taken to work on the items was positively correlated with the scores on two of the tests. These results indicate that the amount of time taken can neither explain gender related score differences on spatial tests in general nor is the habit to use more time necessarily detrimental to test performance. The habit to work quickly or slowly on spatial tests appeared to be a fairly general characteristic. It seems to be different from speed of cognitive processing. When asked to give ratings on their performance on the tests, females tended to estimate their scores more modestly than males, although females, like males, tended to overestimate their performance on two of the measures.

algebra class were asked to solve five non-routine combinatorial problems. The four mathematically gifted students were successful in discovering and verbalizing the generality that characterized the solutions to the five problems, whereas the five non-gifted students were unable to discover the hidden generality.

Sheffield (2009) investigated about Project M3: Mentoring Mathematical Minds was to develop and field test advanced units for mathematically promising elementary students based on exemplary practices in gifted and mathematics education. This article describes the development of the units and reports on mathematics achievement results for students in Grades 3 to 5 from 11 urban and suburban schools after exposure to the curriculum. Data analyses indicate statistically significant differences favoring each of the experimental groups over the comparison group on the ITBS (Iowa Tests of Basic Skills) Concepts and Estimation Test and on Open-Response Assessments at all three grade levels. Furthermore, the effect sizes range from 0.29 to 0.59 on the ITBS Concepts and Estimation Scale and 0.69 to 0.97 on the Open-Response Assessments. These results indicate that these units, designed to address the needs of mathematically promising students, positively affected their achievement.

Berlin Judith Ellen (2009) studied student Perceptions on the Impact of Being Labeled Gifted and Talented. The purpose of this study was to examine the attitudes of gifted adolescents toward being labeled as gifted and talented, to evaluate how gifted students perceive that others view their giftedness, and to determine whether these attitudes and perceptions vary depending on the child’s level of giftedness. Sixty-six sixth- through eighth-grade public-school students, identified as either gifted
or highly gifted, were surveyed on the positive and negative attributes of being labeled gifted and talented. The highly gifted and moderately gifted groups exhibited measurable differences in their perceptions of the positive aspects of the gifted label. Furthermore, the study suggests that negative stereotyping, often associated with the gifted label, can be minimized in a carefully integrated gifted program.

Zhou Dan (2010) studied about developmental changes in processing speed due to the acceleration. There are two major hypotheses concerning the developmental trends of processing speeds. These hypotheses explore both local and global trends. The study presented here investigates the effects of people’s different knowledge on the speed with which they are able to process information. The participants in this study are gifted children aged 9, 11, and 13 years. A total of 94 of the participants were members of gifted programs, whereas the other 93 children received standard education. They were required to finish two information-processing tasks: a Choice Reaction Time task and an Abstract Matching task. The results show that the reaction time of gifted children who received accelerated education in gifted programs was significantly faster than that of the children who received standard education at every age. These results seem to imply that the educational atmosphere in which a child is placed plays a significant role in the development of gifted children’s speed of information processing. It appears that specialized education for gifted children can actually accelerate development, suggesting that selection of educational system is of particular significance, especially for gifted children. Gifted children can study more quickly than average children because they have a higher speed of information processing. The efficacy of their study results in greater
transmission of knowledge, and this in turn accelerates gifted children’s information processing speed. Accelerated education can not only satisfy the cognitive need of gifted children but also serve to enhance their cognitive development. Teachers and parents have to recognize that education is very important to children’s development and address the importance of experience in gifted children’s learning. The results of the study also suggest a need for a special education system designed for gifted children, which can be viewed as a great investment in the future.

Angela (2010) compares the Over excitabilities of Gifted and Non-Gifted School Children in Hong Kong, The study examined the profile of OEs among a group of Hong Kong children. Participants included 229 non-gifted and 217 gifted children. OEs were measured using the Over excitability Questionnaire II. Results indicated that there were differences between the gifted and the non-gifted groups in all OE subscales. Gender differences were also identified. Females, in both gifted and non-gifted groups, have a significantly higher score in “Emotional” OE when compared to males. In addition, gifted females also scored significantly higher than their male counterparts in “Sensual” Over Excitably.

The above studies reveal that gifted/talented students are also with different type of gifted students are treated differently. The above studies related to different dimension of characteristics reveals that gifted students are different form others mentally and academically. They have good perception also. In order to nurture their abilities they may be given good program planning.
2.4 STUDIES RELATED TO ENRICHMENT PROGRAMME FOR GIFTED/TALENTED STUDENTS

Keating (1972) found extreme measures for the students who are exceptionally gifted in Science. He has taken case study of two highly exceptional gifted students and found that radical acceleration is the effective way to nurture talent of exceptionally gifted in science. He has used the data of SAT-M. He pointed out that girls score were comparatively less than Boys’ score in maths.

Perlini, (1978) studied about School-wide Enrichment Activity Program for Identified Gifted Students. The sample consists of 32 middle school gifted students. Analysis of a parent survey, teacher survey, and meetings with students revealed 10 primary need areas (including opportunities for advanced skills, independent thinking, expression of creativity and originality, and acceptance from grade level peers). Four enrichment activities in career awareness in computer science, environmental awareness in oceanology, communication awareness in critical observation and writing, and speed reading development through systematic instruction were developed and judged to provide experiences to meet the identified needs. Parent, student, and teacher evaluation indicated positive results from student participation. Results of univariate analysis for the variable Figural Originality indicated a significant main effect for the treatment factor. The Fraction was 4.83 with 1 and 372 degrees of freedom. It may be concluded that the creative thinking abilities of gifted elementary students can be developed through systematic programme for enrichment experiences.
Feldhusen (1984) studied effects of the enrichment programme based on Purdue Three stage model on the self-concept and creative thinking ability of gifted elementary students. The sample consists of 420 students who selected for PACE programme. The self concept was measured by Harris children’ Self concept scale and found that there was no significant effect for treatment. In Creative thinking, the Verbal originality is significant after the treatment. The F-ration was 13, 53 with 1 and 372 degrees of freedom, univariate analysis of figural fluency yielded no significant main effect for the treatment factor.

Tuss, Paul (1993) studied about quality of subjective experience in a Summer Science Program for Academically Talented Adolescents. This study utilized the flow theory of intrinsic motivation to evaluate the subjective experience of 78 academically talented high school sophomores participating in an 8-day summer research apprenticeship program in materials and nuclear science. The program involved morning lectures on such topics as physics of electromagnetic radiation, energy transformations, superconductivity, and environmental analysis as well as laboratory experiments and tours of research laboratories. Findings included: (1) subjective experience could be classified into an enjoyment dimension and an involvement dimension; (2) the quality of subjective experience is optimal when a student’s skills in the activity are high and the level of challenge is neither excessive nor insufficient; (3) Black male students were more likely than Caucasian and Asian males and females to perceive the research apprenticeship to be excessively challenging; (4) enjoyment levels were highest during unstructured apprentice activities such as lunch, recreation, and tours; (5) levels of involvement were highest
during laboratory activities; (6) lecture activities minimized the potential for students to experience flow; and (7) laboratory activities minimized the potential for students to experience boredom.

Research by Joyce Baska (1998) studied on effectiveness of science curriculum for high ability students appears to produce significant learning gains lending creditability to argument for designing into curriculum materials differentiating features appropriate for gifted learners. The study also reveals that interdisciplinary approach to curriculum development can yield powerful effects on student learning though individual curricular components such as science research skill development. The student outcome was measured by Diet cola test developed by Fowler (1990) to identify promising science students. The sample consists of 1471 students across 62 classes. The scoring of both pre- and post test versions of the test conducted by project staff after training on the protocol

Lee (2006) developed the enrichment programme for gifted who are economically disadvantaged gifted and non-gifted of grade 4 and 7 students for 3 months. The aspiration level of the economically disadvantaged gifted has been enhanced after 3 months of implementation. The gifted and the economically disadvantaged gifted in Grade 4 were more satisfied and results show that the earlier the intervention programs were provided, the more positive effects of the intervention program were. It seems necessary to identify the gifted and economically disadvantaged gifted as early as possible in order to maximize the program effects for enhancing their aspiration and benefits form the programme.
Fredricks (2010) studied about Developing and Fostering Passion in Academic and Nonacademic Domains. The purpose of the study was to explore how passion was manifested among gifted and talent youth selected from a larger longitudinal study of child and adolescent development. The gifted sample included 25 high school and college students who were selected because they were in a gifted program in elementary school. The talent sample included 41 high school students who were selected because they were highly involved in athletics and the arts in middle childhood. The study found that passion was more characteristic of participation in nonacademic activities (i.e. sports and the arts). Talented youth were more likely to talk about wanting to do their activity all the time, experiencing flow, getting emotional release from participation, and internalizing the activity into their identity. The authors also found that school settings, and especially regular classrooms as compared with gifted and advanced classes, appeared to undermine rather than support passion. The authors discuss implications of their findings for creating school environments that can foster passion.

The review about enrichment program reveals that enrichment programme is a good program planning for gifted/talented. These studies also reveal that Enrichment programme increases the gifted students’ attitude, passion towards their academic career and foster their thinking skills.

2.5 STUDIES RELATED TO CURRICULUM MODELS

Van Tassel Baska (2007) studied eleven curriculum models in the field of gifted education. The models are critiqued according to the key features they contribute to student learning, teacher use, contextual fit, including alignment to
standards and use with special populations of gifted and non-gifted learners. The study also highlights the major approaches to gifted education that have evolved during the past 30 years and the evidence base that has grown to support them. He found that Stanley model of acceleration has continued to attract researchers worldwide to demonstrate its effectiveness. The school wide enrichment has also continued to grow popularly and used in school districts of America. Finally the study prove useful for school leaders in thinking about what considerations to bring to the fore to execute instructional leadership in schools.

The school wide enrichment triad mode of Renzulli (1988) is a more flexible approach to identifying high potential students. Several studies have examined the use of this model with underserved populations. Emerick (1988) investigated underachievement pattern of high potential students. Findings suggest positive effects of the model with these populations. Compacting studies have sought to document the fact that gifted students are capable of rapidly progressing though regular school curriculum to spend time on Type III project work. Results demonstrate knowledge scores that were high or higher on in-grade standardized tests for experimental groups than for their non compacted peers. Another study demonstrated that students (N=336) utilizing curriculum compacting strategies showed to decline in core achievement test scores (Reis, Westberg, Kulkiochich, 1998).

The Purdue secondary model is a comprehensive structure for programming services at the secondary level. It has 11 components supporting enrichment and acceleration options, with each component designed to act as a guide for organizing opportunities for secondary gifted students. The 11 components are as follows:
(a) counseling, (b) seminars, (c) AP courses, (d) honors classes, (e) math/science acceleration, (f) foreign languages, (g) arts, (h) cultural experiences, (i) career education, (j) vocational programs, and (k) extra-school instruction (Feldhusen and Robinson-Wyman, 1986). Research has documented gains with regard to enhancement of creative thinking and self-concept using the three-stage enrichment model for elementary gifted students (Kolloff and Feldhusen, 1984), and one study documented limited long-term gains of the elementary program PACE (Moon and Feldhusen, 1994; Moon, Feldhusen and Dillon, 1994).

The Maker matrix, developed to categorize content, process, environmental, and product dimensions of an appropriate curriculum for the gifted, represents a set of descriptive criteria that may be used to develop classroom-based curricula (Maker, 1982). Recent work on the model represents primarily an enhancement of its problem-solving component. The Discover project is a process for assessing problem solving in multiple intelligences. The problem-solving matrix incorporates a continuum of five problem types for use within each of the intelligences.

- Types I and II problems require convergent thinking.
- Type III problems are structured but allow for a range of methods to solve them and have a range of acceptance answers.
- Type IV problems are defined, but the learner selects a method for solving and establishing evaluation criteria for the solution.
- Type V problems are ill-structured, and the learner must define the problem, discover the method for solving, and establish criteria for creating a solution (Maker, et al., 1994).
The project is typically used by teachers for curriculum planning and assessing learner problem-solving abilities.

Research on problem types is currently under way, involving 12 classrooms in a variety of settings. However, to date, the results have not been published. A pilot study has shown that use of the matrix enhances the process of problem solving (Maker, Rogers, Nielson and Bauerle, 1996). Studies to evaluate the long-term validity of the process are in progress.

Above models currently show some evidence of effectiveness with gifted learners. The Feldhusen, Renzulli, Schlichter, Stanley, Sternberg, and Van Tassel-Baska models all have some evidence of effectiveness with gifted populations in comparison to other treatments or no treatments.

2.6 STUDIES RELATED TO EDUCATIONAL PROGRAMME FOR SCIENTIFICALLY TALENTED STUDENTS

Gerald (1960) identified elementary school children with Exceptional scientific talent. They constructed a science aptitude test and its validity was obtained by individual administration to 58 gifted 6 and 7 year old children. The test were designed to measure the following information 1) To recall the scientific information 2) To assign the meaning to the observation 3) To apply scientific principles in making predictions 4) To use the scientific method. The tests were administered at the beginning of the school year, middle of the year, and at the end of the year. A single weighted composite achievement score was thus obtained. It was found that the predictive validity correlation between aptitude test and achievement criterion test were high because the ability and content were overlapped.
Pizzni (1985) studied about the improving science instruction for gifted high school students. He concluded that a ‘mentor’ type enrichment programme address the shortcomings of present education system by providing a) providing first hand experiences in research laboratories, b) challenging participants in an experimental research environment c) Supplementing high school science with actual experiences and d) enhancing the development of personal traits that characterize creative scientists.

Hsiao-Ching (1997) examines how gender and self-concept relate to gifted elementary students’ participation in a biochemistry enrichment program taught by female and male scientists. Students with low self-concepts asked more questions and received more feedback than students with high self-concepts. Student-initiated questions and gender differences in interaction patterns were also measured.

Research on Gender difference in Mathematics and science carrier interest of the gifted were studied by Jensen, Rita (1995). The study explored the relationship between gender of Maths and science for fifth and sixth graders for a sample of 105 gifted students who participated a summer enrichment programme designed by gifted students. No significant relationship was identified at the fifth grade between gender and students interest in carriers involving maths and science but a significant relationship was apparent was on sixth grade students. A similar pattern was revealed that variables of computers in home where there was no significant relationship with carrier interest at the fifth grade level, but there was a significant relationship between computers in home and carrier interest in sixth grade level.
Stake (2001) by conducting the enrichment programs for gifted High school girls and Boys developed Predictors of Program Impact on Science confidence and Motivation. He selected participant from 76 high schools of Mid West. All the participants had high aptitude scores, a strong academic record, and expressed interest in science, and a recommendation from a high school teacher or counselor. The study has conducted among 330 gifted high school students. The impact of the enrichment programme were valuated by multi method, multi perspective approach that provided amore comprehensive evaluation of the program impact on science attitudes than did previous assessment of science programs. The program benefits were greater among girls, those who hade more supportive families and teachers and those ho entered the programs with greater general confidence in their abilities

The correlational study of Cho-Hee Yoon (2009) Self-Regulated Learning and instructional Factors in the Scientific Inquiry of Scientifically Gifted Korean Middle School Students investigated the direct and indirect effects of instructional factors and motivational and cognitive components of self-regulated learning on scientific inquiry performance in a sample of scientifically gifted middle school students. A total of 166 students were selected from nine gifted classes in the public school system with after-school enrichment programs in Korea. Students responded to self-report measures of mastery oriented learning goals, self-efficacy, self-regulatory strategy use, and inquiry activities in science class. Performance data were obtained from work on a scientific inquiry task. Results of a path analysis revealed that students’ self efficacy and perceived degree of inquiry activities in science class were the only factors directly influencing their scientific inquiry skills. Whereas open inquiry learning that allows
for choices and decisions in students’ inquiry procedure directly influenced use of self-regulatory strategies, the extent of inquiry activities directly influenced self-efficacy. Self-regulatory strategy use was not a significant predictor for scientific inquiry skills. Based on the results, implications for future science gifted education are discussed.

Tali (2009) studied about Embedded Assessment in Project-Based Science Courses for the Gifted. The present study of gifted students’ views of assessment is aimed at understanding how the employment of Embedded Assessment for Learning (EAfL) framework in science courses for the gifted affects the students’ views throughout the learning process. The participants were 86 students in three programmes for the gifted who elected project-based science courses. The data included questionnaires, distributed at the beginning and at the end of the assessment processes in each science course, and in-depth interviews with 12 students, which were analysed according to three main themes: general view of assessment; assessment modes; and relationships between assessment and learning. The students viewed the EAfL framework as an integral part of the learning process, and perceived it as a means of expressing autonomous learning and a range of performances; characteristics that correspond with the students’ unique needs. In addition, students addressed cognitive and social processes they had undergone. This implies that assessment which is explicitly designed to promote learning in science courses is a powerful tool for teachers as well as for students, and contributes to meaningful learning.
The above literature reveals that scientifically talented students were nurtured in independent study in various science projects. It also reveals that in order to identify scientifically talented students it is necessary to use scientific aptitude test.

**2.7 STUDIES RELATED TO GIFTED STUDENTS IN INDIA**

Sampat Urmi (1984) studied the characteristics of intellectually gifted children. The objective of the study were to 1) enumerate and study the characteristics of intellectually gifted 2) To enumerate and study their problems 3) To study their vocational educational interest 4) to study the opinions of these children toward religious belief prevalent in the society. 5) To study leisure-time activities of these children 6) To study their opinions regarding their sex and marriage. The major findings of the study were; 1) There were no major problems of health of the intellectually gifted children. 2) There were few children whose family members were educated. The growth and physique of the gifted children did not differ from the general population of the same age group.

Singh (1983) studied the “Need, pattern, Achievement and adjustment of mentally superior children”. He was interested to study and compare the need patterns of mentally superior children with those of average children and investigated and correlated the achievement of mentally superior children with their IQ and compared the adjustment in social health, home and emotional health and sexual areas of superior children with those of average children.

Maitra (1984) studied “Affective correlates of Gifted under achievers”, her aim was to 1) locate gifted under achievers in some schools of Delhi 2) Prepare tools to measure certain variable pertaining to affective domain of gifted students 3) To
measure the status of gifted and under achieving students on a few variable in the affective domain 4) to find out the relationship between achievement and the variables in the affective domain of gifted and under achievers 5) To prepare selected case studies of gifted and under achievers.

Sinha (1988) studied the “Study of gifted children in relation to their personality variables, levels of adjustment and scholastic achievement “these studies attempt to identify gifted and study the personality variables, levels of adjustments, scholastic achievement. In this study he finds out the correlation with variables and adjustment level correlated with traits. The Sample consists of 160 boys and 80 girls belonging to the age group 12-13 from ten schools who got percentile 120 and above in the intelligence test. The tools used included test of intelligence by C.G. Sinha. The major findings are 1) socio-economic status is significantly related to scholastic achievement 2) gifted children were found to be engaged in a variety of hobbies 3) The correlation between emotional adjustment and academic achievement was found be significant 4) Boys were found to more gifted than girls.

Afshan (1991) studied creativity of gifted girls in Rural and urban area. The sample consists of 835 girls in 9th from higher secondary schools from urban areas. The findings of the study are 1) The rural and urban gifted did not show any significant difference in potential education or occupation. 2) Rural gifted girls in comparison to urban girls were found to be higher in creativity but the difference in mean score could not reach the level of significance.

Srivastava (1992) studied the impact of enrichment programme to foster the creativity among academically gifted elementary school children. The objectives of
the study were 1) To Identify the gifted children of selected school using both subjective and objective evaluation 2) to foster the creativity among gifted children through the selective enrichment activities 3) To determine whether enrichment activities have impact on creativity of the gifted children 4) To study the effect of age, sex, and ordinal position on the improvements creativity of gifted children due to enrichment activities. The sample consists of 70 gifted children from three schools of Madras city at difference age levels taken for study. The tools were used Wescheler Intelligence Scale for children, Wallach and Kogan Battery of creativity Instruments adapted, Mean, SD, correlation and T-test were used for analysis of data. The major findings are 1) enrichment activities affected sufficient improvement in the creativity 2) There was significant impact of sex difference on creativity gain scores of the gifted students, both boys and girls was also significant. 3) There was a significant correlation between IQ scores of creativity and gain score of gifted students.

Benjamin (2008) compared the gifted education in India and US. He compared the Jacob K. Javits programme and Navodaya Vidyalaya Scheme and analysed strength and draw back of this programme. According to him both the programs were in adequate method for identifying talented students. Jacob K. Javits program stress more on professional development of gifted while NVS programme stresses on improving the self-confidence and personality development of the Individuals. Both the programs used IT infrastructure for the gifted which increased the quality of education through technology.

The above studies reveal that in India the gifted and talented programme was not popular like other countries. The studies about the enrichment programme for
academically talented students are a little. In India gifted students were considered as normal students with high academic achievement.

2.8 REVIEW OF STUDIES AS A BASIS FOR FORMULATING OBJECTIVES AND HYPOTHESES

As it is discussed in chapter I also seen in section 2 of this chapter gifted/talented are best identified by intelligence test and achievement test. It is also noted that non-verbal test are useful in identifying gifted and talented students. It also reveals that various attempt has been conducted to identify gifted/talented students. Most of the researcher provides enrichment programme also. But is found that they could not enhance their abilities in all dimensions in a particular area. Each enrichment programme concentrates on one or two instructional techniques. Moreover they are not prepared on an operating curriculum, which is not a complete supplement to gifted/talented. So the investigator planned to use an enrichment programme based on a model that combines authentic knowledge in different dimension of instructional technique based on a prescribed curriculum. Thus the investigator adopted Multiple Menu Model of Joseph Renzulli (1988) for planning a unit in science which provides menus in various levels of learning the knowledge.